Appendix 1

Notice of Preparation and Revised Notice of Preparation

CITY OF SAN BRUNO
COMMUNITY DEVELOPMENT DEPARTMENT

NOTICE OF PREPARATION AND SCOPING MEETING

Environmental Impact Report for the Bayhill Specific Plan and Phase I Development City of San Bruno

Date	November 17, 2017
To	Agencies, Organizations, Interested Parties, and Property Owners within 600' of the Bayhill Specific Plan area
Subject	Notice of Preparation of a Draft Environmental Impact Report and Notice of Scoping Meeting

The City of San Bruno (City), as the lead agency under the California Environmental Quality Act (CEQA), will be preparing an Environmental Impact Report (EIR) for the Project, comprising the Bayhill Specific Plan (Specific Plan) and Phase 1 Development under the Specific Plan. The EIR will analyze the Specific Plan at a program level, and the Phase 1 Development, which consists of the first phase of expansion of YouTube's corporate offices, at a project level.

In accordance with Section 15082 of the CEQA Guidelines, the City has prepared this Notice of Preparation (NOP) to provide information regarding the Project and areas of potential environmental effects proposed to be analyzed in the EIR. The City requests your written comments as to the scope and contents of the EIR, including mitigation measures and/or project alternatives to reduce potential environmental impacts from the Project.

Public Review Period: November 17, 2017 — December 22, 2017

Comments: Comments must be received by **5:00 PM on December 22, 2017**. Please submit your comments to: Matt Neuebaumer, Associate Planner, Email: MNeuebaumer@sanbruno.ca.gov; Mailing Address: City of San Bruno, Community

Development Department, Attn: Matt Neuebaumer, 567 El Camino Real, San Bruno, CA 94066. Please indicate a contact person for your agency or organization.

Scoping Meeting: The City will hold a scoping meeting for the Project. A brief presentation will be provided followed by an opportunity to provide written or verbal comments on the scope and content of the proposed EIR. You are welcome to attend the scoping meeting and present environmental information related to potential environmental issues and impacts that you believe should be considered in the EIR. The purpose of this meeting is to assist in determining the scope of analysis of the EIR; this is not a meeting for commenting on the merits of the Project. The scoping meeting is scheduled as follows:

Scoping Meeting

Date:	Tuesday, December 5, 2017
Time:	4:30 pm (Agency Staff)
	6:30 pm (General Public)
Location:	San Bruno Senior Center
	1555 Crystal Springs Road, San Bruno, CA 94066

Agencies: The City requests your agency's views on the scope and content of the environmental information relevant to your agency's statutory responsibilities in connection with the Project, in accordance with the California Code of Regulations, Title 14, Section 15082(b). Your agency may need to use the EIR prepared by the City when considering any permits or other approvals that your agency must issue for the Project.

Project Location: The Specific Plan Area (Project Site) is located in the City of San Bruno within the 98-acre area bounded by San Bruno Avenue West, El Camino Real, Interstate 280, and Interstate 380. Existing development on the Project Site includes the Bayhill Office Park, which contains a total of about 1.5 million square feet of office space, and the Bayhill Shopping Center, which consists of five buildings with a combined gross floor area of approximately 121,000 square feet. Please see Figure 1, Regional Location Map, and Figure 2, Project Site Location Map, attached.

Project Description: The Specific Plan will be a regulatory document that will outline a cohesive, long-term, community-driven vision for the Project Site, which is home to the largest cluster of offices in San Bruno, including Walmart.com, the SF Police Credit Union, the headquarters of YouTube, and other commercial uses. The Specific Plan will facilitate integrated development within the Project Site, including the Phase I Development, which is described below. The City anticipates that adoption of the Specific Plan will result in further intensification of land uses beyond what currently exists today. At this time it is anticipated that the Specific Plan would consider allowing for the following land uses: commercial/retail, office, residential, hotel, civic (such as a library and/or community center), and open space. Actual development intensities/densities and permitted uses will be defined through the planning and environmental review process. New internal vehicular streets and/or pedestrian and bicycle paths, as well as improvements to streetscapes, may be included in the Specific Plan.

The Specific Plan will include the following components:

- land use designations;
- minimum and maximum development intensities/densities;
- design standards and guidelines;.
- zoning and development regulations (i.e., use regulations, development standards, streetscape and signage, transportation demand management and parking, and a community benefits program);
- circulation and access improvements (i.e., streets, sidewalks, and trails);
- other improvements to public infrastructure (i.e., utilities); and
- an implementation plan and financing strategy.

The overarching goal of the Specific Plan will be to ensure that the Project Site is developed in a cohesive manner that serves both the needs of current and future tenants as well as the broader San Bruno community, ultimately providing for the establishment of an attractive and inviting area that supports a diversity of uses as well as a vibrant public realm and community amenities. In addition to a new mix of land uses, the Specific Plan will support the development of infrastructure to improve access and connectivity within the Project Site and allow for better connections from the Project Site to destinations throughout San Bruno for various modes of transportation, including safe walking and biking facilities. The Specific Plan will also be consistent with the citywide goals of fostering housing development within the City and integrating adjacent neighborhoods, with the objective of ensuring a net positive fiscal impact through the realization of development potential in strategic locations.

The EIR will provide a program-level analysis of the Specific Plan assuming, where applicable, that land uses permitted under the Specific Plan are developed at their reasonable maximum potential densities/intensities, and some corresponding existing uses may be demolished. As discussed below, the EIR will also provide a project-level analysis of a discrete project within the Specific Plan referred to as the YouTube Phase I Development, which the City would process concurrently with the Specific Plan.

YouTube Phase I Development

The YouTube Phase I Development Site (Phase I Site) is located within the Project Site, as shown in Figure 2. The Phase I Site is comprised of two separate parcels: 900 Cherry Avenue (APN: 020-015-020) and 1000 Cherry Avenue (APN: 020-011-230). The property identified as 900 Cherry Avenue measures 4.00 acres in total area and is currently developed with a six-story office building measuring approximately 102,250 square feet in total area. The property at 1000 Cherry Avenue measures 4.15 acres in total area and is currently developed with a three-story office building measuring approximately 94,500 square feet in total area. The existing office buildings located at 900 and 1000 Cherry Avenue are located on the western portion of their respective lots, with surface parking located to the east of the existing structures.

YouTube, the applicant and owner of the Phase I Development area, proposes to retain the two existing office buildings on the Phase I Site and construct 400,000 square feet of additional office space. The additional office space would be constructed in the existing

surface parking lots to the east of the existing structures at 900 and 1000 Cherry Avenue. A total of two new structures would be constructed, one at 900 Cherry Avenue and the other at 1000 Cherry Avenue. The proposed structures would measure no higher than three stories, or 50'-0", in total height. A maximum of three levels of subgrade parking would be provided at both parcels. Landscaped pedestrian connections are anticipated with other portions of the Specific Plan area. The YouTube Phase I Development will be processed concurrently with the Specific Plan and will be designed to be consistent with the Specific Plan. The EIR will provide a project-level analysis of the YouTube Phase I Development so that no further CEQA clearances, assuming no changes, would be necessary to grant discretionary approvals needed for the YouTube Phase I Development once the EIR is certified.

Potential Environmental Effects: The City plans to evaluate the following topic areas in the EIR: Aesthetics; Air Quality; Biological Resources; Cultural Resources; Geology and Soils; Greenhouse Gas Emissions and Energy; Hazards and Hazardous Materials; Hydrology and Water Quality; Land Use and Planning; Noise; Population and Housing; Public Services and Recreation; Transportation/Traffic; Tribal Cultural Resources; and Utilities and Service Systems. There are no agricultural or mineral resources in the Project area; thus, these topics will not be included in the EIR.

Document Availability: This NOP and additional information regarding the Bayhill Specific Plan can be accessed at the following website:

https://www.sanbruno.ca.gov/gov/city_departments/commdev/planning_division/long_range_planning/bayhill_specific_plan.htm

Alternatively, you can access the website above by following the step-by-step process below:

- Go to the City of San Bruno website: https://www.sanbruno.ca.gov/
- Scroll over "Government" and Click on "Community Development"
- Click on "Planning Division"
- Scroll over "Long Range Planning", and then click on "Bayhill Specific Plan"

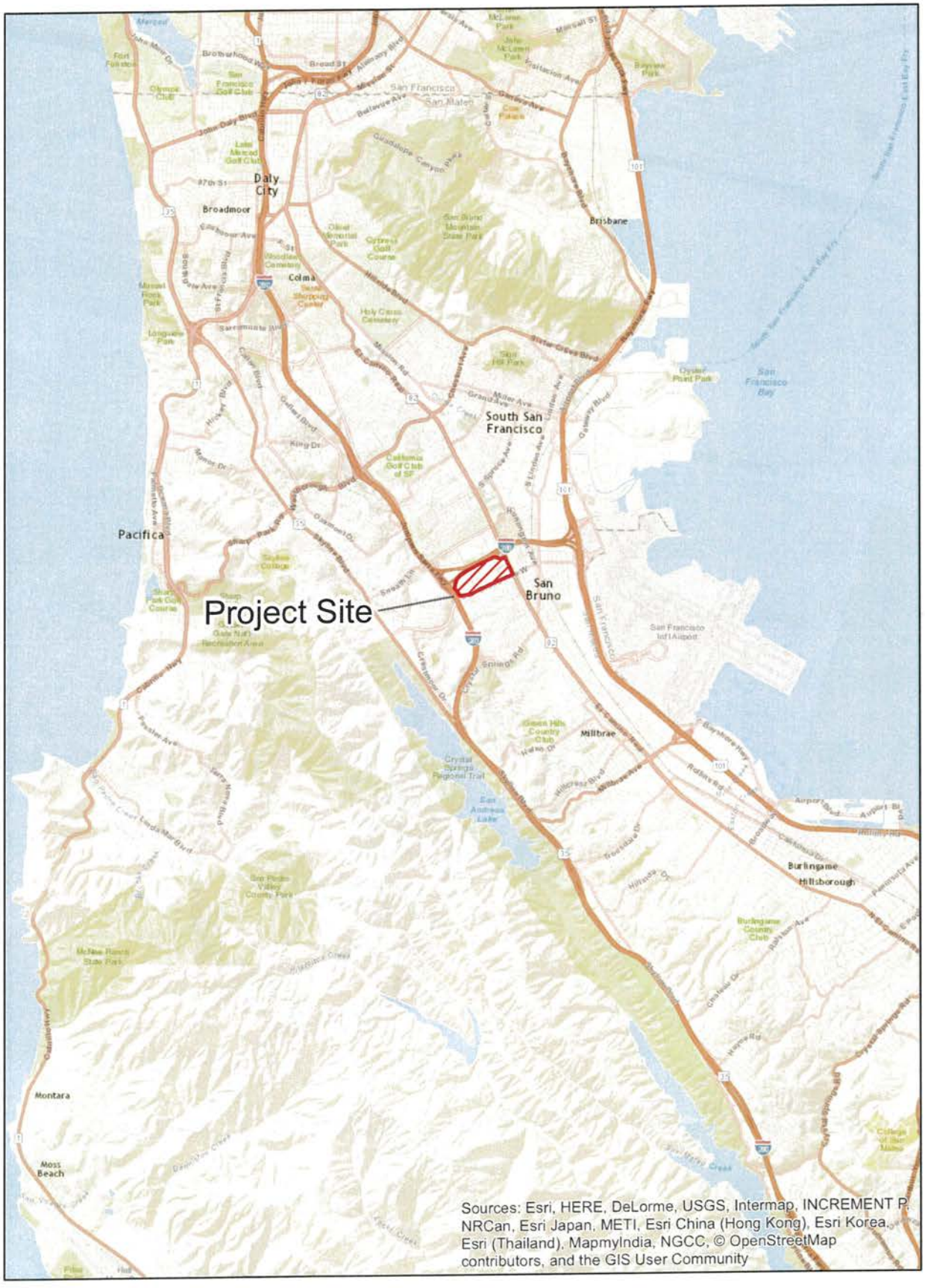
The Project's environmental file is also available for public review during regular business hours at the City of San Bruno Community Development Department, 567 El Camino Real, San Bruno, CA 94066 between the hours of 8:00 a.m. through 5:00 p.m. Monday through Friday.

If you require additional information, please contact Matt Neuebaumer at (650) 616-7042 or by e-mail at MNeuebaumer@sanbruno.ca.gov.

11/17/17

Matt Neuebaumer
Associate Planner

Date



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Figure 1
Regional Location Map

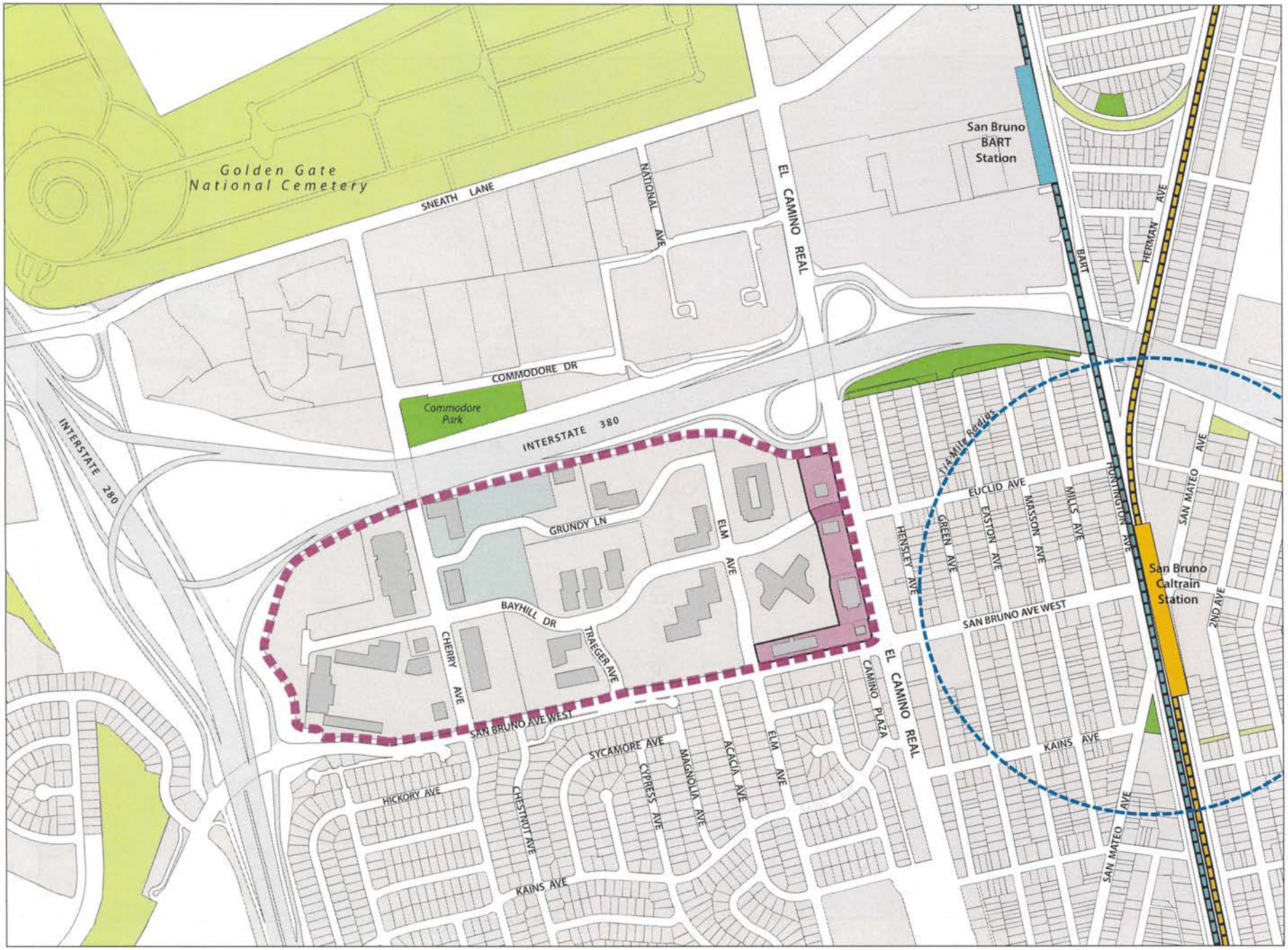


Figure 2. Project Site Location Map

CITY OF SAN BRUNO

COMMUNITY AND ECONOMIC DEVELOPMENT DEPARTMENT

REVISED NOTICE OF PREPARATION (NOP)

City of San Bruno
Environmental Impact Report for the Bayhill Specific Plan and the YouTube Phase 1 Office Development

Date	July 26, 2019
To	Agencies, Organizations, and Interested Parties
Subject	Revised Notice of Preparation of a Draft Environmental Impact Report

The City of San Bruno (City), as the lead agency under the California Environmental Quality Act (CEQA), will be preparing an Environmental Impact Report (EIR) for the Project, comprising the Bayhill Specific Plan (Specific Plan) and the YouTube Phase 1 Office Development Project (Phase 1 Development) under the Specific Plan. The EIR will analyze the Specific Plan at a program level, and Phase 1 Development, which consists of the first phase of expansion of YouTube's offices, at a project level.

In accordance with Section 15082 of the CEQA Guidelines, the City has prepared this Revised Notice of Preparation (NOP) to provide updated information regarding the Project and areas of potential environmental effects proposed to be analyzed in the EIR. The City hereby requests written comments as to the scope and contents of the EIR, including mitigation measures and/or project alternatives to reduce potential environmental impacts from the Project.

The City previously issued an NOP for the EIR on November 17, 2017. The original NOP can be viewed online at:

- www.sanbruno.ca.gov/bayhillspecificplan

A scoping meeting was held on December 5, 2017, to solicit public and agency input on the potential environmental impacts that should be studied in the EIR.

The purpose of distributing a revised NOP is to alert interested parties and solicit public and agency input regarding: (1) changes to the boundaries of the Specific Plan Planning Area (Project Site), (2) the inclusion of additional improvements and items as part of the Phase I Development, and (3) revisions to the list of environmental effects that will be evaluated in the EIR. As discussed below, the Project Site boundary has been adjusted to exclude five parcels along El Camino Real and San Bruno Avenue West that are included in the City's Transit Corridors Specific Plan (TCP) area. The Phase I Development project description has been revised to include: (1) the construction of an off-street multi-modal transportation hub on an accessway located between Grundy Lane and Bayhill Drive, on the west side of the parcel containing 950 Elm Street; (2) the realignment and straightening of Grundy Lane from Cherry Avenue to Elm Avenue; (3) the abandonment of the northern portion of Elm Avenue located directly to the north of the realigned Grundy Lane; (4) the demolition of three existing buildings located at 1150–1250 Bayhill Drive to provide a construction staging and parking area during construction of the Phase I Development; and (5) a Development Agreement requested as part of the Phase I planning entitlements. Furthermore, subsequent to the release of the original NOP, additional scoping efforts revealed that potential significant effects with respect to Biological Resources, Cultural Resources, Geology and Soils, Hazards and Hazardous Materials, and Tribal Cultural Resources would be avoided through policies in the Specific Plan and standard conditions of approval. Therefore, these topics will not be addressed in detail in the EIR. The scope of the Project has not substantially changed since the original NOP was circulated. This Revised NOP is being recirculated to facilitate public disclosure and participation. This Revised NOP will be redistributed to all the public agencies and organizations that were sent the original NOP on November 17, 2017, as well as all commenters on the original NOP. The City will not hold an additional scoping meeting.

Public Review Period: July 26, 2019 — August 27, 2019

Comments: Comments must be received by 5:00 p.m. on August 27, 2019. Please submit your comments to: Matt Neuebaumer, Associate Planner, Email: MNeuebaumer@sanbruno.ca.gov; Mailing Address: City of San Bruno, Community Development Department, Attn: Matt Neuebaumer, 567 El Camino Real, San Bruno, CA 94066. Please indicate a contact person for your agency or organization.

Agencies: The City requests your agency's views on the scope and content of the environmental information relevant to your agency's statutory responsibilities in connection with the Project, in accordance with the California Code of Regulations, Title 14, Section 15082(b). Your agency may need to use the EIR prepared by the City when considering any permits or other approvals that your agency must issue for the Project.

Project Location: The Project Site is located in the City of San Bruno within an approximately 92.2-acre area and is generally bounded by Interstate 280 to the west and Interstate 380 to the north, El Camino Real to the east (but exclusive of the properties fronting El Camino Real), and San Bruno Avenue West to the south from Interstate 280 to Elm Avenue. Existing development on the Project Site includes the Bayhill Office Park, which contains a total of

about 1.6 million square feet of office space, the Bayhill Shopping Center, which consists of five buildings with a combined gross floor area of approximately 121,000 square feet, and an approximately 80,000-square foot hotel. Please see Figure 1, Regional Location Map, and Figure 2, Project Site Location Map, attached. As shown in Figure 2, the Project Site has been revised to exclude five parcels along El Camino Real and San Bruno Avenue West. The Bayhill Specific Plan Planning Area originally included five properties adjacent to the existing Bayhill Office Park, four of which front El Camino Real, and the other of which fronts onto San Bruno Avenue West. These properties are also located in the City's adopted Transit Corridors Specific Plan area (TCP). On October 30, 2018, the City Council and Planning Commission held a joint study session, at which there was agreement to maintain existing uses and height limits permitted under the TCP. The five subject properties are located in the El Camino Real Character Area which allows a maximum building height of 70 feet or 5 stories. Because the City Council indicated no intent to change land use designations or regulations applicable to the five adjoining properties, and to avoid confusion and duplication regarding the regulations applicable to these five properties, they were removed from the Bayhill Specific Plan Planning Area and will be subject only to the regulations in the TCP. The excluded parcels are located at addresses: 901 El Camino Real, 899 El Camino Real, 855-875 El Camino Real, 801 El Camino Real, and 840 San Bruno Avenue West. Land uses and development on these parcels will continue to be governed by the TCP.

Project Description: The Specific Plan will be a regulatory long-range planning document that will outline a cohesive, long-term plan for the Project Site, which is home to the largest cluster of offices in San Bruno, including Walmart.com, the SF Police Credit Union, the headquarters of YouTube, and other commercial uses. The Specific Plan will facilitate integrated development within the Project Site, including the Phase I Development, which is described below. The City anticipates that adoption of the Specific Plan will result in further intensification of land uses beyond what currently exists today. At this time it is anticipated that the Specific Plan would consider allowing for the following land uses: commercial/retail, office, residential, hotel, civic (such as a library and/or community center), and open space. Actual development intensities/densities and permitted uses will be defined through the planning and environmental review process. New internal vehicular streets and/or pedestrian and bicycle paths, as well as improvements to streetscapes, may be included in the Specific Plan.

The Specific Plan will include the following components:

- land use designations;
- development intensities/densities;
- design standards and guidelines;
- zoning and development regulations (i.e., use regulations, development standards, streetscape and signage, transportation demand management and parking, and a community benefits program);
- circulation and access improvements (i.e., streets, sidewalks, and trails);
- other improvements to public infrastructure (i.e., utilities); and
- an implementation plan and financing strategy.

The overarching goal of the Specific Plan will be to ensure that the Project Site is developed in a cohesive manner that serves both the needs of current and future uses and results in projects that provide a net positive fiscal impact to the City. The Specific Plan will support the development of infrastructure to improve access and connectivity within the Project Site and allow for better connections from the Project Site to destinations throughout San Bruno for various modes of transportation, including enhanced multi-modal, pedestrian and bicycle facilities.

The EIR will provide a program-level analysis of the Specific Plan assuming, where applicable, that land uses permitted under the Specific Plan are developed at their reasonable maximum potential densities/intensities, and some corresponding existing uses may be demolished. As discussed below, the EIR will also provide a project-level analysis of a discrete project within the Specific Plan referred to as the Phase 1 Development, which the City is processing concurrently with the Specific Plan.

Phase 1 Development

The Phase I Development Site (Phase I Site) is located within the Project Site, as shown in Figure 2. The Phase I Site is comprised of two separate parcels: 900 Cherry Avenue (APN: 020-015-020) and 1000 Cherry Avenue (APN: 020-011-230). The property identified as 900 Cherry Avenue currently measures approximately four acres in total area and is currently developed with a six-story office building measuring approximately 102,250 square feet in total area. The property at 1000 Cherry Avenue currently measures approximately 4.15 acres in total area and is currently developed with a three-story office building measuring approximately 94,500 square feet in total area. The existing office buildings located at 900 and 1000 Cherry Avenue are located on the western portion of their respective lots, with surface parking located to the east of the existing structures.

YouTube, the applicant and owner of the Phase I Development area, proposes to retain the two existing office buildings on the Phase I Site and construct 440,000 square feet of additional office space. The additional office space would be constructed on the existing surface parking lots to the east of the existing structures at 900 and 1000 Cherry Avenue. A total of two new buildings would be constructed, one adjacent to 900 Cherry Avenue and the other adjacent to 1000 Cherry Avenue. The proposed structures would measure no higher than three stories, or 50 feet in total height. A maximum of three levels of subgrade parking would be provided at both parcels.

Since distribution of the original NOP, additional improvements have been identified as part of the Phase I Development, all of which are within the 92.2-acre Project Site. The additional improvements and items include: (1) the construction of an off-street multi-modal transportation hub on an accessway located between Grundy Lane and Bayhill Drive, on the west side of the parcel containing 950 Elm Street; (2) the realignment of Grundy Lane from Cherry Avenue to Elm Avenue; (3) the abandonment of northern portion of Elm Avenue located directly to the north of the realigned Grundy Lane; (4) the demolition of three existing buildings located at 1150–1250 Bayhill Drive to provide a construction staging and parking area during construction of the Phase I Development; and (5) a Development Agreement requested as part of the Phase I planning entitlements.

The YouTube Phase I Development is currently being processed concurrently with the Specific Plan and will be designed to be consistent with the Specific Plan. The EIR will provide a project-level analysis of the YouTube Phase I Development so that no further CEQA clearances, assuming no changes, would be necessary to grant discretionary approvals needed for the YouTube Phase I Development once the EIR is certified.

Potential Environmental Effects: The City plans to evaluate the following topic areas in the EIR: Aesthetics; Air Quality; Greenhouse Gas Emissions and Energy; Hydrology and Water Quality; Land Use and Planning; Noise; Population and Housing; Public Services and Recreation; Transportation/Traffic; and Utilities and Service Systems. There are no Agricultural and Forestry Resources, Mineral Resources, or Wildfire hazard areas in the Project area; thus, these topics will not be addressed in detail in the EIR.

Subsequent to the release of the original NOP, additional scoping efforts revealed that potential significant effects with respect to Biological Resources, Cultural Resources, Geology and Soils, Hazards and Hazardous Materials, and Tribal Cultural Resources would be avoided through policies in the Specific Plan and standard conditions of approval. Therefore, these topics will not be addressed in detail in the EIR.

Document Availability: This Revised NOP and additional information regarding the Bayhill Specific Plan can be accessed at the following website:

www.sanbruno.ca.gov/bayhillspecificplan

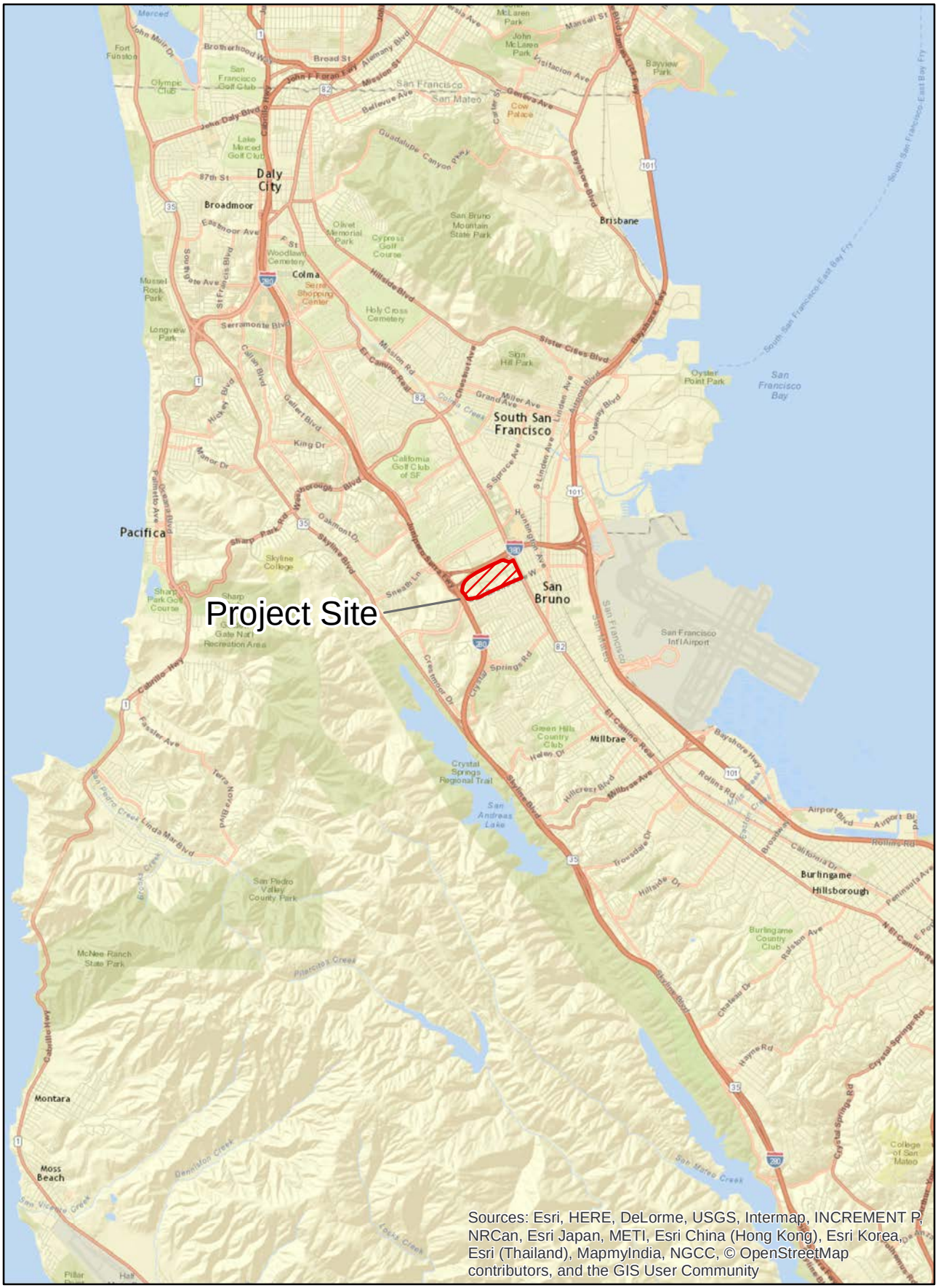
The Project's environmental file is also available for public review during regular business hours at the City of San Bruno Community Development Department, 567 El Camino Real, San Bruno, CA 94066 between the hours of 8:00 a.m. through 5:00 p.m. Monday through Friday.

If you require additional information, please contact Matt Neuebaumer at (650) 616-7042 or by e-mail at MNeuebaumer@sanbruno.ca.gov.

7/26/19

Matt Neuebaumer
Associate Planner

Date



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Figure 1
Regional Location Map

BAYHILL SPECIFIC PLAN AREA

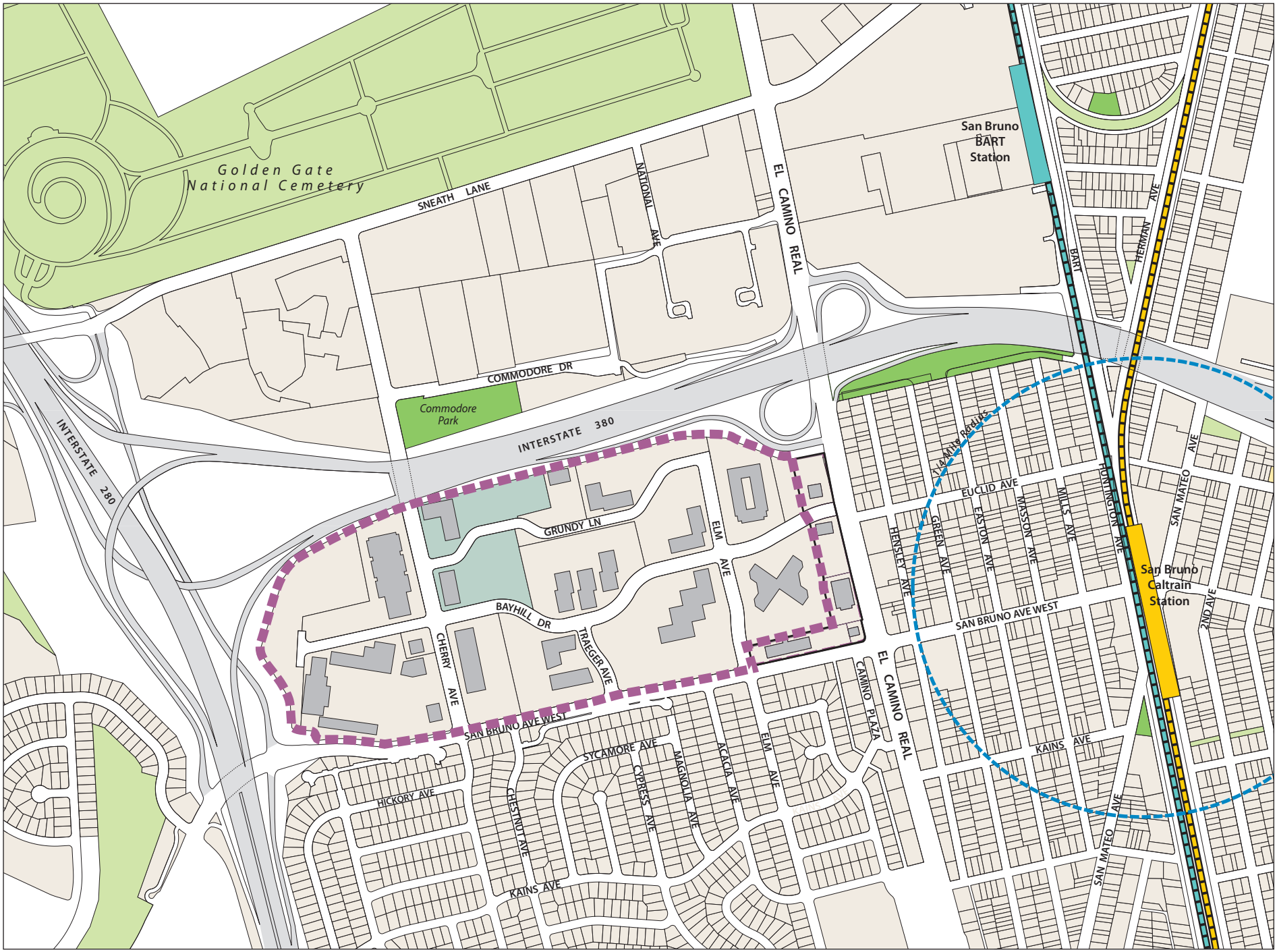


Figure 2. Project Site Location Map

Appendix 2

Specific Plan

BAYHILL SPECIFIC PLAN







Bayhill Specific Plan

City of San Bruno

SEPTEMBER 2021

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BAYHILL SPECIFIC PLAN

1.

Introduction

1.1 Planning Area, Project Area, and Context
1.2 Vision and Guiding Principles
1.3 Related Plans
1.4 Planning Process
1.5 Plan Organization



1 Introduction

Bayhill Office Park, established in the mid-1970s, is now San Bruno's premier employment hub. It is located south of San Francisco near the San Francisco Airport, and within close proximity to I-280, I-380, and Caltrain and BART stations. Bayhill is home to major regional and national tenants and property owners, including YouTube, Walmart.com, and The Police Credit Union. The Bayhill Shopping Center, located in the southwestern corner of Bayhill, is a busy neighborhood commercial center that provides shops and services to local residents and employees. A Marriott Courtyard Hotel is located in the northeast corner of the Plan Area.

In 2017, the City embarked on preparing the Bayhill Specific Plan to ensure cohesive long-range planning for the area. The plan was developed in the context of YouTube's desire to expand its campus in San Bruno. YouTube has been headquartered in San Bruno since 2007 and the City wished to ensure that YouTube's plans for campus expansion are integrated into an attractive setting that benefits all Bayhill's property owners and the broader San Bruno community. The resulting Specific Plan establishes a new policy and regulatory framework for guiding private and public development within the Bayhill Specific Plan Planning Area over the next 20 years.

The Specific Plan envisions the integration of new and infill development into a sustainable, successful and accessible area that features an enhanced public realm. It establishes land use and development policies for the Planning Area, sets design standards and guidelines that will shape the public realm, and establishes transportation and infrastructure improvements that will improve ease of use and functionality. Implementation of the Bayhill Specific Plan will strengthen this key area of San Bruno and the city as a whole.

This chapter includes background information that provides context for the Bayhill Specific Plan. It describes the purpose and objectives of the Bayhill Specific Plan, existing conditions in the Planning Area, the Bayhill Specific Plan's relationship to other City plans, the planning process, community outreach and the resulting vision, and an overview of the Bayhill Specific Plan's organization.



1.1 Planning Area, Project Area, and Context

San Bruno is located in northern San Mateo County just west of the San Francisco International Airport (SFO). The Planning Area enjoys exceptional regional automobile and transit access. It is within a half-mile of Downtown San Bruno, City Hall, the San Bruno Caltrain and BART stations, and the Tanforan shopping center. **Figure 1-1** illustrates the Planning Area's location within the City of San Bruno.

The Planning Area is approximately 92.2 acres in size. It covers the area commonly referred to as the Bayhill Office Park, as well as the Bayhill Shopping Center. As shown in **Figure 1-2**, the Planning Area is bounded by Interstate 280 to the west, Interstate 380 to the north, properties fronting El Camino Real to the east, and San Bruno Avenue West to the south. Four properties that front on El Camino Real and one that fronts on San Bruno Avenue West abut the Planning Area and are located within the City's adopted Transit Corridors Specific Plan area.





Figure 1-1: Location

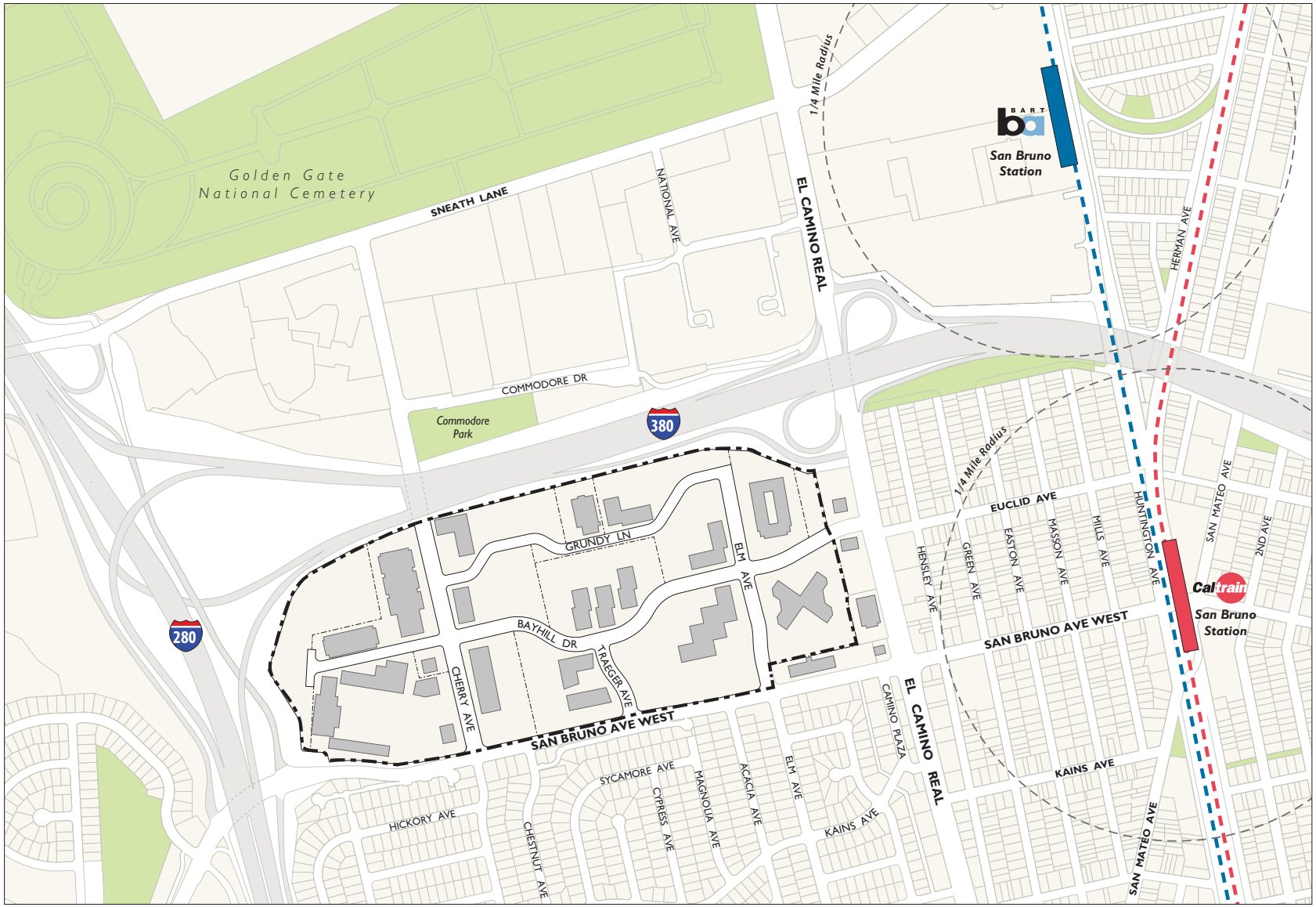


Figure 1-2: Planning Area



Planning Area

Existing Building Footprint

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1.2 Vision and Guiding Principles

A Draft Vision Statement and Guiding Principles Document was prepared based on the feedback received during initial community visioning and outreach conducted in the Summer and Fall of 2017. The Draft Vision Statement and Guiding Principles describe how the Planning Area should look, feel, and function in the future. Together with feedback received from the City Council and Planning Commission, this document was used to help develop the Specific Plan. A summary of the Key Guiding Principles is provided below:

1. Promote a Vibrant and Mixed-Use Walkable District.
2. Enhance the Public Realm & Promote Quality Design.
3. Improve Multimodal Mobility.
4. Foster Housing Development.
5. Integrate Bayhill with the Greater San Bruno Community.
6. Incorporate Amenities.
7. Ensure Net Positive Fiscal Impact.
8. Promote Optimal Long-Term Development Patterns.

Additionally, the Bayhill Specific Plan implements these Guiding Principles and Policies from the San Bruno General Plan:

LUD-G: Infill in the Bayhill Office Park with new professional offices, and hotel uses.

LUD-51: Promote construction of professional and administrative offices on existing surface parking lots in Bayhill Office Park.

LUD-52: Allow ancillary commercial uses—such as cafes, health clubs, dry cleaners, sundries, etc.—in Bayhill Office Park, to serve employee needs.

LUD-53: Require new office development in Bayhill Office Park to provide alternative transportation, such as shuttles to the BART and Caltrain stations, preferential carpool parking, bicycle storage facilities, and bus shelters.

1.3 Related Plans

The Bayhill Specific Plan will function in the context of the plans, policies, and regulations described below.

San Bruno Plans and Programs

SAN BRUNO GENERAL PLAN



Specific plans are tools for the implementation of general plans, and thus need to be consistent. Specific plans expand upon general plans to provide more detailed direction for a specific geographic area. The San Bruno General Plan 2025, adopted in 2009, establishes a vision and action plan for the city's long-term development. The Bayhill Specific Plan outlines new land use designations, urban design and environmental protection policies, as well as transportation and infrastructure improvements for the Plan Area. Amendments to the General Plan to ensure consistency between the documents are summarized in Chapter 7, *Implementation*.

ZONING ORDINANCE

The San Bruno Zoning Ordinance designates zoning requirements and regulations for land uses. The Planning Area contains C General Commercial, C-O Community Office, and P-D Planned Development zoning districts. The majority of the Planning Area is occupied by Planned Development districts. Each Planned Development district has its own development standards set by the City Council. The Bayhill Specific Plan establishes new Zoning Districts and regulations as described in Chapter 2, *Land Use*.

ORDINANCE 1284

Ordinance 1284 is described in detail in Chapter 2, *Land Use*.

TRANSIT CORRIDORS PLAN

The San Bruno Transit Corridors Plan, adopted in 2013, incorporates properties along El Camino Real and San Bruno Avenue that border the Bayhill Specific Plan Area. The Transit Corridors Plan is also a Specific Plan. It lays out a vision and policies, design guidelines and development standards for future development within the Transit Corridors Plan Area. In 2014, Measure N was approved by voters which allowed for increased building heights throughout the Transit Corridors Plan area. It also allows for increased density for certain residential opportunity site parcels and above-ground multi-story parking structures. In keeping with the policies of the General Plan, the Transit Corridors Plan encourages mixed-use residential and commercial and single-use residential development within the El Camino Real Corridor, with ground-floor retail required at primary intersections such as the El Camino Real and San Bruno Avenue West intersection.

WALK 'N BIKE PLAN



The principal objective of the San Bruno's 2016 Walk 'n Bike Plan is to make walking and biking in San Bruno safer and more appealing as both transportation and recreation. The Walk 'n Bike Plan proposes a variety of pedestrian and cycling improvement projects within and adjacent to the Planning Area. The integration of Walk n' Bike Plan guidance into the Bayhill Specific Plan is included in Chapter 4, *Access and Connectivity*.

Regional Plans

PLAN BAY AREA 2040 (ADOPTED 2017)



Plan Bay Area is the blueprint for integrating long-range regional transportation, land use, and open space throughout the nine-county San Francisco Bay Area. It is prepared by the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC) and is updated every four years. As part of Plan Bay Area, cities have voluntarily identified Priority Development Areas (PDAs) as desirable locations to target projected housing and job growth. The entirety of the Planning Area is within a PDA, as shown on **Figure 1-3**. PDAs are

eligible to receive regional grant funds for land use planning and certain transportation projects.

In addition, Plan Bay Area identifies Transit Priority Areas, which are defined as areas within one half mile of a major transit stop such as an existing or planned rail station or bus routes with headways of 15 minutes or better during morning and evening peak periods. Under Senate Bill 743, a Transit Priority Area project that meets all of the following criteria is granted a California Environmental Quality Act (CEQA) exemption: it is a residential, employment center, or mixed-use project; it is located within a transit priority area; the project is consistent with a specific plan for which an environmental impact report was certified; and it is consistent with an adopted sustainable communities strategy or alternative planning strategy. The eastern part of the Planning Area, generally the land east of Elm Avenue, is located within a Transit Priority Area, as shown in **Figure 1-3**.

PLAN POLICY IMPLEMENTATION AND THE SPECIFIC PLAN EIR

An Environmental Impact Report (EIR) was prepared for the Specific Plan in 2020. In accordance with the California Environmental Quality Act (CEQA), the EIR identifies mitigation measures that are required to reduce the potentially significant environmental impacts of implementing the Plan to the extent feasible. To further ensure that the EIR mitigation measures are implemented, they have been incorporated, in summary form, as policies in the Plan and identified by an asterisk (*). In implementing those policies, it is essential to review the Bayhill Specific Plan and Phase I Development Mitigation Monitoring and Reporting Program (MMRP) which contains additional detailed requirements beyond the summary policy statements in the Plan.

The EIR presents a program-level analysis of buildout under the Specific Plan and a project-level analysis of the proposed Phase I Development, a specific development project within the Plan area for which the City received a development application. While the Phase I Development would be part of the overall Specific Plan buildout, the project-level impacts of the Phase I Development are presented separately in the EIR, and the impacts are different in some cases.

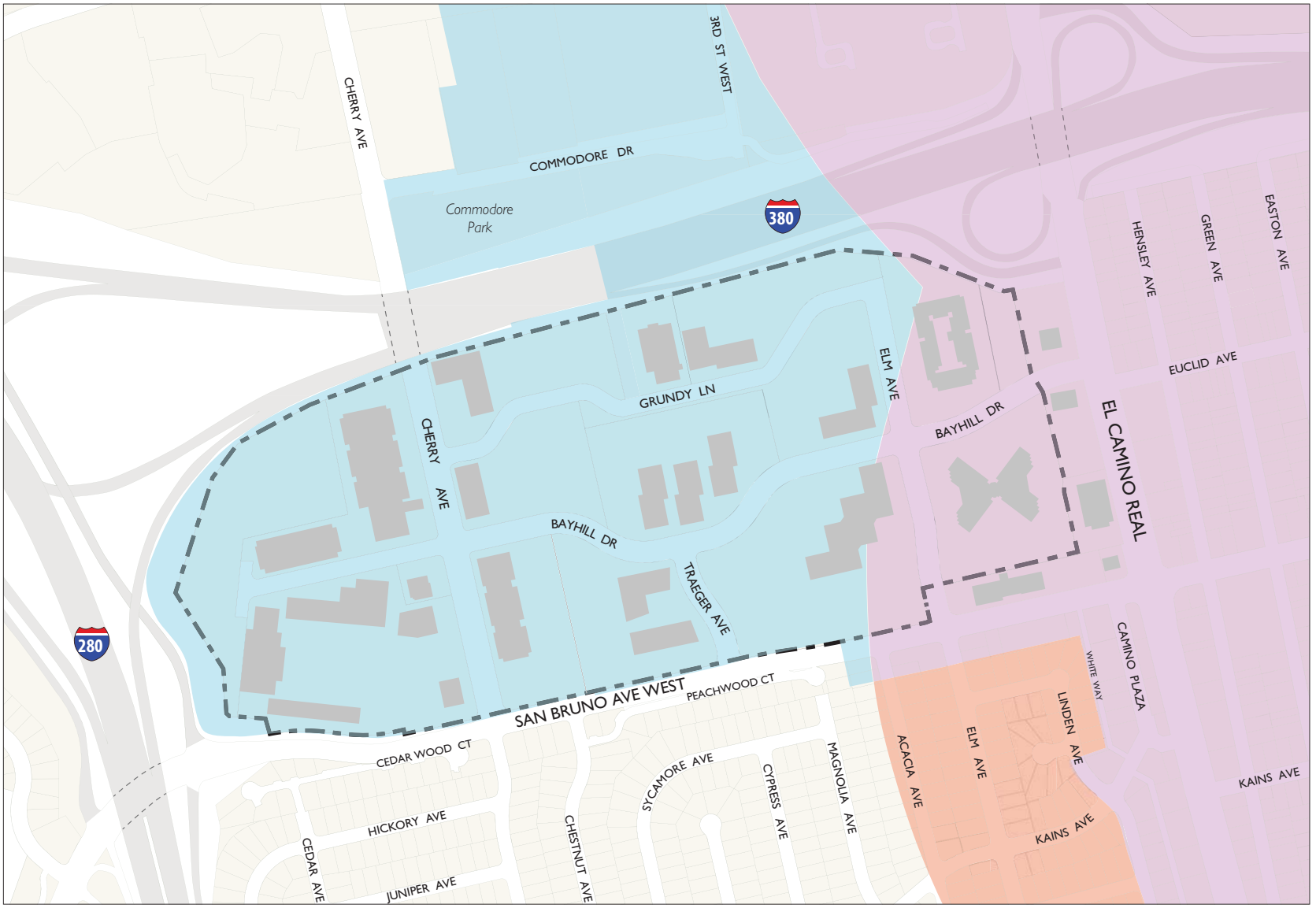
For some environmental topics, the EIR determined that full buildout under the Specific Plan would result in potentially significant environmental impacts that require mitigation. As noted above, the policies implementing these mitigation measures are noted in the plan with an asterisk. For some of these environmental topics, however, the impacts of the Phase I Development would be less than significant and do not require mitigation. Accordingly, the mitigation measures assigned to these Specific Plan buildout impacts, and the Plan Policies implementing these mitigations measures, are not applicable to the Phase I Development. These policies are denoted with parentheses around the asterisk ((*)) to indicate that they are not applicable to the Phase I Development.

COMPREHENSIVE AIRPORT LAND USE COMPATIBILITY PLAN

The Comprehensive Airport Land Use Compatibility Plan for the Environs of the San Francisco International Airport (ALUCP), prepared by the City/County Association of Governments of San Mateo County, is a State-mandated land use plan that addresses the compatibility of airport operations with surrounding land uses in local jurisdictions. The Bayhill Specific Plan is written to be consistent with this plan. New Development in the Bayhill Specific Plan will also be consistent with this plan.

Chapter 6, *Environmental Quality* identifies the Safety Compatibility Zones and Community Noise Equivalent Level (CNEL) Noise Contours for which land use compatibility criteria are established. The City/County Association of Governments of San Mateo County (C/CAG) is the designated Airport Land Use Commission for San Mateo County, and is required to review the plans, regulations, and other actions of local agencies and airport operators. C/CAG has conferred the operational, day-to-day issues related to the state mandated Airport Land Use Planning process and the ALUCP to the San Mateo County Airport Land Use Committee, which advises and recommends actions to C/CAG regarding the updating of the ALUCPs, and other land use compatibility issues affecting the three airports in the County.

Figure 1-3: Plan Bay Area Transit Priority Area Boundaries



Source: RTP 2013

Planning Area

Plan Bay Area Priority Development Area (PDA) Only

Plan Bay Area Transit Priority Area (TPA) Only

PDA and TPA

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1.4 Planning Process

The City Council adopted a resolution authorizing the City Manager to execute a contract for the preparation of the Bayhill Specific Plan on May 23, 2017. Shortly after this date, in June of 2017, the City began the planning process for the Bayhill Specific Plan. The planning process evolved through visioning to defining alternative plans through a combination of background studies, alternatives analyses, and community and stakeholder outreach and input.

The first phase of the planning process involved analyzing the regulatory framework and existing physical conditions of the Planning Area. This analysis was summarized in an Existing Conditions Report published on the City of San Bruno's website in the fall of 2017. Concurrently, the City conducted community, decision-maker and property owner outreach to discuss priorities for the Planning Area. Community feedback from the first planning phase resulted in a draft "Vision and Guiding Principles" for the Bayhill Specific Plan Planning Area.

In the second phase, four alternative land use scenarios were developed to reflect the Vision and Guiding Principles: Alternative 1 – Central Spine, Alternative 2 – Bayhill Square, Alternative 3 – Cherry Plaza, and Alternative 4 – Greenway Connection. The Alternatives were designed to explore different ways in which land uses could be distributed in the Planning Area, and to provide a range of choices that allowed for an evaluation of the impacts associated with the different land use allocations. An additional round of outreach was conducted, including an online survey, a public workshop, and meetings with property owners to present and solicit feedback on the land use scenarios and their respective impacts to the San Bruno community and Bayhill stakeholders.

The third phase involved the presentation of the four Alternatives and community feedback on the Alternatives to the San Bruno Planning Commission and City Council in October 2018. In December 2018, the Council was asked to deliberate on and select a Preferred Alternative for the purposes of environmental analysis in the Environmental Impact Report (EIR). Based on direction from City Council to study the environmental impacts of the Alternative with the greatest development envelope, Alternative 4 (Greenway Connection), served as the basis for the EIR Project. The Council indicated their support for pursuing several other policies at this meeting, including incorporating housing overlays that would permit housing in several locations where it is not currently allowed, and incorporating pedestrian connections, bike lanes, and publicly accessible, privately owned linear park/open space elements in the Specific Plan. An update on the Bayhill Specific Plan was provided to the Council in July 2019.

The fourth phase involved preparing a draft Bayhill Specific Plan, including implementation and financing strategies, and a Draft EIR to analyze the impacts of implementing the Bayhill Specific Plan. The draft Bayhill Specific Plan and Draft EIR were released for public review in January 2021.

Outreach

Each step in the process was designed to allow the City to learn from residents, property owners, decision-makers, and other members of the community, as well as to allow the public to provide feedback and ideas regarding the development of this key district. The public participation program included:

- A Visioning Workshop;
- Stakeholder Interviews
- Two Property Owner Forums;
- An Alternatives Workshop;
- An online Survey; and
- Planning Commission and City Council Study Sessions.

A project website on the City of San Bruno's Community and Economic Development Department's web page contains the project documents described above and a summary of the Specific Plan process.

1.5 Plan Organization

The following chapters of this Bayhill Specific Plan present policies and recommendations for implementation intended to guide the development of the Planning Area. The document is organized as follows:

Chapter 1: Introduction describes the background and context for the Plan, its purpose, objectives, and relationship to other City plans, the planning process and community vision, and the Plan's organization.

Chapter 2: Land Use describes existing land uses and the proposed land use framework for the Planning Area and potential buildout of the Bayhill Specific Plan.

Chapter 3: Urban Design and Public Realm details the urban design and public realm framework.

Chapter 4: Access and Connectivity describes the Planning Area's proposed vehicular, pedestrian, bicycle and transit circulation networks and respective connectivity and access improvements.

Chapter 5: Infrastructure, Public Facilities and Services discusses proposed improvements related to infrastructure and services meant to serve new development, including water distribution, wastewater, stormwater, and public services.

Chapter 6: Environmental Quality addresses groundwater quality and environmental and man-made hazards that may affect health and safety within the Planning Area, such as noise, flooding, geology and seismicity, archaeology and air quality, and policies to reduce the plan area's impact on greenhouse gases.

Chapter 7: Implementation discusses implementation and financing strategies for public improvements, as well as identifying implementation actions and corresponding responsible agencies, timelines, phasing, and costs. Community benefits and General Plan and Zoning Ordinance amendments are also discussed in this chapter.

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BAYHILL SPECIFIC PLAN

2.

Land Use

2.1 2019 Land Use

2.2 Land Uses in the Plan Area Vicinity

2.3 2019 Property Ownership

2.4 Land Use Regulatory Framework

2.5 Land Use Policies



2 Land Use

The Bayhill Specific Plan will guide land use and development within the Plan Area over the next 20-years. The Specific Plan is intended to accommodate and regulate the intensification of office uses while permitting residential development in locations that are compatible with Bayhill's role as a major employment center. The Specific Plan also allows for expansion of retail/commercial and hotel land uses.



2.1 2019 Land Use

The Bayhill Specific Plan Area is approximately 92.2 acres in area, encompassing the Bayhill Office Park, Bayhill Shopping Center, and Marriott Courtyard Hotel. Most of the office properties were developed in the 1970s and early 1980s, with buildings typically side-by-side with surface parking lots. The Bayhill Shopping Center was constructed in the early 1970s, and the Marriott Courtyard in 1986. Both have surface parking lots. The 901 Cherry Avenue office building was completed with structured parking in 1997. The Police Credit Union Building at 1250 Grundy Lane, completed in 2019, has two levels of subgrade parking.

Office is the major land use, as indicated by the Existing Land Use Map, **Figure 2-1**, and **Table 2-1**, below. At the start of Specific Plan preparation in 2019, office accounted for 56.2 acres or 61 percent of the Plan Area.

Retail and commercial land use at the Bayhill Shopping Center accounted for 10.2 acres, or 11.1 percent, of the Plan Area. Vacant land made up 6.4 acres, or approximately 6.9 percent of the Plan Area, comprised of a single hillside parcel on Bayhill Drive west of 901 Cherry Avenue. The Marriott Courtyard was the only hotel use. It occupied 4.3 acres, or 4.7 percent of the Plan Area, located along Bayhill Drive in the easterly portion the Plan Area.

In 2019, the Plan Area contained approximately 1.8 million square feet of development, of which approximately 1.6 million square feet was office space. The median Floor Area Ratio (FAR)[1] of the Plan Area was slightly lower than 0.5, typical for an older sub-urban office park with surface parking. An exception is the six-story building at 850 Cherry Avenue, which has a FAR of 1.86. This building was originally developed by the United States Postal Service and was exempt from local zoning regulations. Building coverage in the Plan Area was correspondingly low, averaging 18 percent, with the remaining 82 percent surface parking, site landscaping, and roadways.

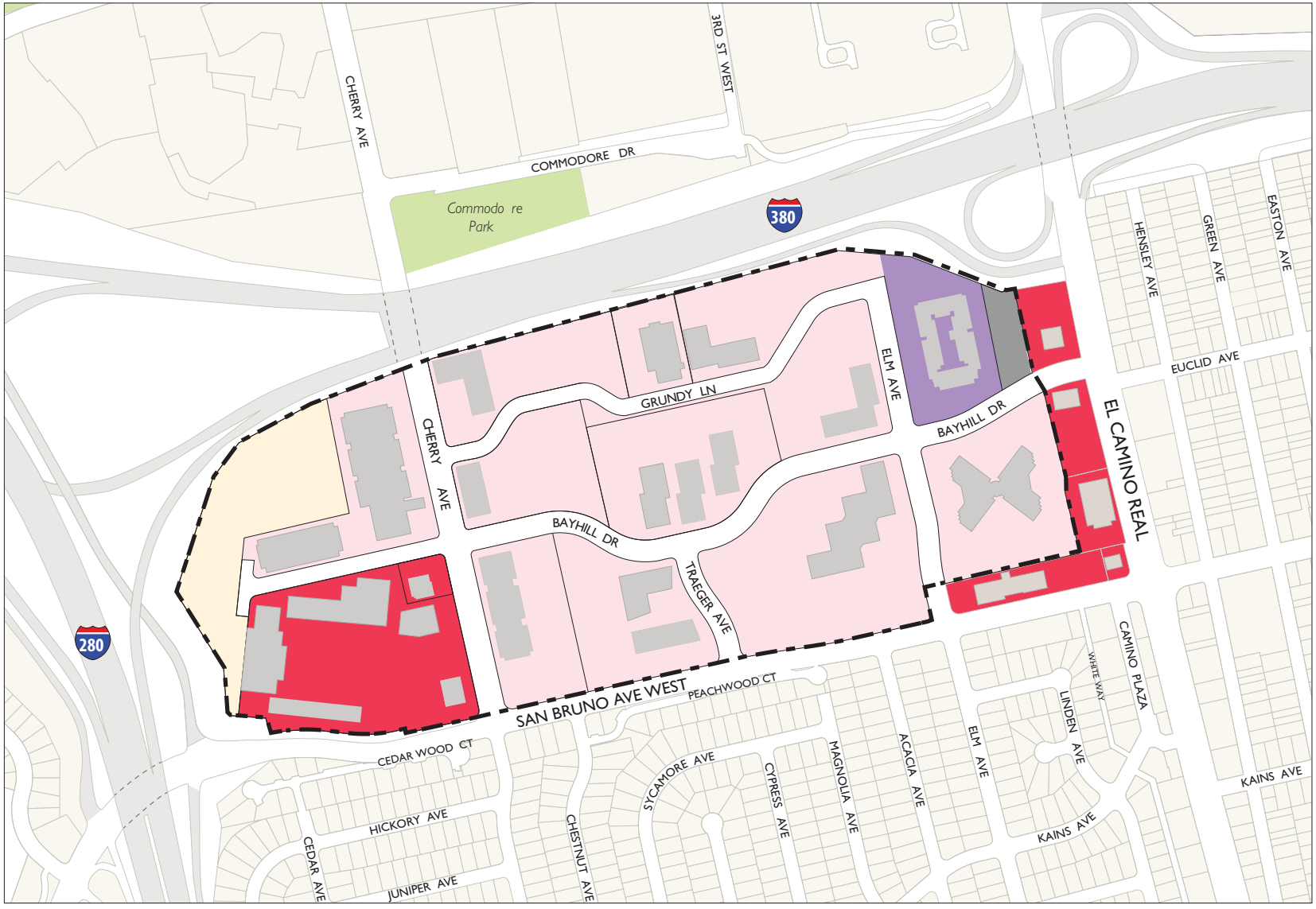
Table 2-1: Summary of Existing 2019 Land Uses

Existing Land Use Categories	Acres	Percent of Total
Office	56.2	61.0%
Retail / Commercial	10.2	11.1%
Vacant	6.4	6.9%
Hotel	4.3	4.7%
Stand Alone Surface Parking Lot	0.9	1.0%
Streets/Rights-of Way	14.2	15.4%
Total	**92.2**	**100%**

Note: Numbers may not add due to rounding.

1 Floor area ratio (FAR): a ratio of building area to lot or parcel area; e.g., a 5000 square foot building on a 10,000 square foot lot would have a FAR of 0.5.

Figure 2-1: Existing Land Use



2.2 Land Uses in the Plan Area Vicinity

The Plan Area is bounded by Interstate 380 to the north, San Bruno Avenue West to the south, properties fronting El Camino Real to the east, and Interstate 280 to the west. North of the Plan Area, and separated by the I-380 freeway, is Commodore Park and a higher-density residential neighborhood. Northeast across El Camino Real are the Shops at Tanforan, a regional retail shopping center, the San Bruno BART station, light industrial uses that include a mix of auto-body shops, and single family homes. The San Bruno BART Station and San Bruno Caltrain Station both are in close proximity, approximately a half-mile northeast and a third-mile east, respectively. Directly east of El Camino Real is a mixed-residential neighborhood of homes and apartments.

South of San Bruno Avenue and west of El Camino Real is a large single-family residential area. Single-family homes are located across from the Plan Area along San Bruno Avenue west of Acacia Avenue. East of Acacia Avenue on San Bruno Avenue, a mix of small-scale retail, office, and automotive uses extends to El Camino Real. Two blocks south of the Plan Area along El Camino Real is the San Bruno Civic Center with the City Hall, the Public Library, and the Central Fire Station. The El Camino Real itself is characterized by a variety of auto-oriented and neighborhood retail uses. Less than a half-mile to the southeast is San Mateo Avenue, the city's Downtown main street.

2.3 2020 Property Ownership

The Plan Area contains sixteen individual properties, as indicated by **Figure 2-2.** YouTube[2] owns ten of the thirteen Bayhill Office Park properties, with approximately 1.1 million square feet of existing office space. YouTube purchased the former Gap Inc. properties at 901 Cherry Avenue and the adjacent, vacant site (Assessor Parcel No. 020-012-160) parcel in 2019. A Development Agreement with the City for this vacant parcel, which is described below, expires in August 2021, unless extended.

The Bayhill Shopping Center area includes two properties, 851 and 899 Cherry Avenue, both owned by the Bayhill Shopping Center. Marriott Courtyard, owned by Colony Capital, Inc., occupies a single hotel property at 1050 Bayhill Drive. The property located at 850 Elm Avenue is owned by Walmart Stores Inc. (Walmart.com), the property located at 801-851 Traeger Avenue is owned by Bayhill Office Partners LLC, and the property located at 1250 Grundy Lane is owned by The Police Credit Union.

To accommodate long-term employment growth, YouTube proposed a phased redevelopment plan for the land it owns to increase its office space and create a more attractive and efficient campus like environment. The phasing plan proposed has five phases, with Phase 1 consisting of demolition of the buildings at 1150-1250 Bayhill Drive and construction of 440,000 square feet of new office space, within the existing surface parking lots located at 900 and 1000 Cherry Avenue. The Specific Plan was undertaken as a result of YouTube's request for the City to accommodate its future expansion.

2 For the purposes of this Specific Plan, YouTube refers to Google LLC and any affiliated companies.

Figure 2-2: Plan Area Parcels

PLAN AREA PARCELS:

1 851 Cherry Ave
APN 020-012-190

2 899 Cherry Ave
APN 020-012-120

3 850 Cherry Ave
APN 020-017-010

4 801-851 Traeger Ave
APN 020-017-020

5 811 Cherry Ave
APN 020-012-160

6 901 Cherry Ave
APN 020-012-170

7 1000 Cherry Ave
APN 020-011-430

8 1250 Grundy Ln
APN 020-011-420

9 1100 Grundy Ln
APN 020-011-330

10 900 Cherry Ave
APN 020-015-020

11 1150-1250 Bayhill Dr
APN 020-015-030

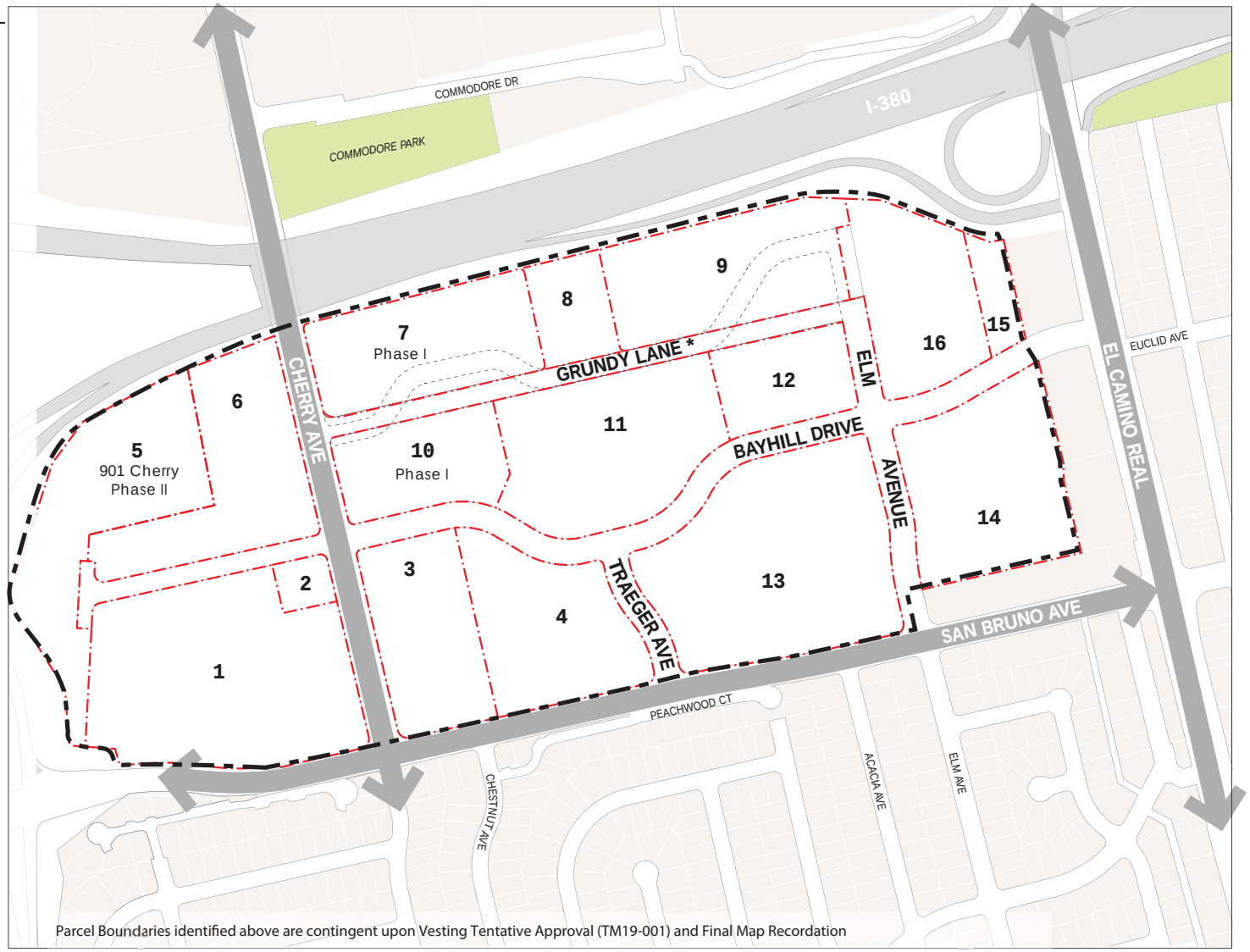
12 950 Elm Ave
APN 020-015-040

13 1111 Bayhill Dr
APN 020-018-010

14 999-1001 Bayhill Dr
APN 020-019-070

15 999 Bayhill Dr
APN 020-011-370

16 1050 Bayhill Dr
APN 020-011-360



Specific Plan Area Boundary

0 250 500 750 1000
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* Grundy Lane and parcels 7, 9, 10, 11, and 12 are shown in the new street alignment and parcel configuration proposed in the YouTube Phase 1 subdivision map.

2.4 Land Use Regulatory Framework

General Plan

The San Bruno General Plan 2025, adopted in 2009, establishes a vision for the city's long-term development. The General Plan contains goals and policies to encourage balanced development that conserves and revitalizes established neighborhoods and commercial areas, while promoting mixed use and transit-supportive developments adjacent to transit stations. The land use classifications and development standards that are relevant to the Planning Area are described below.

As is shown in **Figure 2-3**, the San Bruno General Plan prescribes two land use classifications in Bayhill: Regional Office and Neighborhood Commercial.

GENERAL PLAN LAND USE CLASSIFICATIONS

Regional Office (FAR 1.5): The Regional Office land use classification accommodates administrative, professional, and medical offices located in a campus-style setting or office park. Small convenience retail uses, personal services, and eating and drinking establishments are permitted as ancillary uses. Regional Office allows 1.5 base maximum FAR, with potential additional discretionary 0.5 FAR incentive for projects that provide transportation demand measures and urban design amenities. Residential uses are not included in this classification.

Neighborhood Commercial (FAR 1.2): The Neighborhood Commercial land use classification permits convenience and retail commercial uses, including grocery and drug stores, eating and drinking establishments, personal and business services, professional and medical offices, financial, insurance, and real estate offices, and auto repair and services. Neighborhood Commercial allows 1.2 maximum FAR. Residential is conditionally permitted on upper floors as part of mixed development with commercial use, subject to combined maximum FAR limits.

Existing Zoning

The San Bruno Zoning Ordinance controls development through the establishment of zoning districts and accompanying regulations for permitted and conditional uses and standards for development, such as height, bulk, setback, and lot coverage. Zoning districts in the Project Site include Community Office (C-O), General Commercial (C), and Planned Development (P-D); see **Figure 2-4**.

The majority of the Project Area is zoned P-D, which is meant to support a mix of uses, building intensity, or design that will produce an environment and land uses superior to that which would result from the usual zoning regulations. The development standards for P-D zoning are not specified with the City's Zoning Ordinance. Instead, land uses in a P-D district must be designated on a development plan and approved by the Planning Commission and City Council as part of Individual P-D Development Plan Zoning Ordinances. These Individual P-D Development Plan Zoning Ordinances establish lot coverage, minimum building sites, maximum building heights, minimum site widths, and setbacks.

There is no additional development currently permitted for the developed sites currently zoned P-D. The City Council has to take legislative action to approve an Individual P-D Development Plan Zoning Ordinances to permit any new development on these properties.

The most significant undeveloped site under the PD zoning is APN 020-012-160, at the west end of Bayhill Drive, owned by YouTube. There is an existing Development Agreement with the City for this site, described below, which does allow 287,000 square feet of new development under the terms of the Development Agreement before August 2021, unless extended.

Three parcels were classified Community Office (C-O) zoning, and one small parcel as General Commercial (C) zoning.

Figure 2-3: Existing 2020 General Plan Land Use Designations

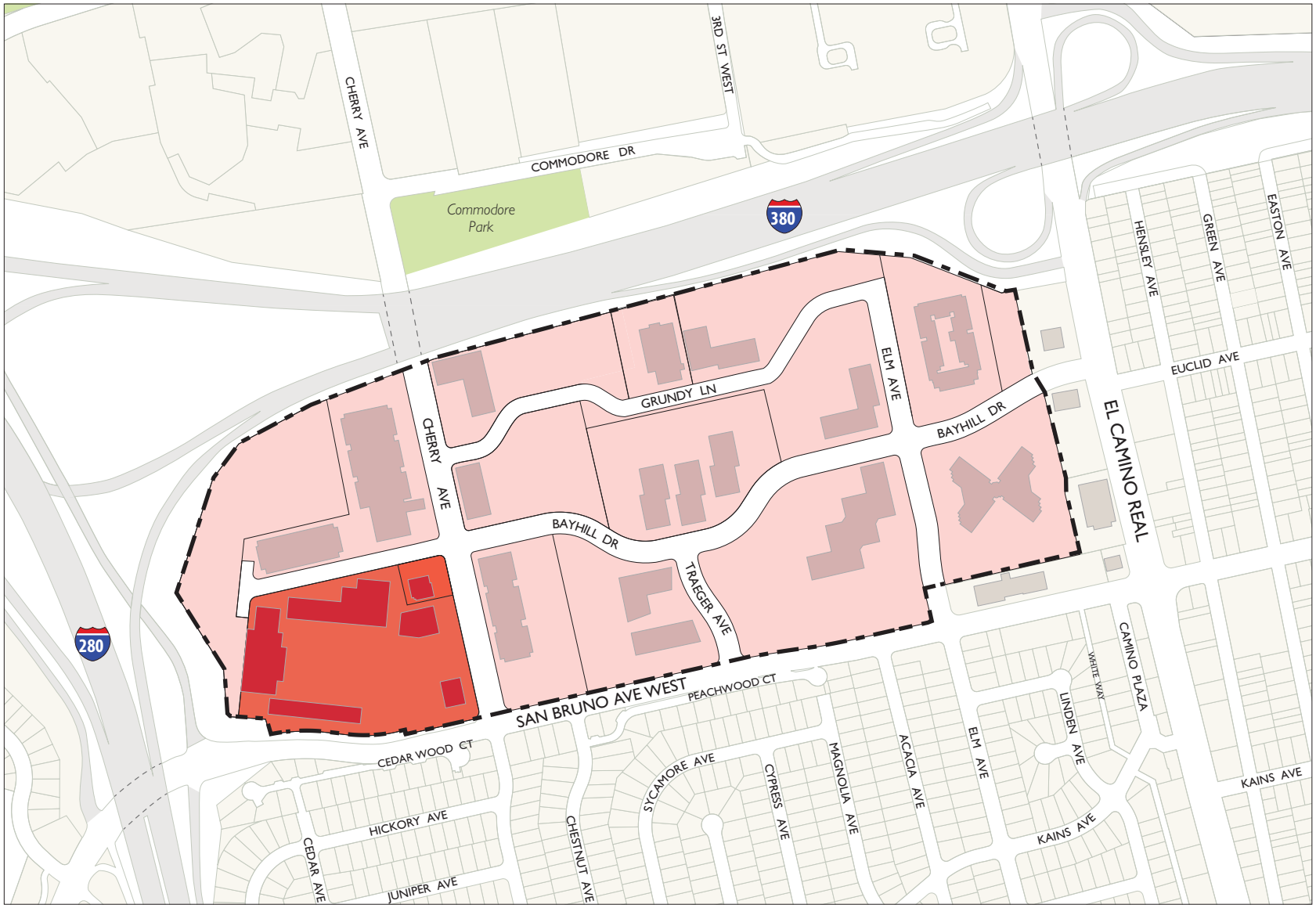
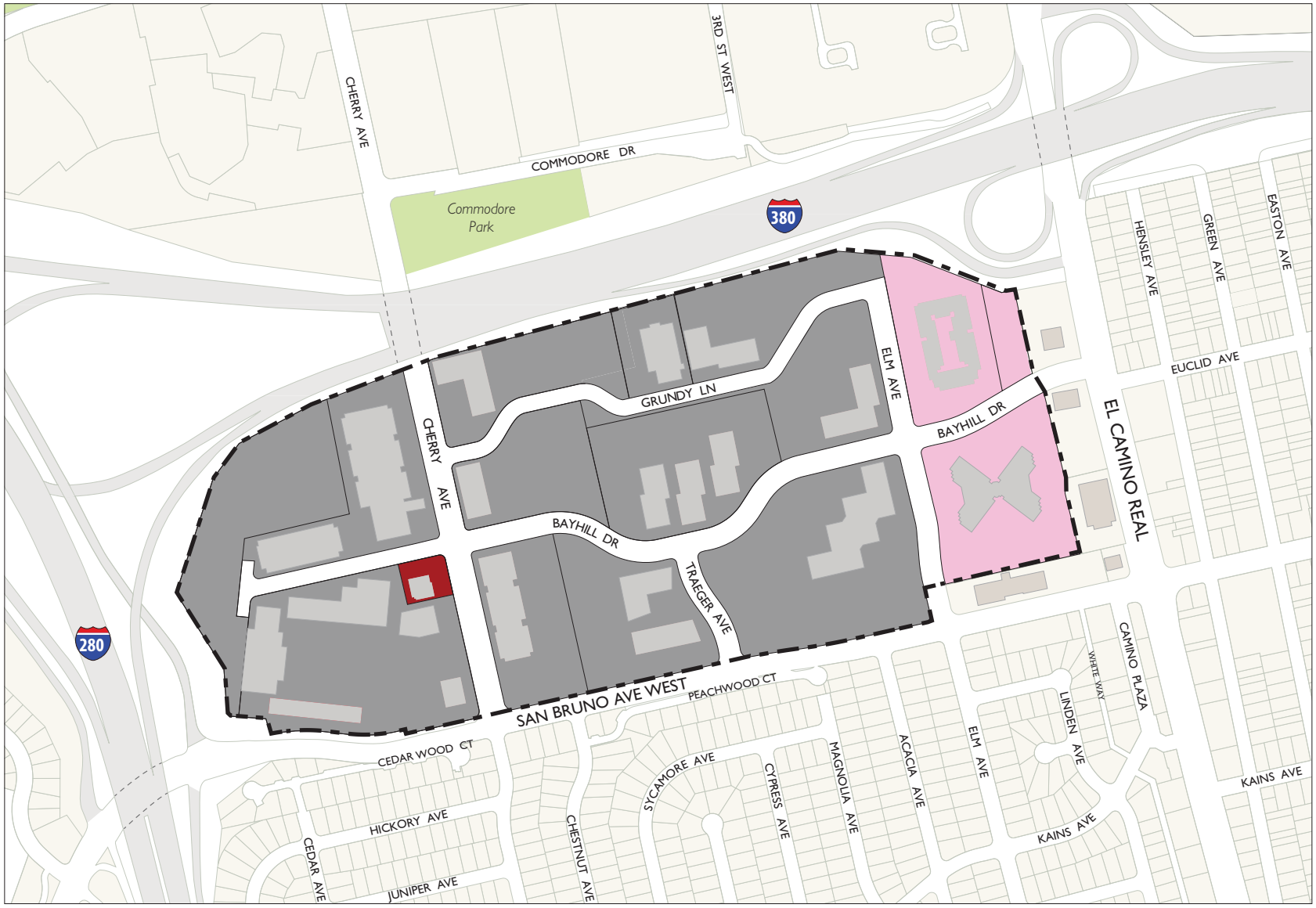


Figure 2-4: Existing Zoning Districts



Ordinance 1284

Initiative Ordinance 1284, which imposed height and density limits in the City, was adopted by the City Council in June 1977. In accordance with Section 12.26.020 of the San Bruno Municipal Code, permits and land use approvals cannot be issued to allow construction of the following types of buildings in locations where these regulations apply, unless approved by a majority of voters at a regular or special election. The sections that currently apply to this Specific Plan prohibit:

- Buildings or other structures exceeding 50 feet in height;
- Buildings or other structures exceeding three stories in height;
- Multi-story parking structures.

Two structures within the Planning Area do not conform to this limit, one of which, 900 Cherry Avenue, was constructed prior to Ordinance 1284 going into effect, and the other a federally-owned United States Post Office building, was exempt from local zoning and development regulations.

With the exception of APN 020-012-160, the vacant hillside parcel at the end of Bayhill Drive, additional development in the Plan Area involves either replacing existing surface parking lots with new buildings that have underground parking, or demolition of existing buildings and parking lots and complete site redevelopment with new underground parking.

San Francisco Public Utilities Commission

The San Francisco Public Utilities Commission (SFPUC) maintains several easements within the Specific Plan Area for their water system. The San Andreas Pipelines No. 2 and 3 are located in a 45-foot wide easement that extends through Parcel 5 (APN 020-012-160) and a small portion of Parcel 6 (901 Cherry Avenue) on the west side of the Plan Area. The Sunset Supply Line and Crystal Springs Pipeline No. 2 are located in two side by side 40-foot wide easements aligned with west side of the Elm Avenue rights of way (ROW), extending across the Bayhill Drive ROW and through Parcel 9 (1100 Grundy Lane) in the east portion of the Plan Area; see **Figure 2-5**, SFPUC Easements Map.

SFPUC has policies for its rights of way that may pertain to the San Bruno easements, depending on the language in the grant of the easements. SFPUC policies that may apply relate to land use and structures, recreational use, utilities, vegetation, and water efficiency within its ROW. Construction of structures on the SFPUC ROW is generally prohibited, with prohibitions on structures or improvements that require excavation, bored footings, or concrete pads that are greater than six inches deep. No structures may be placed directly on top of a pipeline or within 20 feet of the edge of a pipeline. Typically, no utilities may be installed in the ROW running parallel to the SFPUC's pipelines; utilities may run perpendicular to pipelines with SFPUC approval. Large trees may not be planted within SFPUC ROW.

New construction anticipated in the Specific Plan Area includes below-grade tunnels between parking garages and above-grade pedestrian bridges between regional office buildings, as well as the new underground garages and the office buildings themselves, street improvements, and site and street landscaping. Depending on the location and type of construction relative to existing SFPUC rights of-way, SFPUC review and approval of development plans may be required.

Specific Plan Land Use Framework

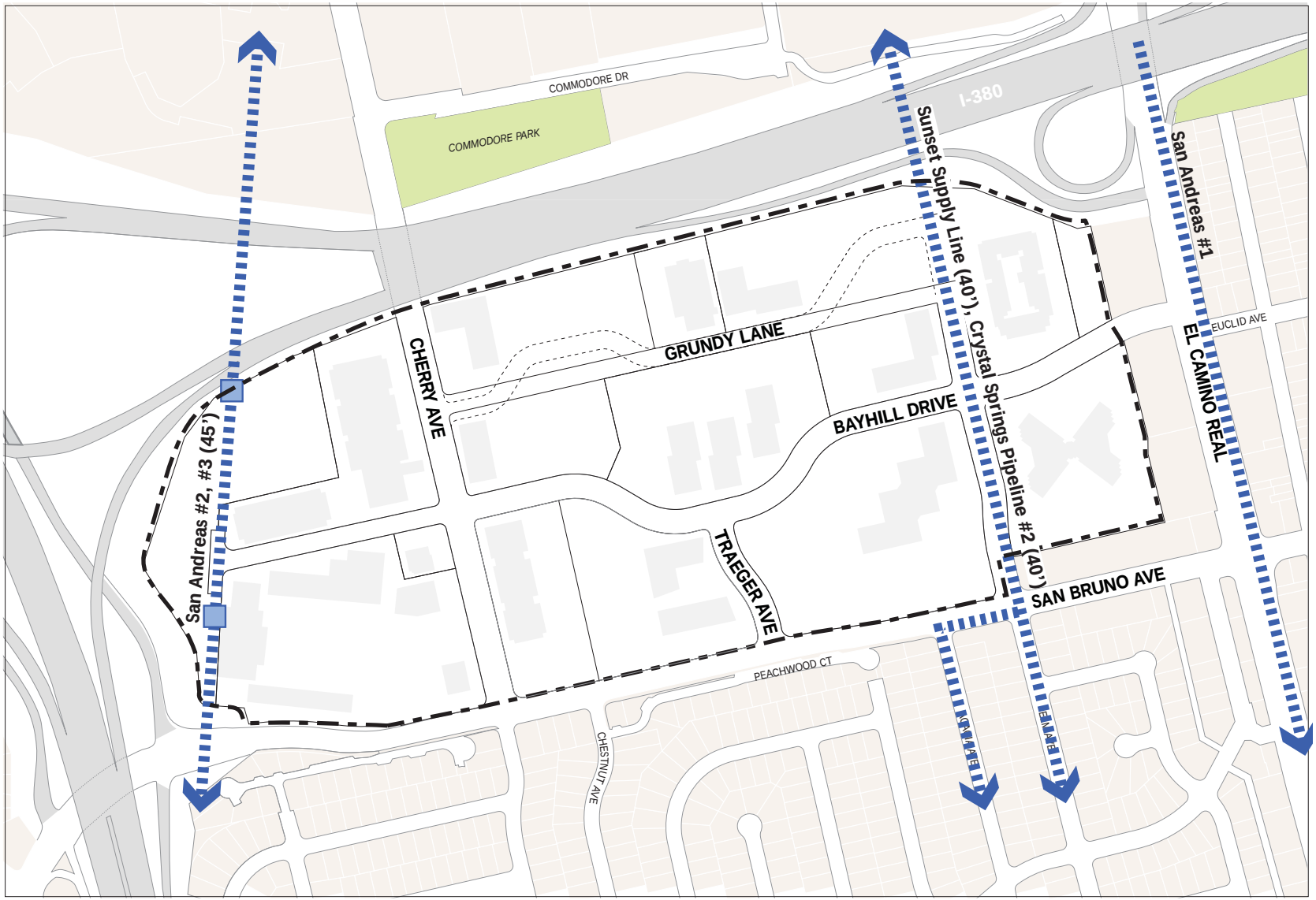
REGIONAL OFFICE DEVELOPMENT

The Specific Plan Area is San Bruno's premier office district, well-located mid-way between San Francisco and Silicon Valley and close in proximity to San Francisco International Airport. The General Plan calls for its role as an employment center to continue with intensification of existing office uses. Given excellent access to regional transportation and transit facilities, and land values in San Bruno and the surrounding region, the Specific Plan assumes that Bayhill can and should be redeveloped with new office buildings that have underground parking.

Key factors supporting an increase the amount of office use in the Plan Area are:

- YouTube has an aggressive Transportation Demand Management (TDM) program (i.e., programs that reduce the number of employees using single occupancy vehicles), and other employers support shuttles and other efforts to reduce single occupancy vehicle use.

Figure 2-5: SFPUC Easements



- Proximity to Caltrain and BART stations indicates that future occupants of office buildings in Bayhill can implement successful TDM programs.
- Bayhill is a developed office park and can be updated and improved to provide economic revitalization.
- Strong interest on the part of YouTube to further develop their sites by constructing new buildings with underground parking.

The Specific Plan EIR evaluated the impacts of 2.46 million square feet of additional office development. Plan policies specifically allocate 2.25 million square feet for regional office development and allocate square feet to other uses, per **Table 2-2**, that stay below the 2.46 million square feet of additional office development cap, or its equivalent in other land uses, established as the maximum development envelope in the Specific Plan EIR.

Specific Plan policies in Chapter 3, *Urban Design and Public Realm* promote development of larger scale, regional office/headquarters facilities, including land area for coordinated public realm improvements and multimodal access facilities. The Plan's policies require that parcels intended for regional office use are maintained as large parcels, and that new buildings relate to one another to create a coherent overall workplace environment.

INCLUSION OF HOUSING

Housing demand in the City of San Bruno is anticipated to remain strong over the time frame of the Specific Plan. To address the region's ongoing need for additional housing, the Specific Plan establishes two housing overlay designations in appropriate locations in which land owners have the option of developing housing. These designations, described below, allow up to 573 dwelling units as indicated by **Table 2-2**.

LAND USE DESIGNATIONS

The Specific Plan establishes four Land Use designations as shown in **Figure 2-6**, Land Use Designations, two of which are overlay designations. The designations establish where particular land uses are permitted within the Plan Area and where associated development standards and design guidelines apply. Overlay designations permit residential in addition to the uses permitted by the underlying land use designations, with supplemental standards and guidelines applied to address residential use. Permitted land uses for each designation are summarized below; a full listing of permitted and conditional uses is provided in the implementing Zoning Ordinance.

Bayhill Regional Office (BRO) — Bayhill Regional Office permits regional administrative and professional offices and hotels in a contemporary campus-style setting. Retail sales and services, personal services, business services, and restaurants, are permitted as ancillary uses.

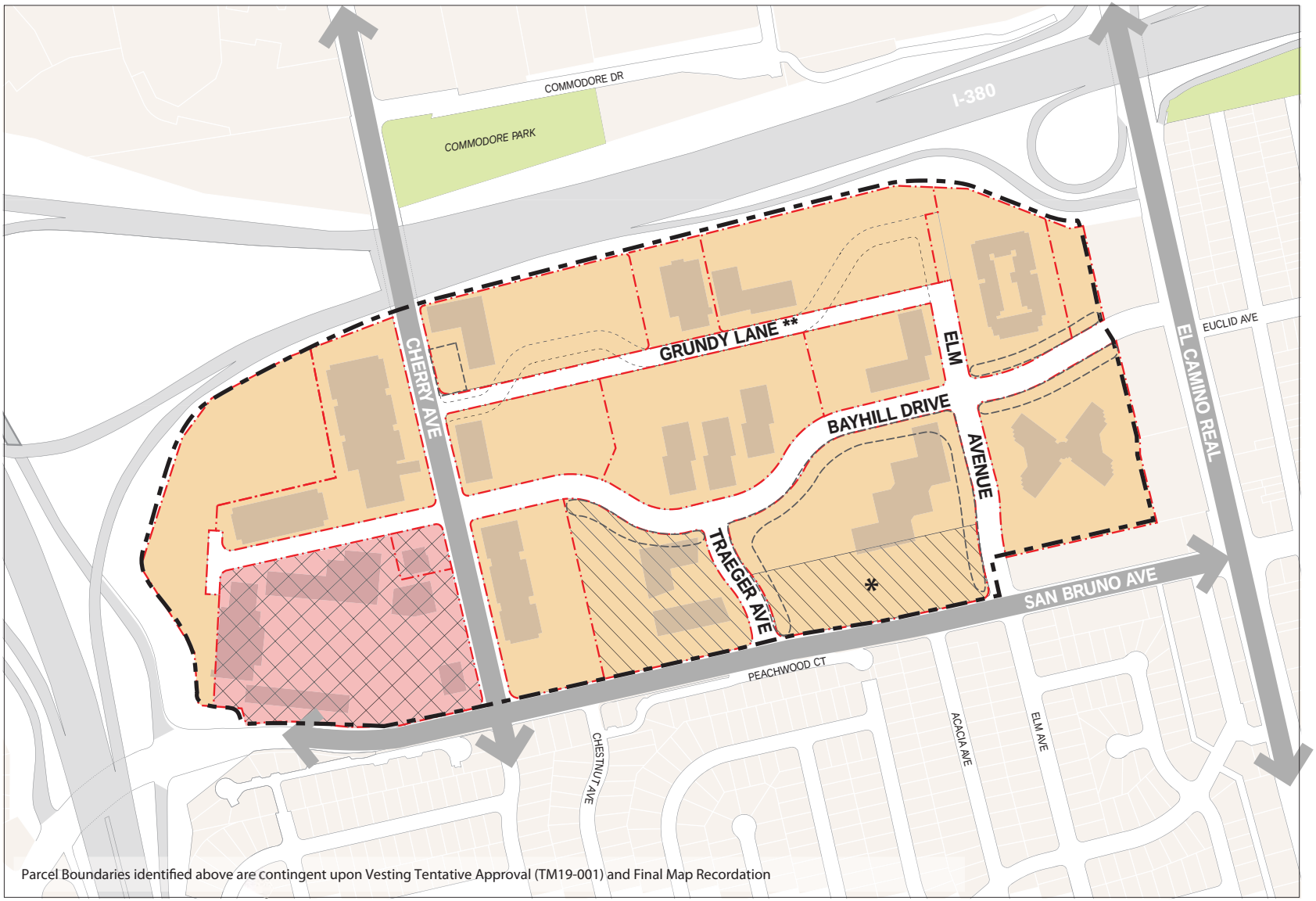
Bayhill Neighborhood Commercial (BNC) – Bayhill Neighborhood Commercial permits convenience and retail commercial uses including retail sales and services, restaurants, personal services, business services, health and exercise clubs, and offices.

Bayhill Mixed Use Overlay (BMU) — The Bayhill Shopping Center provides neighborhood-serving commercial goods and services to nearby residents as well as the Plan Area's many office workers. Retaining and expanding retail shopping and other services is an important goal of the Plan. The site's large surface parking area provides an opportunity for intensification of commercial use and the addition of housing.

The Mixed-Use Overlay allows for residential development provided the current amount of commercial use on the site is not reduced. Housing may be developed in standalone buildings or above commercial space in a mixed-use building. A total of 210 units could be developed throughout the Bayhill Shopping Center and the adjacent property located at 899 Cherry Avenue.

Bayhill Residential Overlay (BR) — The Residential Overlay provides for residential development on two properties (801-851 Traeger Avenue & 1111 Bayhill Drive) along the San Bruno Avenue frontage within Bayhill Regional Office (BRO) designation as shown on **Figure 2-6**. Housing may be provided combined with office uses permitted under the base BRO designation or as a standalone use, replacing office buildings. Up to 363 housing units are allowed. The amount of office square footage allowed on these sites is reduced when housing is built, as described in the Land Use Policies.

Figure 2-6: Land Use Designations



HOTEL USE

The Plan Area's proximity to San Francisco International Airport, major employers, and regional transportation and transit facilities indicate hotel demand in the local area is likely to be strong. Hotels support regional office development and provide transient occupancy tax revenues that benefit the City of San Bruno. The Plan encourages expansion of the hotel at 1050 Bayhill Drive (the Marriott Courtyard site), and the Plan's implementing zoning allows hotel as a conditional use anywhere within the Specific Plan Area.

CIVIC USE

The city has indicated an interest in building a new public library and will need other civic facilities in the future. The Specific Plan designates an area of 2.1 acres on San Bruno Avenue between Elm and Traeger Avenues for a potential civic use, such as a library. The site is on the edge of the Plan Area, partially separated from the remainder of the site by topography and near residential areas to the south. While a civic use would be permitted by this Plan, development is dependent on the City obtaining funding to purchase the land or otherwise obtaining the land as a community benefit.

OPEN SPACE / GREENWAYS

One of the key features of the Specific Plan is the creation of Greenways – linear open spaces accessible to the public – along portions of Bayhill Drive, Traeger Avenue, and Elm Avenue, important gateway streets to and through the Plan Area from the surrounding community. Greenways will be attractive, landscaped walking areas for San Bruno residents and visitors, as well as Plan Area workers. They will be designed to be publicly accessible and inviting, wider than typical front building setback areas, and distinct from adjacent private development. They will incorporate expansive landscaping as well as expanded public realm walkways, benches, lighting and/or other amenities as described in more detail in Chapter 3, *Urban Design and Public Realm*.

CHANGES TO ORDINANCE 1284 NECESSITATE SPECIFIC PLAN AMENDMENT

Ordinance 1284 limits building heights in the Plan Area to three stories and fifty feet as described earlier in this Chapter. The Specific Plan does not call for change in Ordinance 1284. However, the City Council requested that the Bayhill Specific Plan Environmental Impact Report (EIR) evaluate the impacts of changing Plan Area building heights to five stories and 70 feet, consistent with the heights approved by voters for the adjacent Transit Corridors Plan Area, in order to increase the amount and potential feasibility of housing and hotel development. The square footage of office development is not increased in this alternative. This alternative was evaluated in the Bayhill Specific Plan Environmental Impact Report (EIR).

Should Ordinance 1284 be modified, amendments would be needed to the Specific Plan and the Zoning Ordinance to include additional design and development standards for five-story buildings. These amendments would be needed to guide creation of more intensive high-quality residential and hotel development, and to ensure that office development provides additional ground-level open space and landscaping.

REALIGNMENT OF GRUNDY LANE

The Plan proposes realignment of Grundy Lane to achieve a more regular parcel configuration and allow for more direct and enhanced pedestrian, bicycle and vehicular access to proposed buildings. As part of this realignment, several parcels on Grundy Lane and Elm Avenue north of Grundy will be reconfigured.

PRIVATE MULTI-MODAL TRANSPORTATION HUB

YouTube currently operates a private bus/shuttle fleet for its employees. YouTube plans to occupy the majority of new Bayhill office development, and the company proposes to establish an off-street facility to load and unload employees from their private fleet without vehicle queueing on adjacent streets. The Specific Plan Policies mandate the inclusion of this private multi-modal transportation hub. This facility is expected to accommodate demand for the initial phases of YouTube office development and will be evaluated over time to determine if additional off-street facilities or an expansion of the proposed facility is needed to keep the majority of expected shuttle/bus traffic off public streets. The proposed multi-modal transportation hub may also serve as a through-block private pedestrian way that encourages Plan Area pedestrian circulation with ample space for pedestrian walks, waiting, and bicycle parking areas.

PLAN AREA RESILIENCY

Owners, occupancy, and types of tenants change over the life of office parks and office buildings. It is important for the long term economic health of the Plan Area and the City of San Bruno that development occur in a way that can accommodate changes over

time – i.e., be resilient. New development will be designed so that buildings and sites are flexible enough to attract and accommodate different tenants and minimize the expensive construction, greenhouse gas, and other impacts associated with additional rounds of redevelopment.

DEVELOPMENT ALLOCATION

On **Table 2-2**, Potential Development Allocation, the Specific Plan allocates 2,245,000 million square feet of additional regional office space and up to 573 dwelling units on a parcel-by-parcel basis according to the following criteria:

- *Existing development and the likelihood of replacement given the age and condition of existing buildings;*
- *Ability to provide additional underground parking to support increased square footage in accordance with the underground parking requirements of Ordinance 1284;*
- *YouTube plans for development of its Plan Area properties;*
- *Potential land available on parcels designated for Greenway open space;*
- *Proximity to existing residential areas to the south and transit facilities east of the Plan Area; and,*
- *Consistency with the total square footage in the development envelope analyzed in the Bayhill Specific Plan EIR.*

Figure 2-2, Plan Area Parcels, illustrates the **Table 2-2** parcel numbering.

According to the criteria above, some parcels are not recommended for redevelopment more intensive than what already exists on-site. However, to allow for small additions during the life of the Specific Plan, these parcels are allocated 5,000 square feet for small-scale building renovation/additions. For office uses, this could include amenities such as an add-on cafeteria or meeting space. As shown on **Table 2-2**, parcels receiving the 5,000 square foot allocation are Parcels 3, 6, and 8 (the Walmart tower, former Gap building, and The Police Credit Union), and Parcel 16 (1050 Bayhill Drive), the current Marriott Courtyard hotel. Bayhill Shopping Center Parcels 1 and 2 (851 and 899 Cherry Avenue) together are also allocated 5,000 square feet of additional development.

A Development Agreement applies to vacant hillside Parcel 5 (APN 020-012-160), adjacent to 901 Cherry Avenue. The parcel's Planned Development zoning and the Development Agreement authorize approximately 287,000 square feet of office space to be developed, consistent with approved entitlements. The property owner has the right to develop the project as approved under this Development Agreement until it expires in August 2021, unless an extension is approved. In its policies, the Specific Plan also allocates a total of 287,000 square feet of office space for this parcel. Policies of the Specific Plan would not apply should development proceed consistent with the Development Agreement. Should development occur after the Development Agreement expires, development of this parcel will be governed by this Specific Plan. In the fall of 2020, the applicant was moving forward with the submittal of building permits to develop this parcel.

Regional Office Equivalents — Up to 2,459,847 sq. ft. of additional regional office development is evaluated in the EIR, as noted above. The Specific Plan does not allocate all of this square footage to regional office development. As indicated on **Table 2-2**, a total of 2,245,400 sq. ft. is allocated to office use.

Some additional square footage is allocated to retail and hotel uses, which have greater per-square-foot environmental impacts than regional office use. The Plan establishes per-square-foot equivalency ratios for retail and hotel uses that equate the impacts of retail and hotel uses to regional office use in order to stay within the envelope of impacts identified by the EIR as indicated on **Table 2-4**. Using these equivalencies, retail and hotel uses are permitted less square footage than would be allowed for regional office. The actual total amount of new square footage, including additional retail and hotel square feet allocated by the Plan is 2,435,747 square feet (see **Table 2-2**).

Unallocated Square Footage — As indicated by **Table 2-2**, 180,618 square feet is unallocated to specific parcels and may be allocated among hotel, retail, and/or office uses for expansion in the future. Hotel and retail uses are the priority, and allocation would be on a first-come, first-serve basis. The amount of development actually permitted for hotel and retail would be in the form of "regional office equivalents" established by the Plan and described above.

Table 2-2: Potential Development Allocation

Parcel Number	Address(es)	Specific Plan Parcel Size (sq. ft.)	Existing Development (sq. ft.)	Planned Land Use Designation	Potential Net New Development[1] (sq. ft.)	Potential Total Development (sq. ft.)	Potential Residential Overlay (Units)
Bayhill Shopping Center							
1	851 Cherry Ave[2]	432,420	117,843	BNC / BMU	5,000	126,846	210
2	899 Cherry Ave[2]	26,396	4,003	BNC / BMU			
Subtotal		*458,816*	*121,846*		*5,000*	*126,846*	*210*
Office Development							
Bayhill General							
3	850 Cherry Ave	145,708	270,980	BRO	5,000	275,980	
4	801-851 Traeger Ave[6]	264,366	134,712	BRO / BR	125,000	259,712	205
8	1250 Grundy Ln	75,233	67,586	BRO	5,000	72,586	
Subtotal		*485,307*	*473,278*		*135,000*	*608,278*	*205*
YouTube							
5	APN 020-012-160[3]	290,545	0	BRO	287,000	287,000	
6	901 Cherry Ave	240,277	195,000	BRO	5,000	200,000	
7	1000 Cherry Ave	213,626	94,465	BRO	248,000	342,465	
9	1100 Grundy Ln	271,353	101,123	BRO	328,877	430,000	
10	900 Cherry Ave	151,869	102,252	BRO	192,000	294,252	
11	1150-1250 Bayhill Dr	283,070	138,524	BRO	301,476	440,000	
12	950 Elm Ave	117,852	106,099	BRO	52,568	158,667	
13	1111 Bayhill Dr[4,6]	426,711	206,137	BRO / BR	363,863	570,000	158
14	999-1001 Bayhill Dr	263,835	140,969	BRO	290,735	431,704	
15	APN 020-011-370	37,873	0	BRO	40,510	40,510	
Subtotal		*2,297,011*	*1,084,569*		*2,110,029*	*3,194,598*	*158*
Total Office		**2,782,318**	**1,557,847**		**2,245,029**	**3,802,876**	**2,245,029**

Parcel Number	Address(es)	Specific Plan Parcel Size (sq. ft.)	Existing Development (sq. ft.)	Planned Land Use Designation	Potential Net New Development[1] (sq. ft.)	Potential Total Development (sq. ft.)	Potential Residential Overlay (Units)
Total Residential							**573**
Hotel Development							
16	1050 Bayhill Dr	196,978	79,152	BRO	5,000	84,152	
Subtotal		*196,978*	*79,152*		*5,000*	*84,152*	-
Total Planned		**3,438,112**	**1,758,845**		**2,255,029**	**4,013,874**	
Unallocated [5]					**180,718**		
Total		**3,438,112**	**1,758,845**		**2,435,747**[1]	**4,013,874**	**573**

Planned Land Use Designations:

BRO - Bayhill Regional Office

BNC - Bayhill Neighborhood Center Commercial

BR - Bayhill Residential Overlay

BMU - Bayhill Mixed-Use Overlay

Notes:

1. 2,459,847 sq. ft. of additional office development is evaluated in the EIR Preferred Alternative. The Specific Plan allocates some of this square footage to uses that have greater per-square-foot impacts than office development, per equivalency ratios established by the Plan. This reduces the total square footage allocated to less than 2,459,847 sq. ft.
2. Allocations of commercial and residential development may be applied to either parcel, consistent with the land use and urban design policies of the Specific Plan.
3. Allocation per existing development agreement. If this development proceeds, the Specific Plan allocation for the property will be reduced by the sq. ft. amount of the development.
4. 2.1 acre civic use fronting San Bruno Avenue may be located within this block
5. May be allocated to hotel, retail, or office consistent with Plan policies. Actual square footage may be less than this number due to equivalency ratios.
6. Office allocations for Parcels 4 and 13 would need to be be reduced to allow residential development.

Source: City of San Bruno, YouTube, 2020.

Residential Allocation — Up to 210 of the 573 residential dwelling units allowed are allocated to Parcels 1 and 2 to encourage mixed-used redevelopment at the Bayhill Shopping Center (851 and 899 Cherry Avenue), provided the existing amount of commercial space is not reduced. Up to 363 units are allocated to Parcels 4 and 13 (801-851 Traeger and 1111 Bayhill), for development of a residential frontage along San Bruno Avenue that complements neighborhoods to the south and the Transit Corridor Plan area to the east. Should land area be dedicated to residential development on these parcels, the amount of office development square footage allocated to these parcels would be reduced as shown in **Table 2-4**.

New Development and Community Benefits Funding — As noted above, the amount of development allowed prior to preparation of the Specific Plan was determined by the existing zoning. With the amount of additional development allowed in the Plan Area increased substantially by the Specific Plan, the Plan requires that new office and/or residential development in excess of that allowed by the zoning prior to adoption of the Specific Plan provide funding for community benefits. Chapter 7, *Implementation*, provides background on community benefits and policies to require community benefit funding.

Transfer of Development Square Footage — Parcels within the Specific Plan Area vary in size, configuration, and relation to the proposed Greenways. Over the 20-year time frame of the plan, there may need to be adjustments to the allocation of office square footage to address particular site constraints or the needs of future tenants. To provide flexibility to implement Specific Plan policies and address future tenant needs, the Plan allows up to 20% of the permitted maximum development square footage for any particular parcel to be transferred to another parcel, provided both parcels have the same owner.

While these transfers may serve private development objectives, they must also result in a public benefit, such as increasing the amount of publicly accessible open space, or facilitating construction of housing or civic facilities. Development on transferring and receiving parcels with the same ownership shall be subject to a review process that the City will establish in the future, and all applicable Specific Plan policies and Zoning development standards and design guidelines will apply, including a maximum 2.0 FAR for the receiving development parcel.

While transfer of development square footage between parcels in the same ownership is the anticipated use of this policy, the Specific Plan allows the City Council to approve transfer of development square footage between two different owners when the City Council finds that this transfer would result in a public benefit that would be difficult to achieve without this transfer.

Phasing of Development — Development is likely to occur over a number of years. The phasing of new buildings and parking facilities will depend upon market conditions and program needs at the time of development, and the Specific Plan allows applicants to accommodate a sequence of development that ensures the efficient functioning of Bayhill buildings and facilities consistent with the policies of the Specific Plan. Because the timing of development is uncertain, it is important to ensure that all sites modified during a given phase of development be in a finished state when a phase of development is complete, including landscaping, parking, and/or other interim site improvements, and that segments of the Greenway be completed as new development proceeds.

2.5 Land Use Policies*

2-1: Maintain the Bayhill Plan Area as a Premier Regional Office Location. The Bayhill Specific Plan allows for a denser, more pedestrian-oriented workplace area that supports larger scale, regional office/ headquarters facilities. Minimum parcel sizes, land area for public realm improvements and multi-modal access facilities, and new buildings that relate to one another are required to create a coherent overall workplace environment that supports larger scale, regional office/headquarters facilities. These requirements are established in the Land Use and Urban Design Policies and in the Specific Plan's implementing zoning ordinance.

2-2: Allocate New Development According to Land Use Objectives and Site Feasibility. Development is allocated on a parcel-by-parcel basis, per **Table 2-2**, to support significant increases in Bayhill's regional office and hotel space, and to allow new housing development. Individual parcels are allocated amounts of development according to site conditions and other factors as described in the Specific Plan, consistent with the overall amount of development evaluated by the Bayhill Specific Plan EIR. The maximum FAR of any individual parcel shall be 2.0.

2-3: Development of Parcel APN 020-012-160. The vacant Parcel APN No. 020-012-160 (Parcel 5) adjacent to 901 Cherry is allocated 287,000 square feet of office development on **Table 2-2**. If development has not proceeded consistent with that parcel's Development Agreement (DA), the Bayhill Specific Plan policies and regulations and Bayhill Regional Office (BRO) zoning shall apply. If development under the DA does proceed, the Specific Plan allocation for the property shall be reduced by the amount of development that was constructed under the DA.

2-4: Bayhill Specific Plan Land Use Designations. Four new land use designations and implementing zoning districts are established for the Plan Area: Bayhill Regional Office (BRO), Bayhill Neighborhood Center Commercial (BNC), Bayhill Residential Overlay (BR), and Bayhill Mixed-Use Overlay (BMU). The boundary of the designations is shown on the Land Use Designations, **Figure 2-6**.

2-5: Provide for Additional Regional Office Use. The Bayhill Regional Office (BRO) designation is established to allow additional regional office development allocated by parcel per **Table 2-2**.

2-6: Preserve Retail, Eating and Drinking and Service Commercial Uses at the Bayhill Shopping Center. The Bayhill Neighborhood Center Commercial (BNC) designation is established. The existing amount of neighborhood- serving retail, restaurant, and service commercial development, 121,846 square feet, shall not be reduced as part of any site redevelopment. Expansion of retail uses is permitted, as shown on **Table 2-2**.

2-7: Support Mixed Use Development at the Bayhill Shopping Center. The Bayhill Mixed-Use Overlay (BMU) designation is established to allow the transformation of the Bayhill Shopping Center site into a mixed-use district, adding housing to neighborhood-serving retail, restaurant, and service uses. The Bayhill Mixed-Use Overlay district allows up to a maximum of 210 dwelling units, as shown on **Table 2-2**. The current square footage of neighborhood commercial uses may not be reduced, as required by **Policy 2-6**. Housing may be provided in standalone or mixed-use buildings; however, along Cherry Avenue, housing above commercial spaces is required.

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* Policy implements mitigation measure required by Environmental Impact Report for all development under Specific Plan.

(*) Policy implements mitigation measure required by Environmental Impact Report for all development under Specific Plan except Phase I Development.

2-8: Allow Housing Development along San Bruno Avenue. The Bayhill Residential Overlay (BR) designation is established to allow for residential uses along San Bruno Avenue on the entire site at 801-851 Traeger Avenue and on 3.95 acres of the 1111 Bayhill Drive site, Parcels 4 and 13 on **Figure 2-2**. The BR Designation allows for up to 363 dwelling units. As indicated by **Table 2-2**, a maximum of 205 units are allowed for 801-851 Traeger and a maximum of 158 units are allowed for 1111 Bayhill. When residential square footage is developed on these parcels, the Office Development square footage permitted on these parcels shall be reduced using the conversion factors listed in **Table 2-3**.

Table 2-3: Reduction Of Regional Office Allocation For Residential Land Use

	Reduction of Office Allocation per Dwelling Unit
Residential - 801-851 Traeger	1,267 sq. ft.
Residential - 1111 Bayhill	1,454 sq. ft.

Source: Dyett & Bhatia, ICF, 2019

2-9: Create a Residential Frontage along San Bruno Avenue. New residential development along San Bruno Avenue in the Residential Overlay shall be in the form of standalone buildings that are residential-only – separate in terms of siting and program from any on-site office buildings. Residential development shall be oriented to face San Bruno Avenue, as well as Traeger and/or Elm Avenues as appropriate, and feature front porches, stoops, and other features that complement single family residences to the south and create a transition to Bayhill's office development.

2-10: Enable Expansion of Hotel Land Uses.[3] Hotel is a permitted land use throughout the Plan Area, and new and/or expanded hotel use(s) are encouraged on properties east of Elm Avenue. To support the provision of additional hotel rooms, additional hotel square footage is allowed at 1050 Bayhill Drive as shown on **Table 2-2** and is a priority for the use of unallocated square footage as described in **Policy 2-11**.

3 Hotel/motel development within the 65 db CNEL contour is subject to the applicable Policies within the Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco International Airport which require sound insulation to reduce interior noise levels from exterior sources to CNEL 45 db or lower, and the granting of an avigation easement to the City and County of San Francisco as operator of SFO. For more information on this requirement, see Resolution 21-12 of the San Mateo County Airport Land Use Commission.

2-11: Prioritize Expansion of Hotel and Retail Land Uses. The unallocated 180,718 square feet of regional office development per **Table 2-2** shall be allocated on a first come, first served basis, with priority given to retail and hotel expansion when feasible. The City shall use the "Regional Office Equivalents" listed in **Table 2-4** to convert the amount of unallocated square feet of regional office development to hotel and retail square footage. Regional office land uses shall also be permitted to use this unallocated square footage, but with a lower priority than hotel and retail uses.

Table 2-4: Regional Office Development Equivalents For Non-Residential Land Uses

	Conversion Factor per Sq. Ft. of Regional Office[1]	Equivalent per 1,000 sq. ft. Regional Office
Professional Services Office	1.00	1,000 sq. ft.
Retail Commercial	0.19	190 sq. ft.
Hotel	0.64	640 sq. ft.[2]
Civic Use	1.00	1,000 sq. ft.

Notes:

1. Equivalent factors maintain development within the EIR analysis envelope based on quantitative analysis of: 1) Operational traffic, 2) Operational water, wastewater, and solid waste, 3) Operational criteria air/GHG pollutants, and 4) Operational roadway noise.
2. Hotel rooms are assumed to average 595 sq. ft. Therefore 1,000 sq. ft. of office development is equivalent to 1.08 hotel rooms (640/595 = 1.08).

Source: ICF, 2019

2-12: Allow a Community-Oriented Civic Use in the Plan Area. A civic facility occupying up to 2.1 acres is established as a permitted use for 1111 Bayhill Drive, fronting San Bruno Avenue. If a civic use is developed, the amount of office and/or residential development allocated to the site shall be reduced consistent with this Specific Plan.

2-13: Incorporate Greenway Open Space as a Central Element of the Plan. Greenway open space areas are required along portions of the public street-facing frontages of Bayhill Drive, Traeger Avenue, and Elm Avenue as shown on **Figure 3-1**, Public Realm Concept in Chapter 3, *Urban Design and Public Realm*. These greenway open spaces, which provide an expanded public realm, shall be located on private land but are publicly-accessible and sufficient in dimension for both workers and community members to enjoy as described in the Policies and Design Guidelines in Chapter 3, *Urban Design and Public Realm*.

2-14: Allow Transfer of Office Development. Up to 20% of the permitted maximum office square footage for any particular parcel in the Bayhill Regional Office designated area as shown in **Table 2-2** may be transferred from one parcel to another parcel, provided both parcels are under the same ownership, the receiving parcel does not exceed FAR 2.0, and the applicant can demonstrate to the satisfaction of the City that the proposed transfer would achieve a significant community benefit, such as open space accessible to the public, a civic use, or facilitation of new housing development.

The City Council can make an exception and allow transfer of development square footage between parcels with two different owners. City Council review of transfer of development square footage between parcels with different owners will include an analysis of the specific community benefit(s) (e.g. additional open space accessible to the public, facilitation of housing development, a civic use) that this transfer facilitates that are unlikely to be achieved without this transfer. The receiving parcel cannot exceed FAR 2.0.

2-15: Ensure Flexibility and Resiliency. Buildings and site improvements must be designed to be flexible enough to accommodate potential changes in ownership and changing economic, environmental and social conditions. This includes changes in occupancy, as well as modifications needed to adapt to changes in energy supply and other unforeseen circumstances. Highly-customized or branded building and site designs are discouraged in favor of facilities that can be used by a variety of types of enterprises, and can be modified as needed over time. If the City approves a development project with shared facilities that cross property lines or are shared across adjacent properties, such as above or below grade pedestrian or vehicle connections, the City shall ensure through conditions of approval that these facilities can be modified or removed as needed in the future to accommodate property(s) ownership changes.

2-16: Ensure Self Sufficient Development Phases. Individual phases of development shall be functionally and aesthetically self-sufficient when completed, and allow for efficient occupancy and functioning of remaining Specific Plan Area buildings, parking facilities, and infrastructure.

2-17: Require Interim Site Improvements. All sites modified during a given phase of development shall be in a finished state when a phase of development is complete. Remaining vacant land areas should be improved with landscaping, parking, and/or other interim site improvements. Completion of Greenway segments is required as new development proceeds.

2-18: Create a Private Multi-Modal Transportation Hub. An off-street multi-modal transportation hub shall be established to accommodate private bus/shuttle loading and unloading without impacting city streets, and shall be expanded as needed to accommodate each phase of development through to buildout.

2-19: Ensure SFPUC-Related Development Review. Project applicants for new development shall submit conceptual design plans for work within or adjacent to SFPUC easements, including construction methods for protecting SFPUC water transmission pipelines, to the SFPUC for review and consent to the extent required under applicable SFPUC authority.

2-20: Ensure Compliance with Comprehensive Airport Land Use Compatibility Plan Policies Related to Building Permits for the Environs of San Francisco International Airport. Prior to building permit issuance, applicants of development projects within the Specific Plan Area that would exceed the FAA notification height, thirty feet in 2021, must either file the applicable Forms with the FAA and provide to the City of San Bruno an FAA determination of no hazard or air navigation finding, or provide evidence that the project is exempt from this requirement. Additionally, all properties that are offered for sale or lease shall comply with all real estate disclosure requirements required by applicable Comprehensive Airport Land Use Compatibility Plan Policy.[4]

4 For more information on this requirement, see Resolution 21-12 of the San Mateo County Airport Land Use Commission, Determining That Proposed Bayhill Specific Plan and Related General Plan And Zoning Amendments in San Bruno Are Conditionally Consistent with the Comprehensive Airport Land Use Compatibility Plan For The Environs Of San Francisco International Airport.

BAYHILL SPECIFIC PLAN

3.

Urban Design & Public Realm

3.1 Existing Conditions (2019)

3.2 Urban Design Framework

3.3 Urban Design Policies

3.4 Urban Design Guidelines



3 Urban Design & Public Realm

This Chapter focuses on the quality of streets as public spaces, and their role in creating an attractive, interconnected public realm that encourages walking and bicycling. Urban design policies require new development to provide enhanced pedestrian walkways, bike lanes, street trees, and pedestrian-oriented lighting. They require that publicly-accessible Greenway open spaces be created as a defining element of the Specific Plan Area. They promote new buildings that respect streets as public spaces, with the flexibility to serve users and the city of San Bruno well over the long term and add to the quality, attractiveness, and long-term economic value of the Bayhill Office Park for both businesses and the community.



3.1 Existing Conditions (2019)

General Character of Development

Most of the Plan Area was developed in the 1970s, and streets and buildings reflect the suburban, auto-oriented character of development at the time. Stand-alone buildings are surrounded by large parking lots with poor relationships to neighboring parcels or buildings. Landscaping is focused on screening and shading the considerable expanses of surface parking. Landscaped building setback and parking lot areas are the only current amenities in the Plan Area. Sidewalks are relatively narrow, typically eight feet wide, though in some locations they are six feet or less, with minimal shading. A monolithic concrete curb, gutter and sidewalk configuration is typical, with pedestrians directly adjacent to roadways and passing traffic.

Buildings

Most buildings are concrete and glass, with "blocky" forms typical of 1970s and 1980s commercial building design. Heights range from one-story retail buildings in the Bayhill Shopping Center, to six story buildings at 900 and 850 Cherry Avenue. Most buildings are three stories, consistent with the three-story/50-foot height limit established in 1977 by City Ordinance 1284. Office building footprints average approximately 40,000 square feet in area. Building coverage is approximately 18 percent, with the remaining area surface parking, landscaped building and parking lot setback areas, and roadways.

Reflecting the highly auto-oriented nature of Bayhill, most Plan Area buildings are oriented to adjacent parking lots rather than adjacent streets, which tends to impede and discourage pedestrian traffic. Some buildings are parallel to streets, some perpendicular, and some at other angles. Buildings are generally setback 20 to 30 feet from adjacent sidewalks, though as close as 7 feet in limited locations in the Bayhill Shopping Center. The location and orientation of buildings can have a strong effect on the character of the public realm. Buildings define the boundaries of the street space, and those with land uses that generate high levels of activity and street facing building entrances can encourage walking and social activity.

Boundaries and Topography

The Plan Area is approximately 3,000 feet from east to west, and 1,300 feet from north to south. It rises approximately 100 feet, from elevation 50 at the east end of Bayhill Drive to elevation 160 on the west, with the adjacent wooded hillside rising to 200 feet at Interstate 280. Views from upper Plan Area streets and buildings include San Bruno Mountain to the north and San Francisco Bay and Mount Diablo to the east.

Surrounding roadways separate the Plan Area from the adjacent portions of the City. Interstate 380 borders the Plan Area on the north and Interstate 280 borders it on the west. To the east, El Camino Real is a six-lane roadway with minimal pedestrian or bicycle amenities or street crossing opportunities. On the south, San Bruno Avenue West is a four-lane arterial with a similar lack of pedestrian- and bicycle-related facilities. None of the Plan Area's gateway intersections contain facilities to encourage pedestrian or bicycle access. The lack of pedestrian and bicycle connections to nearby destinations, particularly transit facilities and commercial areas, is an important challenge to address so the Plan Area can accommodate an expanded working population and potential residents without significant traffic and greenhouse gas impacts.



Most (existing) Plan Area buildings are oriented to adjacent parking lots rather than adjacent streets.

Streets and Streetscapes

Plan Area streets have different roles in terms of circulation and the public realm. Bayhill Drive, Grundy Lane, and Traeger Avenue are internal streets that do not facilitate through-traffic. Cherry Avenue and Elm Avenue extend to and through the interior of the Plan Area from adjacent portions of the city. San Bruno Avenue is a Plan Area boundary and a major crosstown link between I-280 and US 101, providing direct access to the San Bruno Caltrain Station and indirect access to San Francisco International Airport via McDonnell Road. The physical characteristics of Plan Area streets in 2019 are described in Chapter 4, *Access & Connectivity.*

None of the Plan Area streets provide consistent street trees or curbside planting to buffer pedestrians from passing traffic. There are no street furnishings, such as benches, trash receptacles, or bus shelters. Pedestrian-scale light fixtures are provided along the frontage of 850 Cherry Avenue. Otherwise, lighting is auto-oriented, with mast-arm light fixtures approximately 230 feet to 300 feet apart in a staggered, offset pattern. A lack of curbside street trees, pedestrian-oriented lighting, and other amenities limits the appeal of walking within the Plan Area and to and from BART, Caltrain, Downtown, and other local destinations.

3.2 Urban Design Framework

Enhanced Pedestrian Environment

Under the policies of this Specific Plan, the large parking lots that line most Plan Area streets will be replaced over time by new office buildings with underground parking, making walking and biking a much more attractive experience. This Chapter contains policies and guidelines to ensure that the design of new on-site landscaping and buildings also contribute to an enhanced pedestrian environment along every Plan Area street as depicted in **Figure 3-1**, Public Realm Concept Map. New development within the Specific Plan Area will improve the pedestrian environment, with continuous curbside street trees, pedestrian-oriented lighting, curbside planting, replaced sidewalks, improved street crossings and, in some locations, additional street crossings.

Specific improvements planned for each street in the Specific Plan Area are somewhat different. For example, improvements planned along Bayhill Drive focus on creating a park-like greenway, with substantial building setbacks and landscape plantings. Improvements planned along Cherry Avenue adjacent to Bayhill Shopping Center would accommodate potential mixed-use development, with first floor commercial space, widened sidewalks and other hardscape amenities. The frontage of San Bruno Avenue would be improved to complement the residential neighborhood frontages to the south.

Greenways

The Specific Plan features greenways: continuous, linear, publicly accessible and useable open spaces on private land as a defining urban design element. As depicted in **Figure 3-1**, Public Realm Concept Map, these Greenways are planned to extend:

- The north side of Bayhill Drive along the frontage of 1150-1250 Bayhill Drive and the parcels to the east,
- The south side of Bayhill Drive along the frontage of 801-851 Traeger Avenue and the parcels to the east,
- The east side of Traeger Avenue, and
- The west side of Elm Avenue.

Each of these greenways is located along important gateway streets to and through the Plan Area. The Greenways are intended to be attractive walking and sitting areas for San Bruno residents and visitors, accessible and inviting to the public, and distinct from adjacent private development. They will incorporate expansive landscaped areas as well as public sidewalks, benches, lighting and/or other amenities as appropriate. In various locations, Greenways will be expanded and/or configured to accommodate larger publicly useable spaces, with a variety of types of seating, turf areas, special site lighting, and an artistic feature or other unique design elements that helps create a memorable public place. **Figure3-2b** illustrates a possible greenway design. Greenways will be privately-owned and maintained and publicly-accessible.

Figure 3-1: Public Realm Concept Map

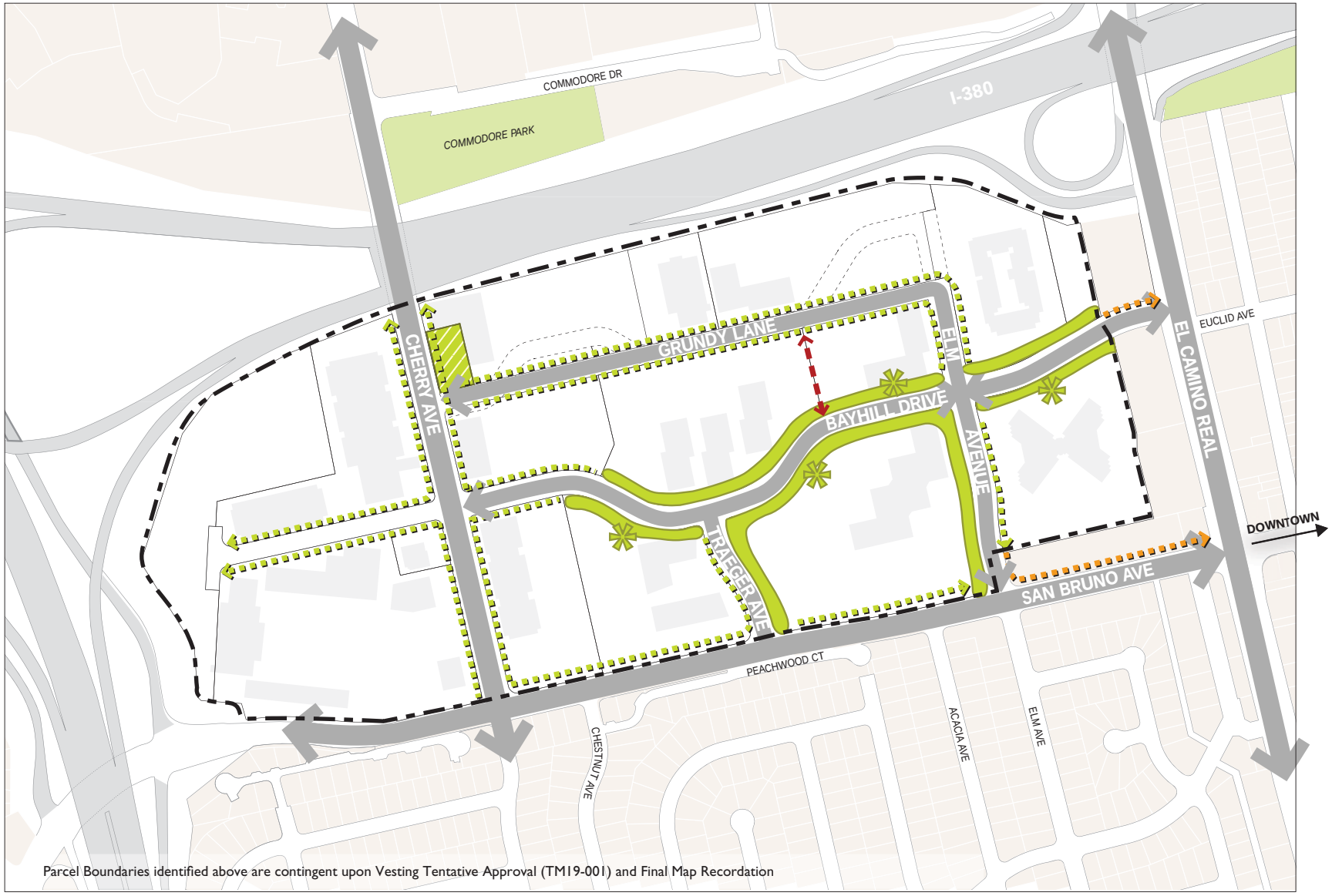


Figure 3-2a: Bayhill Drive Existing Condition



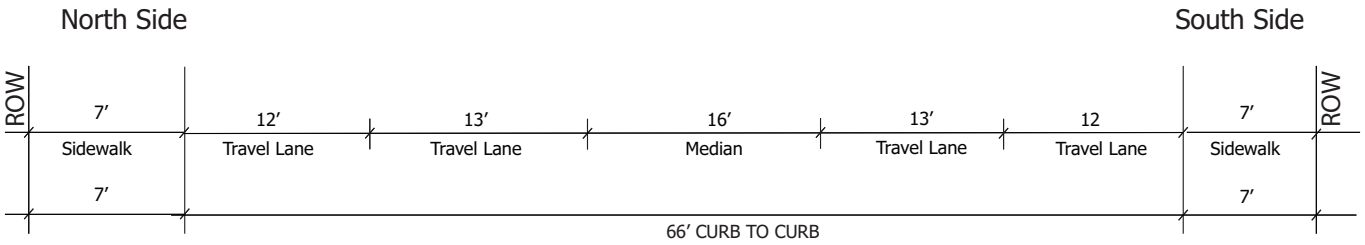
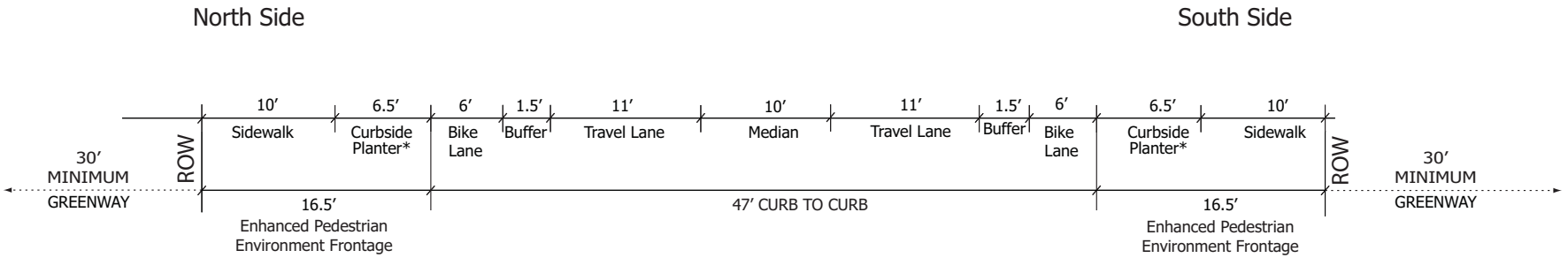


Figure 3-2b: Bayhill Drive Enhanced Pedestrian Environment Improvements





* Stormwater Planter if Applicable

Figure 3-3: Enhanced Pedestrian Environment Illustrations



Regional office street improvements



Mixed use street improvements



Residential street improvements

Public and Private Open Spaces

The Specific Plan promotes a variety of open space types. Some are publicly-accessible, such as the Greenways, enhanced pedestrian environment street frontages, and the plaza at the corner of Cherry Avenue and Grundy Lane as shown on **Figure 3-1**, Public Realm Concept. Others, such as internal building courtyards and/or terraces, are private. The Specific Plan reconciles objectives for a lively, pedestrian-oriented workplace district with significant security concerns by allowing secured private spaces and through-building ways to link to public sidewalks, Greenways and other public spaces as part of a network of attractive pedestrian circulation routes.

The Plan requires that a publicly accessible Cherry Avenue Plaza be established at the northeast corner of Cherry Avenue and Grundy Avenue. It is envisioned as a local gathering spot, part of a chain of destinations along Cherry Avenue that include Bayhill Shopping Center and Commodore Park, linking existing neighborhood areas to the north and south of the Plan Area. Cherry Avenue Plaza will be a privately-owned publicly-accessible open space (POPO).

Specific Plan **Policy 3-2 (k)** requires replacing any trees lost due to new construction at a minimum ratio of one new tree for every one tree lost. This will improve the general appearance of public and private open spaces, supporting a green, natural-appearing overall landscape character. It will also maintain the habitat value of the area for birds, and provide for carbon sequestration to meet state goals for climate neutrality.

Building Orientation and Design

Increasing the amount of development in the Plan Area within the envelope of Ordinance 1284's current three-story/50-foot height limit will create a Plan Area that is significantly more densely-built at the ground level than it is today. Building floor areas, lot coverages, and overall building mass will increase. While replacement of existing surface parking lots is an urban design benefit, the bulk and massing of new buildings and their relationship to one another are important Specific Plan concerns.

To create the enhanced pedestrian environment and provide the green, natural character of development that are important Plan goals, new buildings will provide architectural interest as well as significant frontage landscaping. Offsets and breaks in building facades are required to reduce the visual impact of long building frontages, and street-facing building entrances and courtyards, transparent first floor spaces, and amenities such as benches for public use, are encouraged to enliven street frontages. Front setbacks shall be measured as specified in the Bayhill Zoning Ordinance and allow for variations in the setback distance from adjacent public sidewalks. Frontage landscaping, particularly for areas above sub-surface parking garages areas, will be designed and planted to appear part of the natural landscape.

Up to four private-access pedestrian bridges over public streets may be permitted to connect buildings owned by a single entity. The locations that YouTube has proposed for bridges are shown on **Figure 3-5**, Proposed Pedestrian Bridge Locations. The City will review and decide on these bridges on a case-by-case basis to ensure that they are carefully designed to be attractive and to minimize conflicts with Specific Plan policies to create an enhanced pedestrian street-level environment. Such bridges are ideally removable to allow for changes in occupancy and internal use programs over time and for the maintenance and replacement of belowground infrastructure, such as the SFPUC water pipeline along Elm Avenue.

Hotel Development

The Specific Plan allows for additional square footage to be allocated to the existing Marriott Courtyard hotel parcel in the hope the hotel will be redeveloped and expanded as described in Chapter 2, *Land Use*. For there to be a substantial increase in the size of the existing hotel within the City's three-story height limit, the existing surface-parked facility would need to be redeveloped with underground parking.

Urban design concerns that building floor area, lot coverage, and overall building mass would increase significantly are addressed by the plan. A new hotel building(s) will provide architectural interest as well as significant frontage landscaping, consistent with its gateway location within the Plan Area. An attractive main entrance would be provided along Bayhill Drive. Terraces, balconies, and other features are encouraged to enliven frontages along both Bayhill and Elm. Frontage landscaping, particularly for areas above subsurface parking garages areas, will be designed and planted to appear part of the natural site landscaping as required along other frontages within the Specific Plan Area.

Residential Development along San Bruno Avenue

San Bruno Avenue is a boundary between the Plan Area and single family residential neighborhood areas extending south, as well as a major link between the Plan Area, Downtown, and the San Bruno Caltrain Station. The adjacent Transit Corridor Plan area designates the San Bruno Avenue frontage for residential/commercial mixed-use transit-oriented development east to the San Bruno Caltrain Station and north and south along the El Camino Real corridor. Given this context and the demand for housing, the Specific Plan allows for residential development along the San Bruno Avenue frontage.

Residential buildings could be developed either in combination with existing office buildings and parking areas, or as part of complete site redevelopment. In either case, if developed, new residential buildings will face San Bruno Avenue with attractive architectural forms to complement single-family homes across the street. Front porches, stoops, balconies, terraces, and other features are encouraged to enliven the frontage, and bike lanes, a curbside planting strip, street trees, widened sidewalk, and landscaped setbacks will be provided to make San Bruno Avenue more attractive to walk, bike and live along.

Civic Use on San Bruno Avenue

The Specific Plan offers the City of San Bruno an opportunity to pursue development of a civic use on San Bruno Avenue between Traeger Drive and Elm Avenue. A new public library is one type of facility that is possible, though the City could consider

others based on community needs. Regardless of the actual type of facility, a new civic use must be attractive and present an open, accessible, public character along San Bruno Avenue. Should development of a civic use proceed, a pedestrian-actuated crossing signal with pavement markings should be considered at Acacia Avenue to encourage pedestrian access from the residential neighborhood to the south as described in Chapter 4, *Access and Connectivity*.

A new civic facility could be developed in combination with existing office buildings and parking areas, or as part of site redevelopment including new office and residential development. If the facility is developed independently of complete site redevelopment, the site plan and architectural design will support complementary additional development on the site.

Mixed-Use at Bayhill Shopping Center

Mixed-use development at the shopping center is envisioned as pedestrian-oriented, with active ground-floor uses, public gathering spaces, and bicycle- and pedestrian-oriented amenities. The Specific Plan allows for either horizontal or vertical mixed-use. Horizontal mixed uses are standalone residential and commercial buildings, while vertical mixed use are buildings with residential units above first floor commercial space. Whichever type of development occurs on the majority of the site, the Plan encourages vertical mixed uses along Cherry Avenue to be completed first to implement the Plan's priority for creating pedestrian-oriented streets. First floor commercial spaces will create a "main street" frontage along Cherry, with attractive storefronts, display windows, and sidewalk café spaces as illustrated on **Figure 3-4b**: Building Design Guidelines.

Retails uses will need underground parking in addition to surface parking to accommodate residential development, consistent with parking standards and Plan requirements to preserve the existing amount of commercial development. It is likely that phased partial or complete site redevelopment would be necessary. If that occurs, the Plan encourages reconfiguration of new commercial buildings to be more pedestrian-oriented, configured to face internal streets and ways, rather than facing a single large parking lot as the Shopping Center does today.

Urban Design and Ordinance 1284

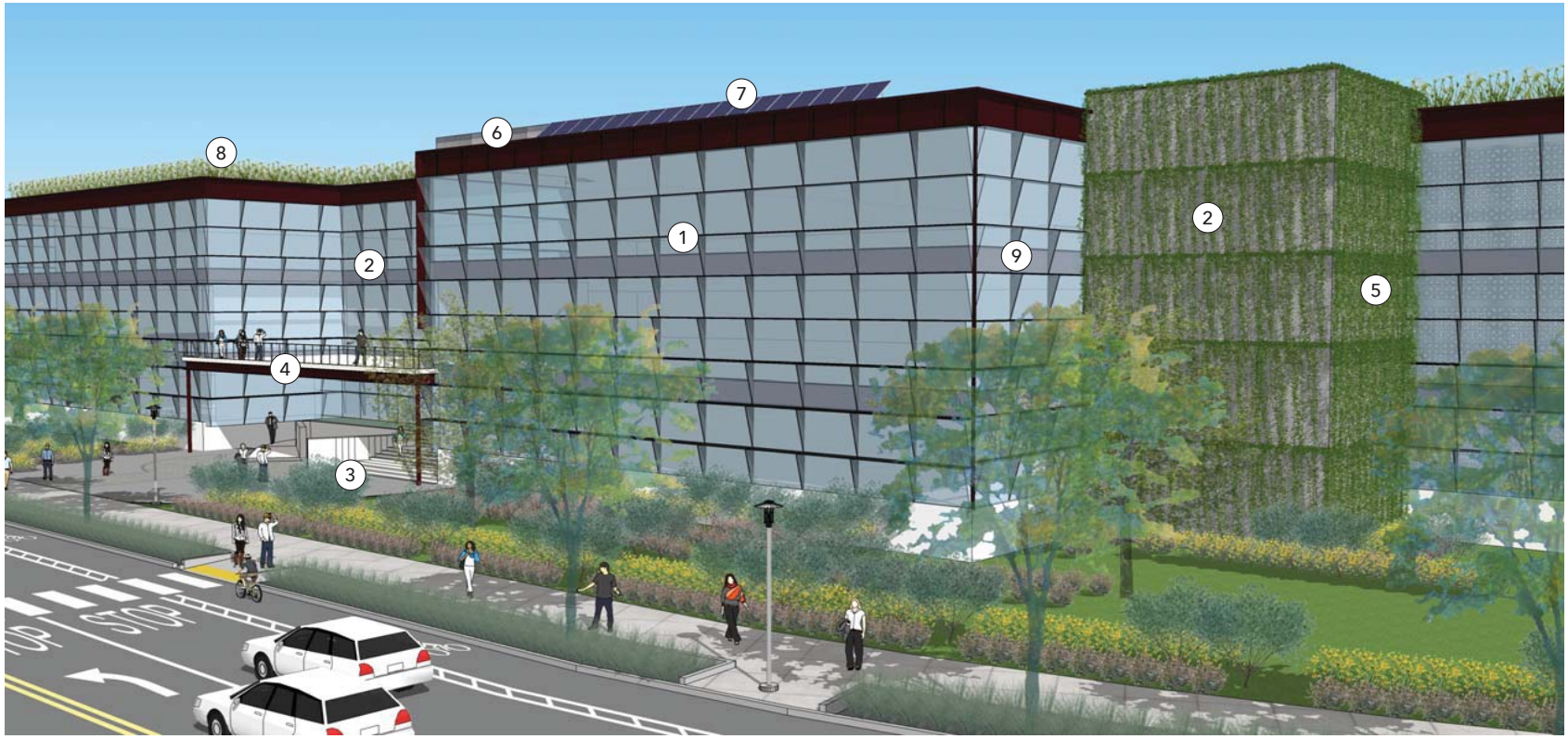
Ordinance 1284, adopted in 1977, requires approval by voters of construction of any building or structure exceeding three (3) stories or fifty (50) feet in height, construction of any above-ground multi-story parking structure, and/or construction of housing exceeding the City's maximum permitted residential density. Ordinance 1284 effectively compresses buildings in the Plan Area into larger floor areas and greater lot coverages than comparable square-foot buildings would typically have with a higher height limit.

Plan policies ensure that the densely-built environment that results is consistent with objectives for an attractive, pedestrian-oriented scale of development and public realm. For office development in particular, building forms, architectural features, and dense frontage landscaping will be designed to reduce the visual impact of long building frontages adjacent to streets and pedestrian spaces. Site landscaping will also be used to soften the appearance of extensive underground parking garages and relatively narrow property line setbacks and spaces between buildings. If an amendment to Ordinance 1284 to allow five story, 70 foot tall buildings is approved by voters (similar to what is permitted within portions of the Transit Corridors Plan), amendments to the Specific Plan and the Zoning Code would be needed to create new development standards and design guidelines for taller buildings, including an increase in required ground-level open space and landscaping requirements for regional office development.

Wayfinding and Signage

The City Municipal Code Chapter on Signs provides regulations for design and placement of signs on private property. Wayfinding and directional signage in the public realm has also become important as the City focuses on improving pedestrian and bicycle circulation city-wide. The Walk 'n Bike Plan (2016) contains a recommendation to "design and install wayfinding signage to help pedestrians and cyclists find their way, especially between the Caltrain and BART stations, the downtown, San Bruno Towne Center, The Shops at Tanforan, Bayhill Office Park and Bayhill Shopping Center. "Wayfinding signage and any related features will be designed and installed by the City; funding is addressed in Chapter 7, *Implementation*.

Figure 3-4a: Building Design Guidelines - Regional Office Development



Key Guidelines

1. Buildings generally parallel right-of-way to frame street as public space
2. Facade/mass recessed, projected, notched or otherwise modified to create pedestrian scale along street
3. Main entrances attractive, highly-visible, and scaled to street frontages
4. Projections including balconies, cornices, fascia panels, and cantilevered slabs should be light-weight and unobtrusive in appearance
5. All sides materials and finishes compatible with front facade visible from streets, parking areas and/or adjacent buildings
6. Rooftop screening for mechanical equipment, exit stairs and other elements consistent with the building materials and heights
7. Solar panels to supplement grid electricity
8. Cool and green roofs to reflect sunlight, reduce heat gain, and capture rainwater for reuse/runoff reduction
9. Mullion and muntins to create multi-pane windows for human scale and interest

Figure 3-4b: Building Design Guidelines - Mixed Use Development on Cherry Avenue of Bayhill Shopping Center



Key Guidelines

1. Buildings parallel right-of-way to frame street as public space
2. Facade/mass recessed, projected, notched or otherwise modified to create pedestrian scale along street
3. Main entrances attractive, highly-visible, and scaled to street frontages
4. Projections including balconies, cornices, fascia panels, and cantilevered slabs should be light-weight and unobtrusive in appearance
5. Transparent storefront windows allow pedestrians to see into shops and other businesses
6. Storefront base of durable, damage-resistant ornamental material
7. Distinctive corner building with active ground floor use
8. All sides materials and finishes compatible with front facade visible from streets, parking areas and/or adjacent buildings

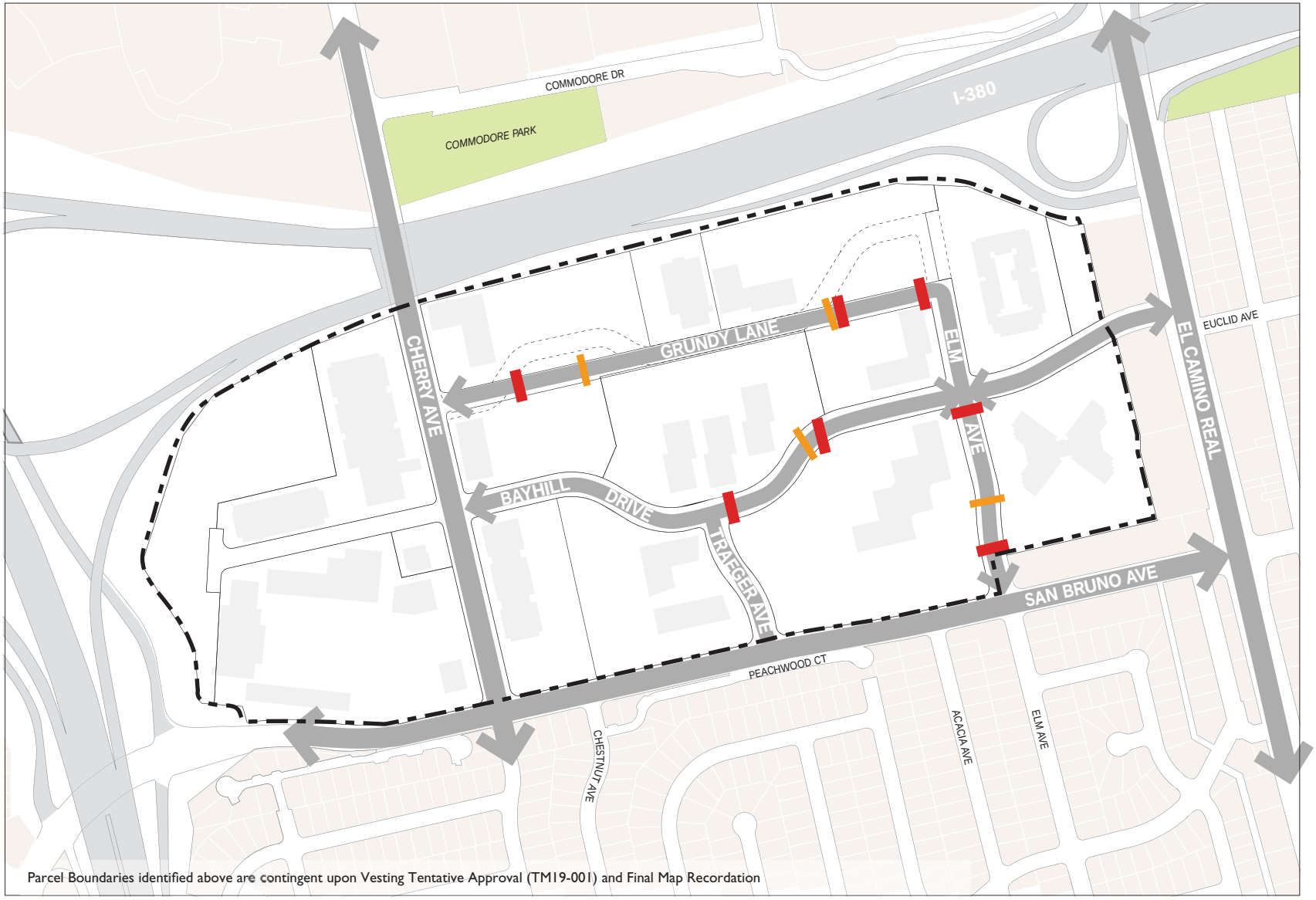
Figure 3-4c: Building Design Guidelines - Residential Development along San Bruno Avenue



Key Guidelines

1. Buildings parallel right-of-way to frame street as public space
2. Facade/mass recessed, projected, notched or otherwise modified to create pedestrian scale along street
3. Individual entries for first floor units reduce building bulk and can project into setback area
4. Projections including balconies, cornices, fascia panels, and cantilevered slabs should be light-weight and unobtrusive in appearance
5. All sides materials and finishes compatible with front facade visible from streets, parking areas and/or adjacent buildings
6. Rooftop screening for mecahnical equipment, exit stairs and other elements consistent with the building materials and heights
7. Variations in window and facade design include color, materials to add interest to pedestrian environment

Figure 3-5: Proposed Pedestrian Bridge and Parking Tunnel Locations



Pedestrian Bridge Location

Parking Tunnel Location

0 250 500 750 1000

FEET

3.3 Urban Design Policies*

The Specific Plan's Urban Design Policies are essential for achieving the urban design vision for Bayhill. The Plan also contains Urban Design Guidelines for building design and landscape design that are discretionary yet strongly recommended. Together, the policies and guidelines serve as criteria for design review.

PUBLIC REALM

3-1: Create a Strong Public Realm. New investment and development in the Plan Area shall create a strong public realm of attractive pedestrian-oriented streetscapes, building designs, and publicly-accessible open spaces for relaxation and gathering.

3-2: Provide Enhanced Pedestrian Environment Street Improvements and Landscaping. Street trees, lighting, landscaping, and other amenities shall be provided by new development along their entire street frontages to create attractive, pedestrian-oriented streets throughout the Specific Plan Area; see illustrations in Appendix A, **Figures A-1** through **A-30**.







According to Policy 3-1, new investment and development in the Plan Area shall create a strong public realm of attractive pedestrian-oriented streetscapes, building designs, and publicly-accessible open spaces for relaxation and gathering.

* Policy implements mitigation measure required by Environmental Impact Report for all development under Specific Plan.

(*) Policy implements mitigation measure required by Environmental Impact Report for all development under Specific Plan except Phase I Development.

a. **Curbside Planting Strip** – Enhanced pedestrian environment street frontage improvements shall include curbside planting strip to buffer sidewalks from adjacent roadways, accommodate canopy street trees, and collect and filter roadway runoff.

b. **Curbside Street Trees** – Enhanced pedestrian environment street frontage improvements shall include broad-canopy street trees in the curbside planting strip that are primarily deciduous to provide seasonal shade and buffer pedestrians from passing traffic.

c. **Median Street Trees and Landscaping** – New canopy street trees and surface plantings shall be provided in medians to complement curbside and planting strip landscaping.



Policy 3-2 requires enhanced pedestrian environment street frontage improvements, including a curbside planting strip to buffer sidewalks from adjacent roadways, accommodate canopy street trees, and collect and filter roadway runoff.

d. **Pedestrian Oriented Lighting** – Enhanced pedestrian environment street frontage improvements shall include pedestrian-oriented lighting along all street frontages to replace or augment the highway-type street lights located along Plan Area frontages.

e. **Streetscape Character** – Street trees and streetlights shall be arranged in an orderly manner with a generally regular spacing. Tree wells, sidewalk paving surfaces, and bordering planter areas shall have a "green" natural appearance.

f. **Stormwater Management** – Curbside biofiltration at grade planters, pervious paving, and other stormwater management elements shall be incorporated into enhanced pedestrian environment street frontage improvements to capture and filter stormwater runoff where appropriate. These elements are described in more detail in Chapter 5, *Infrastructure Improvements*.

g. **Complementary and Natural-Appearing Frontage Landscaping** – Landscaping on private property adjacent to public-use streets and ways shall support the green, natural-appearing landscape character envisioned for the Specific Plan Area, and complement public realm street improvements.

h. **Tree Form** – Trees similar in form and complementary to curbside street trees shall be planted along private property frontages to frame public sidewalks as public spaces and to create a unified appearance along public streets.

i. **Natural Appearance Above Garages** – Raised planters shall be minimized, particularly in front building setback and Greenway areas so that the area above the underground garages appears natural. Raised planters look man made. Areas above the parking garage should appear to be natural earth, not man made and artificial. Mounding is allowed for tree planting.

j. **Specimen Trees** – Special specimen trees notable for flowering and/or habit shall be located at special, high-visibility locations.

k. **Tree Replacement** – Any trees removed over the course of development will be replaced at a minimum 1:1 ratio.

3-3: Require Naturalistic Site Grading and Earthwork. Site grading shall create a naturalistic appearance, without dramatic terracing, berming, and other obvious earthwork approaches. Mounding earth shall be used only to accommodate differentials between first floor building elevations and adjacent sidewalk grades, and to accommodate trees and other planting above underground parking garages.

3-4: Establish Publicly-Accessible Greenways. Continuous, privately-owned and maintained, publicly-accessible Greenway open spaces shall be provided by new development along Bayhill Drive, Traeger Avenue, and Elm Avenue, per the Public Realm Concept, **Figure 3-1**, and as illustrated by **Figure 3-2b**. Greenways shall be developed within an expanded, continuous area located along the public street that is between 30 and 60 feet wide, sufficient in width for employees and community members to use and enjoy, and to establish a distinct appearance from adjacent private development site. Developers are encouraged to provide greenways that are larger than 30 feet wherever possible.

a. **Amenities** – shall be provided within Greenway areas, including benches, area lighting, trash receptacles, ornamental landscape materials, drinking fountains, and/or artistic features.

b. **Expanded Greenway Open Space** – A minimum of three locations within the Greenway along Bayhill Drive shall include an expanded Greenway Open Space, where the Greenway shall have a minimum depth of 60 feet and a total area of at least 3,600 square feet. It shall be improved as publicly-accessible open space, with seating, turf area, site lighting, and a special feature that provides a focus and identity. Amenities and materials should be the same as those provided along the rest of the Greenway so that the area appears contiguous, integral, and publicly-accessible. Developers are encouraged to provide expanded Greenway areas that are larger than 60 by 60. An expanded greenway open space shall be considered when new office development is proposed next to the greenway areas along Bayhill Drive.

c. **Greenway Access Easements** – Greenway segments shall be completed on development parcels as parcel development proceeds. Property owners shall be required to record agreements allowing public access to these areas.

d. **Greenway Segments** – Completed segments shall be provided when new development on a parcel equals or exceeds ½ the total permitted amount of development for that parcel, allowing for use of existing buildings and parking areas until new building construction is undertaken.

e. **Greenway Modifications** – Once installed, modifications to the amenities or design of Greenway areas shall be subject to the review and approval of the City.

f. **Exceptions to Greenway Width** – Exceptions can be granted to allow greenways to be narrower than 30 feet minimum when the design of a proposed greenway ensures that the narrower space will be publicly accessible, inviting to the public and of sufficient dimension to incorporate amenities for the public's use

3-5: Create Accessible Cherry Avenue Plaza. A publicly-accessible, privately-maintained plaza shall be provided by the property owner as part of new development at 1000 Cherry Avenue. The plaza shall provide a community open space area, with improvements to include adequate lighting, irrigation systems, hardscape area and landscaping.

a. **Amenities** – Shall be provided to encourage use and enhance the comfort, aesthetics, and usability of the space, including but not limited to, trees and other landscaping, seating, shade structures, drinking fountains, and/or artistic features.

b. **Location and Accessibility** – The plaza shall be located on the northeast corner of Cherry Avenue and Grundy Lane. At minimum, it shall be accessible to the public during normal business hours as defined by the City. Direct at-grade access and visibility from adjacent streets is required and fencing not permitted adjacent to sidewalk.

c. **Area and Dimensions** – The minimum area of the plaza, including hard and softscape area, shall be 0.275 acres, the minimum dimensions 80 feet by 150 feet.

d. **Plaza Access Easement** – The Property owner shall record agreements allowing public access to the Cherry Avenue Plaza.

e. **Plaza Modifications** – Once installed, modifications to the amenities or design of the plaza shall be subject to the review and approval of the City.

3-6: Promote Pedestrian-Oriented Development at Bayhill Shopping Center. Horizontal and vertical mixed-use both shall be allowed at the shopping center site. However, vertical mixed-use with commercial use on the ground floor is required along Cherry Avenue and is recommended as the first phase development. If major site redevelopment is undertaken new commercial buildings shall be configured to be

pedestrian-oriented and to face internal streets and ways rather than large parking area(s).

3-7: Implement Urban Design-Supportive Roadway Improvements. Lane modifications, bike ways, improved pedestrian crossings and other roadway improvements shall be implemented to improve the attractiveness, safety and connectivity of pedestrian, bicycle, and transit to and within the Bayhill Plan Area and to complement the creation of an enhanced pedestrian environment. These improvements shall be implemented as new development takes place and/or as public funding becomes available. Modifications to roadway widths and alignments are detailed in Chapter 4, *Access & Connectivity*.

3-8: Provide an Attractive Private Multi-Modal Transit Hub. **Figure 3-1**, Public Realm Concept Map, shows the location of the Multi-Modal Transit Hub. The Private Transit Hub shall include walkways, weather shelters, seating, lighting, and other amenities consistent with the Enhanced Pedestrian Environment street frontages.

3-9: Minimize the Visual Impact of Pedestrian Bridges. Up to four private access pedestrian bridges over public streets are permitted. The proposed locations are shown on **Figure 3-5**, Proposed Pedestrian Bridge Locations. They shall be designed to be as visually unobtrusive as possible. Bridges shall be relatively narrow – no wider than 20 feet with a minimum of 18 feet of vertical clearance – to minimize the visual impact and shadowing on sidewalks below, and materials shall be lightweight in appearance, with slender metal support members and railings, glass side/railing panels, and/or other approaches as feasible. Bridges shall be removable to allow for changes in occupancy and internal use programs over time to the maximum feasible extent.

3-10: Integrate a Civic Use. The design of any new civic use along San Bruno Avenue shall be attractive and present an open, accessible public character. The site plan and architectural design should support complementary additional new development along San Bruno Avenue as feasible. Safe pedestrian access at Acacia Avenue should be provided as described in Chapter 4, *Access and Connectivity*.

SITE DESIGN

3-11: Maintain a Green, Landscaped Character. The Plan Area's hillside setting shall be complemented with street trees, curbside and on-site planting, stormwater management features, and other landscape elements that soften the impact of the increased level of development and enhance the area's existing green, landscaped character.

3-12: Promote an Attractive On-Site Private Pedestrian Circulation Network. A network of attractive on-site pedestrian circulation routes shall be established throughout the Plan Area, linking public sidewalks, on-site walking paths, and through-building ways.

a. **On-Site Private Walkways** – shall be provided to connect through blocks and link interior building spaces to adjacent public sidewalks.

b. **Width and Framing** – Clearly defined, attractively landscaped and lighted and wide pedestrian ways and open spaces should be provided. These spaces should be framed and/or bordered by buildings and plant materials. Exterior at-grade pedestrian spaces, such as sidewalks and their adjacent landscaping, should be a minimum 15 feet in width; 20 feet is recommended.

c. **Common Elements** – Pedestrian ways and open spaces should incorporate common and/or complementary design elements. Paving patterns and/or materials, plant species, lighting fixtures and arrangements, and furnishings should recur to strengthen Plan Area image and identity.

d. **Focus** – Pedestrian ways and spaces should be aligned to have a functional and/or aesthetic visual focus or destination, such as a building entrance, landmark/amenity, sitting area, transit stop, or street crossing.



3-13: Configure Outdoor Use Areas to Reduce the Effect of Traffic Noise. Outdoor use areas for sensitive land uses and publicly accessible open space shall be designed to reduce the exposure to traffic noise, either by locating them farther from nearby roadways, particularly I-280 and I-380, or by orienting buildings and other shielding features to reduce noise.

a. **Sound Diffusion and Masking** – Screen plantings of evergreen trees shall be encouraged adjacent to freeways, and adjacent to publicly-accessible spaces as appropriate. White noise-generating features and other design techniques to mask traffic noise shall be encouraged for active public spaces.

3-14: Require Native and Drought Tolerant Plants. Native and/or drought tolerant plants shall be used for landscaping. See Landscape and Planting Design Guidelines.

3-15: Install Gateway Landscape Improvements. Landscaping at highly-visible, public-facing intersections at Cherry Avenue, San Bruno Avenue, and Traeger Avenue shall feature special planting approaches to create attractive gateways to the Plan Area and complement wayfinding signage.

3-16: Establish a Comprehensive Approach to Wayfinding and Signage. The City shall design and install wayfinding and signage for connections to transit and bicycle and pedestrian accessibility that supports TDM efforts and enhance the overall image of the Bayhill Specific Plan Area.

3-17: Ensure Outdoor Lighting is Designed to Reduce Light Pollution and Glare. Outdoor lighting, including exterior mounted building lighting, shall be designed to minimize night sky light pollution, glare, and light spillage onto adjacent buildings and properties. Lighting shall comply with Title 24 and CalGreen lighting requirements for non-residential occupancies, and Dark Sky Initiative elements as applicable. Fixtures shall be shielded and exterior-rated IP65 or better, with dimming controls if available.

BUILDING DESIGN

3-18: Orient Buildings to Streets and Publicly-Accessible Spaces. New buildings shall contribute to a strong and lively public realm along Bayhill's streets with attractive facades and main building entrances. Buildings shall be sited generally parallel to streets to frame them as public spaces and to accommodate views of the hills and toward the bay.

a. **Main Building Entrances** – and/or building courtyard entrances shall be located on street frontages, highly-visible and attractive to encourage pedestrian activity.

b. **First Floor Elevation** – First floors shall be close in elevation to adjacent public sidewalks.

c. **Relationship to Open Spaces** – Buildings and open spaces should be linked physically and visually to provide an integrated open space environment. Security fencing, if needed, shall be designed to maintain visibility between public and private spaces.

d. **Corner Buildings** – Corner buildings shall have corner entrances and/or attractive architectural features to highlight intersections as public spaces.

3-19: Compose Building Form and Massing. New buildings shall not have a bulky, box-like appearance. Architectural design shall compose massing to express site context, accenting main building entrances, building corners, adjacent intersections, the Greenway and/or other open spaces.

3-20: Employ Complementary Building Forms and Materials. Buildings shall exhibit variety in architectural design and materials, yet relate to one another and the surrounding building context. Policies for all buildings are listed below. See the Building Design Guidelines which provide additional direction regarding architectural design and materials.

a. **Building Base** – Buildings shall provide human scale and visual interest at the pedestrian level. Attractive, high-quality first floor cladding materials shall be employed.

b. **Complementary Building Forms** – New buildings shall be complementary to one another in terms of overall form, and massing, fenestration, and rooflines, and other major architectural elements. New buildings shall be complementary in form to surrounding buildings, with variety in architectural design and materials.

c. **Surface Relief** – Building façades shall exhibit a strong three-dimensional quality with recessed wall surfaces, projecting window bays,

sunshades, canopies, and other elements, particularly along highly-visible frontages and important pedestrian routes.

d. **Outward Views** – Upper floors and usable rooftop areas, loggias, terraces, and other architectural features should be designed to take advantage of Bayhill's geographic setting and views of the hills, bay, and other local features.

e. **Primary/Main Building Entrances** – Primary entrances should be prominent and scaled to the street and/or open space they face, and protected from the elements with a recess, canopy, or projected mass above. Entrances should generally be glazed for transparency to and from the outdoors, and where required access ramps should be integrated into the overall design.

f. **Blank Walls** – Blank, windowless walls shall not be located along street frontages. If blank walls are essential to internal building functions they should be designed with recesses, special surface material(s), and/or landscape approaches such as green walls to make them more attractive.

g. **Lighting** – Interior lighting shall be designed to direct, and/or shield light fixtures to prevent night sky light pollution, glare and light spillage onto adjacent buildings and properties.

3-21: Require Different Building Types to Enhance the Public Realm as Appropriate. Building design policies apply to all new buildings. However, each of the major building types associated with the Plan's permitted land uses have somewhat different functional requirements, and therefore shall support creation of an attractive public realm in different ways; see **Figure 3-3**, Building Design Illustrations.

a. **Regional Office Buildings** – shall include offsets and breaks to reduce the visual impact of long building frontages, with street-facing building entrances, entrance courts, and transparent first floor spaces that enliven street frontages.

b. **Commercial/Retail Buildings** – shall contain ground-floor storefronts with transparent windows that allow pedestrians to see into shops, offices and eateries, and ornamental building materials along adjacent sidewalks.

c. **Residential Buildings** – shall provide architectural elements to complement single-family homes in nearby neighborhood areas. Front porches, stoops, balconies, terraces, and other features shall enliven frontages and encourage pedestrian activity.

d. **Hotel Buildings** – shall incorporate attractive, street-facing main entrances and terraces, balconies, and other external building features.

3-22: Create an Attractive Gateway with New Hotel Development. A new hotel building(s) shall provide architectural interest as well as significant frontage landscaping, consistent with its gateway location on Bayhill Drive. An attractive street-facing main entrance should be provided, and terraces, balconies, and/or other features are encouraged to enliven frontages along Bayhill and Elm Avenue.

3-23: Create an Attractive Roofscape. Roofs shall be integrated with façade composition to create a coherent overall building character, and designed to reflect the primary building entrance and other important program elements. Enclosures shall be used to screen rooftop mechanical equipment, and shall be designed as attractive architectural forms that add visual interest when viewed from a distance and from nearby buildings.

3-24: Use Building Design Guidelines. The Specific Plan does not prescribe particular architectural styles. However, building design and materials are important Specific Plan concerns, and in addition to the Plan's Urban Design policies the Plan includes Building Design Guidelines that shall be used to ensure high quality buildings that enhance the public realm; see Building Design Guidelines.

3-25: Promote Environmental Sustainability in Building Design. Environmental sustainability shall be supported by energy efficiency in operations, recycled materials, and flexible building floor plans and other approaches that accommodate changes in occupancy over time to maximize long-term building re-use and minimize greenhouse gas emissions. See Chapter 6, *Environmental Quality*, Policy 6-15, regarding other related requirements.

a. **Solar Panels** – Solar panels and other green energy features shall be integrated with architectural designs.

b. **Natural Light and Ventilation** – Buildings shall be designed to incorporate natural light and ventilation to reduce energy use. Windows should be operable to the extent possible to allow natural ventilation and potentially eliminate the need for mechanical ventilation. If mechanical systems are necessary, energy-efficient and low emission heating, ventilation and air conditioning (HVAC) systems shall be used.

c. **Cool/Green Roofs and Walls** – Cool roofs and walls to reflect sunlight, and/or green roofs and walls to reduce heat gain and capture stormwater, are encouraged to maintain and regulate internal building temperatures and reduce heat island effects.

d. **Sustainable Building Materials** – such as recycled materials, sustainably harvested wood, rapidly renewable resources, panels made from paper flakes, locally-obtained stone and rock, bamboo, and non-toxic low-VOC (volatile organic compound) glues and paints are encouraged to be incorporated into new buildings.

e. **Cooling and Heating** – Natural cooling and passive solar heating shall be encouraged in building placement and orientation. Where possible, building windows and balconies shall be oriented facing east, west, and south to maximize solar access. All-electric space and water heating shall be required in all new construction.

3-26: Minimize Light and Glare from Buildings. Buildings shall incorporate non-reflective materials to minimize glare, and interior lighting that is shielded and/or diffused to minimize visibility of light sources from outside. Anti-reflective glass, or its equivalent, is required for office, commercial, and other building types that incorporate large expanses of glazing.

3-27: Require Building Design that Reduces Noise Intrusion. Buildings shall be designed to reduce freeway- and airport-related noise intrusion into interior building spaces, particularly those containing noise-sensitive land uses such as residential, lodging, and daycare facilities. Approaches include but are not limited to noise-insulating walls, windows, and doors, and locating bedrooms and other noise-sensitive rooms away from noise sources.

a. **Site Design** – Less noise-sensitive building types shall be encouraged to shield more noise-sensitive types. Noise-diffusing evergreen tree plantings shall be encouraged along freeway frontages.

3.4 Urban Design Guidelines

In addition to conforming to Building Design Policies, building design should reflect the following Urban Design Guidelines.

BUILDING DESIGN GUIDELINES

DG-1: Regional Office Buildings – in the Bayhill Regional Office (BRO) designated land use area should incorporate:

a. **Varied Building Massing** – No more than 50 percent of the length of a building façade should be continuous without a change in massing.

b. **Architectural Projections** – including balconies, cornices, fascia panels, and cantilevered roof slabs, that are light-weight and relatively unobtrusive in appearance.

c. **Architectural Windows** – with mullions to create a multi-pane pattern for human scale and interest.

d. **All Sides Design** – with quality architectural elements and materials on all building facades.

DG-2: Hotel Buildings – in the Bayhill Regional Office (BRO) designated land use area should adhere to Regional Office Building design guidelines.

DG-3: Commercial/Retail Buildings – in the Bayhill Neighborhood Center Commercial (BNC) designated land use area should incorporate:

a. **Transparent Storefront Windows** – that allow pedestrians to see into shops, offices and eateries. Opaque, reflective, or dark tinted glass is discouraged.

b. **Storefront Base** – below storefront windows of durable, damage-resistant ornamental materials such as precast concrete, brick, stone masonry, and/or commercial grade ceramic.

c. **Distinctive Corner Buildings** – with ground-floor retail uses.

d. **Special Elements** – such as adding windows groupings, bays, loggias, awnings/canopies, and varying cornices and rooflines.

e. **Varying Materials and Colors** – should be used to enhance storefront base, window trim, entries, projecting window bays, etc.

f. **All Sides Design** – with quality architectural elements and materials on all building sides. Blank walls should be limited to 12 ft. maximum length, and improved with surface detailing, materials, green walls and/or other features to improve appearance.

DG-4: Residential Buildings in the Bayhill Residential Overlay (BR) and Bayhill Mixed Use (BMU) – designated land use areas should incorporate:

a. **Individual Front Entries** – to provide first floor units with street level access along adjacent streets to reduce building bulk and enliven the street frontage.

b. **Building Mass** – reduced and articulated with architectural details, changes in materials and colors, and other similar elements, including:

- changes in wall planes and projecting or recessed architectural elements;
- architectural elements and details such as adding notches, grouping windows, loggias and dormers, varying cornices and rooflines;
- secondary materials and colors to enhance key components of a building façade; e.g. window trim, entries, projecting bay windows, etc.

c. **Rooflines** – and cornice details designed in a three-dimensional manner.

d. **Variation in Window Design** – color, materials, and architectural elements to add interest to the pedestrian environment.

e. **Balconies** – with transparent or semi-transparent railings to enhance natural lighting and maximize "eyes on the street."

f. **Architectural Elements** – such as cornices, lintels, sills, balconies, awnings, porches and stoops to enhance building façades. Frame south- or southwest-facing windows with protruding vertical or horizontal shading devices such as lintels, sills and awnings to provide adequate protection from glare.

g. **All Sides Design** – with quality architectural elements and materials on all building facades.

DG-5: Building Materials – the guidelines below are intended for all building types.

a. **Wall Surfaces** – Materials and material colors should combine to form a cohesive image for all Specific Plan Area buildings, while allowing for variety within overall building design and composition.

Materials Recommended:

- Natural Stone
- Terra Cotta Tile
- Cast-in-Place Concrete
- Pre-Cast Concrete Panels
- Glass Fiber Reinforced Concrete (GFRC)
- Brick
- Glass Curtain Wall
- Metal Panels
- Ceramic Tile
- Channel Glass
- Wood
- Cement Plaster

Materials Not Recommended:

- Reflective Glass
- Exterior insulation finishing system (EIFS)
- Wood or T-150 Siding

b. **Windows** – are an important element of composition and an indicator of building quality. A variety of window and opening types are anticipated.

- *Composition* – All windows within a building, large or small, should be complementary in operating type, proportions, and detailing. Unifying architectural elements such as common sill or header lines should be employed.
- *Framing and Window Inset* – Sills and trim should be used to frame openings. Glass should be inset a minimum of 3 inches from exterior wall and/or frame surface to add relief.
- *Mullions and Muntins* – Mullions and muntins are recommended to create multi-pane windows that provide a human scale and interest. Multi-pane patterns should be appropriate to the scale of the window opening and the overall building design.
- *Glazing* – If tinted, glazing should be kept light.

c. **Roofs** – Buildings can have flat or shaped roofs, solid or perforated eaves, or a simply detailed parapet.

- *Materials* – Roofs materials should be light in color to minimize heat island effects. Green roofs are encouraged to help with stormwater management as well as minimize heat island effects.
- *Rooftop Terraces* – should be considered to provide accessible private open space for employees, visitors, and residents.
- *Solar Panels* – should be integrated with and/or complement the form of the building.

LANDSCAPE DESIGN GUIDELINES

In addition to conforming to Public Realm and Site Design Policies, landscape design should reflect the following guidelines.

DG-6: Street Trees – Street trees are an indicator of publicly accessible space, as well as a source of shade and green. Trees with canopy summer shade characteristics are strongly recommended. In general, a consistent species should be used along the length of a street.

a. **Tree Wells** – Trees should be planted in curbside planting strips with a minimum horizontal dimension of 4 feet; 6 ft. recommended. Within or adjacent to paving, expanded subsurface areas should be created to facilitate root growth; e.g. trenches, structural soil, soil cells, and other approaches. Tree grates should be provided in areas where sidewalks are located curbside to accommodate curbside parking.

b. **Size** – Trees should be minimum 36-inch box/3" caliper at time of planting.

c. **Spacing** – Trees should be located at an average 20 ft. on-center, unless site-specific conditions necessitate a different spacing.

DG-7: Relationship of Street Trees, Street Lights and Parking – Trees, lights, and curbside parking, where it is provided, should be designed together to create an orderly appearance and

minimize conflicts. Trees and lights should be located between parking stalls and car door swing areas. Street lights should be centered between trees to maximize light distribution, with tall-growing canopy trees used to ensure that branching is higher than light sources.

DG-8: Paving Materials – In general, a maximum of two materials should be combined in a single application:

a. **Stone** – such as slate or granite
b. **Brick Pavers**
c. **Concrete Unit Pavers**
d. **Poured-in-Place Concrete** – All concrete walks should be tinted to reduce glare. Recommended enhancements include special scoring patterns, and ornamental insets, such as tile.
e. **Other Surfaces** – As deemed appropriate by the City for a given application.

DG-9: General Landscape – Plants should be selected and placed to reflect both ornamental and functional characteristics, and to require low to medium levels of irrigation depending upon their function.

a. **Deciduous Trees** – should be the predominant large plant material used. They should be used as street trees, located adjacent to buildings and within parking areas to provide shade in summer and allow sun in winter. Species should not have dominant surface roots that could cause pavement damage, and have relatively low litter and/or other maintenance issues.
b. **Evergreen Shrubs and Trees** – should be used for screening along rear property lines, around mechanical appurtenances, and to obscure grillwork and fencing associated with subsurface and/or freestanding parking garages.
c. **Flowering Shrubs and Specimen Trees** – should be used adjacent to pedestrian ways and open space areas, as a frame for building entrances, stairs, and walks, and at high-visibility locations along the Greenway.
d. **Flowers with Annual or Seasonal Color** – are recommended to highlight special locations, such as courtyards and building entrances.
e. **Irrigation Systems** – Mechanical irrigation should be provided for all planted areas. Drip systems and recycled water should be used wherever feasible.
f. **Non-Invasive Plant Species** – should be used in all site landscaping. No species listed in the California Invasive Plants Council Inventory with limited, moderate, or high ratings for invasiveness shall be selected.
g. **Planted Turf** – should be used sparingly, only for leisure activity areas.
h. **Security Fencing** – Security fencing, if needed, will be designed to maintain visibility between public and private spaces. Picket, rail, or grid panels are recommended; solid panels and walls are not recommended.

DG-10: Surface Parking Lots – should be designed as an integral feature of the overall development plan.

a. **Grid Tree Arrangement** – In general, trees should be distributed evenly throughout parking lots to provide shade and enhance appearance as seen from adjacent streets and buildings. A regularly spaced grid of trees is recommended to provide even distribution.
b. **Other Landscape Approaches** – May be considered. These could utilize trellises, screen walls, and/or arbors with vines, hedges, wind rows, or other elements.

DG-11: Recommended Plants – The plants below are consistent with Specific Plan guidelines. Other plants are permitted, however, and final plant palettes may vary according to availability and site design objectives. Plants within the Greenway, setback, and courtyard areas should be selected for hardiness, beauty, and support of regional habitat, including pollinators and bird species.

Additional plant species that may be considered are contained in the Bay-Friendly Landscape Guidelines and the UC Davis Water Use Classification of Landscape Species List (WUCOLS) of low- and moderate water-using plants, provided they are consistent with Specific Plan policies and guidelines for location and application.

a. **Street, Greenway Promenade, and Surface Parking Lot Trees** – These trees are recommended for their seasonal shade, habitat value and attractive foliage. Final tree selection(s) should be made for upright growth characteristics, growth speed to maturity, drought tolerance, shading, and availability.

- Oregon Maple, *Acer macrophyllum*
- Red Maple, *Acer rubrum* (red fall foliage cultivars)
- Ash, *Fraxinus Americana 'Autumn Purple'*
- Ginkgo, *Ginkgo biloba* (male only)
- Kentucky Coffee Tree, *Gymnocladus diocus*
- Brisbane Box, *Lophostemon confertus*
- Tupelo, *Nyssa sylvatica*
- London Plane Tree, *Platanus acerfolia*
- Columbia Sycamore, *Platanus acerifolia* 'Columbia'
- California Sycamore, *Platanus racemosa*
- American Elm, *Ulmus Americana* (DED resistant varieties)

b. **Medium-Size and Flowering Trees** – Recommended for locations where canopy shade is not an objective.

- Chinese Pistache, *Pistacia chinensis*
- Flowering Pear, *Pyrus calleryana*
- Crape Myrtle, *Lagerstroemia indica* (Powdery Mildew resistant varieties)
- Western Redbud, *Cercis occidentalis*
- Toyon, *Heteromeles arbutifolia*

c. **Courtyard Shrubs** – Recommended for courtyards and view-only areas, these plants have colorful blossoms, unique foliage, and/or seasonal qualities. Most have habitat value.

- Butterfly Bush, *Buddleja spp.*
- Australian Fuschia, *Correa spp.*
- Coral Bells, *Huechra maicanthra*
- Lantana, *Lantana davivii*
- Lavender, *Lavandula spp.*
- Lion's Tail, *Leonurus spp.*
- Matilija poppy, *Romneya coulteri*
- Sage, *Salvia spp.*

d. **Habitat Plants** – Most have attractive flowers and foliage. These plants are not recommended for use in courtyards.

- Manzanita, *Archtostaphylos spp.*
- California black-flowering sedge, *Carex nudata*
- Oregon grape, *Mahonia aquifolium*
- Monkeyflower, *Mimulus spp.*
- Red-flowering currant, *Ribes sanguineum*
- California wild rose, *Rosa spp.*
- Thimbleberry, *Vaccinium ovatum*

e. **Evergreen/Screen Trees** – These trees and other similar conifers should be used where a dense screen is appropriate.

- Canary Island Pine, *Pinus canariensis*
- Coast Redwood, *Sequoia sempervirens*

f. **Rain Garden/Biofiltration Plants** – On-site percolation of storm water is a Specific Plan objective. Biofiltration and swale plant species should be selected for inundation tolerance, attractiveness, hardiness, and habitat value. Because these plants are selected for inundation tolerance, they require moderate watering in dry months. The following list was adapted from the Bay Area Storm Water Management Agencies Association's list of plant species for infiltration areas.

- Elk clover, *Aralia californica*
- Pipevine, *Aristolochia californica*
- Western spicebush, *Calycanthus occidentalis*
- California black-flowering sedge, *Carex nudata*
- Hazelnut, *Corylus cornuta 'Californica'*
- Umbrella plant, *Darmera peltata*
- California gray rush, *Juncus patens*
- Monkeyflower, *Mimulus spp.*
- Ninebark, *Physocarpus capitatus*
- California polypody, *Polypodium californicum*
- Red-flowering currant, *Ribes sanguineum*
- Salmonberry, *Rubus spectabilis*
- Coneflower, *Rudbeckia californica*

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BAYHILL SPECIFIC PLAN

4.

Access & Connectivity

4.1 Existing Street Network

4.2 Specific Plan Street Network

4.3 Specific Plan Parking Management & Standards

4.4 Specific Plan Transportation Demand Management

4.5 Transportation Policies



4 Access and Connectivity

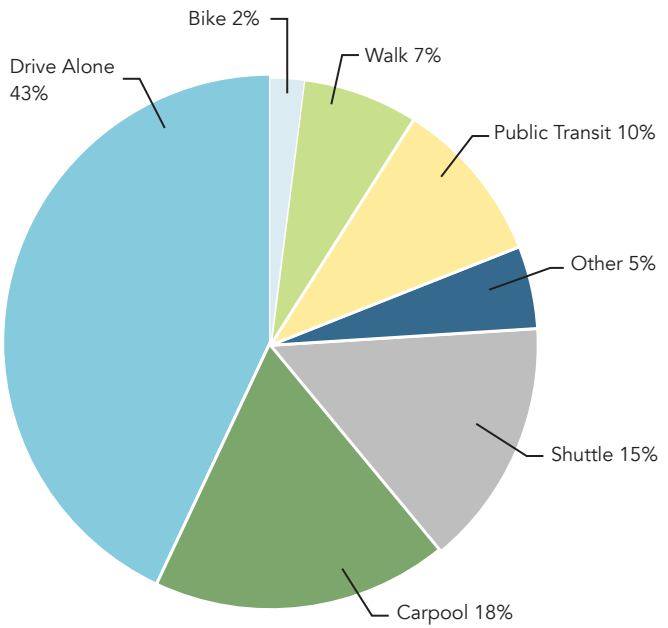
The Planning Area is well-served by regional transportation facilities, including two major freeway arteries (I-280 and I-380), El Camino Real—the Peninsula's major north-south vehicular and transit corridor—and two rail connections, via the San Bruno BART and Caltrain stations, each located within a mile of the Planning Area. El Camino Real, Sneath Lane, and San Bruno Avenue provide access to all local destinations. Pedestrian facilities are located internal and external to the Planning Area. Bicyclists may use the local streets but there are no dedicated bicycle facilities.

The Plan's intensified land uses and expected increase in trips internal to the Planning Area are supported by a circulation system that integrates pedestrian, bicycle, transit, and vehicular modes as described in this chapter. The circulation and access goals in this chapter foster a well-defined and connected network for all modes to get to, from, and through the Planning Area. Access and connectivity topics include vehicle mobility, pedestrian and bicycle networks, transit enhancements, first-mile/last-mile connections, parking, and Transportation Demand Management (TDM).

The Specific Plan seeks to create an inviting pedestrian environment within the Planning Area as well as improved connectivity to the surrounding neighborhoods, Downtown and regional transit stations. Pedestrian connectivity is paired with a bicycle network that is attractive to riders of all ages and abilities, and convenient transit services connecting the Planning Area to local and regional destinations including Caltrain and BART stations. By combining multi-modal design principles with aggressive TDM programs, the Specific Plan strives to reduce vehicle miles traveled (VMT) associated with new project trips.[1] VMT measures the total number of new vehicle trips and the distance of each of those trips and is the best transportation metric available to understand the environmental impact of a new project. The primary strategy to reduce VMT is to shift drive-alone vehicle trips to other modes of travel, including carpool, shuttle, transit, bicycling, and walking. **Figure 4-1** presents a sample mode split that would help achieve the Specific Plan VMT goals. The exact mode split breakdown is flexible but a substantial shift to non-auto modes will be required to achieve Plan goals.

1 A specific VMT/capita threshold of 21.7 VMT per person is discussed in the TDM section and transportation policies below. The threshold is established as 14.3% below the region's average VMT/capita for consistency with the City's selected transportation impact analysis guidance for this Plan.

Figure 4-1: Sample Specific Plan Mode Split



4.1 Existing[2] Street Network

The roadway network is organized around the City's street classification system established in the General Plan and is comprised of arterials, collectors, and local streets. The primary arterial streets—El Camino Real, Sneath Lane, and San Bruno Avenue—connect the Planning Area to adjacent communities and the regional highway network. The secondary collector streets—Cherry Avenue and Bayhill Drive—connect the Planning Area and the local streets to the arterial network and provide pedestrian and bicycle connectivity. The remaining streets within the Planning Area are local streets and provide access to final destinations such as offices, homes, and shops. Each street is described below and **Figure 4-2** is an overview of the regional and local roadway network; existing and proposed figures for individual roadways can be found in **Appendix A**.

Cherry Avenue – Cherry Avenue is a four-lane roadway running north-south through the western half of the Planning Area from San Bruno Avenue West to Sneath Lane. Cherry Avenue serves commercial properties within Bayhill in addition to residential uses both north and south of the Planning Area. On-street parking and loading is permitted on portions of Cherry Avenue. Additionally, Cherry Avenue serves as the center of passenger and commercial loading activity within the Planning Area. Loading activity consists of pick-ups and drop-offs by YouTube and Walmart company shuttles, SamTrans public buses, Transportation Network Companies (TNCs) such as Uber and Lyft, and small commercial trucks. Approximately eight-foot sidewalks exist on both sides of the street and expand into large pedestrian plazas fronting 901 and 850 Cherry Avenue. No bicycle facilities exist on Cherry Avenue. (**Figures A-1, A-3, A-5, A-7, A-9**)

Bayhill Drive – Bayhill Drive is the east-west roadway spine bisecting the Planning Area. The four-lane local road has a landscaped median with trees. Bayhill Drive provides access to El Camino Real, Cherry Avenue, Elm Avenue, and Traeger Avenue. On-street parking is not permitted. There are sidewalks on both sides of the street, but no bicycle facilities. (**Figures A-11, A-13**)

Grundy Lane – Grundy Lane is the northernmost local street within the Planning Area, running east-west for just under a half-mile. Several surface parking lot driveways are accessed from Grundy Lane and on-street parking is permitted along most of the street. There are sidewalks on both sides of the street but no bicycle facilities. (**Figure A-15**)

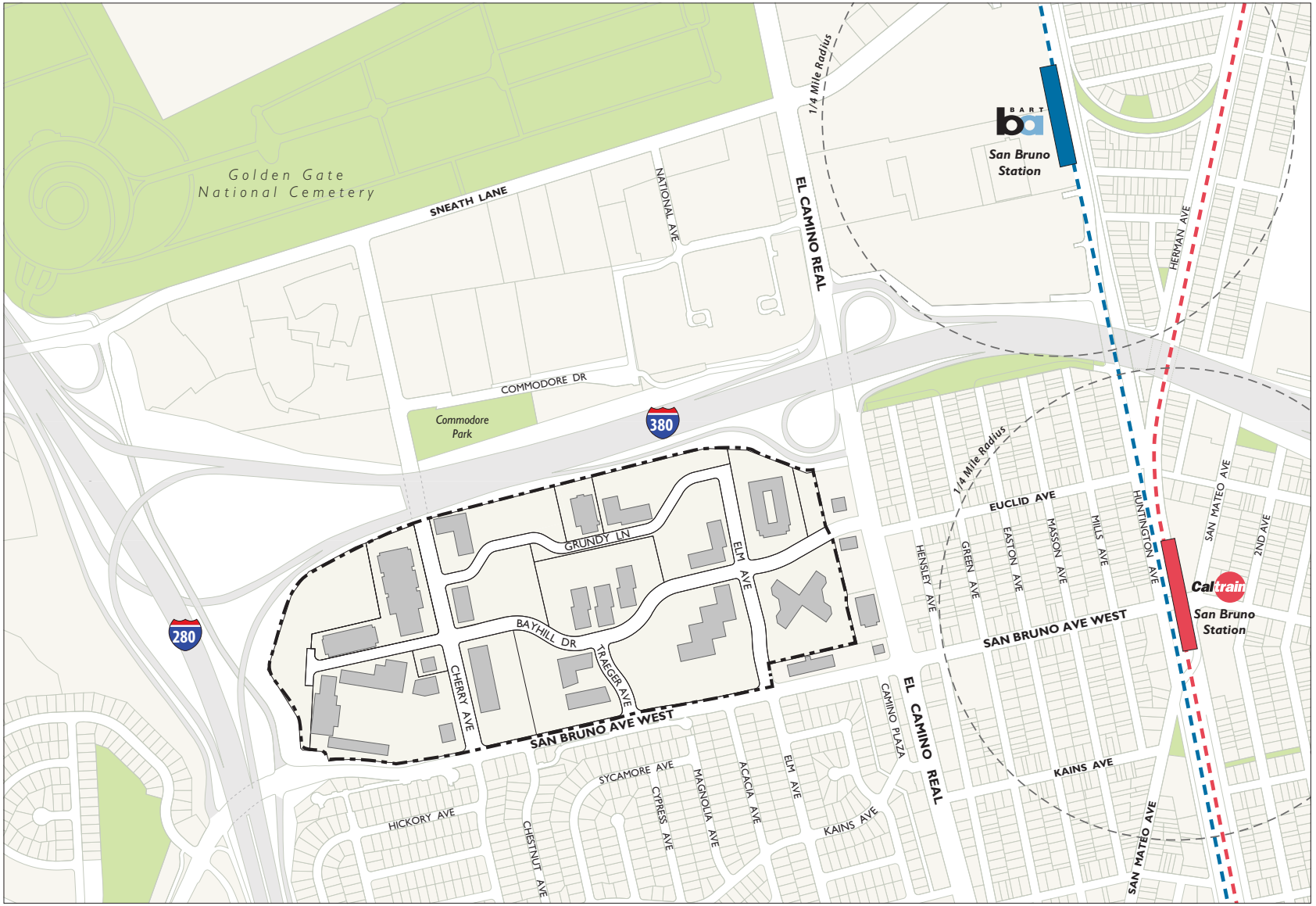
Traeger Avenue – Traeger Avenue serves as a north-south connection between San Bruno Avenue and Bayhill Drive. There are two travel lanes in either direction, one driveway on the east side and two driveways on the west side. On-street parking is not permitted. There are sidewalks on both sides of the street but no bicycle facilities. (**Figures A-17, A-19**)

Elm Avenue – Elm Avenue is the easternmost north-south street within the Planning Area. There are two travel lanes in either direction south of Bayhill Drive and one in each direction north of Bayhill Drive. Elm Avenue curves west to become Grundy Lane near the northeast corner of the Planning Area. On-street parking is not permitted but shuttle loading is permitted on the northwest corner of Elm Avenue and Bayhill Drive. There are sidewalks on both sides of the street but no bicycle facilities. (**Figures A-21, A-13, A-25**)

San Bruno Avenue – San Bruno Avenue is a four-lane roadway that defines the southern boundary of the Planning Area. San Bruno Avenue is a major east-west arterial through the City of San Bruno extending to Skyline Boulevard to the west and the San Francisco International Airport to the east. San Bruno Avenue provides freeway access to both I-280 and US-101, as well as access to the San Bruno Caltrain station less than a half-mile from the Planning Area. Near the Planning Area, on-street parking is not permitted and a planted median divides the roadway. A narrow sidewalk extends along the north and much of the south side of San Bruno Avenue, though multiple gaps exist in the south side sidewalk. There are no bicycle facilities on San Bruno Avenue (**Figures A-23, A-25, A-31, A-5, A-19**)

2 These are existing conditions as of preparation of the Plan in 2018.

Figure 4-2: Regional and Local Roadways



Project Site

BART

Caltrain

0 500 1000 1500 2000

FEET

San Bruno Vehicle Level of Service Policies

Roadway and intersection operations are evaluated in terms of "level of service" (LOS), which is a measure of driving conditions and vehicle delay. Levels of service range from A (best) to F (poorest). LOS A, B and C indicate satisfactory conditions where traffic can move relatively freely. LOS D describes conditions where delay is more noticeable. LOS E indicates conditions where traffic volumes are at or close to capacity, resulting in significant delays and average travel speeds that are one-third the uncongested speeds or lower. LOS F characterizes conditions where traffic demand exceeds available capacity, with very slow speeds (stop-and-go), long delays (over a minute) and queuing at signalized intersections.

The City of San Bruno General Plan Transportation Element includes policies to ensure that the City maintains an adequate level of service on its streets. General Plan Policy T-6 and General Plan Figure 4-2 identify 28 intersections at which the LOS Standard is D during the AM and PM peak periods.[3] General Plan Policy T-B requires that an acceptable Level of Service be maintained on all intersections, which the City has determined is no worse than LOS D. As noted above, traffic conditions below LOS D mean significant delay.

A vehicular level of service (LOS) analysis was performed at intersections near the Plan Area for the AM and PM peak periods.[4]

Table 4-1: Existing Intersection Vehicular Level of Service

Study Intersection / Freeway Segment	Control	Jurisdiction	Existing AM		Existing PM	
			LOS	Delay	LOS	Delay
1. I-280 Southbound Ramps/ San Bruno Avenue	Signal	Caltrans	C	21	B	15
2. I-280 Northbound Ramps/ San Bruno Avenue	Signal	Caltrans	C	21	C	29
3. Cherry Avenue / San Bruno Avenue	Signal	San Bruno	D	36	D	50
4. Traeger Avenue / San Bruno Avenue	SSSC1	San Bruno	A (B)	1 (16)	A (C)	3 (23)
5. Elm Avenue / San Bruno Avenue	Signal	San Bruno	B	14	B	15
6. El Camino Real / San Bruno Avenue	Signal	Caltrans	D	36	**E**	**56**
7. El Camino Real / Bayhill Drive	Signal	Caltrans	A	4	C	32
8. I-380 Eastbound / El Camino Real	Signal	Caltrans	A	5	B	15
9. I-380 Westbound / El Camino Real	Signal	Caltrans	B	18	**F**	**>80**
10. Cherry Avenue / Bayhill Drive	Signal	San Bruno	C	22	C	25
11. Cherry Avenue / Sneath Lane	Signal	San Bruno	A	8	B	12
12. I-280 Northbound Ramp / Sneath Lane	Signal	Caltrans	B	16	B	19
13. I-280 Southbound Ramp / Sneath Lane	Signal	Caltrans	**E**	**57**	B	18
14. El Camino Real / Tanforan Way / Commodore Drive	Signal	Caltrans	C	21	B	17
15. El Camino Real / Sneath Lane	Signal	Caltrans	C	33	D	47

Notes:

Delay rounded to the nearest second.

1. SSSC = Side Street Stop Controlled. Worst approach is noted in parentheses () for side street stop controlled intersections.

3 Peak period is defined the peak two-hour period of vehicle traffic. In the morning this is typically 7-9AM and in the evening this is typically 4-6PM.

4 Vehicle counts for this analysis were collected in winter 2017 and spring 2018.

As shown in **Table 4-1**, only the I-280 Southbound Ramp at Sneath Lane exceeds LOS D during the AM peak period. During the PM peak period, two intersections—El Camino Real at San Bruno Avenue and I-380 Westbound Ramps at El Camino Real—exceed LOS D. All other intersections meet City of San Bruno standards.

Pedestrian Facilities

The Planning Area has nearly complete sidewalk coverage on every internal roadway. All sidewalks include pedestrian curb ramps at intersections and crossings; some have been upgraded with ADA accessible features such as directional curb ramps and detectible warning surfaces. Sidewalk pavement is generally in good condition with minimal obstructions. Pedestrian countdown signals are provided adjacent to activity nodes along Cherry Avenue. However, there are limited pedestrian-scale facilities connecting pedestrians between uses on-site. For example, pedestrians must traverse long distances along roadways or cut through surface parking lots to move throughout the Planning Area.

There are also connectivity barriers adjacent to the Planning Area. I-380 and I-280 include underpasses at Cherry Avenue and San Bruno Avenue, respectively, but otherwise limit access to the Planning Area from the north and west. Large gaps exist between crosswalks on San Bruno Avenue and El Camino Real. These gaps increase travel distance and time for pedestrians trying to access adjacent residential neighborhoods, retail fronting El Camino Real, and BART, Caltrain, and transit along El Camino Real.

Bicycle Facilities

Bicycle facilities are typically separated into four classes:

- **Class I (Bicycle Path):** These facilities are located off-street and can serve both bicyclists and pedestrians.
- **Class II (Bicycle Lanes):** These facilities provide a dedicated area for bicyclists within the paved street width through the use of striping and appropriate signage.
- **Class III (Bicycle Routes):** These facilities are installed along streets that do not provide sufficient width for dedicated Class II bicycle lanes. The street is designated as a bicycle route, where bikes and cars share the road through the use of on-street markings and signage, which inform drivers to expect bicyclists.
- **Class IV (Cycletrack/Protected Bicycle Lanes)**: These facilities are for the exclusive use of bicycles and require a vertical element that serves as a barrier separating the bikeway and adjacent vehicular traffic.

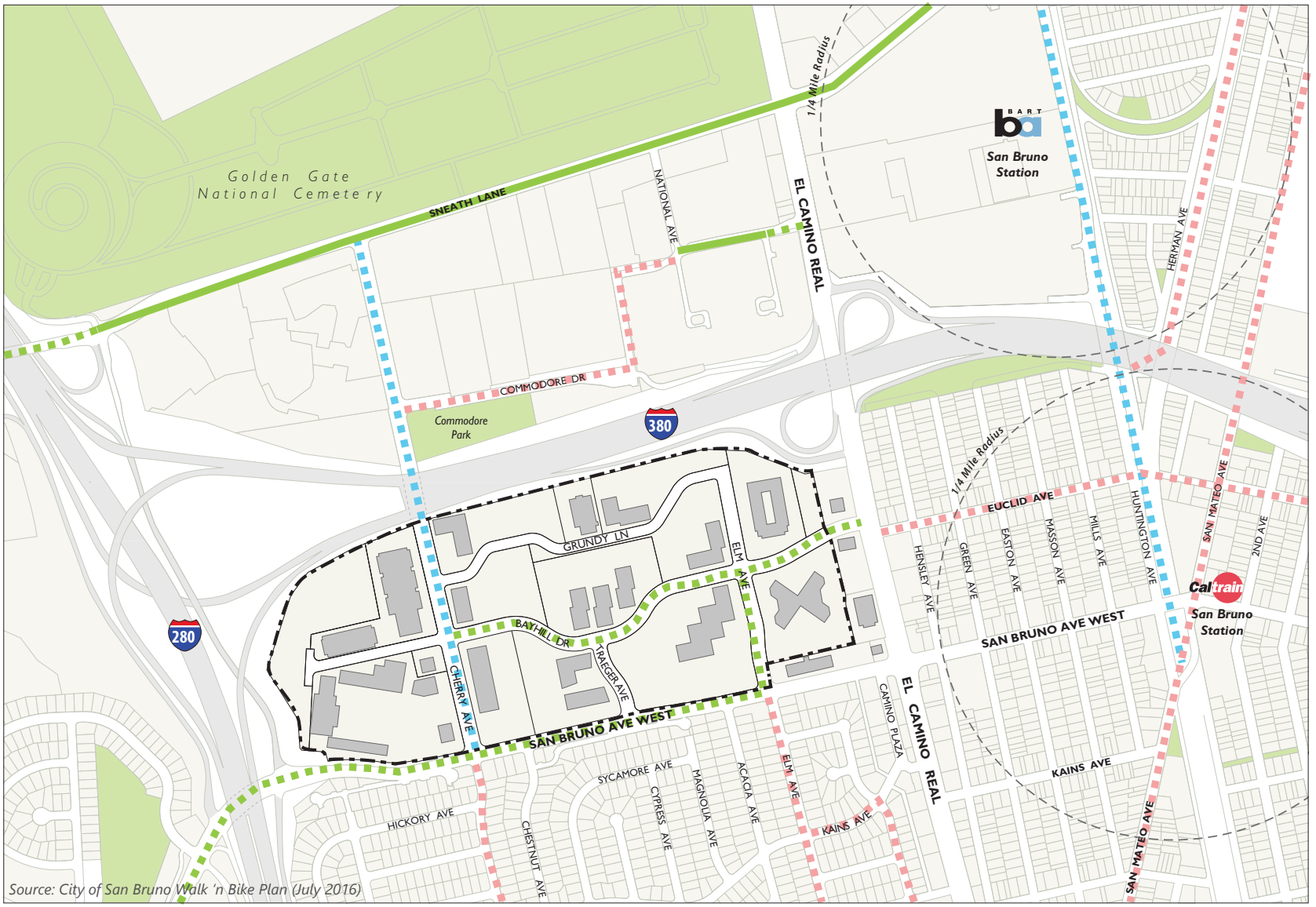
Bicycle Class II lanes are provided along Sneath Lane and a short stretch of Commodore Drive north of the Plan Area. Although there are no existing facilities within the Planning Area, a relatively small number of new bicycle facilities could connect the Planning Area to the east-west corridor on Sneath Lane and the north-south corridor on Huntington Avenue. As illustrated in **Figure 4-3**, the City's Walk 'n Bike Plan proposes several new facilities within the Planning Area, many of which are identified to be added as part of the Specific Plan.

Transit Network

SamTrans is the primary regional and local transit provider within San Mateo County, serving all rail stations within the County and major transit transfer points for Santa Clara and San Francisco counties. The San Bruno BART and Caltrain stations are both located less than a mile from the Plan Area. BART provides approximately 15-minute rail service south to SFO and north to San Francisco and the East Bay. Caltrain provides 30-minute to hourly rail service south to San Jose and north to San Francisco. YouTube and Walmart operate private, long-haul commuter shuttles to and from the Planning Area. Walmart, in partnership with Commute.org, BART, and Caltrain, also operates publicly-accessible shuttle service between the Planning Area and the San Bruno BART and Caltrain stations.

All shuttle services and a few bus routes stop at Cherry Avenue and Bayhill Drive. For most other routes, however, the nearest stop is on El Camino Real, either at San Bruno Avenue or adjacent to the I-380 eastbound ramps. SamTrans' ECR route, from Daly City BART to the Palo Alto Transit Center, is the most frequent route serving the Planning Area. It runs every 15 minutes on weekdays and every 20 minutes on weekends. Other nearby routes provide local service and operate on 30- to 60-minute headways. The BART, Caltrain, YouTube, and Walmart shuttles only operate on weekdays during business hours.

Figure 4-3: Existing and Walk n' Bike Plan Proposed Bicycle Network



Source: City of San Bruno Walk 'n Bike Plan (July 2016)

- Project Site
- Existing Class II Bike Lanes

San Bruno Walk 'n Bike Plan Proposed Facilities

- Proposed Class II Bike Lanes
- Proposed Class III Bike Routes
- Proposed Class IV Separated Bikeway

0 500 1000 1500 2000
FEET

4.2 Specific Plan Street Network

Bayhill's roadway network was designed for vehicle mobility; travel by foot, bike, and transit is less convenient. Under the Specific Plan, all modes would have clear routes to get through and around the Planning Area. This includes continued ease of access for vehicles, with improvements such as signalization of Traeger Avenue at San Bruno Avenue and new parking facilities for all new buildings. Mobility improvements for bicycles, pedestrians, and transit will be achieved by providing designated spaces for these modes on a subset of the internal streets.

Street Network Improvements

The existing (2019) roadway conditions and planned circulation and access improvements are keyed to **Figures 4-4** and **4-5**. Existing (2020) and proposed cross section and plan-view illustrations for each street in the Plan Area are shown in the Appendix A, **Figures A-1** through **A-30**. **Figure 4-6** summarizes the bicycle network improvements which are further described under "Bicycle Improvements" below. Street improvements within the Plan Area will be completed by the developers of adjacent parcels as redevelopment of parcels occurs. Some improvements to intersections and signalization adjacent to and near the Plan Area to meet vehicular Level of Service standards or pedestrian/bicycle safety needs will be undertaken by the City.

In addition to street improvements, the City will consider privately-developed above-ground pedestrian bridges and below-ground pedestrian tunnels between office buildings in order to facilitate internal pedestrian circulation and increase security for employees.

CHERRY AVENUE

South of Bayhill Drive – The Plan proposes to reduce the existing 13-foot plus travel lanes along Cherry Avenue, south of Bayhill Drive, to 11feet and provide a Class II buffered bike lane in both directions. Reducing the lane width will allow the sidewalk to be widened to 14 feet on the west side with a 6-foot stormwater planter. Bicycle box and two-stage bicycle left turn pavement markings will be added at the intersection of San Bruno Avenue and Cherry Avenue (**Figures A-2, A-6, A-8**). Bicycle boxes provide a dedicated space for bicyclists to queue up in front of vehicles at a signalized intersection, thereby increasing visibility of bicyclists and giving them a head start on the green light. Bicycle boxes can also be positioned and signed to enable a two-stage left turn making an "L" through the intersection. First, the bicyclist proceeds straight with traffic and a green box provides them a space to queue ahead of opposing traffic that has a red signal. When the cross street receives a green signal, the bicyclist proceeds straight with traffic.

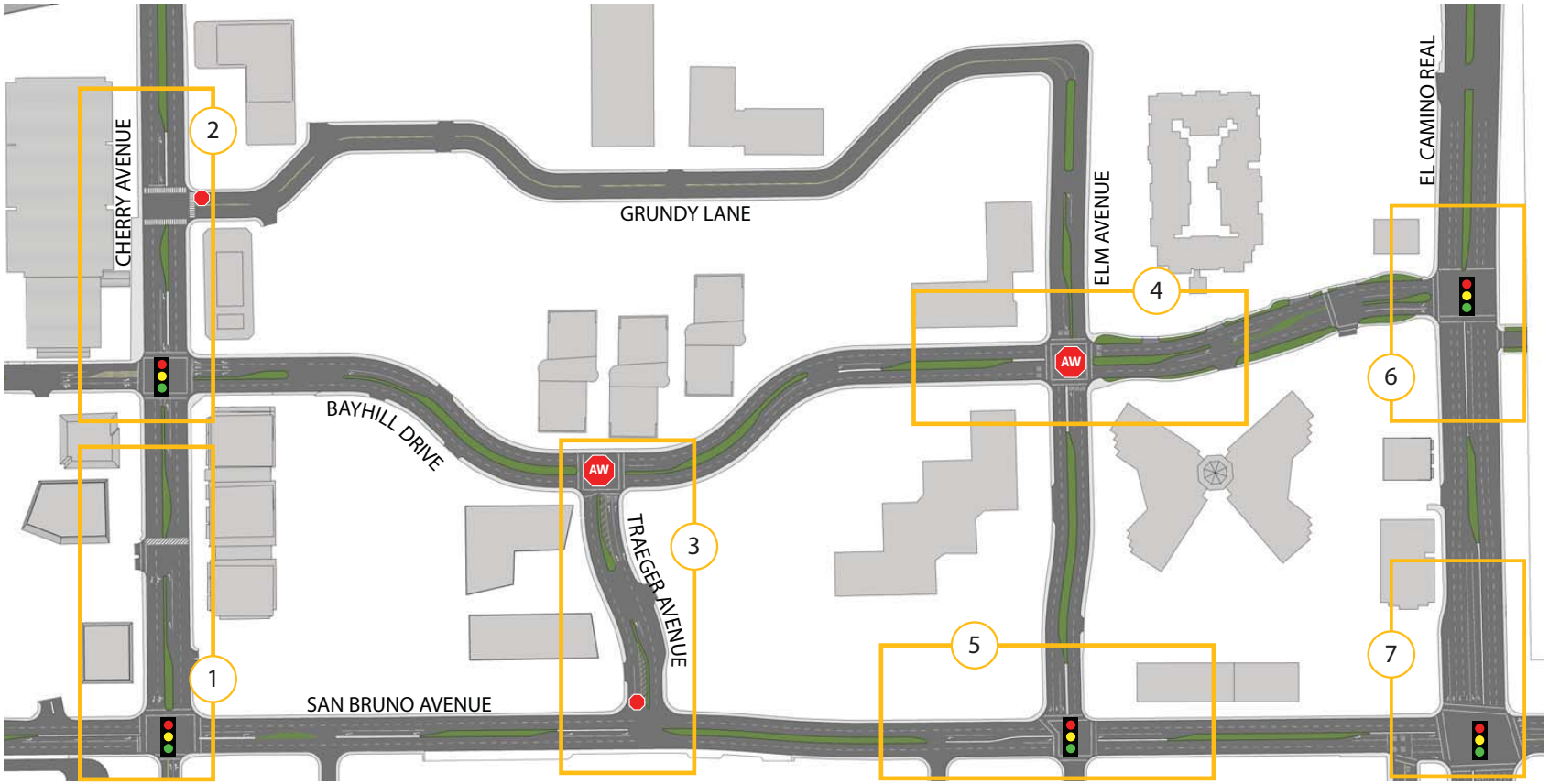
Crosswalks across Cherry Avenue will be improved and pedestrian refuges will be provided on the north leg of the Cherry Avenue/San Bruno Avenue intersection and the Cherry Avenue/Bayhill Shopping Center Driveway intersection.

Intersection corner curb radii will be reduced at strategic locations to reduce vehicle turning speeds. All on-street parking will be removed, but the commercial and bus loading zone on the east side will remain in place. A City-initiated project, expected to be completed in 2021, will reduce the width of the median on Cherry Avenue on the north side of the intersection with San Bruno Avenue in order to add a southbound left turn pocket. The project includes traffic signal modifications and pedestrian improvements consistent with the Specific Plan network improvements. A further improvement needed to meet the City's LOS D standard at the San Bruno intersection with Cherry is a west-bound turn pocket on San Bruno Avenue as discussed further under Vehicle Operations.

Due to the expected increase in pedestrian traffic from office buildings to the restaurants and services in the Bayhill Shopping Center, a stop signal or other type of control device will be necessary at the intersection of Cherry Avenue and the shopping center driveway to help enhance pedestrian safety (not shown on Figures A-6, A-8).

North of Grundy Lane – North of Bayhill Drive, the Plan proposes to reduce the existing 13-foot travel lanes along Cherry Avenue to 12-foot travel lanes with 10-foot left turn pockets. Class III bicycle sharrows—bicycle pavement markings in the vehicle travel lane—will be provided in both directions. The existing median will be widened to accommodate a

Figure 4-4: Street Plan Overview - Existing

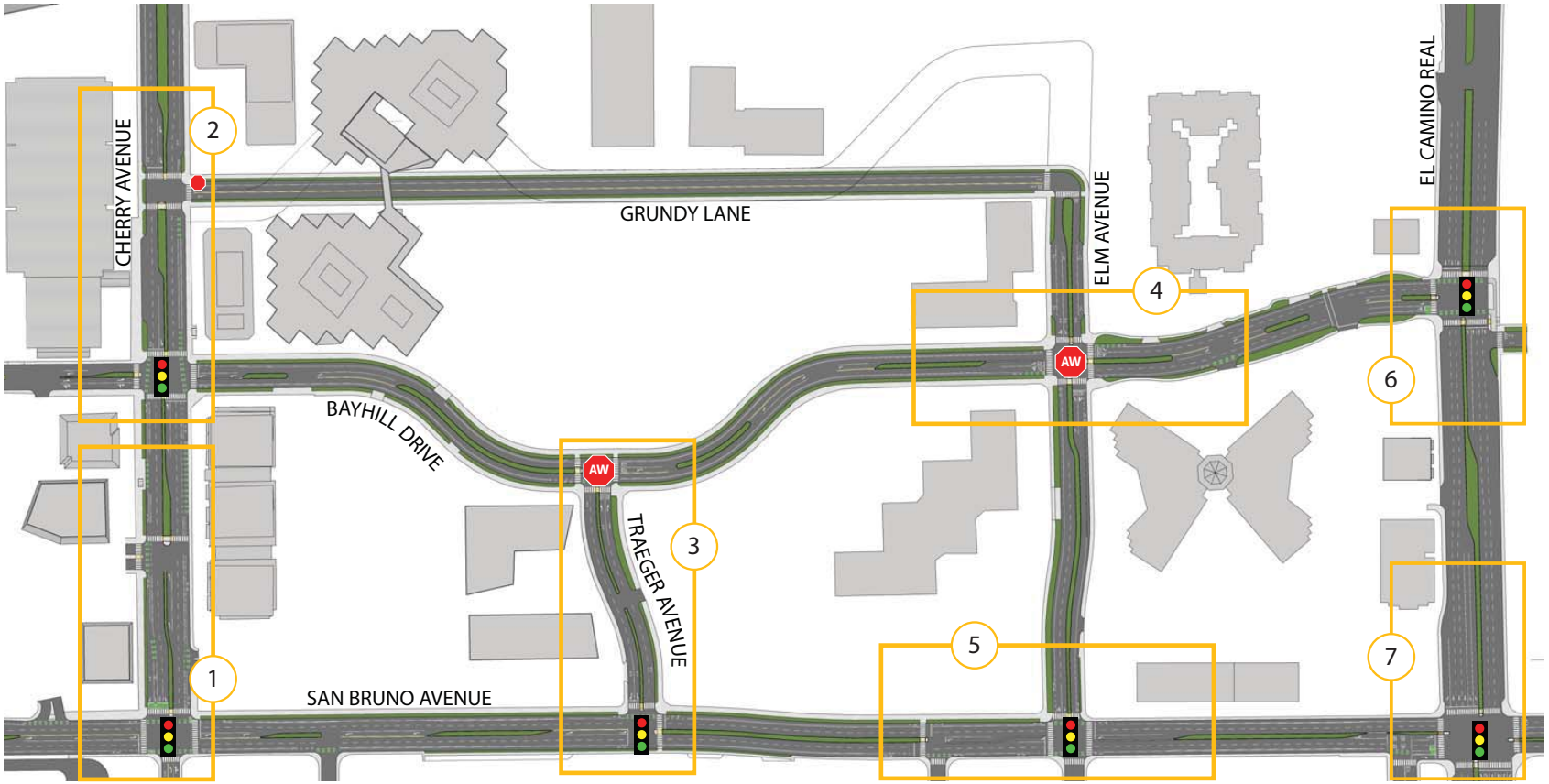


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5. San Bruno Avenue and Elm Avenue
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0' 125' 250' 500'

Figure 4-5: Street Plan Overview - Proposed



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7. El Camino Real and San Bruno Avenue

pedestrian refuge at the Cherry Avenue and Grundy Lane intersection, and bulb-outs will be constructed at both intersections to reduce the pedestrian crossing distance. On-street parallel parking and loading will remain on both sides of Cherry Avenue north of Grundy Lane (**Figures A-4, A-10**).

Between Bayhill Drive and Grundy Lane – Between Bayhill Drive and Grundy Lane, the east side curb will be reserved for the existing transit bus stop, and up to 150 feet of loading zone, of which up to 60 feet may be yellow loading zone. The remainder will be white curb loading zone reserved for use by passenger cars which will not be used by shuttle buses. The existing transit stop will be relocated to the south end of the block as a far side stop. Class II bicycle lane will be provided on the east side of Cherry Avenue. On the west side, the shuttle stop will be enhanced with a curb-cut and other shuttle amenities. Bicycle sharrows will be provided on the west side of Cherry Avenue (**Figures A-4, A-10**).

BAYHILL DRIVE

The existing four lane section west of Elm Avenue will be reduced from four travel lanes to two travel lanes with turn pockets at the intersections. This configuration will accommodate Class II bicycle lanes along the full Bayhill Drive corridor and widened sidewalks with stormwater planters. East of Elm Avenue, the Bayhill Drive travel lanes will be reduced from 12 feet to 11 feet with a 10-foot median/left turn pocket. Class II bike lanes will continue to the El Camino Real intersection. (**Figure A-12**)

The Bayhill Drive/Elm Avenue intersection will remain stop controlled but will include additional enhancements, such as high visibility crosswalks, a pedestrian refuge, and reduced corner curb radii. The improvements also include a two-stage crossing option for bicycles to traverse the offset intersection (**Figure A-14**).

GRUNDY LANE

Grundy Lane will be re-constructed in a straight line between Cherry Avenue and Elm Avenue. The reconstructed 16-foot travel lanes along Grundy Lane will be reduced to 13.5 feet in the westbound direction and 12.5 feet in the eastbound direction, with Class III bicycle sharrows provided in both directions. Parallel parking and white curb loading zone, reserved for use by passenger cars only, will be permitted on the north side of the street. The street right of way will include wide sidewalks with stormwater planters (**Figure A-16**).

TRAEGER AVENUE

The existing Traeger Avenue cross-section will be modified to include reduced travel lane widths (11-foot travel lanes) and Class III bicycle sharrows in both directions. Pedestrian enhancements, including a widened 10-foot sidewalk on the east side and high visibility crosswalks, will be provided along Traeger Avenue and at the San Bruno Avenue and Bayhill Drive intersections. As described further under Vehicle Operations, the San Bruno Avenue/ Traeger Avenue intersection will be signalized to enhance pedestrian safety and improve intersection operations. Similar to Cherry Avenue, intersection corner curb radii will be tightened to reduce vehicle turning speeds (**Figures A-18, A-20**).

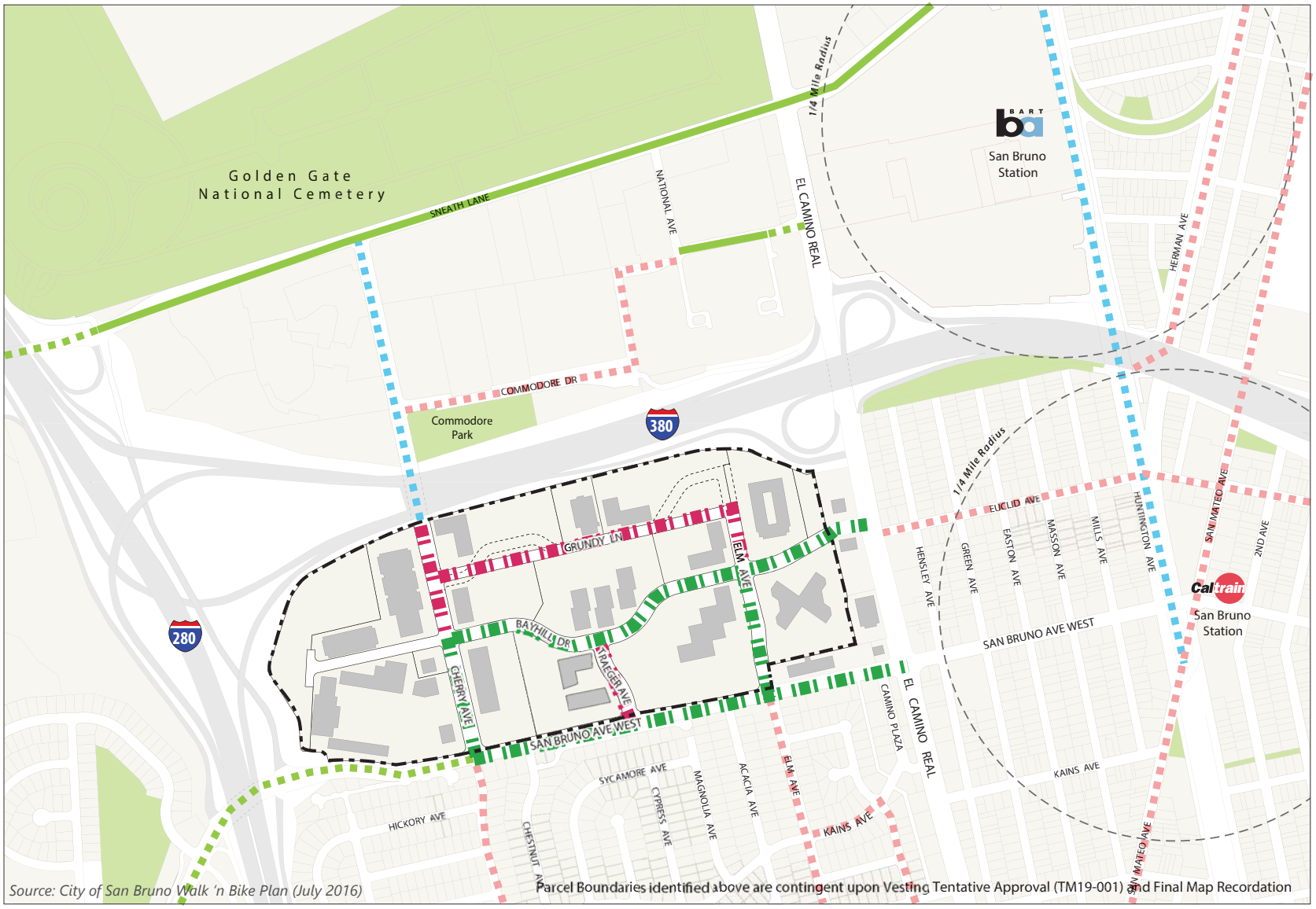
ELM AVENUE

Elm Avenue, north of Bayhill Drive, will be modified to one 11-foot lane in each direction, with a 10-foot left turn pocket at the Bayhill Drive intersection. The sidewalks will be 8 feet at the intersection to accommodate an 8-foot stormwater planter and widened to 10 feet north of the Bayhill Drive intersection. Additionally, the median will be widened and will accommodate a pedestrian refuge at the Bayhill Drive intersection. There are 10-foot shuttle loading zones on either side of Elm Avenue just north of the Bayhill Drive intersection. Elm Avenue, south of Bayhill Drive, will be reduced to one lane in each direction with left turn pockets at the San Bruno Avenue and Bayhill Drive intersections. The westside curb will include a 10-foot stormwater planter. Class II bicycle lanes will be provided between San Bruno Avenue and Bayhill Drive. Class III bicycle sharrows will continue north of Bayhill Drive to connect with the sharrows on Grundy Lane (**Figures A-22, A-26, A-14**).

SAN BRUNO AVENUE

San Bruno Avenue, between El Camino Real and Cherry Avenue, will continue to include four travel lanes with a center median/left turn pocket. The travel lanes will be narrowed to 10-foot and medians will be narrowed to 9 feet to accommodate a Class II bicycle lane with a buffer and vertical soft-post delineators in both directions. Where there are left turn pockets, the bicycle lane buffer will be eliminated on one side to provide 10 feet for the turn lane. In addition, the north side sidewalk will be widened to 10 feet with an additional 6 feet for a stormwater planter. Intersections along San Bruno Avenue will be improved to include high visibility crosswalks, pedestrian refuges, and tightened corner curb radii. Should a civic use be located in the Plan Area on San Bruno Avenue where it is identified as a potential use, access from the neighborhood to

Figure 4-6: Specific Plan Bicycle Network



the south should be improved (**Figures A-6, A-8, A-20, A-24, A-26**), A marked pedestrian crossing at Acacia Avenue and sidewalk improvements on the south side of San Bruno Avenue would be necessary to allow for safe pedestrian access.

BICYCLE IMPROVEMENTS

Figure 4-6 summarizes the bicycle network changes included in the Plan. The Plan would add Class III sharrows on the southbound side of Cherry Avenue north of Bayhill Drive, on the northbound side of Cherry Avenue north of Grundy Lane, on all of Grundy Lane, on Traeger Avenue, and on Elm Avenue north of Bayhill Drive. The Plan would also add Class II bike lanes to the southbound side of Cherry Avenue south of Bayhill Drive, to the northbound side of Cherry Avenue south of Grundy Lane to Elm Avenue south of Bayhill Drive, to Bayhill Drive, and to San Bruno Avenue between El Camino Real and Cherry Avenue.

In addition, the City will evaluate the potential to extend designated bike facilities west along San Bruno Avenue from Cherry Avenue to the I-280 overpass[5]. If bike facilities can be extended from Cherry Avenue to the I-280 overpass, the City would then also review extending the designated bike facility to Skyline Boulevard.

5 Changes at the intersection of San Bruno and I-280 require Caltrans approval. The City will need to evaluate the option to implement bicycle route improvements in relation to the potential need for a third westbound through pocket onto I-280 that may be needed to address a projected Level of Service deficiency. Both cannot be accommodated within the available right-of-way.

Specific Plan Vehicle Operations

A vehicular level of service (LOS) analysis was performed at intersections in and near the Plan Area for the AM and PM peak periods assuming full buildout and full occupation of the Specific Plan as of 2040. The analysis assumes that all the Planning Area street network changes are completed as described above and that signal optimizations are implemented as needed over the time frame of the Plan. As shown in **Table 4-2**, three intersections in the AM peak period and four intersections in the PM peak period are projected to exceed the City's standard of LOS D.

In addition to the street network changes already described in the preceding pages and assumed in this analysis, improvement projects have been identified that will allow all but one of the intersections in **Table 4-2** to meet the City's policy to maintain LOS D. These improvements are described in **Table 4-3,** along with the signalization project at Traeger Avenue, which is already reflected in the LOS results on the following page.

Because the need for these improvements is based on projections of future traffic, the City will need to monitor actual traffic conditions over time and adjust the exact project parameters and timing as applications for future phases of development are submitted. All but one of these projects also requires coordination with and approval by Caltrans. Cost estimates for these projects are presented in **Table 7-1**, Implementation, which also describes the City's plan to fund the improvement. Specific Plan policies require that development in the Planning Area pay its fair share toward the cost of implementing all Plan-related improvements.

The intersection at I-280 Southbound Ramp and Sneath Lane is also projected to exceed the City's LOS standard. However, signal timing improvements and lane configuration changes within the existing roadway, while improving future conditions, would not result in an acceptable level of service. This is a freeway off-ramp intersection under the jurisdiction of Caltrans and it is not feasible for the City to implement a large project such as a ramp widening to improve the level of service to an acceptable level.

Transit Network Improvements

The Planning Area is designed to accommodate both public and private shuttle services. All private shuttle loading and unloading activities must take place within zones designated for such activities. There are two on-street shuttle stops within the Planning Area available for public buses and private shuttles. The on-street shuttle stops front 850 Cherry Avenue and 950 Elm Avenue. Each designated on-street loading zone is approximately 50-feet, which can accommodate one 45-foot full-length shuttle or two cutaway shuttles (minibuses with up to 15-passengers) at a time. A third shuttle stop on the east side of Elm Avenue fronting 1050 Bayhill Drive already approved by the City would be redundant with the planned Multi-Modal Transit Hub and will not be developed..

On-street shuttle stops should include pedestrian-scale lighting, shelter structures, seating, signage about routes, and adequate sidewalk width that

Table 4-2: 2040 Specific Plan Intersection Vehicular Level of Service

Study Intersection / Freeway Segment	Control	Jurisdiction	Plan AM		Plan PM	
			LOS	Delay	LOS	Delay
1. I-280 Southbound Ramps / San Bruno Avenue	Signal	Caltrans	C	23	B	15
2. I-280 Northbound Ramps / San Bruno Avenue	Signal	Caltrans	C	25	**F**	**82**
3. Cherry Avenue / San Bruno Avenue	Signal	San Bruno	**E**	**72**	**E**	**76**
4. Traeger Avenue / San Bruno Avenue	Signal	San Bruno	C	26	B	15
5. Elm Avenue / San Bruno Avenue	Signal	San Bruno	C	32	C	24
6. El Camino Real / San Bruno Avenue	Signal	Caltrans	**E**	**55**	**E**	**58**
7. El Camino Real / Bayhill Drive	Signal	Caltrans	A	8	C	34
8. I-380 Eastbound / El Camino Real	Signal	Caltrans	B	13	B	15
9. I-380 Westbound / El Camino Real	Signal	Caltrans	C	30	C	31
10. Cherry Avenue / Bayhill Drive	Signal	San Bruno	D	37	D	38
11. Cherry Avenue / Sneath Lane	Signal	San Bruno	B	12	B	18
12. I-280 Northbound Ramp / Sneath Lane	Signal	Caltrans	C	22	C	24
13. I-280 Southbound Ramp / Sneath Lane	Signal	Caltrans	**E**	**74**	C	30
14. El Camino Real / Tanforan Way / Commodore Drive	Signal	Caltrans	C	23	C	25
15. El Camino Real / Sneath Lane	Signal	Caltrans	D	35	**E**	**57**

Notes:

Delay rounded to the nearest second.

Table 4-3: Level of Service Projects

Location	Description
1. I-280 North-bound Off-Ramp & San Bruno Avenue	Reconfigure the middle approach lane on the I-280 NB off-ramp from a shared through-right-left to a shared through-right-only lane[1] Figure A-28
2. San Bruno Avenue/I-280 North-bound On-ramp	Add third westbound through pocket lane on San Bruno Avenue at I-280 NB On-Ramp[2].
3. San Bruno Avenue & Cherry Avenue	Add a westbound right-turn pocket from San Bruno Avenue onto northbound Cherry Avenue (Figures A-6, A-21)
4. I-280 SB & Sneath Lane	Modify northbound approach to include left-turn pocket, through lane, and free right turn[3]
5. Traeger Avenue/ San Bruno Avenue	Signalize intersection[4]
6. All major signalized intersections within a ¼-mile	Optimize signal splits, cycle lengths and signal interconnects after each subsequent phase of development[5]

Notes:

1. Any changes at this intersection require Caltrans approval.
2. Any changes at this intersection require Caltrans approval. A third westbound through pocket cannot be added if the City wants to extend designated bike facilities from Cherry Avenue to the I-280 overpass. Only one can be implemented within the available right-of-way. Figure A-21 shows a bike lane option.
3. Any changes at this intersection require Caltrans approval.
4. The Traeger Avenue and San Bruno Avenue intersection would exceed the LOS D threshold if left unsignalized; signalizing the intersection would result in improved operations and meet the LOS D threshold
5. Any signal timing changes at Caltrans intersections require Caltrans approval. Routine signal optimization is assumed as a background condition in the 2040 Project LOS analysis. However, because signal optimization requires regular monitoring and changes will be needed in the vicinity of the Plan Area with more frequency than is typical, these improvements and their associated costs are included in the Anticipated Projects List.

can simultaneously accommodate people waiting and people passing through the stop on their way to other destinations. In addition to shuttle stops, there are zones along the curb reserved solely for public buses. These are located on southbound Cherry Avenue between Bayhill Drive and San Bruno Avenue and on northbound Cherry Drive between Bayhill Drive and Grundy Lane.

In addition to these zones, due to an expected significant increase in private shuttles, the Plan calls for shuttle drop off areas to be developed on private land to accommodate shuttles in a safe manner without queuing on public streets. The initial phase of You Tube development will require a private multi-modal transportation hub that can accommodate four 45-foot shuttles simultaneously or approximately 12 to 24 shuttles per hour.[6]

Private multi-modal transportation hubs shall be designed to serve as a through-block shuttle and pedestrian way that facilitates Planning Area pedestrian circulation and provides ample space for walking, waiting, and bicycle parking. As future phases of development are proposed, the need for additional off-street facilities must be determined and then required to be built if the projected employee shuttle or other private transit vehicle loading demand exceeds the available capacity in the Planning Area. To preserve vehicular, bicycle and pedestrian safety in the Planning Area, additional shuttle stops on public streets are discouraged.

6 Assuming a loading time of 10 to 20 minutes for each shuttle.

First/Last-Mile Connections

One of the factors that discourages the use of transit is the distance people must travel to and from the transit station. The distance most transit riders are willing to walk to and from a station is about one-quarter to one-half mile. Beyond that, transit riders will typically prefer or need to find another way to get to their destinations, which can be challenging if the destination is not directly served by transit. Making the connection from home to transit and from transit to a destination is referred to as the "first/last mile connection".

The distance from most of the Planning Area to Caltrain and BART is more than the one-quarter to one-half mile that people are typically willing to walk and is, therefore, a limiting factor in the Planning Area's overall transit accessibility. BART and Caltrain usage are key components in reducing the Planning Area's auto usage rate, but only if there are reliable, comfortable, and efficient connections between the Planning Area and the respective San Bruno stations. Providing regular shuttles to the transit stations from the Planning Area, as currently provided, encourages transit ridership.

In order to encourage bicycle and pedestrian access to the Plan Area, the Plan includes bicycle and pedestrian crossing improvements along El Camino Real. The existing (2020) conditions and proposed improvements at El Camino and Bayhill Drive are shown in **Figures A-27** and **A-28**; the existing condition and proposed improvements at El Camino and San Bruno Avenue are shown in **Figures A-29** and **A-30**.

4.3 Specific Plan Parking Management & Standards

Providing adequate parking for both bikes and cars is important for promoting retail success, reducing time spent circling for parking, and reducing instances of parking encroachment on neighborhood streets. An integrated parking strategy that minimizes the need for constructing excessive parking, meets community and business owner desires for access, and supports the VMT per capita[7] goal of 21.7 miles (see rationale on page 1) is an essential component of the Plan.

As development proceeds, surface lots in the Planning Area will be replaced with parking in private, underground parking garages. Exceptions include retail parking in the shopping center surface lot and on-street parking on Cherry Avenue north of Bayhill Drive and on the north side of Grundy Lane.

The City's parking standards require each individual land use to provide a specified number of vehicle and bicycle parking spaces. Proposed off-street parking standards for the Planning Area follow the guidelines in San Bruno Municipal Code Chapter 12.100 (Off-Street Parking and Loading) and Parking Design Standards Resolution.

7 VMT per capita refers to any trip to and from the plan area by any mode of travel (e.g., autos, transit, walking, bicycle) for any reason, including employment, delivery, visitors, etc.

4.4 Specific Plan Transportation Demand Management

Transportation Demand Management (TDM) refers to policies and strategies that aim to reduce peak period travel demand, particularly for single occupant vehicles. TDM strategies fall into three main categories: built environment factors, services and programs, and education and outreach. The effectiveness of an individual TDM strategy largely hinges upon the particular travel market it is targeting, how time-competitive it is with private auto travel, and the degree to which it makes choosing non-auto travel easy.

YouTube already has a robust TDM programs that include long-haul commuter shuttles, first-mile/last-mile shuttles to BART and Caltrain, bicycle parking, showers, and carshare and Walmart participates in a shuttle program to BART and Caltrans. These programs should be continued where appropriate and can be tied to Specific Plan policies that require TDM programs and monitoring of all new land uses. A list of possible TDM strategies has been curated below based on the Planning Area characteristics and location. Each employer or property manager will be required to select a subset of strategies that are best suited to their employees and business model. Working individually or collectively, the new Bayhill land uses will need to meet a VMT per capita goal of 21.7.

Individual employers and property managers will need to meet the Specific Plan VMT/capita goal and show compliance through annual monitoring. If an employer or property manager is not in compliance, the City of San Bruno will assess penalties at a level agreed within the conditions of approval adopted when a development is approved.

Table 4-4: Bayhill Transportation Demand Strategies

Built Environment Factors	Services and Programs	Education and Outreach
Traffic Calming Features	Transit Subsidy	General Promotion & Advertising
High-Quality Pedestrian Design	Long-Haul Shuttles	Transportation Information Center
High-Quality Bike Connections	First-Mile/Last-Mile Shuttles	TDM Coordinator
Passenger Loading Facilities	Carshare Parking/Subsidies	Emergency Ride Home
Parking Management	Bicycle Parking/Amenities	Carpooling
	Bikeshare/Scooter-share	

4.5 Transportation Policies*

STREET NETWORK

4-1: Implement roadway improvements. New development shall install enhanced pedestrian environment frontage and roadway improvements as described below as each phase of development proceeds. Property owners shall maintain all frontage and median improvements installed on and adjacent to their property, including landscape, irrigation, lighting, sidewalk paving, and associated drainage facilities. Required improvements shall be provided along and parallel to the entire frontage of the development parcel(s) and extend out to the centerline of the adjacent roadway(s), except as noted below. Improvements such as reconstruction of medians, pedestrian crossings, and others that require completion to be effective will be completed in their entirety as part of each phase. The exact limits of construction for improvements will be determined by the City based on site conditions and/or other relevant considerations. The proposed dimensions of lanes and other street features are approximate and may change with final design subject to City approval. At the City's discretion, requirements for developments may be reduced based on the scope of the development.

a. **Cherry Avenue** – The roadway will be modified as follows:

South of Bayhill Drive

- 13-foot plus travel lanes along Cherry Avenue, south of Bayhill Drive, to 11 feet
- A Class II buffered bike lane in both directions.
- Sidewalk to be 14 feet on the west side with a 6-foot stormwater planter.
- Bicycle box and two-stage bicycle left turn pavement markings at the intersection of San Bruno Avenue and Cherry Avenue (**Figures A-2, A-6, A-8**).

North of Grundy Lane

- 11-foot travel lanes with 10-foot left turn pockets.
- Class III bicycle sharrows including bicycle pavement markings in the vehicle travel lane in both directions north of Grundy Lane.
- Median widened to accommodate a pedestrian refuge at the Cherry Avenue and Grundy Lane intersection,
- Bulb-outs at both intersections to reduce the pedestrian crossing distance.
- On-street parallel parking and loading on both sides of Cherry Avenue north of Grundy Lane (**Figures A-4, A-10**).

Between Bayhill and Grundy Lane

- Existing transit stop to be relocated from the north end to the south end of the block.
- East side curb for existing transit bus stop and up to 150 feet of loading zone, of which up to 80 feet may be yellow loading zone. The remainder will be white curb loading zone reserved for use by passenger cars which will not be used by shuttle buses.
- A Class II bicycle lane on the east side of Cherry Avenue. Bicycle sharrows on the west side of Cherry Avenue
- West side curb enhanced with a curb-cut and other shuttle amenities (**Figures A4, A-10**).

b. **Bayhill Drive** – The roadway will be reduced from four lanes to two lanes west of Elm Avenue to accommodate new striping-buffered bike lanes, widened sidewalks, curbside planters, and pedestrian-oriented lighting as shown in **Figure A-12**). The intersection of Elm and Bayhill will be modified as shown on **Figure A-14**.

c. **Grundy Lane** – The roadway realigned between Cherry Avenue and Elm Avenue. Related improvements include bicycle sharrows, a curbside planting strip/stormwater planters, widened sidewalks, and pedestrian-oriented lighting. Curbside parallel parking along the northern frontage. Because Grundy Lane is being fully realigned,

* Policy implements mitigation measure required by Environmental Impact Report for all development under Specific Plan.

(*) Policy implements mitigation measure required by Environmental Impact Report for all development under Specific Plan except Phase I Development.

improvements on both sides of the street shall be implemented at the time of realignment by the developer, as shown in **Figure A-16**.

d. **Traeger Avenue** – The roadway between San Bruno Avenue and Bayhill Drive to include 11-foot travel lanes and Class III bicycle sharrows in both directions. Pedestrian enhancements, including a 10-foot sidewalk on the east side as well as improved pedestrian crossings with high-visibility crosswalks and pedestrian refuges as shown in **Figures A-18, A-20.**

e. **Elm Avenue** – The roadway between San Bruno Avenue and Bayhill Drive to have 11-foot lanes in each direction, with a 10-foot left turn pocket at the Bayhill Drive intersection. The sidewalks to be 8 feet at the intersection to accommodate an 8-foot stormwater planter and widened to 10 feet north of the Bayhill Drive intersection. Additionally, the median to be widened to accommodate a pedestrian refuge at the Bayhill Drive intersection. The roadway reconfigured to include a greenway along the western frontage, as well as improved pedestrian crossings with high-visibility crosswalks and pedestrian refuges. Class II bicycle lanes to be provided between San Bruno Avenue and Bayhill Drive and Class III bicycle sharrows to continue north of Bayhill Drive to connect with the sharrows on Grundy Lane. North of Bayhill Drive, the roadway to have modified median islands extending to the intersection with Grundy Lane where Elm Avenue will terminate (**Figures A-22** and **A-14**).

f. **San Bruno Avenue** – San Bruno Avenue, between El Camino Real and Cherry Avenue, to continue to include four travel lanes with a center running median/left turn pocket. The travel lanes narrowed to 10 feet and medians narrowed to 9 feet to accommodate a Class II bicycle lane with a buffer and vertical delineators, such as soft-post, in both directions. Where there are left turn pockets, the bicycle lane buffer to be eliminated on one side to provide 10 feet for the turn lane. In addition, the north side sidewalk widened to 10 feet with an additional 6 feet for a stormwater planter. Intersections along San Bruno Avenue to be improved to include high visibility crosswalks, pedestrian refuges, and tightened corner curb radii (**Figures A-6, A-8, A-20, A-24, A-26**).

Should a civic use be located in the Plan Area on San Bruno Avenue where it is identified as a potential use, access from the neighborhood to the south should be improved. A marked pedestrian crossing at Acacia Avenue and sidewalk improvements on the south side of San Bruno Avenue would be necessary to allow for safe pedestrian access.

4-2: Dedicate Grundy Lane to City in Fee Title. The Planning Area may also include private streets that are used for a multi-modal center or service streets for deliveries and fire access.

4-3: Ensure that future Specific Plan development pays its fair share of feasible traffic improvements identified below that are required to meet the City's LOS policies or improve pedestrian and bicycle safety. The City will establish a funding mechanism as described in the Implementation Chapter of this Plan to address the improvements identified below. The City will monitor traffic conditions over time and adjust the exact project parameters and determine implementation timing as applications for future phases of development are submitted.

a. **I-280 NB Off-Ramp & San Bruno Avenue** – Reconfigure the middle approach lane on the I-280 NB off-ramp from a shared through-right-left to a shared through-right-only lane (**Figure A-28**)

b. **San Bruno Avenue/ I-280 Northbound On-ramp** – Add third westbound through pocket lane on San Bruno Avenue at I-280 NB Ramp interchange or extend designated bike facilities from Cherry Avenue to I-280 overpass.

c. **San Bruno Avenue and Cherry Avenue** – Add a westbound right-turn pocket.

d. **Cherry Avenue and Bayhill Shopping Center Driveway** – Add stop, signal, or other type of control device to Cherry Avenue with improved pedestrian crossings.

e. **San Bruno Avenue and Acacia Avenue** – Add marked pedestrian crossing across San Bruno Avenue contingent on a civic use being implemented.

f. **I-280 SB and Sneath Lane** – Modify northbound approach to include left-turn pocket, through lane, and free right turn.

g. **Traeger Avenue and San Bruno Avenue** – Signalize intersection (**Figure A-20**)

h. **Gateway Intersection Improvements** – Corner curb bulb-outs, countdown pedestrian signals, median refuges, bikeway markings, and similar pedestrian- and bicyclist-oriented improvements will be installed at Bayhill Drive/El Camino Real

and San Bruno Avenue/El Camino Real (**Figures A-28, A-30**)

i. **All major signalized intersections within a fourth-mile** – Optimize signal splits and cycle lengths and signal inter-connect where appropriate after each subsequent phase of development.

PARKING

4-4: Provide appropriate parking supply. Proposed off-street vehicle and bicycle parking and loading supply shall comply with San Bruno Municipal Code Chapter 12.100 (Off-Street Parking and Loading) and Parking Design Standards Resolution. Public parking and curbside loading surveys shall be prepared periodically and prior to each phase of development and the results used to re-evaluate parking supply and configuration. Projects are encouraged to provide bicycle parking in excess of the standards shown in Table 12.100-3, Required Bicycle Parking Spaces, of the San Bruno Municipal Code.

TRANSIT

4-5: Encourage first-last mile shuttle service. Prepare a first/last mile study for travel between the Planning Area and BART and Caltrain Stations that includes a study of bicycle connections. Encourage TDM programs to support high-frequency, reliable, all-day shuttle to BART and Caltrain stations and Downtown San Bruno; consider consolidating the two existing shuttle services, providing bi-directional service, and reducing headways.

4-6: Enhance transit stops. The City and property owners will cooperate and collaborate to enhance existing transit stop infrastructure concurrent with redevelopment of properties whose street frontage include transit stops. Enhancements could include installation and maintenance of features such as real-time arrival information, shelter, seating, pedestrian scale lighting, landscaping, and trash receptacles in accordance with the transit providers' requirements. Adequate sidewalk width should be provided that can simultaneously accommodate people waiting and people passing through the stop on their way to other destinations. Modifications to the planter strip design to accommodate bus access may be considered as part of transit stop design.

4-7: Contain shuttle activity to designated loading zones. Accommodate the demand for the Planning Area shuttles within the on- and off-street loading zones without queueing on public streets or the need to use Plan Area streets for maneuvering or layovers. As part of the entitlements process, applicants must describe their proposed shuttle operation program including a proposal for the number of unique stop visits at each loading zone in a typical day. Additional off-street facilities shall be added if projected demand is anticipated to exceed available capacity. Private bus and shuttles shall not be parked on public streets.

4-8: Provide first/last-mile wayfinding. Promote travel between the Planning Area and regional transit systems through enhanced wayfinding tailored to each mode of travel.

TRANSPORTATION DEMAND MANAGEMENT

4-9: Enforce the Plan Area VMT per capita of 21.7(*). Require new land use applicants to develop a TDM program that will achieve the Plan's goal of 21.7 VMT per capita. The VMT Cap equates to no more than 43 percent of trips occurring by single-occupancy vehicles (SOV). A Bayhill VMT Monitoring and Mitigation Plan will be prepared and periodically updated.

4-10: Use any mitigation payment to reduce VMT(*). Payments will be used to fund City-initiated projects and programs that reduce the VMT rate for the Plan Area such as bike and pedestrian network improvements, first/last mile shuttle services to regional transit stations, and marketing campaigns.

4-11: Require TDM coordinators(*). Require all TDM programs to include a designated TDM coordinator to facilitate programming and monitoring activities. The TDM coordinator will be responsible for collecting annual VMT data for the building(s) and reporting the findings to the City. TDM coordinators could form a Plan Area Transportation Management Association (TMA) if desired to combine monitoring, reporting, and TDM implementation efforts. This is not required for all property managers or employers.

CONSTRUCTION

4-12: Require a Construction Management Plan. Require all new developments to submit a Construction Management Plan (CMP) prior to issuance of a demolition, grading, or building permit, and ongoing throughout demolition, grading and/or construction. The CMP should outline traffic management strategies to reduce, to the extent feasible, traffic congestion, closures on the transportation network including emergency access and emergency response vehicles, the effects of parking demand by construction workers, and other nearby projects that could be simultaneously under construction.

4-13: Provide bicycle and pedestrian detours during construction. Require all contractors to ensure that any pedestrian, bicycle, or transit facility closed or obstructed by construction activity be replaced with a convenient and accessible alternative that replicates as nearly as practicable the most desirable characteristics of the original facility.

4-14: Permit below ground tunnels between parking garages. Up to seven private below ground tunnels providing vehicle and pedestrian access between parking garages are permitted. The proposed locations are shown on Figure 3-5.

BAYHILL SPECIFIC PLAN

5.

Infrastructure, Public Facilities & Services

5.1 Water Supply
5.2 Wastewater
5.3 Stormwater
5.4 Dry Utilities
5.5 City Net
5.6 Fire Protection Services
5.7 Police Protection Services
5.8 Schools
5.9 Parks and Recreation
5.10 Library Services
5.11 Infrastructure, Public Facilities and Services Policies



5 Infrastructure, Public Facilities and Services

This chapter describes, analyzes, and establishes policies pertaining to the infrastructure network that supports the Planning Area, including its water supply and distribution system, wastewater system and stormwater system, cable and fiber network, and other utilities. This chapter also discusses and defines policies for public facilities and services such as fire and police protection services, schools, parks and recreation, and library services.



5.1 Water Supply

In 2009, the State instituted the Water Conservation Act of 2009 setting a goal of achieving a 20 percent statewide reduction in urban per capita water use by the year 2020 and directs urban retail water suppliers to establish targets to achieve this reduction. This target is established in the City's Urban Water Management Plan, which includes a water conservation program that seeks to minimize water waste and achieve greater use efficiencies. The City's achievement and maintenance of conservation targets will require continuing monitoring and enforcement. The Bayhill Specific Plan supports conservation of this resource by providing a set of policies intended to promote water conservation practices within the Planning Area.

Potable Water Supply

Potable water to the Planning Area is provided by the City of San Bruno. The City's Public Works Department is responsible for water supply, storage and distribution to meet potable water and fire-flow demands.

The water system has two main supply sources: treated surface water purchased from the San Francisco Public Utilities Commission (SFPUC) and groundwater from local wells owned and operated by the City. These two sources are blended to meet water quality and demand requirements. In December 2014, the City entered into an agreement with the SFPUC, City of Daly City, and California Water Service Company, which allows the agencies to manage water supplies within the South Westside Groundwater Basin and ensures a 20 billion gallon regional dry year groundwater supply.

Water supply planning for the years 2020 to 2040 is addressed in the City's 2015 Urban Water Master Plan (UWMP)[1], which evaluated the City's ability to meet projected demand inclusive of drought years. A Water Supply Assessment (WSA) prepared for the City in 2019[2] concludes that the City's water supplies are sufficient to meet the projected demands of the Planning Area as well as the City's existing and other planned future uses.

Water Distribution System

The Planning Area is currently serviced by a network of distribution pipelines ranging from 6 inches to 14 inches in diameter. The existing water system is shown in **Figure 5-1**.

A Water System Hydraulic Evaluation of the Bayhill Specific Plan prepared in 2019[3] indicates that existing pipelines within the Planning Area will need to be upsized and replaced in order to meet fire-flow requirements and operate within system design velocities. Water distribution improvements include the replacement of a section of an existing 10-inch pipeline in Bayhill Drive, and the replacement of an existing 8-inch pipeline in Grundy Lane. The pipeline in Grundy Lane will be replaced with a new 10-inch pipeline following the Grundy Lane realignment. Sections of the pipeline on Bayhill Drive will be upsized to 12 inches over time whenever the water line is replaced in order to meet fire flow pipeline design velocities. New fire hydrants are to be installed. The Bayhill Specific Plan requires the installation of a new 10-inch pipeline in Grundy Lane and Elm Avenue to connect to Bayhill Drive prior to Plan buildout, however, proposed modifications or relocation of water distribution pipes can be considered pursuant to Plan Policy 5-8. As other existing pipelines are replaced in the area, they will be evaluated in the City's hydraulic model for consistency with the City's needs and requirements. The proposed water system is shown in **Figure 5-2**.

1 West Yost Associates, City of San Bruno 2015 Urban Water Management Plan (2016).
2 West Yost Associates, Bayhill Specific Plan Development Project Water Supply Assessment (2019).
3 West Yost Associates, Technical Memorandum: Water System Hydraulic Evaluation of Bayhill Specific Plan Development (2019).

Figure 5-1: Existing Water System



Figure 5-2: Proposed Water System



The SFPUC maintains several easements in and around the Planning Area. The San Andreas Pipelines No. 2 and 3 are located in a 45-foot wide easement along the western edge of the Planning Area. The Sunset Supply Line and Crystal Springs Pipeline No. 2 are located in a 40-foot wide easement along the eastern edge of the Planning Area within the western half of Elm Avenue. A second 40-foot wide easement for water pipelines is located within the eastern half of Elm Avenue, contiguous to the eastern boundary of the 40-foot wide easement for the Sunset Supply Line and Crystal Springs Pipeline No. 2. The northern portion of Elm Avenue located directly to the north of the realigned Grundy Lane is located within the SFPUC pipeline eastern easement. See **Figure 2-5** for the location of these easements.

SFPUC's authority over the easement is set forth in the grant of the easement agreement, but generally the SFPUC prohibits structures on its easements and no utilities may be installed within the rights-of-way running parallel to the SFPUC's pipelines, above or below grade. Other SFPUC regulations generally allow utilities to run perpendicular to the pipelines with its approval, require that landscaping installed within the right-of-way be water-efficient and that water runoff due to over spray, broken irrigation hardware, or other similar conditions be eliminated.[4]

Water Storage

The City's water service area includes eleven pressure zones. The Planning Area falls within Pressure Zone 3/5 and is currently served through two SFPUC turnouts connected to the same SFPUC pipeline. Under normal operating conditions, the turnouts are able to meet the storage capacity needs in Pressure Zone 3/5. However, in the event of an emergency, such as an earthquake, those turnouts may be damaged or otherwise unavailable to meet the City's needs.

The City's 2012 Water System Master Plan (WSMP)[5] identified the need for 1.4 million gallons of water storage capacity in Pressure Zone 3/5 to address emergency water needs. This study did not account for the level of development permitted by the Bayhill Specific Plan. A water system hydraulic evaluation was performed to identify the additional net water storage capacity needed to accommodate potential development under the Bayhill Specific Plan. The evaluation determined that an additional 0.3 million gallons of storage capacity would be needed to serve the Bayhill Specific Plan, bringing the total storage capacity volume to 1.7 million gallons.

The San Bruno Development Impact Fee Nexus Study (DIF Nexus Study)[6] was completed in February 2019 and was the basis for the Citywide Development Impact Fee (DIF) Program. The DIF Program took effect on May 1, 2019 and included the construction of a new above-ground water tank at the Commodore Park, north of the Planning Area and adjacent to I-380. Because the DIF Nexus Study was concluded prior to the Bayhill Specific Plan, it factored the lower storage volume of 1.4 million gallons to match the recommendations of the 2012 WSMP. Increasing the tank size causes the cost of construction to increase. Additionally, the DIF study did not assume the proposed tank would be below grade. To allow for the continued beneficial use of the park area, the tank is proposed to be installed underground which has higher construction costs than those assumed in the DIF study.

An estimate of the additional cost of the underground water storage tank and an estimate of the Bayhill Specific Plan share of the increased storage and undergrounding costs are included in **Table 7-1** in Chapter 7, *Implementation*. The tank will be constructed through the City's Capital Improvement Program and funded utilizing a combination of developer impact fees, water rates, and/or issuance of bonds.

4 SFPUC, SFPUC Interim Water Pipeline Right of Way (ROW) Use Policy (2015).

5 West Yost Associates, City of San Bruno Water System Master Plan (2012).

6 Economic & Planning Systems, Inc., San Bruno Development Impact Fee Nexus Study (2019).

5.2 Wastewater

The Planning Area is served by the City's sanitary sewer system via a local system of small diameter (8- to 12-inch inner diameter) sewer pipelines located along Cherry Avenue, Bayhill Drive, and Grundy Lane, and a major (18- to 24-inch inner diameter) trunk sewer pipeline that runs from San Bruno Avenue West along Traeger Avenue, Bayhill Drive, across El Camino Real and I-380, through the Tanforan Mall to Sneath Lane, and then east on Sneath Lane and Tanforan Avenue; see **Figure 5-3**. From there, the wastewater is conveyed to the City of South San Francisco's Shaw Road sewage pump station then to the South San Francisco/San Bruno Water Quality Control Plant (WQCP), which is jointly owned by the two cities but operated by South San Francisco.

The City completed its Sewer Master Plan in 2014[7] and an updated Sewer System Management Plan in 2016[8] and 2019[9]. A Sanitary Sewer Impact Study for Bayhill Specific Plan Area was completed in August 2019 by Woodard & Curran[10]. The study used an updated version of the hydraulic model developed for the 2014 Master Plan to evaluate the potential sanitary sewer capacity impact of the proposed Bayhill Specific Plan. The Sanitary Sewer Impact Study for the Bayhill Specific Plan Area evaluated the system and concluded that there is adequate capacity in the existing on-site and downstream pipelines and no new improvements are needed. However, with the realignment of Grundy Lane, the sewer pipeline will be replaced with a minimum 8-inch inner diameter pipeline. Over time, as wastewater collection pipe replacements and modifications are required, they will need to be modeled in the City's sewer hydraulic model to ensure sufficient capacity.

A small portion of the Planning Area that fronts San Bruno Avenue West east of Traeger Avenue would discharge to a 6-inch sewer in San Bruno Avenue and, via a series of 6-inch pipes, connect to the sewer pipeline at Kains Avenue and El Camino Real, which is separate from the system described above. This was not included in the Sanitary Sewer Impact Study for Bayhill Specific Plan Area and new development in this area is required to have wastewater flows modeled in the City's hydraulic model at time of project proposal. The 2014 Sewer Master Plan indicated that the pipeline on Kains Avenue would need to be upsized to accommodate new development anticipated under the General Plan buildout. City projects were completed in 2014 and 2015 that increased the size of the pipeline on Kains Avenue from 10 to 14 inches and the pipeline is now projected to have sufficient capacity. The need for any additional capacity improvements will be evaluated when the amount and location of new development are better defined.

The system continues east along Kains Avenue, Huntington Avenue, and Angus Avenue to the 7th Avenue trunk pipeline. The wastewater is conveyed to the City of South San Francisco's Shaw Road sewage pump station, from where it is pumped to the WQCP.

Based on the projected additional wastewater flow from the Bayhill Specific Plan, adequate capacity is available at the WQCP; see **Figure 5-4**.

7 RMC, City of San Bruno Sewer Master Plan Final Report (2014).
8 Causey Consulting, Updated Sewer System Management Plan (2016).
9 Causey Consulting, Sewer System Management Plan October 2019 (2019).
10 Woodard & Curran, Technical Memorandum: Sanitary Sewer Impact Study for Bayhill Specific Plan Area (2019).

Figure 5-3: Existing Sanitary Sewer System



Figure 5-4: Proposed Sanitary Sewer System



5.3 Stormwater

The City owns and operates the storm drainage system which is maintained by the Public Works Department. The system covers six main watersheds that in general flow from west of Interstate 280 eastward to the San Bruno Channel. The Channel outfalls to the San Francisco Bay via a tide gate located north of the San Francisco International Airport. The Planning Area lies within Watershed A, the largest of San Bruno's watersheds with an area of approximately 1,415 acres. Stormwater runoff from Watershed A flows primarily through a 72-inch diameter storm drain pipeline that runs through privately-owned parcels and crosses Grundy Lane, Bayhill Drive, and Elm Avenue; see **Figure 5-5**.

The City completed a Storm Drain Master Plan in 2014[11] with the primary purpose of addressing potential flooding and capacity deficiencies in the existing storm drain system. The Master Plan stated that substantial backwater occurs in the lower reaches of Watershed A, east of El Camino Real, near Highway 101, in part due to backwater in the San Bruno Channel which is tidally influenced. This backwater, when combined with peak storm discharge, causes localized flooding at Angus and Seventh Avenue. Improvements to address the potential for flooding were recommended in the Master Plan as part of a Capital Improvement Program list, although no dedicated funding has yet been made available to implement the plan.

The Master Plan identifies two options for mitigating the capacity deficiency within the storm drain system. The first option is to construct additional pipelines to increase capacity (Pipeline Option), and the second option is to construct a large detention basin near Crestmoor Canyon (Detention Basin Option). This Detention Basin Option has since been determined to be infeasible by the City.

The Pipeline Option consists of the addition of a new parallel 72-inch diameter pipe within the Planning Area, as well as upstream (north) and downstream (east) of the Planning Area. The estimated cost of constructing this additional 72-inch diameter pipe with the Plan Area is included in **Table 7-1** in Chapter 7, *Implementation*. Although not evaluated in the Master Plan, a single larger box culvert or pipe may be a feasible alternative that could be evaluated and considered, rather than the two parallel 72-inch pipes. The existing storm drain easements are insufficient to accommodate two parallel 72-inch pipes or a single larger box culvert or pipe; therefore, existing easements shall be amended or new easements dedicated pursuant to **Policy 5-14** to support the storm drain improvements. The relocation of the existing 72-inch pipeline within the Plan Area is proposed to facilitate YouTube's conceptual development plans, but the relocation is not necessary for mitigating the capacity deficiency within the storm drain system. Should the existing pipeline be relocated to accommodate an applicant's development plans, it will be the responsibility of the developer to relocate the pipe and to provide a sufficient easement for an additional 72-inch pipe or single larger pipe, should it be found to be feasible, in conformance with the City's Stormwater Master Plan.

A new storm drain system will be necessary due to the realignment of Grundy Lane. Portions of the upstream storm drain system within Grundy Lane may be 24-inch reinforced concrete pipes (RCP). Downstream portions, as the system approaches Elm Avenue, shall be 30-inch RCP. Final proposed storm drain improvements shall be submitted to the City for review and approval.

On-site storm drain systems will be privately owned and maintained and consist of stormwater treatment facilities that collect and filter stormwater before it enters the public system; see **Figure 5-6**.

To ensure that Bayhill Specific Plan development does not exacerbate any existing stormwater outflow capacity issues, Plan policies call for no net increase in runoff from construction and new development in the Planning Area.

11 GHD, Storm Drain Master Plan (2014).

Figure 5-5: Existing Storm Drain System

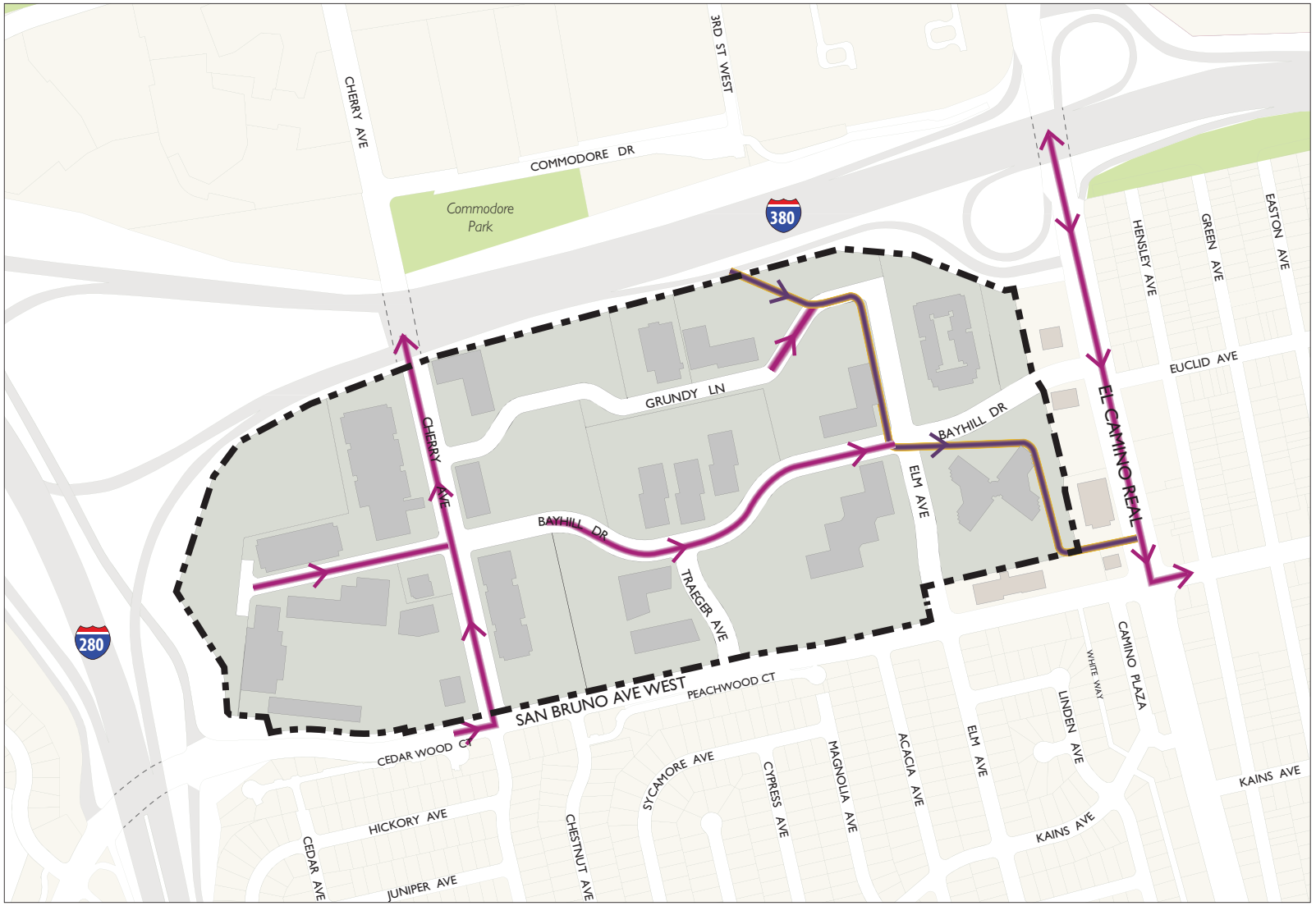


Figure 5-6: Proposed Storm Drain System



Stormwater Treatment

Surface water runoff in an urbanized area is subject to pollution control before discharge into a piped system or water body. This runoff is regulated through the National Pollutant Discharge Elimination System (NPDES) permit process administered through the State Water Resources Control Board, which issues discharge permits to municipalities. The City has developed a Storm Water Management Plan and has joined the San Mateo Countywide Stormwater Pollution Prevention Program in order to obtain this permit.

In 2019, the City of San Bruno adopted the Citywide Green Infrastructure Plan[12] , intended to facilitate the integration of stormwater infrastructure inspired by natural watershed processes into the City's planning and development process. The goal of green infrastructure is to improve local water quality, augment local water supplies, reduce flooding, and increase green space, thereby helping the City of San Bruno meet the NPDES Permit's pollutant load reduction requirements. The Green Infrastructure Plan contains a work plan for integration of green infrastructure goals and strategies into City and regional plans and policies, as well as guidance materials pertaining to green infrastructure sizing, design, construction, maintenance, and post-construction performance tracking.

The Green Infrastructure Plan explicitly refers to the Planning Area, which it identifies as a potential location for green infrastructure installation. All streets within the Planning Area are identified as medium priority for green street opportunities except for Grundy Lane and portions of Cherry Avenue, which are identified as high priority. In accordance with the Green Infrastructure Plan, the Bayhill Specific Plan promotes use of green infrastructure and Low Impact Development (LID) principles.

Impervious surfaces, such as asphalt, concrete, or brick, are water resistant. During times of rainfall, water runs off impervious surfaces, entering storm drains, exacerbating flood conditions, and affecting local water quality. Pervious surfaces, in contrast, allow percolation of water into the underlying soil thereby reducing the amount of run-off.

All new construction projects that create or replace 10,000 square feet of impervious surface—such as parking lots, walkways, or patios—require localized improvements to manage runoff in a way that incorporates storm water treatment provisions in accordance with the San Mateo Countywide Water Pollution Prevention Program. This threshold is reduced to 5,000 square feet for gas stations, restaurants and parking areas with an uncovered surface. As of 2019, the Planning Area mainly consists of buildings and expansive surface parking. In support of the goals identified in the City's Green Infrastructure Plan, future development will be required to maintain or reduce impervious area and implement LID site design measures, including green roofs, pervious pavement, and bio-retention planting areas. Additional LID measures that encourage capture and reuse of rainwater for irrigation and non-potable uses in buildings may also be implemented.

The proposed footprints of future subterranean parking structures encompass much of the land area within each development parcel. This limits opportunities for direct infiltration of treated runoff. In this case, green roof areas and capture and reuse facilities are good options to meet the water quality and reduced runoff requirements.

Stormwater quality can be protected by minimizing the amount of pollutants and debris that enter the stormwater system. The Bayhill Specific Plan promotes stormwater quality through measures to install trash capture devices and reduce the amount of chemical pollution that enters the storm drain. Trash capture devices are devices that can be inserted into catch basins in order to prevent litter and other debris from entering the storm drain system. The City of San Bruno is currently expanding its trash capture infrastructure. The Bayhill Specific Plan contains policies that expand this effort into the Planning Area and requires sustainable landscaping practices that reduce runoff and minimize the need for pesticides and fertilizers.

12 City of San Bruno, Green Infrastructure Plan (2019).

5.4 Dry Utilities

Pacific Gas and Electric Company (PG&E) is regulated by the California Public Utilities Commission and is responsible for providing and maintaining gas and electrical services to the City of San Bruno. AT&T and the City of San Bruno's CityNet Services provide telecommunications services. There are no existing overhead utility lines within the Planning Area. All dry utilities, such as gas, electric, fiber, cable, etc., within the Planning Area shall be installed underground. New development will collaborate with the City, PG&E and other related utility agencies in the installation of new utility lines underground. Refer to Section 5.5 for CityNet Services.

5.5 CityNet

San Bruno CityNet Services is an Internet Service Provider and Pay TV operator owned and operated by the City of San Bruno. San Bruno CityNet has been providing services to San Bruno businesses and residences since 1971. CityNet's business products for the Planning Area are based on scalable fiber internet connectivity including dedicated one (1) Gigabit symmetrical service, custom ten (10) Gigabit provisioning capacity, VoIP phones and custom TV packages. CityNet currently provides services to multiple businesses within the Planning Area.

5.6 Fire Protection Services

The San Bruno Fire Department (fire department) provides fire suppression and emergency medical service in the city, including the Planning Area. The fire department includes (2019) 35 sworn officers and one non-sworn employee.

The fire department operates two fire stations in San Bruno, both outside the Planning Area. Both stations are over 50 years old and need to be updated to meet current departmental needs; however, the department's equipment and apparatuses are currently considered adequate. Each station is equipped with a 1500 gallons-per-minute (GPM) Pumper (fire engine). Station No. 51 is located at 555 El Camino Real on the south side of the City Hall complex, approximately 0.35 mile south of the Planning Area. Station No. 51 has the primary responsibility for the area east of Interstate 280, including the Planning Area. Station No. 52 is located near the intersection of Sneath Lane and Earl Avenue at 1999 Earl Avenue, approximately one mile west of the Planning Area. Station No. 52 responds to emergency calls west of I-280 and therefore would not be directly responsible for the Planning Area.

The fire department is a member in a Joint Powers Authority (JPA) between the 19 incorporated cities in San Mateo County and the County itself. The JPA requires that the closest available paramedic engine company respond to calls for emergency medical service and the closest available engine and truck company respond to fire calls. In the event of a large-scale assignment necessitating a large response, three engines would be required and an additional engine would need to come from a neighboring municipality. For hazmat responses, the nearest hazmat unit within the JPA is located in Station 14 at 911 Granada Street in the City of Belmont.

Development under the Bayhill Specific Plan may result in an increase of service population of up to 5,542 new persons[13]. This increase in service population will increase local demand for fire protection and emergency services and reduce the Fire Department's service ratio to 1,649 persons per firefighter. The fire department's JPA membership will help alleviate this increase in demand and response times are not expected to significantly change. However, new fire department staff will likely be needed to respond to the projected increase in calls.

The City's Development Impact Fee (DIF) Nexus Study has identified the need to replace and reconstruct both of the City's fire stations and replace fire equipment. The DIF Ordinance requires all residential and commercial developers to pay a one-time impact fee charged at the issuance of building permits for new construction in the City. This fee is collected and used to improve and expand public capital facilities and infrastructure throughout the City to serve new residential and commercial growth. A portion of the DIF will be used for public safety, including fire capital facilities and equipment. The City intends to update the DIF Ordinance approximately every 5 years to account for changing circumstances, including changes in the expected level of development and in infrastructure and facility needs.

13 City of San Bruno, 2020.

5.7 Police Protection Services

The San Bruno Police Department (police department), located at 1177 Huntington Avenue approximately 0.4 miles northeast of the Planning Area, provides police protection service to the City of San Bruno, including the Planning Area. As of 2019, the police department includes a total of 95 personnel who provide various law enforcement services within the City. Police department services include patrols, systematic gathering and documentation of intelligence information, and the enforcement of laws and regulations throughout the City. In addition, the police department is a member of a mutual aid agreement with neighboring jurisdictions and partner agencies, including BART police.

Projects developed under the Specific Plan will be designed using Crime Prevention Through Environmental Design (CPTED) concepts. CPTED is a collection of principles and concepts which enhance safety and security through design strategies involving natural surveillance, natural access control, territorial reinforcement, and maintenance and management. In addition, the San Bruno Police Department will review all plans associated with the projects under the Specific Plan to address and minimize security concerns.

Increases in local residents and employees under the Specific Plan may increase the daytime service population up to 61,658[14], resulting in a ratio of 7.95 officers per 10,000 service population. The police department has stated that it needs to increase staffing to serve the increased permanent and daytime population resulting from the Specific Plan.[15] It is anticipated that there will be a greater demand for traffic and parking enforcement efforts. Additionally, the police department anticipates that it will need to dedicate substantial resources to work with future property owners to establish advanced and complex security measures and critical incident response plans.[16]

While the police department participates in a mutual aid agreement with the other law enforcement jurisdictions in San Mateo County, this program has a limited ability to provide police response services to the Planning Area in a critical incident.

The police department has no plans to expand its current facility at 1177 Huntington Avenue, and it is not feasible to enlarge the existing building as it is on leased land from BART and cannot be expanded.[17] As noted in the City's DIF Nexus Study, the City has identified the need for specific upgrades and additions to help the Police Department serve new growth in the City. These include the expansion of the Evidence Room, upgrades to the Dispatch Center, the creation of a satellite police substation, upgrades to surveillance and tracking technology, and the replacement of Police vehicles. The DIF Ordinance requires all residential and commercial developers to pay a one-time impact fee charged at the issuance of building permits for new construction in the City. This fee is collected and used to improve and expand public capital facilities and infrastructure throughout the City needed to serve new residential and commercial growth. A portion of the DIF will be used for public safety, including police capital facilities and infrastructure, including equipment (e.g., vehicles).. The City intends to update the DIF Ordinance approximately every 5 years to account for changing circumstances, including changes in the expected level of development and in infrastructure and facility needs.

14 City of San Bruno, 2020.

15 Personal Communication with San Bruno Police Department, May 1, 2019.

16 Ibid.

17 Ibid.

5.8 Schools

San Bruno is served by two school districts: San Bruno Park School District (SBPSD) and San Mateo Union High School District (SMUHSD).

The SBPSD serves the City of San Bruno with five elementary schools and one middle school. The Planning Area is served by three of these schools: Allen Elementary, located at 875 West Angus Avenue, 0.27 miles southeast of the Planning Area; Rollingwood Elementary, located at 2500 Cottonwood Drive, 0.86 miles northwest of the Planning Area; and Parkside Intermediate, located at 1801 Niles Avenue, 0.77 miles southeast of the Planning Area.

SBPSD's total enrollment for the 2018/2019 school year was 2,505, a five percent decrease from the previous year and a ten percent decrease from 2014/2015. In general, all the schools in the SBPSD have experienced a decline in enrollment in recent years. The California Department of Finance (DOF) projects that overall K-12 enrollment in San Mateo County public schools will decrease from approximately 94,411 for the 2019/2020 school year to 89,199 by the 2027/2028 school year. This is consistent with the current trend at SBPSD.

SBPSD's funding sources include state funding through the Local Control Funding Formula (LCFF) and the Local Control Accountability Plan (LCAP), property taxes, federal subsidies, mandated block grants, one-time mandated cost reimbursements, the Lottery, After School Education & Safety (ASES) Grants, and other sources. The SBPSD also collects developer fees, the purposes of which are specified in agreements with the developer. As of 2019, developer fees are $3.29/sf for residential development and $0.53/sf for commercial development.

The SMUHSD operates one alternative high school and six comprehensive high schools throughout San Mateo County. Of these, the Planning Area would be served by Capuchino High School, located 1.44 miles southeast of the Planning Area at 1501 Magnolia Avenue.

SMUHSD's total enrollment for the 2018/2019 school year was 9,020, a one-half percent increase over the previous year and a nine percent increase from 2014/2015. In general, all the schools in the SMUHSD have experienced an increase in enrollment in recent years. Capuchino High School has seen a seven percent increase in enrollment since the 2014/2015 school year.

SMUHSD's revenue sources include state funding through the LCFF and LCAP, property taxes, federal subsidies, and other sources. The SMUHSD also collects developer fees, the purposes of which are specified in agreements with the developer. As of 2019, developer fees are $1.39/sf for residential development and $0.22/sf for commercial development. Future developments occurring under the Bayhill Specific Plan would be subject to developer fees, which are the only financial requirement the City can impose to mitigate the impact of new development on the SMUHSD.

If residential development occurs under the Bayhill Specific Plan, it is expected to result in an increase in the SBPSD and SMUHSD student populations. In the case of SBPSD, this growth will likely be fully accommodated within the school district's existing capacity. Increases in the size of the SMUHSD student body, in contrast, could impact capacity at SMUHSD schools. However, new residential development would occur gradually, providing the school district time to address changes in overall student-going population. Meanwhile, the collection of developer fees would help finance any necessary improvements in or expansion of school facilities. In addition, while Capuchino High School and Peninsula High School are both located in San Bruno, students can choose to attend any of the district's schools, which would allow the district to adjust for capacity across schools.

5.9 Parks and Recreation

The closest parks serving the Planning Area are Commodore Park, Forrest Lane Park, and Grundy Park, all within one-half mile; and Junipero Serra Park, approximately one mile away.

As discussed above, the City's DIF program requires residential and commercial developers to pay a one-time impact fee used to improve and expand infrastructure throughout the City. Depending on whether new construction is residential or non-residential, a portion of the DIF is specifically designated for community facilities, including parks. The City General Plan identifies a park standard of four-and-one-half acres per 1,000 residents.[18]

The Bayhill Specific Plan requires the provision of publicly accessible open space, including a plaza at Cherry Avenue and Grundy Lane and a greenway along Bayhill Drive, to provide outdoor gathering and recreational space for employees and the community; see **Figure 3-1**.

5.10 Library Services

The Planning Area is served by the San Bruno Public Library, which belongs to the Peninsula Library System (PLS). PLS membership enables residents to have access to services from other member libraries. The library is housed in a 15,600-square foot facility located at 701 Angus Avenue West at the intersection with El Camino Real. Visitation in fiscal year 2017–2018 was 190,466.

The City of San Bruno has acknowledged in its current General Plan that the existing library space is inadequate for the population of the City of San Bruno. As of 2009, the library experienced shortages in its book collection, seating, public computers, story-time space, group study areas, parking, and meeting room space. These services have not expanded since 2009 due to a lack of funding.

As noted in the City's DIF Nexus Study, the City has identified the need to replace and reconstruct the City library at an estimated cost of $55 million. The DIF Ordinance requires all residential and non-residential developers to pay a one-time impact fee charged at the issuance of building permits for new construction in the City. This fee is collected and used to improve and expand public capital facilities and infrastructure, including library services throughout the City.

Increases in the local population resulting from development occurring under the Bayhill Specific Plan would increase demand for library resources. The San Bruno Library does not have plans or funds at this time to construct new facilities.

As described in Chapter 2, *Land Use*, the Bayhill Specific Plan designates a 2.1-acre area fronting San Bruno Avenue West between Traeger and Elm Avenues where a civic use of up to 50,000 square feet would be permitted, subject to decision and funding by the City Council. This civic use could include a library.

18 City of San Bruno, San Bruno General Plan (2009).

5.11 Infrastructure, Public Facilities and Services Policies*

5-1: Require new development to construct infrastructure improvements to support new development. Where infrastructure is shared with other developments, each shall pay their fair share of needed improvements.

5-2: Synchronize infrastructure and roadway improvements. Undertake infrastructure improvements concurrently with construction of new roadways and improvements to existing ones in order to maximize efficiency and minimize disturbance due to construction activity.

5-3: Establish infrastructure financing mechanisms to ensure that development pays its fair share of required infrastructure improvements (as further described in Chapter 7, *Implementation*).

WATER SUPPLY

5-4: Require new development to install water-efficient appliances and fixtures. Examples of such appliances and fixtures include low-flow faucets and toilets, in accordance with the latest version of California Code of Regulations Title 20.

5-5: Ensure compliance with the latest version of the State Model Water Efficient Landscape Ordinance (MWELO). MWELO requires increased water efficiency for new and retrofitted landscapes through more efficient irrigation systems, graywater usage, on-site storm water capture, and by limiting the portion of landscapes that can be covered in turf.

5-6: Require the submittal of estimated landscape water use/budgets as part of the site plan review process. Ensure continued monitoring of landscape water use through the City's ongoing Bay Area Water Supply and Conservation Agency (BAWSCA) Large Landscape Program.

5-7: Require development to pay its fair share for the proposed water tank. Ensure that development in the Planning Area pays its fair share for the undergrounding and increased sizing of the proposed water tank from 1.4 MGD to 1.7 MGD as estimated in **Table 7-1** in Chapter 7, *Implementation*.

5-8: Model proposed pipes in City's hydraulic model for conformance with Water Master Plan and design standards. Require that when projects and/or developments involve modifying or relocating water distribution pipes, that the proposed pipe is modeled in the City's hydraulic model and that it meets the requirements of the City's Water Master Plan and City's design standard.

WASTEWATER

5-9: Model modifications and relocations of collection pipes. Require that when projects involve modifying or relocating wastewater collection pipes, that the proposed pipe is modeled in the City's sewer hydraulic model and that it meets the requirements of the City's sewer master plan and design criteria.

5-10: Require modeling of wastewater flows from new development fronting San Bruno Avenue West east of Traeger Avenues. Project-specific sewer studies shall be prepared for projects served by the 6-inch sanitary sewer pipe in San Bruno Avenue east of Traeger Avenue using the City's sewer hydraulic model and construct improvements as identified by the City.

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* Policy implements mitigation measure required by Environmental Impact Report for all development under Specific Plan.

(*) Policy implements mitigation measure required by Environmental Impact Report for all development under Specific Plan except Phase I Development.

STORMWATER

5-11: Require new development to dedicate easements to support storm drain improvements. In regards to the 72-inch public storm drain main, require new development to dedicate a storm drain easement pursuant to Policy 5-14 for the installation of a second 72-inch pipe parallel to the existing or relocated main or for the installation of a single larger conveyance system, which will replace the existing main, with a capacity that is equivalent to or greater than two parallel 72-inch pipes. Applicant shall engage the City regarding the design of the proposed improvements during preliminary design of their project. Final design shall be provided to the City for review and approval.

5-12: Require conformance with City storm drain standards for all replacement pipelines. Require that when projects and/or developments involve modifying or relocating storm drain pipes, that the proposed pipes meet city requirements, including a 24-inch reinforced concrete pipes (RCP) within upstream portions of the reconstructed and relocated Grundy Lane and a 30-inch RCP pipeline in downstream portions as Grundy Lane approaches Elm Avenue, subject to City approval.

5-13: Require that on-site storm drain systems are privately owned and maintained. Storm drain systems shall also include stormwater treatment facilities that collect and filter stormwater before it enters the public system.

5-14: Require new development to dedicate easement(s) to the City for public storm drain improvements that are located outside of the public right-of-way. Easement dedication shall take place in accordance with the following or as otherwise approved by the City:

a. The minimum clearance between outside diameter (O.D.) of pipe to easement line shall be five (5) feet.

b. The minimum clearance between pipes (O.D. to O.D.) shall be five (5) feet.

c. The minimum clearance between outside of structure to easement line shall be four (4) feet.

d. Easement width must meet above requirements but shall not be narrower than fifteen (15) feet.

5-15: Minimize Runoff.

a. Require new development to demonstrate no net increase in runoff from development, during both construction and operational phases.

b. Applicants proposing new development shall prepare Drainage Report(s) for City's review and approval prior to issuance of a grading, building, site development or any construction permits. All development, including interim conditions during construction and interim conditions with temporary improvements, within the Project Site is required to address stormwater management and implement stormwater control measures, including but not limited to on-site detention facilities, capture and re-use measures, green roofs, and/or other measures approved by the City, designed to maintain or reduce current, pre-development, surface runoff and stormwater discharge to the public storm drain system.*

5-16: Employ Low-Impact Design. Require new development to incorporate low-impact design (LID), such as natural drainage systems and groundwater recharge features, consistent with stormwater permit requirements and the Green Infrastructure Plan. Utilize LID techniques to infiltrate, store, detain, evapotranspire, and/or bio-treat stormwater runoff close to its source, where feasible.

5-17: Design new private open spaces, plazas, streetscapes, and landscaped areas in the public right-of-way for stormwater management and the efficient use of water. The following stormwater techniques shall be employed, as appropriate:

a. Low-maintenance, drought-resistant plant palettes.

b. Low-flow or smart irrigation systems.

c. Bioswales and rain gardens in planting areas, curb extensions, and other green infrastructures.

d. Rainwater harvesting and application for landscape irrigation.

e. Minimization of impervious surfaces such as concrete, asphalt and hardscaping in landscaped areas. Where feasible, direct water to portions of the site where it can infiltrate into the ground, and

use permeable joint pavers, porous concrete and asphalt, reinforced pavement, cobblestone block pavement, and other similar materials that allow water to infiltrate.

5-18: Implement trash capture. Require new development to implement trash capture devices on site to reduce trash loads by 100 percent prior to discharging stormwater into the public storm drain system. Require new development to provide trash capture in public stormwater catch basins along the project frontage and any public stormwater catch basins newly installed as part of the development. Cover trash, recycling, and loading areas.

5-19: Utilize sustainable landscaping practices and principles that minimize irrigation and runoff, as well as the use of pesticides and fertilizers.

DRY UTILITIES

5-20: Underground utilities. Require new development to install all dry utilities underground within a single joint trench, if possible, and underground existing overhead lines, if any, in compliance with City, PG&E and other utility agency requirements. Joint trenches are to be located underneath the sidewalk and utility boxes/vaults are to be located within public utility easements behind the back of sidewalk, or as otherwise approved by the City.

CITYNET SERVICES

5-21: Require new development to coordinate construction and installation with CityNet. New development will be subject to conditions of approval to ensure all appropriate CityNet standards and requirements are met.

POLICE PROTECTION

5-22: Maintain public safety. The City will collaborate with Bayhill tenants to assist in addressing their security needs.

PARKS AND RECREATION

5-23: Provide publicly accessible privately owned open space for use by employees and the community. See **Figure 3-1**.

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BAYHILL SPECIFIC PLAN

6.

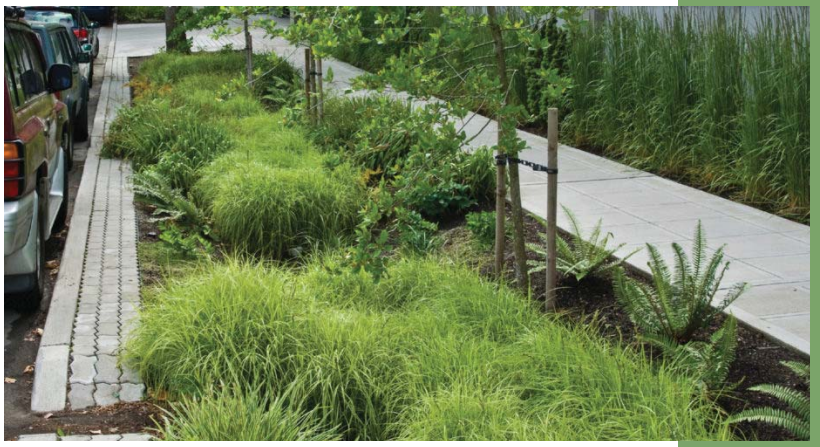
Environmental Quality

6.1 Noise
6.2 Hazards
6.3 Air Quality
6.4 Greenhouse Gas Emissions
6.5 Groundwater
6.6 Biological Resources
6.7 Archaeological and Tribal Cultural Resources
6.8 Geology and Soils
6.9 Environmental Quality Policies



6 Environmental Quality

Ensuring a high level of environmental quality in the Plan Area is integral to maintaining and improving the health and safety of all residents, employees, and visitors to Bayhill, as well as enhancing Bayhill's ecological systems and those of the surrounding region. This Specific Plan establishes policies which, in combination with General Plan goals and policies and other local, State, and federal regulations, seek to enhance Bayhill's environmental quality and mitigate the potential negative effects of development and natural and man-made environmental hazards that threaten public health and safety. Specifically, this chapter addresses noise, hazards, air quality, greenhouse gas emissions, groundwater quality, biological resources, archaeological resources, and geology and soils.



6.1 Noise

"Noise" can be defined as unwanted sound. Excessive noise exposure can cause adverse physical and psychological responses and interfere with speech, concentration, and performance. These effects are particularly disruptive for noise-sensitive land uses, such as schools, churches, hospitals, convalescent homes, daycare facilities, and residential neighborhoods.

Noise Environment

The principal sources of noise within the Plan Area are traffic on roadways and noise from aircraft departures from San Francisco International Airport (SFO). These are briefly summarized below.

AIRPORT NOISE

SFO is owned and operated by the City and County of San Francisco and located adjacent to the City of San Bruno, east of Highway 101, in unincorporated San Mateo County. SFO has a total of four runways, of which two are east-west and two are north-south. Approximately 90 percent of arrivals at SFO occur on the east-west runways, with approaches over San Francisco Bay. Approximately 70 percent of departures occur on the north-south runways. Portions of San Bruno are situated under the east-west runways and aircraft noise from SFO is therefore a primary source of noise in many parts of San Bruno.

The San Mateo City/County Association of Governments prepares a Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco International Airport (SFO ALUCP), The SFO ALUCP includes policies and standards to protect people living in the vicinity of SFO from the effects of aircraft noise, and establishes criteria to determine the compatibility of proposed land uses. As shown in **Figure 6-1**, the airport's existing and projected 65 decibel Community Noise Equivalent Level (dB CNEL)[1] noise contour crosses the northeast corner of the Plan Area, with the vast majority of Bayhill subject to less than 65 db CNEL noise from the airport. The SFO ALUCP designates recreational, commercial, and industrial/production land uses as compatible within the 65 dB CNEL contour. Residential uses are designated as conditionally compatible land uses within this contour, meaning that residential uses must be sound insulated in order to achieve an indoor noise level of 45 dB CNEL or less from exterior noise sources. No residential uses are proposed in the Specific Plan within the 65 dB CNEL airport noise contour.

ROADWAY NOISE

The Plan Area is located adjacent to I-380, I-280, and El Camino Real, as well as the I-380 eastbound on ramp towards SR-101, and San Bruno Avenue, an arterial roadway. Traffic on these freeways and arterial roads is the primary source of traffic noise in the vicinity of the Plan Area. Due to its proximity to I-380 and I-280, the entire Plan Area is subject to 70 dB CNEL or greater noise levels from roadways; see **Figure 6-1**.

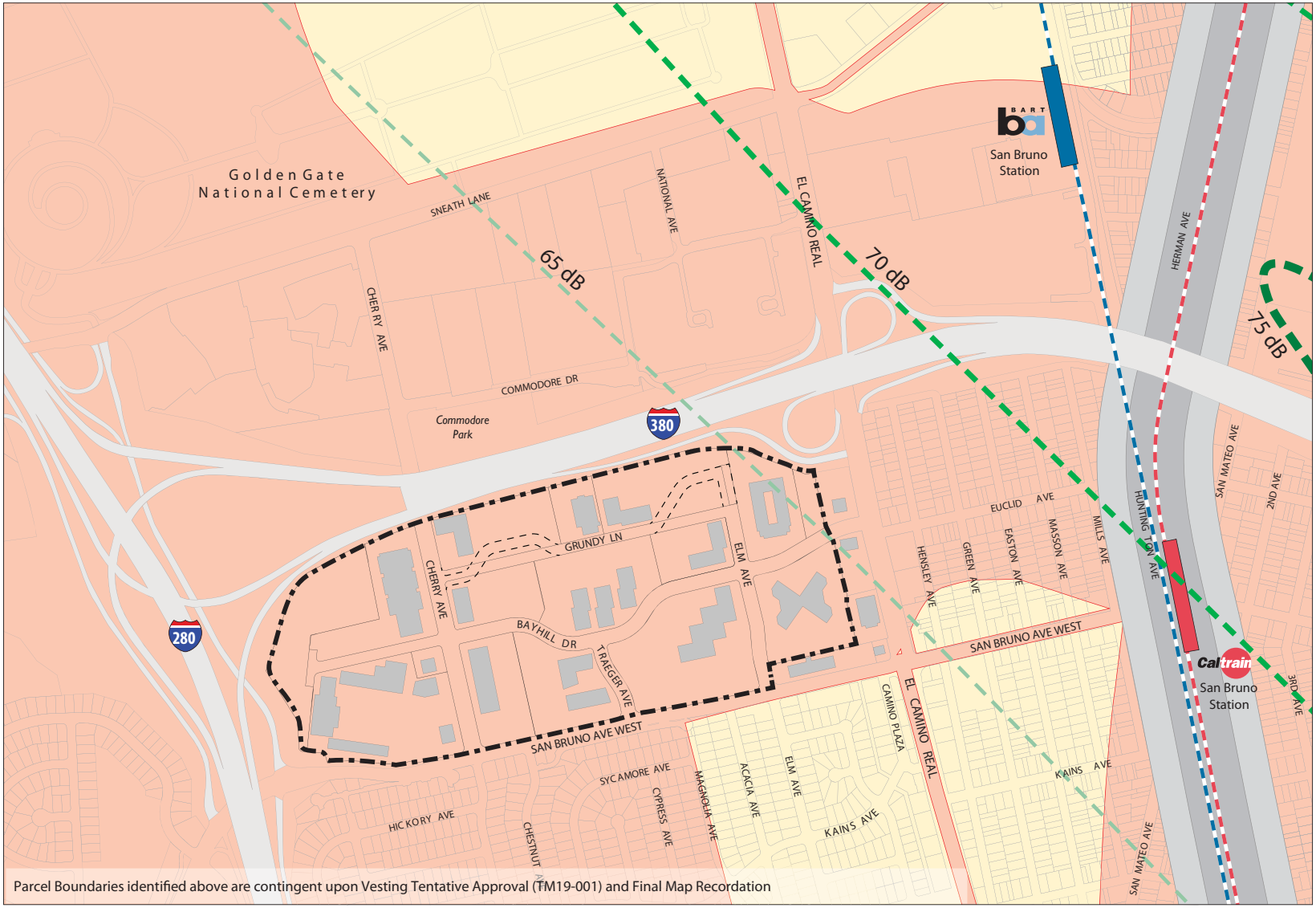
Planned Land Uses and the Bayhill Noise Environment

Land use noise compatibility in San Bruno is established by the San Bruno General Plan. According to the General Plan (**Table 6-1**), multifamily residential uses and parks and open spaces are considered Normally Unacceptable in noise environments exceeding 70 dB, and office uses Conditionally Acceptable. This Specific Plan addresses noise compatibility by requiring that noise-sensitive development be designed so as to minimize exposure to unwanted sound, requiring building noise insulation to maintain interior noise levels within habitable buildings to 45 dB, and requiring that new residential and hotel development in the Plan Area complete an acoustical evaluation.

All of the Plan Area is subject to roadway noise greater than 70 dB. However, the most noise-sensitive land use—residential—is located along San Bruno Avenue, the eastern portions of which are relatively quieter due to their greater distance

1 The average sound level over a 24-hour period, with a penalty of 5 dB added between 7 pm and 10pm and a penalty of 10 dB added for the nighttime hours of 10 pm to 7 am.

Figure 6-1: Projected Noise Contours



from I-380 and I-280. Actual site-specific noise conditions may vary from noise contours shown due to noise attenuation caused by neighboring buildings and topography. As per California Code of Regulations Title 24, interior noise levels attributable to exterior sources in any habitable room shall be at maximum 45 dB day/night average (Ldn[2] or CNEL).

In addition to roadway and aircraft noise, periodic sources of noise in the Plan Area may include outdoor events and the testing of emergency generators. In order to limit the potential noise impacts associated with these activities, Specific Plan policies require that emergency generator testing will occur only during the daytime, and outdoor events and amplified music will only be permitted in accordance with the Municipal Code. Specific Plan policies further address noise exposure by supporting noise-attenuating design, requiring noise analysis for certain development types, and establishing control measures for construction-related noise. Noise control policies are contained both in this chapter and in Chapter 3, *Urban Design and Public Realm*.

Table 6-1: Land Use Compatibility for Community Noise Environments

Land Use Category	Exterior Day/Night Noise Levels DNL or Ldn, dB						
	55	60	65	70	75	80	
Residential—Single Family							
Residential—Multiple Family							
Transient Lodging—Motels, Hotels							
Schools, Libraries, Churches, Hospitals, Nursing Homes							
Auditoriums, Concert Halls, Amphitheaters							
Sports Arena, Outdoor Spectator Sports							
Playgrounds, Parks							
Golf Courses, Riding Stables, Water Recreation, Cemeteries							
Office Buildings, Business, Commercial and Professional							
Industrial, Manufacturing, Utilities, Agriculture							

Interpretation

Normally Acceptable	Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
Conditionally Acceptable	New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design.
Normally Unacceptable	New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
Clearly Unacceptable	New construction or development should not be undertaken.

2 The average equivalent sound level of a 24-hour period, with a penalty of 10 dB added for noise during the nighttime hours of 10 pm to 7am.

6.2 Hazards

Hazardous Materials

Hazardous materials are substances with physical or chemical properties that pose an existing or potential future hazard to human health or the environment when improperly handled, disposed, or otherwise managed. Hazardous materials and wastes are extensively regulated by federal, State, regional, and local agencies, with the San Mateo County Environmental Health Department working with Regional Water Quality Control Board (RWQCB) and the California Department of Toxic Substance Control to investigate and remediate sites that have been affected by underground storage tanks or hazardous waste.

UNDERGROUND STORAGE TANKS

Two of the three formerly contaminated sites located near or in the Plan Area were identified by the California Water Resource Control Board as containing closed leaking underground storage tank (LUST) sites: Chevron at 801 El Camino Real and Bayhill Office Center at 950 Elm Avenue in **Figure 6-2**. Both sites have undergone cleanup and/or remediation.[3]

The Water Board also identified a Cleanup Site at 999-1001 Bayhill Drive, the Bayhill 7 Facility in **Figure 6-2**. Investigation in 2005 showed residual petroleum hydrocarbons in soil and groundwater at the Bayhill 7 Facility, but these impacts were deemed to not pose a risk to public health and the environment. The Bayhill 7 Facility was closed under the San Mateo County Health Department Groundwater Protection Program (GPP) in 2009 with the condition that any proposed change in land use or proposed soil or groundwater removal activity be reviewed by the GPP. Development in proximity to the Bayhill 7 Facility will be subject to this condition.[4]

Volatile organic compounds (VOCs) are present in groundwater to the east/southeast of the Plan area, originating from 709 Camino Plaza (also known as Mills Park Cleaners) within 450 feet of potential development within the Plan Area. Tetrachloroethylene (PCE) is the primary potential contaminant of concern. The greatest potential impact would occur during construction of below grade structures toward the eastern end of the Plan Area (see parcels 12, 14, 15, and 16 in **Figure 2-2**), that may require dewatering. Based on the estimated change to the gradient that may be required over one year of construction dewatering, the current VOC plume could potentially migrate almost 500 feet and reach construction sites in the Plan Area. Although the plume is unlikely to reach development sites within the Plan Area during a limited dewatering period, because there is some risk of it reaching the area, any dewatering that may be required during construction on the parcels identified above must be managed, tested and monitored closely to ensure that water from the site is free from contamination prior to discharge into the storm drain system.[5]

The Phase I Environmental Site Assessment (ESA) identified a former dry cleaner at 851 Cherry Avenue, within the Bayhill Shopping Center, as a potential hazardous waste generator, but noted that no records of spills, releases, or environmental impacts associated with the dry cleaner were found. Nonetheless, excavation activities conducted within the Plan Area could potentially encounter contaminated soil. If contaminated soils are encountered, they shall be removed and disposed of at an approved disposal facility in accordance with regulatory requirements.

AIRPORT HAZARDS AND CONSIDERATIONS

The ALUCP contains safety compatibility policies to protect public health, safety, and welfare by minimizing the public's exposure to the risk associated with potential aircraft accidents within the vicinity of SFO. It delineates safety zones that establish land use compatibility standards and restrict the development of land uses that could pose particular hazards to the public in case of aircraft accident. As shown in **Figure 6-3**, the Plan Area lies outside of the established safety zones.

3 EKI Environment & Water, Inc., 2019.

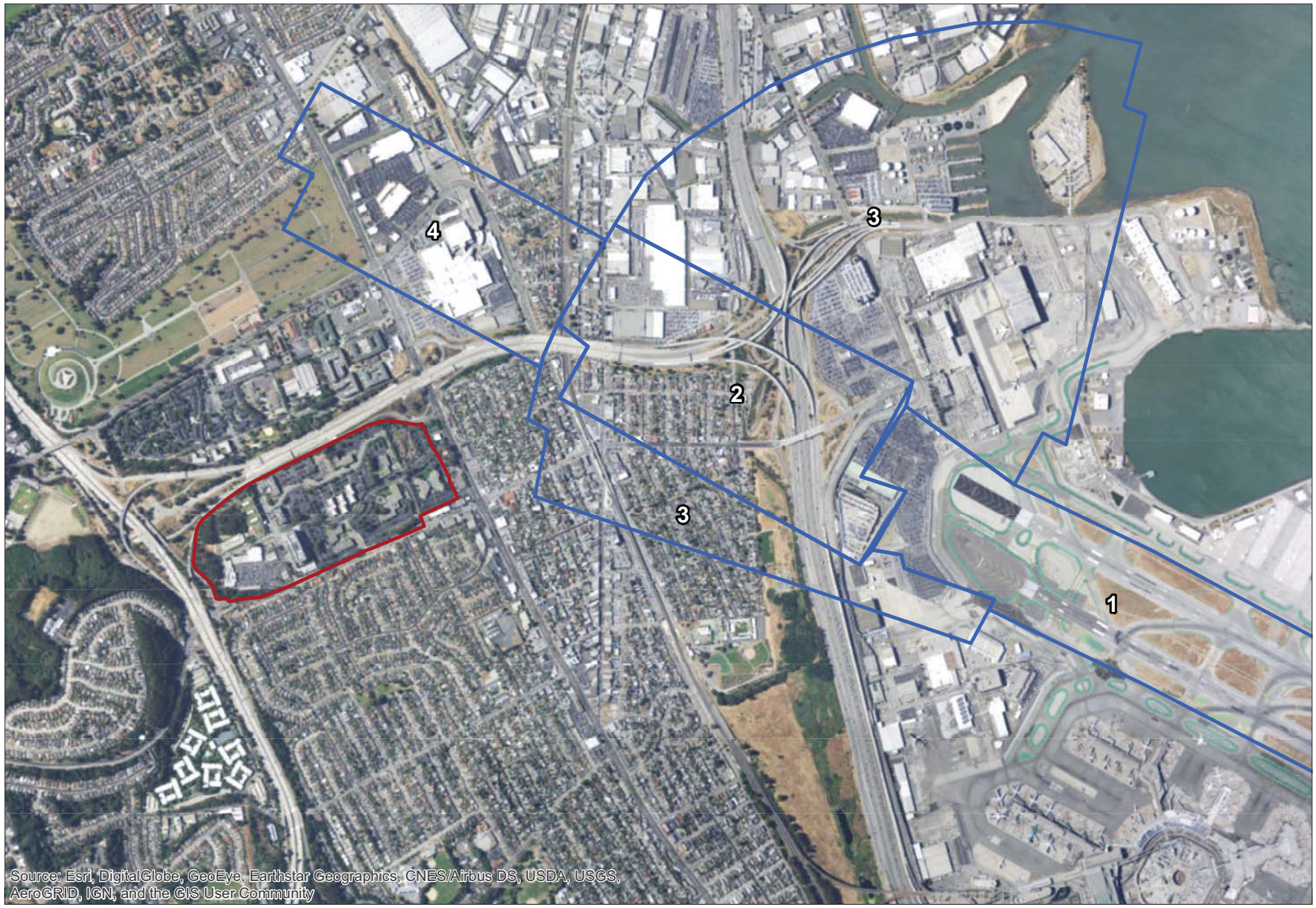
4 Ibid.

5 Ibid.

Figure 6-2: Hazardous Sites and Facilities



Figure 6-3: Airport Safety Zones



Safety Compatibility Zones

1- Runway Protection Zone- Object Free Area
2- Inner Approach/ Departure Zone
3- Inner Turning Zone
4- Outer Approach/Departure Zone

Planning Area

0 0.1 0.2 0.3 0.4
MILES

6.3 Air Quality

Regional Climate and Meteorology

While the primary factors that determine local air quality are the locations of air pollutant sources and the quantity of pollutants that they emit, meteorological conditions and topography are also important factors. Atmospheric conditions, such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. Geographic features throughout the state define fifteen air basins with distinctive regional climates. Located within San Mateo County, the Plan Area is situated in the peninsula region of the San Francisco Bay Area Air Basin.

Pollutants of Concern

CRITERIA AIR POLLUTANTS

Concentrations of ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead (Pb), and particulate matter of 10 micrometers and 2.5 micrometers or less in diameter (PM10 and PM2.5) are commonly used as indicators of ambient air quality. These pollutants are known as "criteria pollutants" and are regulated by the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB).

The primary criteria pollutants of concern in the Plan Area are ozone (including its precursors, nitrogen oxides [NO_X] and reactive organic gases [ROG][6]), CO, and PM. San Mateo County has been declared a State nonattainment area for ozone pollution, meaning that recorded ozone levels within the county have consistently violated state standards.

Ozone can be formed through interactions with volatile organic compounds (VOCs). VOCs are carbon-containing compounds that easily form vapors or gases. They can be formed by burning wood and fossil fuels and are contained in many solvents and consumer products such as paints, adhesives, cleaners, and glues. The Specific Plan minimizes VOC exposure by requiring the use of low-VOC consumer products.

In the Plan Area, high CO levels are of greatest concern during the winter, when periods of light winds combine with the formation of ground-level temperature inversions from evening through early morning. These conditions trap pollutants near the ground, reducing the dispersion of vehicle emissions. San Mateo County is currently classified as an attainment area for CO, meaning that levels of CO emissions do not violate National Ambient Air Quality Standards.

Criteria air pollutant data collected at the San Francisco-Arkansas Street monitoring station (the closest monitoring station to the Plan Area, located approximately 9.5 miles northeast from the northern boundary of the Plan Area) show violations of the federal particulate matter PM2.5 level in 2017 and 2018, and the state particulate matter PM10 level in 2017; the county is currently classified as a nonattainment area for PM2.5 and PM10.

TOXIC AIR CONTAMINANTS

Toxic air contaminants (TACs) are a broad class of compounds known to cause illness or death. For TACs that are known or suspected carcinogens, CARB has consistently found that there are no levels or thresholds below which exposure is risk-free. The primary TACs of concern associated with the Plan Area are asbestos and Diesel Particulate Matter (DPM).

Asbestos is the name given to several naturally occurring fibrous silicate minerals. Before the adverse health effects of asbestos were identified, asbestos was widely used as insulation and fireproofing in buildings, and it can still be found in some older buildings. The inhalation of asbestos fibers into the lungs can result in a variety of adverse health effects including inflammation of the lungs, respiratory ailments, and cancer. Buildings and structures built prior to 1977 could potentially contain asbestos-containing materials.

6 ROG is synonymous with volatile organic compounds (VOC), which is commonly used to describe compound limits for architectural coatings such as paint.

DPM is generated by diesel-fueled equipment and vehicles. Within the Bay Area, the Bay Area Air Quality Management District (BAAQMD) has found that of all controlled TACs, emissions of DPM are responsible for about 82 percent of the total ambient cancer risk. Short-term exposure to DPM can cause acute irritation (e.g., eye, throat, and bronchial), neurophysiological symptoms (e.g., lightheadedness and nausea), and respiratory symptoms (e.g., cough and phlegm).

Stationary sources of TACs associated with the Plan Area include four existing diesel powered back up generators within the Plan Area and two existing diesel powered back up generators outside the Plan Area. Some of the sources may be removed or relocated as a result of development supported by the Specific Plan.

Aside from stationary sources, emissions of TACs in and around the Plan Area are also generated from mobile sources, including Interstate 380 (I-380), Interstate 280 (I-280), and State Route 82 (SR 82)/ El Camino Real.

Specific Plan policies address air pollution and TACs within the Plan Area. The Specific Plan mandates the minimization of construction-related emissions and the purchase of mitigation credits when construction emissions exceed BAAQMD's daily pollutant thresholds. Additionally, all applicants proposing development of projects within 1,000 feet of existing sensitive receptors, as defined by the BAAQMD, are required to prepare a site-specific construction and operational health risk assessment (HRA).

During the operational phase of development, the Specific Plan provides protection for sensitive receptors and requires the purchase of mitigation credits for operational emissions exceeding BAAQMD's daily pollutant threshold. The Specific Plan supports best practices for operational emission reduction including generator retrofit and use of green consumer products.

6.4 Greenhouse Gas Emissions

Global Climate Change

Earth absorbs heat energy from the sun and returns most of this heat to space as terrestrial infrared radiation. Greenhouse gases (GHGs) trap heat in the lower atmosphere (the atmosphere extending from Earth's surface to 4 to 12 miles above the surface) by absorbing heat energy emitted by Earth's surface and lower atmosphere and reradiating much of it back to Earth's surface, thereby causing warming. This process, known as the greenhouse effect, is responsible for maintaining surface temperatures that are warm enough to sustain life. Most GHGs occur naturally. Human activities, particularly fossil-fuel combustion, as well as the use of several industrial gases that are GHGs, lead to increased concentrations of GHGs in the atmosphere thereby intensifying the warming associated with the Earth's greenhouse effect.

Since the industrial revolution when fossil fuels began to be burned in increasing quantities, concentrations of GHGs in the atmosphere have increased. Although GHG levels have varied for millennia (along with corresponding variations in climatic conditions), industrialization and the burning of fossil carbon fuel sources have caused atmospheric GHG concentrations to increase. This buildup of GHGs in the atmosphere is changing the Earth's energy balance and causing the planet to warm, which in turn affects sea levels, precipitation patterns, cloud cover, ocean temperatures and currents, ocean acidification, polar snow and ice accumulation, and other climatic conditions. Scientists refer to this phenomenon as "global climate change."

GREENHOUSE GASES

Greenhouse gases play a critical role in determining the Earth's surface temperature. Some GHGs, including carbon dioxide, methane, nitrous oxide, water vapor, and ozone, occur naturally and are emitted to the atmosphere through both natural processes and human activities, while others are created and emitted solely through human activities. The six primary GHGs associated with human activities are:

- Carbon dioxide (CO_2), emitted as a result of fossil fuel combustion, with contributions from cement manufacture.
- Methane (CH_4), produced through the anaerobic decomposition of waste in landfills, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.
- Nitrous oxide (N_2O), typically generated as a result of soil cultivation practices, particularly the use of commercial and organic fertilizers, fossil fuel combustion, nitric acid production, and biomass burning.
- Hydrofluorocarbons (HFCs), primarily used as refrigerants.
- Perfluorocarbons (PFCs), originally introduced as alternatives to ozone-depleting substances and typically emitted as by-products of industrial and manufacturing processes.
- Sulfur hexafluoride (SF_6), primarily used in electrical transmission and distribution systems.

Greenhouse gas emissions contributing to global climate change are attributable in large part to human activities associated with the industrial/manufacturing, transportation, utilities, residential, and agricultural sectors. According to the California Air Quality Board's 2017 estimate, the sectors with the greatest contributions in California include fossil fuel consumption from transportation (41 percent), industry (24 percent), and electricity production (15 percent), followed by agriculture (8 percent), residential (7 percent), and commercial (5 percent).

POTENTIAL EFFECTS OF CLIMATE CHANGE IN THE PLAN AREA

Even accounting for the efforts of municipalities throughout the greater San Francisco Bay Area and the State of California to reduce GHGs, a certain amount of climate change is unavoidable due to existing and future predicted GHG emissions. The San Francisco Bay Area, including San Mateo County and San Bruno, may be subject to the following climatic changes: a hotter and drier

climate; decreases in chaparral/coast scrub and blue oak woodland/foothill pine; increases in grassland; increased salinity in the San Francisco Bay; increased estuarine flows into the San Francisco Bay estuary; increased potential for extreme heat events and decreased air quality; increased annual precipitation; increased incidence of extreme rainfall events; reduced availability of freshwater, and rising sea level. Sea levels may rise up to 24 inches by 2050 and 66 inches by 2100 (compared to 2000 conditions). Increases in sea level exacerbate risk of flood within the Plan Area.

Energy Resources

The modern economy depends on access to energy resources. Because a large proportion of current energy use is based on fossil fuels that contribute to GHG emissions, it is important to reduce energy usage where possible.

ENERGY EFFICIENCY AND SUSTAINABILITY

Reducing the amount of energy consumed for a given amount of work or economic output, as well as replacing fossil fuels with renewable energy sources, are key to mitigating climate change. Communities can encourage energy efficiency and use of renewable energy in a number of ways. Building design standards that specify improved materials and insulation and solar-oriented site design reduce demand for natural gas and electricity for heating and air conditioning. Transportation and land use measures that support transit and facilitate walking and bicycling reduce dependence on fossil fuels. Additionally, developed areas often have warmer temperatures than undeveloped areas, a phenomenon known as the urban heat island effect, which contributes to increased energy consumption in urban areas. Low impact development and landscaping can reduce the urban heat island effect and thus reduce energy use. Specific Plan policies addressing building design for climate change mitigation and adaptation are contained in Chapter 3, *Urban Design and Public Realm*.

Counteracting Climate Change: Bayhill Plan Area's Role

The Specific Plan promotes climate change mitigation and adaptation by promoting energy efficiency and use of sustainable materials, shifting to renewable energy use where possible, and reducing waste streams.

Electric space and water heating reduce demand for natural gas heating. Electrification facilitates the usage of renewable energy because electric utilities are required by law to continually increase their portfolios of renewable energy sources until they reach 100 percent renewable in 2045. The Specific Plan requires that new construction either employ electric space and water heating or provide equivalent GHG reductions.

Mounted rooftop electricity-generating solar panels convert solar energy to electricity for use in commercial and residential buildings. For new construction the Specific Plan requires that solar roofs be employed on at least 30 percent of roof square footage, or that equivalent GHG reductions be provided.[7]

Recycling, composting of food waste and other organics, and the use of reusable products instead of disposal products diverts solid waste from the landfill stream, where it contributes to GHG emissions. The Specific Plan requires that all new commercial construction implement recycling, composting, and product reuse programs or provide equivalent GHG reductions.

Development within the Plan Area can further minimize energy use and GHG emissions by adhering to land use planning principles that allow residents and employees to meet more of their daily needs (commute trips, shopping, etc.) without long automobile trips. These principles can take the form of provision of safe and attractive facilities for bikers and pedestrians, as well as implementation of Transportation Demand Management (TDM) strategies such as carpooling, shuttle services, transit subsidies, and parking management. See Chapter 5, Access and Connectivity, of this document for further discussion of sustainable transportation strategies.

CALGreen is the California Building Standard Commission's (CBSC) mandatory green buildings standard code. CALGreen development standards and the United States Green Building Council (USGBC) provide guidance and standards for sustainable and resilient development. Standards are updated every three years and address topics such as water use, waste reduction, and pollutant control. Development in the Plan Area would be required to conform to CalGreen.

7 Phase 1 includes 20% solar roof coverage and other GHG reduction measures equivalent.

The United States Green Building Council (USGBC) is a private 501(c)3, non-profit organization which promotes sustainability in building design, construction, and operation. The USGBC developed the Leadership in Energy and Environmental Design (LEED) program, which provides a rating system that awards points for new construction based on energy use, materials, water efficiency, and other sustainability criteria. LEED has certification systems for both commercial and residential use. The Specific Plan requires that new construction achieve LEED Silver certification or equivalent measures, such as purchasing credits.

In addition to engaging in climate change mitigation, a key component of design for sustainability is acknowledging that the effects of global warming are already being felt across the State of California and that these effects are likely to intensify in the future. Specific Plan policies that minimize water use, manage stormwater, and minimize cooling needs help make Bayhill resilient in the face of environmental change.

6.5 Groundwater

Groundwater deposits, called aquifers, are found underground in cracks and spaces in soil, sand, and rock. The amount of groundwater available in any one place is constantly changing; aquifers are replenished, or recharged, by such activities as rain, snowmelt, stream water flows, underground pipe flows, and flows from irrigation water. The rate of replenishment is influenced by a variety of factors including soil and rock permeability, precipitation and evapotranspiration rates, the slope of the ground surface and land use characteristics, including the amount of impervious surface, plant types, and use of irrigation. Aquifers are depleted through natural processes such as flows to rivers, lakes, and oceans and evaporation and transpiration, as well as a variety of human uses. When an aquifer is sufficiently depleted, groundwater overdraft can occur. Groundwater overdraft can result in land subsidence, or the sinking of the land surface, saltwater intrusion into coastal groundwater basins, and groundwater pollution, and can necessitate deeper drilling for wells in order to access deeper aquifers.

The Plan Area resides on the South Westside Basin, part of the greater Westside Basin, which underlies San Francisco and San Mateo counties. The Westside Basin underlies a land area of approximately 45 squares miles in these two counties and is a significant source of municipal groundwater for Daly City, South San Francisco, San Bruno, and San Francisco.

Approximate groundwater elevations in the Plan Area have ranged over various studies from approximately 25 feet to over 60 feet (NAVD8[8]8), corresponding to 10 feet to more than 50 feet below ground surface (bgs), varying with seasonality, weather conditions and irrigation. Excavation below these depths, which is expected to occur under the Specific Plan, would require removal of groundwater (dewatering) from the construction site.

In accordance with the RWQCB's Fuel and Volatile Organic Compound (VOC) General Permit, dewatering water must be fully characterized for a suite of contaminants of potential concern, after which treatment needs must be assessed and designed prior to permit approval. The Fuel and VOC General Permit also requires ongoing water quality monitoring and reporting, along with payment of an annual fee.

Monitoring of the Westside Basin is coordinated by the San Mateo County Environmental Health Services Division and conducted through a partnership between Daly City, San Bruno, and CalWater. The Westside Basin monitoring program includes checks of groundwater elevation and monitoring of groundwater quality. Groundwater

8 The North American Vertical Datum of 1988 (NAVD 88) is the vertical datum for orthometric heights established for vertical control surveying in the United States of America based upon the General Adjustment of the North American Datum of 1988.

quality is assessed for mineral content, including total alkalinity, calcium, magnesium, sodium, potassium, chloride, and sulfate; nitrate; and general quality parameters including specific conductance, pH, total dissolved solids, and hardness. These activities support an ongoing evaluation of general groundwater conditions and water quality within the aquifer system.

In a joint effort between the San Francisco Public Utilities Commission (SFPUC), CalWater, Daly City, and San Bruno, the Regional Groundwater Storage and Recovery Project (GSR Project) was developed to support groundwater and surface water management in the South Westside Basin and improve the reliability of the San Francisco Regional Water System (RWS). The GSR project agreement was signed in December 2014. As part of the GSR project agreement, the municipal pumpers within the South Westside Basin agreed to self-limit pumping within the South Westside Basin to no more than 6.9 million gallons per day (MGD), of which San Bruno's designated quantity is an annual average rate of 2.1 MGD or 2,352 acre-feet per year (AFY).

Under the GSR project, the SFPUC will provide supplemental RWS water to San Bruno and the other "Partner Agencies" (i.e., Cal Water and Daly City) during normal and wet years and in turn the Partner Agencies will reduce their groundwater pumping in their own wells to allow the Basin to recharge. During dry years, the Partner Agencies may pump from GSR project wells in addition to their own wells up to designated quantities.

The GSR project consists of the construction of up to 16 new recovery wells and associated facilities, such as pumping systems, pipelines, and chemical treatment equipment. Construction for this project began in April 2015 and is anticipated to be complete in winter 2021.

The San Mateo County Health Department Groundwater Protection Program (GPP) will be notified of planned activities potentially affecting groundwater associated with development within the Plan Area.

The Specific Plan contains policies for minimizing the use of water and minimizing the use of chemicals that can harm water quality, thereby protecting the South Westside Basin. These policies include minimizing irrigation and runoff and minimizing pesticide and fertilizer use. Groundwater policies are contained in this chapter. Chapter 3, *Urban Design and Public Realm*, and Chapter 5, *Infrastructure*, include additional water management policies.

6.6 Biological Resources

Mature trees and other vegetation are abundant within the Plan Area, including native and non-native trees. Most of the Plan Area's trees serve as ornamental landscaping in roadway medians and parking lot islands. The approximately 11-acre grove of mostly Eucalyptus trees at the western end of the Plan Area is mapped in the San Bruno General Plan as potential nesting bird habitat. This area, and other landscaped areas within the Plan Area, may serve as nesting habitat for urban-adapted passerines and raptors, such as red-tailed hawks (*Buteo jamaicensis*). The Specific Plan includes policies to ensure the protection of these local bird species.

The City of San Bruno Municipal Code Section 8.25.020 protects heritage trees, which are defined as any of the following:

- Any native bay (*Umbellularia californica*), buckeye (*Aesculus* species), oak (*Quercus* species), coast redwood (*Sequoia sempervirens*), or pine (*Pinus radiata*) tree that has a diameter of six inches or more measured at 54 inches above natural grade.
- Any tree or stand of trees designated by resolution of the city council to be of special historical value or of significant community benefit.
- A stand of trees, the nature of which makes each dependent on the others for survival.
- Any other tree with a trunk diameter of ten inches or more, measured at fifty-four inches above natural grade.

In addition, Municipal Code Section 8.24.070 protects street trees that are designated by the Director of Public Works. Any removal of heritage trees or street trees requires a permit from the Director of Public Works or a designee. Removed heritage trees and street trees are required to be replaced in accordance with Municipal Code requirements (in the case of street trees, in-lieu fees may be paid).

Both heritage trees and street trees are located throughout the Plan Area. Heritage and street tree removals would occur with implementation of the Specific Plan and each development would be required to comply with all applicable Municipal Code requirements related to the removal and replacement of heritage trees and street trees, including securing all necessary permits.

In addition to their habitat value, trees have an important aesthetic value and play a role in carbon sequestration; avoiding losses in trees assists with meeting the state's goals for climate neutrality. Therefore, the Specific Plan **Policy 3-2 (k)** (*Urban Design and Public Realm*) requires that all trees removed during construction be replaced on at least a one for one basis, not only heritage and street trees.

6.7 Archaeological and Tribal Cultural Resources

Archaeological resources are defined as historic sites, prehistoric and historic archaeological sites, and other prehistoric and historic objects and artifacts. These resources can be visible on the ground surface or reside completely below the ground surface. Tribal Cultural Resources are defined as sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are included in the California Register of Historical Places (CRHR), determined to be eligible for inclusion in the CRHR, or included in a local register of historical resources, or a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant.

Five archeological resources are present within a half mile radius of the Plan Area. Of these five, one is recorded as a historic-era resource and the remaining four are precontact habitation sites.

San Bruno Creek historically flowed through the Plan Area and is depicted on historic USGS topographic maps from as early as 1896. Channelized in the 1940s, the creek now runs underground as part of the City's storm drain system. Early habitation often occurred in close proximity to fresh water sources, such as San Bruno Creek. Given the presence of four previously recorded precontact habitation sites in the general vicinity, and the fact the historic alignment of San Bruno Creek ran through the Plan Area, the Plan Area has an increased sensitivity for as-yet undocumented archaeological resources.

The Specific Plan contains policies to protect archaeological, tribal and cultural resources that may be discovered during Specific Plan implementation by requiring the use of Archaeological Monitoring Plans (AMP) and archaeological training, as well as requiring that any archaeological deposits discovered during construction be assessed. In the event that human remains are discovered on-site, construction is required to halt until the county coroner has been notified and all applicable legal requirements have been implemented.

6.8 Geology & Soils

The Plan Area is located on non-engineered fill up to 20 feet in thickness where the historical San Bruno Creek was backfilled, and 2 to 5 feet in thickness elsewhere. Nonengineered fill can undergo excessive settlement, especially under new fill or building loads. Further settlement as a result of seismic densification is unlikely to occur because the Pleistocene-age Colma Formation, which underlies the Plan Area, is composed of dense sand. However, the majority of the nonengineered fill would be removed during excavation for the proposed parking garages. If buildings are constructed within existing fill, grading or foundation design will need to account for the presence of the fill. Additionally, proper shoring techniques will be required to ensure that fill outside of building footprints does not potentially collapse into building excavations.

The Plan Area is underlain by the Colma Formation. The Colma Formation is known to be sensitive for paleontological resources. Excavation below the artificial fill therefore has potential to encounter paleontological resources.[9]

The Specific Plan contains policies for protecting any paleontological resources that may be discovered over the course of Specific Plan implementation as well as the assessing the geological suitability of a site prior to construction.

9 Rodda, P.U. and Baghai, N. 1993. Late Pleistocene vertebrates from downtown San Francisco, California. Journal of Paleontology 67(6):1058-1063.

6.9 Environmental Quality Policies*

NOISE

6-1: Require new residential and hotel development in the Plan Area to complete an acoustical evaluation of proposed exterior sound insulation. This acoustical evaluation shall address the use of noise-attenuating windows and building materials and shall be conducted by a certified acoustical consultant. New residential and hotel development shall incorporate adequate noise attenuation into the design and site planning of the project in order to achieve an interior noise level of not more than 45 dBA.

6-2: Locate loading docks such that noise effects to nearby uses are minimized. This can be done by locating the loading docks to be interior (within a garage space) or oriented such that the building provides shielding between loading activities and adjacent sensitive land uses.

6-3: Control noise from nighttime construction.* Should construction be planned for the nighttime hours of 10:00 p.m. to 7:00 a.m. within 500 feet of a residential land use, the contractor(s) shall develop a construction noise control plan that demonstrates that noise from construction activities will comply with the City noise limit of 60 dBA at a distance of 100 feet unless a permit is issued by the City.

6-4: Reduce potential conflicts between sensitive receptors and noise-generating uses. (*) A noise analysis shall be required for new development under the Specific Plan that includes onsite noise-generating activities and equipment (e.g., places of entertainment with amplified music, HVAC equipment, emergency generators, loading docks, and mechanical equipment). The analysis shall demonstrate that the operational noise sources associated with the proposed use would not adversely affect nearby noise-sensitive uses and would not result in a noise level that would be in excess of applicable standards.

All recommendations necessary to ensure noise sources would meet applicable requirements of the noise ordinance and would not result in 10 dB or more increases in ambient noise levels shall be incorporated into the building design and building operations. Should the analysis demonstrate that predicted noise levels may not meet applicable requirements, a noise control plan shall be required. This analysis shall be conducted prior to the first project-approval action.

6-5: Control sound levels associated with the operation of sound amplifying equipment.* Should the City have reason to believe that noise from amplified music or speech at a given event may exceed 15 dB over the ambient noise level at a distance of 100 feet from the source, the City will either require a noise analysis demonstrating expected compliance with the applicable noise restrictions or require noise monitoring during the event to measure actual sound levels and enable real-time reductions in amplified noise, if necessary.

6-6: Limit emergency generator testing to daytime hours. Daytime hours are considered to be 7:00 AM to 10:00 PM.

HAZARDOUS MATERIALS

6-7: Require new development with hazardous materials on site to create digital pre-incident plans. These plans shall be distributed to the San Bruno Fire Department as a condition of approval of a development entitlement prior to the issuance of a certificate of occupancy for the project site.

6-8: Protect groundwater supplies from chemical pollution. Developers and property owners shall ensure that any development occurring on parcels where dewatering is needed (anticipated but not limited to parcels 5, 9, 12, 13, 14, or 15, see **Figure 2-2**) is subject to review and approval by the County of San Mateo's Groundwater Protection Program (see also, **Policies 6-19** through **6-25**).

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* Policy implements mitigation measure required by Environmental Impact Report for all development under Specific Plan.

(*) Policy implements mitigation measure required by Environmental Impact Report for all development under Specific Plan except Phase I Development.

6-9: Reduce construction-related emissions.* All applicants proposing development of projects within the Plan Area shall reduce construction related emissions by requiring contractors (as a contract condition) to implement the following requirements, unless an analysis conducted by a qualified consultant demonstrates that a particular measure is not required to meet air quality standards:

a. Use Tier 4 final engines for all off-road equipment greater than 50 horsepower (hp) and operating for more than 20 total hours over the entire duration of construction activities.*

b. Use diesel trucks with 2010 or later compliant model year engines during construction.(*)

c. Use renewable diesel during construction.(*)

d. Use low-VOC coatings during construction. (*)

e. Implement fugitive dust best management practices.*

f. Use portable electrical equipment where commercially available and practicable to complete construction. Construction contractors shall utilize electrical grid power instead of diesel generators when (1) grid power is available at the construction site; (2) when construction of temporary power lines are not necessary in order to provide power to portions of the site distant from existing utility lines; (3) when use of portable extension lines is practicable given construction safety and operational limitations; and (4) when use of electrical grid power does not compromise construction schedules.

6-10: Estimate construction related air quality emissions for projects exceeding BAAQMD screening sizes. (*) Applicants proposing development projects within the Plan Area shall compare their project size with the BAAQMD screening sizes appropriate to their project for construction criteria pollutants found in Table 3-1 in the Bay Area Air Quality Management CEQA Guidelines (May 2017). The screening limit for general office buildings, office park is 277,000 square feet, with different screening limits for other developments types. If the project is less than the screening limit for its project type, the Applicant shall also confirm conformance with other screening requirements in relation to demolition, extensive site preparation and simultaneous construction activity.

If the project is not excluded based on BAAQMD screening criteria, the applicant shall estimate annual average emissions for each year of construction and compare the annual average emissions for each year of construction to the BAAQMD thresholds used in the Specific Plan EIR for criteria pollutants. The emissions estimate shall be provided as part of the project's initial application to the City for the project. The City will review the estimate and confirm whether offsets are required for construction. If the proposed developments are estimated to result in exceedances of any threshold(s), the applicants shall coordinate with a third-party or governmental entity to pay for criteria pollutant offsets for every year in which construction emissions are estimated to exceed BAAQMD thresholds. Emission reduction projects and fee will be determined in consultation between the applicant and the third-party or governmental entity. The agreement shall be provided to the City for approval and shall be secured prior to any year in which construction activity is estimated to result in an exceedance.

6-11: Ensure high air quality in the vicinity of sensitive receptors. (*) Should any new sensitive receptors, such as residential projects and daycare, be sited within the Plan Area, developers shall be required to install high-efficiency filters. Should any new sensitive receptors be sited within 1,000 feet of sources of toxic air contaminants (TAC), developers shall further be required to incorporate any other additional design features to minimize any potential health risk following the preparation of a site-specific construction and operational HRA.

6-12: Purchase operational mitigation credits if warranted. (*) Applicants proposing development of projects within the Plan Area shall compare their project size with the BAAQMD screening sizes appropriate to their project for construction criteria pollutants found in Table 3-1 in the Bay Area Air Quality Management CEQA Guidelines (May 2017). The screening limit for general office buildings, office park, or government office building is 346,000 square feet, 323,000 square feet, and 61,000 square feet, respectively, with different screening limits for residential, retail, hotels, and other developments.

If the project is not excluded based on BAAQMD screening criteria, the applicant shall estimate annual average operational emissions for each operational year over the life of the project (30 years) and compare the annual average emissions for each year of construction to the BAAQMD thresholds used in the EIR for criteria pollutants. The emissions estimate shall be provided as part of the project's initial application to the City for the project. The City will review the estimate and confirm whether offsets are required for operation.

If the proposed developments that are estimated to result in exceedances of thresholds during any year of the project's life, the applicants shall coordinate with a third-party or governmental entity to pay for criteria pollutant offsets for every year in which operational emissions are estimated to exceed the BAAQMD thresholds. If the estimate shows exceedances of multiple criteria pollutants above the BAAQMD thresholds, then offsets must be obtained to address each pollutant above the thresholds. Emission reduction projects and fee will be determined in consultation between the applicant and the third-party or governmental entity. The agreement shall be provided to the City for approval and shall be secured prior to any year in which operational activity is estimated to result in an exceedance. The payment for the emissions can either be on an annual basis or done once upfront prior to operation.

6-13: Develop and maintain best practices for reducing air pollutant emissions associated with the operational phase of development. These practices may include, but are not limited to:

a. **Low-Emission Generators** - Encourage existing uses to retrofit generators with Best Available Control Technology to meet ARB's Tier 4 emission standards. Encourage the use of zero emission back-up power.

b. **Loading Plans** - Require new large commercial projects to prepare a loading plan aimed to minimize truck idling and reduce diesel particulate emissions related to truck loading.

c. **Green Commercial Products** - For all projects developed within the Plan Area, developer(s) are required to provide education for residential and commercial tenants concerning green consumer products. Prior to receipt of any certificate of final occupancy, the project sponsors are required to work with the City of San Bruno to develop electronic correspondence to be distributed by email to new residential and commercial tenants that require the purchase of consumer products that generate lower than typical VOC emissions. Examples of green products may include low-VOC architectural coatings, cleaning supplies, and consumer products, as well as alternatively fueled landscaping equipment.

d. Encourage the use of all-electric landscaping equipment.

GREENHOUSE GASES

6-14: Implement BAAQMD-recommended construction best management practices.* All applicants within the Plan Area shall require their contractors, as a condition of contracts, to reduce construction-related GHG emissions by implementing BAAQMD's recommended best management practices, including the following measures (based on BAAQMD's (2017) CEQA Guidelines):

a. Ensure alternative fueled (e.g. biodiesel, electric) construction vehicles/equipment make up at least 15 percent of the fleet.

b. Use local building materials of at least 10 percent (sourced from within 100 miles of the Plan Area).

c. Recycle and reuse at least 50 percent of construction waste or demolition materials.

6-15: Implement GHG reduction measures or their equivalent.(*) Applicants of future projects shall implement the following operational GHG emissions reduction strategies where feasible. If a measure is not feasible, applicants must demonstrate why a measure is not feasible and implement equivalent GHG reductions or pay a mitigation fee per **Policy 6-16** (see below).

a. **LEED certification** - New development in the Plan Area shall be required to be capable of achieving LEED Silver certification or equivalent, or a higher certification.

b. **Electric space and water heating for new buildings** - New construction in the Plan Area shall be required to employ electric space and water heating

c. **Solar roofs** - New construction in the Plan Area shall be required to employ solar panels on at least 30 percent of roof square footage, or that equivalent GHG reductions be provided through other measures.

d. **Waste minimization program** - New non-residential uses in the Plan Area shall be required to implement recycling (including organics recycling) and reusable product use programs.

6-16: Purchase GHG mitigation credits.(*) For applicants of projects that do not propose to implement all of the GHG reduction measures in **Policy 6-15** and do not propose equivalent reduction measures to compensate for the measures not implemented, the project applicant shall be required to pay a mitigation fee on a pro rata basis for net operational GHG emissions to compensate for emissions foregone from not implementing all measure in **Policy 6-15** or providing equivalent reductions. Project applicants shall supply a 30-year operational GHG emissions estimate showing the difference between implementing a measure (or measures) in **Policy 6-15** and not implementing it, and purchase credits for the difference from a voluntary credit provider that has an established protocol to demonstrate that the reduction of GHG emissions are real, permanent, quantifiable, verifiable and enforceable in conformance with definitions in the California Health and Safety Code. GHG credits should be in geographies closest to San Mateo County first and only go to larger geographies if adequate credits cannot be found in closer geographies, or the procurement of such credits would create an undue financial burden. Applicants shall provide documentation to the City as to how they are meeting this requirement annually for up to 30 years.

6-17: Participate in local programs to reduce GHGs. Building owners are encouraged to engage in local government- and utility-run programs to promote energy efficiency and reduce GHG emissions. These programs include, but are not limited to:

a. **PG&E Energy Efficiency Programs** - Promote and assist with marketing and outreach for PG&E energy efficiency and demand response programs for the nonresidential sector. Leverage existing rebates and consider adding additional rebates for energy efficient retrofits, energy efficient solar panel installation, solar parking, and energy efficient hot water systems.

b. **San Mateo County Energy Efficiency Program** - Participate in San Mateo County Energy Watch and leveraged benchmarking to identify energy efficiency audit and retrofit projects and track energy performance.

GROUNDWATER

6-18: Maintain high levels of water quality within the Westside Basin. Developers shall support the water quality of the Westside Basin by utilizing sustainable landscaping practices that minimize irrigation and runoff, promoting surface infiltration, and minimizing use of pesticides and fertilizers, where possible.

6-19: Require groundwater monitoring well installation and sampling prior to dewatering activity.* For any development proposing excavation and dewatering, project proponents shall install groundwater monitoring wells in the public right-of-way or easement and collect and test samples prior to dewatering activity. Wells are to be drilled as deep as the garage depth being proposed.

6-20: Require project proponents to provide estimates of construction dewatering duration, rates, volumes, methods, radius of impact, and disposal plan as part of project consideration and provide updated evaluations during construction. Require that an independent consultant monitor and confirm validity of the estimates during construction after dewatering efforts are underway and site conditions are better understood at a frequency determined by the City. The project shall be phased such that groundwater extractions do not exceed more than 8.5 percent of total designated max pumping volume allocation for the City of San Bruno from the South Westside Basin (i.e., less than 200 AF per year or less than 1,000 AF over 5 years).

6-21: Evaluate the proposed dewatering discharge's impacts on the utility system and limit volumes, flow rates or timing of dewatering water discharge based on City storm drain or other utility capacity constraints. Fees will be assessed as appropriate.

6-22: Hold construction dewatering in baker tanks to settle solids and allow for testing to confirm the water is free from contamination prior to being discharged to the storm system.

6-23: Require project proponents to undertake adequate structural design and water proofing of all subsurface garages to ensure that dewatering does not take place during the life of the buildings. Garage walls and floors shall not be painted in a manner that could mask the evidence of water intrusion. Require a City-approved plan for ongoing monitoring prior to issuance of final occupancy permit and allow the City or its representatives access to independently inspect waterproofing.

6-24: Ensure that dewatering water quality is monitored and the presence of contaminants such as hydrocarbons and VOCs is ascertained. If petroleum hydrocarbons or VOCs are detected in dewatering water obtain a Fuel and VOC General Permit from the RWQCB prior to discharge of dewatering water to the storm drain.

If petroleum hydrocarbons or VOCs are not detected in dewatering water, require project proponents to obtain a Construction General Permit for Stormwater from the State Water Board prior to discharge of dewatering water to the storm drain.

Depending on the risk level determination for each phase of construction, monitoring and reporting of various water quality parameters, including pH and turbidity, may be required.

6-25: Address waterproofing failures. Should the City or property owner identify a failure of garage waterproofing during the lifetime of the garage, the property owner shall immediately take steps to inform the City Engineer and repair the failure.

a. If these repair measures are unsuccessful as determined by the City Engineer, the property owner shall mitigate the flows to the extent possible and provide a report, subject to review and approval by the City Engineer, on the anticipated levels of discharge and proposal for long term disposal. The property owner shall be required to install a flow monitor.

b. The City will consider the proposed discharge's impacts on the utility system and whether this additional discharge would require the owner to detain flow or reduce surface flow to offset what could be the expected contribution from groundwater, or pay to dispose of the water at the sewer discharge fee rate.

BIOLOGICAL RESOURCES

6-26: Conduct construction activities, including those taking place on parking lots, outside of the bird-nesting season (February 1 to August 31) to the extent feasible. If construction activities cannot be scheduled outside of bird-nesting season, pre-construction surveys shall be conducted by a qualified biologist to identify any active nests for urban-adapted passerines or raptors that may be disturbed during construction activities. (*note: **Policy 3-2 (k)** requires that any trees removed shall be replaced on a one for one basis*).

a. Surveys shall include a search of all trees and ornamental landscaping that could provide suitable nesting habitat within a 500-foot radius of the proposed disturbance area. Surveys shall occur within 14 days prior to the start of construction activities, or after any construction breaks of 14 days or more .

b. If active nests are identified, and the biologist determines that construction activities could affect the active nests, a no-disturbance buffer area shall be established (typically 250-500 feet) and all construction activities within the buffer area shall be prohibited until the biologist has determined that the nests are no longer in use. If no active nests are detected during pre-construction surveys, no additional measures are required.

c. Any birds that begin nesting within the project area and survey buffers amid construction activities are assumed to be habituated to construction-related or similar noise and disturbance levels, so exclusion zones around nests may be reduced or eliminated in these cases as determined by the qualified biologist in coordination with the Planning Department. Work may proceed around these active nests as long as the nests and their occupants are not directly impacted.

ARCHAEOLOGICAL RESOURCES AND TRIBAL CULTURAL RESOURCES

6-27: Avoid any significant impacts to archaeological resources and tribal cultural resources. Due to the reasonable potential for archaeological and tribal cultural resources to be present within the Plan Area, an Archaeological Monitoring Plan (AMP) shall be developed by a qualified professional archaeologist/tribal cultural resource specialist prior to any significant excavation, trenching or grading for a building development project to determine specific areas of archaeological and/or tribal cultural resource sensitivity within proposed work areas, with a copy provided to the Community and Economic Development Director.

a. The AMP shall determine whether an on-site qualified professional archaeological/tribal cultural resource monitor is required during project-related ground disturbance.

b. The AMP shall include protocol that outlines tribal cultural and archaeological monitoring best practices, anticipated resource types, and an Unanticipated Discovery Protocol (UDP). The UDP shall describe steps to follow if unanticipated archaeological discoveries are made during project activities work and a chain of contact.

6-28: Ensure that contractors can recognize archaeological and tribal cultural resources in the event that they are discovered during construction. Prior to excavation, trenching or grading for a building development project, all contractors who are involved with earthmoving activities shall receive training overseen by a qualified professional archaeologist/tribal cultural resource specialist who is experienced in teaching non-specialists. They shall also be notified of the UDP outlined in the AMP. A copy of the training sign-in sheet shall be maintained and made available to the City upon request.

6-29: Assess any archaeological deposits and tribal cultural resources discovered during construction. If archaeological deposits or tribal cultural resources, including, but not limited to, flaked stone or groundstone, midden and shell deposits, historic-era refuse and/or structure foundations, are encountered during project related ground disturbance, work in the area shall stop immediately. A qualified archaeologist/tribal cultural resource specialist shall be contacted to assess the discovery.

6-30: Address the discovery of human remains. If human remains of Native American origin are discovered during ground-disturbing activities, it shall be necessary to comply with state laws regarding the disposition of Native American burials, which fall within the jurisdiction of the Native American Heritage Commission (Pub.Res. Code Sec. 5097).

a. If human remains are discovered or recognized in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until the county coroner has been notified and all applicable legal requirements have been implemented.

GEOLOGY AND SOILS

6-31: Require that all applicants proposing development projects involving the development of new foundations for buildings within the Plan Area prepare a site-specific geotechnical exploration as part of the design process for the building. The exploration shall include borings and laboratory soil testing to provide data for preparation of specific recommendations regarding grading, foundation design, and drainage for the proposed development. The geotechnical explorations shall be subject to review and approval by the San Bruno Public Works Department.

6-32: Require that all applicants proposing to undertake excavation, drilling, or pile-driving activities for new buildings within the Plan Area retain a qualified paleontologist prior to the start of any ground-disturbing activities. The paleontologist should be qualified as defined by the Society for Vertebrate Paleontology and experienced in teaching non-specialists. The qualified paleontologist shall train all construction personnel who are involved with earthmoving activities, including the site superintendent, regarding the possibility of encountering fossils, the appearance and types of fossils that are likely to be seen during construction, and proper notification procedures should fossils be encountered. Procedures to be conveyed to workers include halting construction within 50 feet of any potential fossil find and notifying a qualified paleontologist,

who shall evaluate the significance. The qualified paleontologist shall also make periodic visits during earthmoving in high sensitivity sites to verify that workers are following the established procedures.

6-33: Require that all applicants undertaking earth moving projects within the Plan Area adequately respond to the discovery of paleontological resources. Developers shall follow the following steps regarding discovery of paleontological resources:

a. If paleontological resources are discovered during earthmoving activities, the construction crew shall immediately cease work near the find and notify the project applicant. Construction work in the affected areas shall remain stopped or be diverted to allow recovery of fossil remains in a timely manner.

b. The project applicant shall retain a qualified paleontologist to evaluate the resource and prepare a recovery plan in accordance with Society of Vertebrate Paleontology guidelines. The recovery plan may include a field survey, construction monitoring, sampling and data recovery procedures, museum storage coordination for any specimen recovered, and a report of findings.

c. Recommendations in the recovery plan that are determined by the project applicant to be necessary and feasible shall be implemented before construction activities can resume at the site where the paleontological resources were discovered.

d. The project applicant shall be responsible for ensuring that the monitor's recommendations regarding treatment and reporting are implemented.

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BAYHILL SPECIFIC PLAN

7.

Implementation

7.1 Regulatory Implementation

7.2 Funding for Infrastructure and Services

7.3 Community Benefit Program

7.4 Funding Policies and Implementation Actions



7 Implementation

The Bayhill Specific Plan provides a comprehensive framework and set of policies. Achieving the full development potential of the Plan will require a range of efforts and actions on the part of the City, property owners, developers and other involved parties. These include regulatory measures, infrastructure improvements, and securing needed financing. This chapter details the major policies and public actions that ensure effective implementation of the Plan. Of course, some level of flexibility will be required to adapt to changing circumstances that unfold over the life of the Plan.



7.1 Regulatory Implementation

The Bayhill Specific Plan is the primary City policy document governing future land use within the Bayhill Planning Area. Implementation requires additional regulatory actions by City Council, Planning Commission, City staff, and others. These include General Plan and Zoning Ordinance amendments to ensure both are consistent with the Plan, as well as individual project design review and related approvals. The primary regulatory actions are described below.

General Plan Amendment

Adoption of the Bayhill Specific Plan includes General Plan amendments adopted concurrent with the Specific Plan to reflect the Specific Plan's vision, goals, and policies and incorporate the Planning Area's development (buildout) potential in City buildout projections. The General Plan amendments maintain "vertical consistency" across the General Plan and various supporting documents to foster clarity and predictability, as well as compliance with State law. Prior to adoption of this Specific Plan, the properties located within the Bayhill Specific Planning Area had a General Plan land use classification of Regional Office, with the exception of the Bayhill Shopping Center which had a General Plan land use classification of Neighborhood Commercial. The Regional Office General Plan land use classification did not allow for residential uses, and the Neighborhood Commercial General Plan land use classification conditionally allowed residential uses on the upper floor level as part of a mixed-use development, but did not permit residential uses on the ground floor.

The Bayhill Specific Plan establishes housing and mixed-use overlay zones on a total of 20.56 acres in the southern portion of the Planning Area that allow for the development of up to 573 residential units. The Bayhill Specific Plan Regional Office General Plan land use designation allows for multi-family residential uses and the Bayhill Specific Plan Neighborhood Commercial General Plan land use designation allows for multi-family and mixed-use residential developments with residential uses on the ground floor so long as the overall amount of commercial/retail use is not reduced from its current level in the Bayhill Neighborhood Commercial designation.

Zoning Ordinance

While the General Plan establishes a policy framework, the Zoning Ordinance prescribes standards, rules, and procedures for development. The Zoning Ordinance translates Specific Plan policies into specific use regulations, development standards, and performance criteria that govern development on individual properties. The Specific Plan provides policies for new and modified land use districts and overlays, use and development standards, and density and intensity limits, consistent with the Specific Plan's land use classifications and development standards included in Chapter 2, *Land Use*. These polices are incorporated in a Zoning Code amendment along with Zoning Map amendments, adopted concurrent with the Specific Plan, ensuring that the Planning Area Zoning classifications are in conformance with the Plan.

Project-based Planning Review and Approval

Ultimately the phasing of development and necessary improvements within the Planning Area will be based on market factors as well as costs and available financing. During the development process, much of the look and feel of the Planning Area will be determined by the architecture, landscaping, layout, and maintenance of individual developments, as prescribed by the design standards and guidelines articulated in Chapter 3, *Urban Design and Public Realm*. However, the City must take the lead in coordinating the needed area-wide actions that enable complete implementation of the Plan and its vision. Accordingly, implementation of the Plan requires action by several different Departments and divisions within the City, including the Community and Economic Development, Public Works, Community Services, Police and Fire Departments.

Prior to development occurring on any parcel, it will generally be subject to the following review and discretionary approval process (other review may be required depending on the project):

- Approval of Tentative Map, parcel map or lot line adjustment (if parcel lines need to be modified), including related street vacations and dedication.
- Architectural Review Permit.
- Conditional Use Permit (CUP) for uses requiring such a permit.
- Certain improvements in the City's street right-of-way such as new curb painting or other public roadway changes or improvements may require review from the Traffic Safety and Parking Committee (TSPC) and approval by the City Council.
- For projects in excess of the amount of development permitted under the zoning in place prior to adoption of the Bayhill Specific Plan, the project applicant is required to provide Community Benefits (see Section 7.3 for further discussion).

Once the project receives all discretionary approvals, it will then proceed through the Building Permit and other permits (such as grading and encroachment) review process.

7.2 Funding for Infrastructure and Services

This section describes the general approaches and policies for funding both the one time and on-going costs of providing the public infrastructure, improvements and services needed to implement the Specific Plan. It is designed to ensure that new development within the Planning Area "pays its own way" and does not put a strain on the City's financial resources.

The need to improve and expand public infrastructure and services to and within the Planning Area will evolve over time and it will be important to ensure that adequate funding is secured prior to development. The funding resources for needed improvements and public services are to be generated by the property owners, developers, and/or tenants within the Planning Area, and, in some cases, developers across the entire city.

While this section focuses on funding for the infrastructure and public services required to serve or mitigate the impact of land uses within the Planning Area, the City also seeks to ensure new development provides "Community Benefits" to the entire City and its residents. Section 7.3 describes the "Community Benefits Program" applicable to the Plan so that implementation results in benefits above and beyond those designed to serve the Planning Area itself.

Overview of Funding Needs and Phasing

Development in the Planning Area is required to pay, in one manner or another, the full costs of the improvements and services needed to accommodate the development and land uses therein. While the specific nature and scope of the needed facilities and services may change over the life of the Plan depending on the pace of development, technology, and other factors, the Specific Plan and other City sources provide baseline information on the applicable standards and related requirements.

In particular, Chapter 4, *Access and Connectivity*, and Chapter 5, *Infrastructure*, describe the type and level of improvements and services needed. The Bayhill Specific Plan Environmental Impact Report identifies a number of mitigation measures necessary to address various Plan environmental impacts. Finally, the Citywide Development Impact Fee program (DIF), which can be found on the City of San Bruno website, identifies infrastructure improvements and public facilities needed to serve new development across the entire City of San Bruno.[1]

1 As required by State law, the Citywide Development Impact Fee program will be updated periodically during the life of the Plan to ensure the facilities included (and associated costs) correspond to updated land use buildout, City capital facility and infrastructure needs, updated cost estimates, and other factors. Typically, these updates are conducted in five-year increments, although they can occur more or less frequently at the discretion of the City.

Table 7-1 provides cost estimates (in 2020 dollars) for the primary infrastructure improvements necessary to support full development of the Specific Plan at build-out and their approximate time frame or phasing for implementation. **Table 7-1** lists only those capital facilities projects and studies that the City will either lead and/or develop in order to implement the Specific Plan. Private developers will undertake all on-site improvements and adjacent right-of-way improvements required by the Plan, as required by the policies in Chapter 3, *Urban Design and Public Realm,* Chapter 4, *Access and Connectivity* and Chapter 5, *Infrastructure, Public Facilities and Services*. Some capital facility and access improvements needed to serve the Specific Plan development will be undertaken by the City, with funding from private developers. In recognition that some of these improvements and facilities needed to serve the Bayhill Specific Plan also provide a Citywide benefit, **Table 7-1** includes preliminary estimates of the costs of these improvements and the portions of costs allocated to the Planning Area.

Developers in the Planning Area will be subject to other financial obligations including but not limited to City development impact fees, affordable housing impact fees, public art fees, permit fees, utility capacity charges and connection fees, and the fees of other service districts (such as school fees), among others. **Table 7-1** excludes the cost of on-going public services needed to serve the land uses in the Specific Plan, such as public safety and the maintenance of public spaces and rights-of-way. While some of these costs will be covered through the expansion of existing City General Fund revenues, others may require additional financing, particularly for required levels of service that exceed the City-wide norm. Financing mechanisms for such services are further described later in this Chapter.

The Specific Plan assumes that development will occur in phases over time. Capital facilities, public improvements, and public services will need to be planned and coordinated to ensure that facilities and services are adequate to serve each phase and that each individual development phase can stand alone functionally and aesthetically, including the provision of adequate parking, if subsequent phases are not developed. Infrastructure requirements and costs are also likely to change based on a variety of factors (e.g. technology, evolving needs, market considerations, inflation, etc.).

For phased projects, a Development Phasing Plan is required to be submitted for City review and approval. This Phasing Plan indicates the infrastructure improvements to be made during each phase and demonstrate that those improvements are adequate to address the needs of each phase and plan build-out. The Phasing Plans indicate the total number of remaining development phases proposed, and where, when, and how much development, street and/or intersection, and Greenway improvements will be provided in each phase consistent with Specific Plan policies. New development applicants may choose to complete more improvements than required for a given amount of development in order to realize construction/cost efficiencies, to market future phase development sites, to enhance the attractiveness of existing facilities, and/or for other reasons. Phasing Plans may be changed with successive development applications, provided that development phases stand-alone functionally and aesthetically.

Overview of Funding Tools and Resources

A variety of funding mechanisms, tools and resources are available to address the public improvement costs outlined above. While the following discussion outlines a menu of options, some of those mechanisms are more effective than others in addressing the particular needs of this Specific Plan. Accordingly, while many options are presented, specific tools are recommended for implementation in the near term to meet Plan needs.

The appropriate and most effective funding mechanism will vary based on the nature of the improvement or service being delivered. Other factors relevant to these decisions include the timing (e.g. when the funds are needed), level and frequency of costs (e.g. on-going versus one-time costs), who are the primary beneficiaries and responsible parties, and funding availability, among others.

Some degree of flexibility will be required given the uncertainty associated with securing various funding sources; the following tools and mechanisms have been identified as potentially applicable for implementing the Plan. During the build-out of the Specific Plan other funding sources may be identified as particularly useful or effective and may be utilized as appropriate. The tools and mechanisms listed after the costing table are presented not as an exhaustive list, but as those most applicable given the circumstances and information available during preparation of the Specific Plan. The funding mechanisms can be used separately or in combination.

Table 7-1: Project-Wide Public Facility Cost Estimates

	Cost Item[1]	Estimated Project Cost	Bayhill Specific Plan Share		Timeframe/Phasing
			Amount	%	
Access and Connectivity Projects[2]					
1	Signalize Traeger Avenue and San Bruno Avenue and install sidewalk on the south side of San Bruno Avenue [3,C]	$1,800,000	$1,454,000	81%	1-5 Years
2	Implement bicycle and pedestrian crossing improvements at El Camino Real and Bayhill Drive/Euclid Avenue [4,B]	$1,500,000	$374,000	25%	1-5 Years
3	Gateway and Wayfinding Signs for the Bayhill Office Park [5]	$500,000	$500,000	100%	1-5 Years
4	Conduct first/last mile bicycle and pedestrian improvements along Euclid and San Bruno Avenues [2,6]	$3,510,000	$1,544,400	44%	5-10 Years
5	Install signal interconnect in and around Bayhill Office Park[2] and optimize signal cycle length timing for all signalized intersections internal to and within a quarter-mile of the Planning Area [5]	$770,000	$490,000	64%	5-10 Years for infrastructure; upon completion of each development phase for operation
6	Implement lane reconfiguration, including striping, signage and signal timing improvements at San Bruno Avenue off-ramp I-280 northbound [A,C]	$600,000	$264,000	44%	5-10 Years
7	Install Stop Control at Cherry Avenue and Bayhill Shopping Center Driveway [7]	$700,000	$308,000	44%	5-10 Years
8	Implement street network improvements on San Bruno Avenue between Cherry Avenue and I-280 on-ramp (either modify medians and install bicycle lanes OR add a third westbound lane on San Bruno Avenue approaching I-280 on-ramps) [C]	$1,100,000	$483,000	44%	5-20 Years
9	Modify northbound approach at I-280 southbound and Sneath Lane to include left-turn pocket, through lane, and free right turn [C]	$3,000,000	$1,319,000	44%	5-20 Years
10	Implement a bicycle and pedestrian wayfinding system with directions and travel time estimates to BART, Caltrain, and Downtown [5]	$200,000	$200,000	100%	Concurrent with adjacent development
11	Implement pedestrian crossing improvements at El Camino Real and San Bruno Avenue [4,B]	$1,100,000	$274,000	25%	Concurrent with San Bruno Avenue improvements
12	Install a westbound right-turn pocket at San Bruno Avenue and Cherry Avenue [8,C]	$1,500,000	$659,000	44%	Evaluate prior to beginning each Phase of development
13	Conduct public parking and curbside loading survey and use results to re-evaluate parking supply and configuration [5]	$280,000	$280,000	100%	Every three years upon completion of Phase I

Table 7-1: Project-Wide Public Facility Cost Estimates [cont]

Cost Item[1]		Estimated Project Cost	Bayhill Specific Plan Share		Timeframe/Phasing
			Amount	%	
14	Install marked pedestrian crossing with flashing pedestrian beacon at San Bruno Avenue and Acacia Avenue	$500,000	$220,000	44%	Contingent on construction of Civic Use
Subtotal		*$17,060,000*	*$8,369,400*	*49%*	
Water Supply					
15	Buried water tank at Commodore Park [9]	$20,000,000	$4,420,000	22%	1-5 Years
Stormwater					
16	Parallel 72-inch storm drain pipeline within 30 foot wide easement [10]	$5,400,000	$0	0%	Concurrent with development
Grand Total (Rounded to the nearest 10,000)		**$42,460,000**	**$12,790,000**	**30%**	

A. EIR mitigation measure

B. Improvements assumed to be implemented by the EIR

C. Project would address a near-term or long-term LOS inconsistency with the San Bruno General Plan.

Notes:

1. Excludes improvements, including within the public right-of-way, paid for by the developer as part of their project, conditions of approval, or required on-site facilities.
2. Transportation project cost allocations are based on trip generation numbers. Unless footnoted otherwise, the transportation project is necessitated as a result of the growth from the Specific Plan adoption and/or serves and benefits the Specific Plan area. The Bayhill Specific Plan Share is its share relative to the projected Citywide new development growth (44% of Estimated Project Cost).
3. Cost allocation based on growth in vehicle trips at intersection divided by total intersection trips at build-out.
4. The transportation project is listed in the City's Walk 'n' Bike Plan (2016). The Bayhill Specific Plan Share is its share relative to the projected Citywide new development growth and existing City users, with greater benefit being provided to the Bayhill Office Park due to the proximity of the improvements (25% of Estimated Project Cost).
5. The full costs are allocated to Planning Area growth because it is the primary beneficiary of the project.
6. Create a bicycle boulevard on repaved Euclid Avenue with bicycle ramps and crossing to future Huntington cycle track; high-visibility crosswalks and bulbouts along San Bruno Avenue at all intersections currently missing these treatments.
7. Represents mid-point cost estimate of two solutions: (1) a traffic signal and (2) a pedestrian hybrid beacon (PHB) signal.
8. Cost for acquisition of a portion of private property is based on a May 2019 appraisal of a parcel near Caltrain.
9. The Bayhill Specific Plan Share is its share relative to the projected Citywide new development growth and existing City users (25.5% of the Estimated Project Cost). The Bayhill Plan contribution to the larger water tank has been adjusted down (22.1%) to account for the fair share payment of the smaller water tank in the Citywide Development Impact Fee.
10. The developers are not required to contribute to the stormwater project because the improvement addresses an existing deficiency in the storm drainage system. A 30 feet wide easement shall be provided along the alignment of the storm drain pipeline if the existing or realigned storm drain pipe remains at 72-inches. The easement width may be reduced to 20 feet along the alignment if the developer constructs a single larger conveyance pipe at the City determined required capacity.

EXISTING CITY TAXES, FEES, CHARGES AND RELATED REQUIREMENTS

Planning Area developers and tenants will be responsible for paying all existing City taxes, fees and charges, including sales and business license taxes, the Citywide Development Impact Fees, and various utility fees and charges, among others. Some of the revenue generated from these sources may help pay developers' financial obligations associated with Planning Area infrastructure improvements and/or service or maintenance requirements. In addition, these existing obligations or requirements may be updated over time to reflect changes in delivery costs and other factors.

Currently the property and businesses located in the Planning Area generate substantial property, retail sales and business license tax revenue for the City's General Fund, the primary funding source for on-going public service costs Citywide and within the Planning Area. During and after the build-out of the Specific Plan, these revenues have the potential to increase substantially, both as a result of one-time point-of-sale transactions from new construction projects as well as from the on-going impact of expanded business activity and employment. Accordingly, the City seeks to ensure that the sales and business license taxes attributable to activity within the Planning Area are accurately and fully reported as occurring in the City (rather than another jurisdiction, for example). A Tax Localization Plan can establish tax collection and reporting procedures and protocol to help ensure this outcome, to the extent allowed by law.

MELLO-ROOS COMMUNITY FACILITIES DISTRICTS (CFDS)

California's Mello-Roos Community Facilities Act of 1982 allows for the creation of a special district, often referred to as a Mello Roos District, which is authorized to levy a special tax to finance public facilities and services. A Community Facility District (CFD) may be initiated by the City Council or by property owner petition, and must be approved by a two-thirds majority of either property owners or registered voters (if there are more than 12 registered voters living in the area). A key advantage of a CFD is that it can be used to cover the cost of certain public services as well as certain infrastructure capital improvement, operations, maintenance and replacement costs. It can also be used to secure and cover debt service tax-exempt bonds issued to fund up-front infrastructure such as utilities, transportation, and other one-time improvements needed to serve growth.

CFD special taxes are collected annually with property taxes, and may be prepaid if prepayment provisions are specified in the tax formula. The special tax amount is secured by a special tax lien against the property. While the tax rate is based on a formula that typically takes into account land use type, development intensity, and other factors (but not value), there is no requirement that the tax be apportioned on the basis of how much direct benefit each parcel receives. Among other advantages, this provision also allows flexibility on how to distribute costs among different types of uses in order to reduce burdens on specific classes of development (e.g. retail or hotel).

Within the Bayhill Specific Plan, a Mello-Roos CFD is particularly well suited for the following facilities and services:

- **Public Services and Maintenance CFD:** A maintenance CFD could be formed to cover the cost of maintaining public rights-of-way and associated facilities and improvements within the Planning Area. These facilities may include, without limitation streets, curbs, gutters, sidewalks, and associated lighting and landscaping, public parks and plazas, walls and irrigation or drainage facilities.[2] Maintenance includes replacement, and the creation and funding of a reserve fund to pay for a replacement. A public safety CFD could also be formed to cover any police or fire costs for providing services that exceed the norm of the City as a whole.
- **Public Facilities CFD:** A public facilities CFD could be formed to finance the cost of various on and/or off-site public infrastructure and improvements needed to serve the Specific Plan. This tool could be particularly useful for any up-front improvements such as transportation improvements (e.g. traffic signals, bike-ped facilities) since the revenues can be used to secure tax-exempt bond proceeds. However, CFD debt is usually less appropriate for financing up-front facilities with total costs below $2 - $5 million given issuance and other financing costs.

2 While landscape and lighting maintenance districts (LLMDs) are also used for this purpose, Mello-Roos CFDs have become increasingly popular given the higher level of flexibility related to scope of services, geography, the tax rate and method, and other considerations.

AREA DEVELOPMENT IMPACT FEES

An Area development impact fee is a one-time payment at the time development takes place to cover its fair-share contribution to capital facility needs (they cannot be used for public services or maintenance). Development impact fees can be enacted by the City Council through adoption of an ordinance in a public hearing and do not require a public vote or landowner approval. The fee levels must be based on a "rational nexus": a demonstrated relationship between the fee amount and the impact or demand caused by the development paying the fee.

In the case of the Specific Plan, an Area development impact fee would supplement the existing Citywide Development Impact Fee program but focus more narrowly on infrastructure improvements that primarily serve Bayhill and potentially adjacent areas impacted by the project. Area development impact fees may be especially appropriate for property owners who do not want to participate in a CFD until they are ready to develop. Payments by future developers may be used to partially reimburse property owners who paid up-front costs for facilities or infrastructure needed to facilitate earlier phase development on their property. Developers can also be given the option to finance the fees by entering into a Mello-Roos CFD that pays the fee to the City immediately and then is repaid over time by a tax on the property.

A potential deficiency of development impact fees is that they are typically collected over time as development occurs. To the extent that funding is needed "up front" for a particular facility, the fees may not generate sufficient revenue when they are needed. Another potential problem is that the fees are calculated based on the estimated cost of desired improvements and the amount and timing of development planned. If actual development does not occur when expected, or never occurs, the area will not produce the funding anticipated when the fee amount was set.

DEVELOPER DEDICATIONS, CONTRIBUTIONS, AND EXACTIONS

Under the Subdivision Map Act, developers may be required to dedicate land or make cash payments for public facilities and infrastructure improvements required or affected by their project. Dedications are typically made for road and utility rights-of-way fronting individual properties, park sites, and land for other public facilities directly required by their projects.

In the case of the Specific Plan, developers may be required, as a condition of approval, to provide the right-of-way adjacent to their properties; it is expected that Grundy Lane will be dedicated to the City in Fee Title although other streets within the Planning Area may be in private ownership with dedication of easements. Developers will also be expected to make or fund necessary improvements for street frontage and utilities and development of Greenways.

Additionally, developers may elect to provide dedications or one-time payments for other project infrastructure requirements, improvements, or mitigations in lieu of participation in one or several of the financing mechanisms identified herein, subject to the approval of the City. For example, developers may want to "buy their way out" of required participation in an area CFD. In such cases, the City will determine and approve the terms and conditions associated with such dedications or contributions, if the proposed "buy-out" is feasible.

DEVELOPMENT AGREEMENTS

As described further in Section 7.3, in certain circumstances individual projects may seek to enter into and execute a Development Agreement (DA) with the City as part of meeting the Community Benefit requirement. A DA is a legally binding contract between the City and project applicant (e.g., property owner) that covers the terms and conditions under which a particular project may proceed. Depending on circumstances, another mechanism to bind the parties may be used.

DAs differ from ordinary rezoning decisions or other public approval because, in addition to binding the developer to detailed plans and conditions, they also will commit the City to a specified course of action. In addition, DAs usually incorporate vesting provisions that protect the development entitlement from future regulatory changes by the City. For the Specific Plan, a DA and any amendments would need to be approved by the San Bruno City Council through an ordinance approval process.

A DA provides developers with assurances that the land use entitlements for a project will not be changed in the future during the specified term of the DA. In return for these public considerations and assurances, the developer may make financial commitments beyond those allowed through typical subdivision ordinance dedications and City planning entitlement exactions and/or development impact fees. For projects under the Bayhill Specific Plan, the DA is expected to provide specific information on one-time and on-going financial obligations the City will require of the project applicant.

PROPERTY BUSINESS IMPROVEMENT DISTRICT (BID/PBID)

BIDs or PBIDs can provide funding for both facilities and services sought by property owners and/or tenants within a particular district. PBIDs are typically organized and funded by property owners (and BIDs by tenants) and can be dissolved by them as well. Consequently, BIDs and PBIDs are most appropriate for services or facilities that are over and above those sought or required by the City. Common improvements and services funded by BIDs or PBIDs include streetscape enhancements, "clean and safe" services (e.g. private security), special events and marketing activities, and other local enhancements sought by tenants or property owners.

SUMMARY OF POTENTIAL FUNDING SOURCES AND USES

Table 7-2 presents a matrix linking the infrastructure and public service costs within the Specific Plan to the most applicable funding sources described above. As shown, there are multiple options for funding many of the Specific Plan costs. In addition, funding sources can be combined and/or used to replace others (e.g. "buy-down") over time. The most appropriate funding source(s) will depend on the unique circumstances that apply to individual projects and may evolve over time. In addition, the approach will be guided by the funding policies and implementation actions described on the following pages.

Table 7-2: Potential Funding Sources for Infrastructure and Services within the Specific Plan Area

Potential Funding Mechanism							
Cost Item	**Existing City Fees, Charges, Etc.**	**Area Development Fees**	**Developer Dedications / Exactions**	**Development Agreements**	**Public Facilities CFD**	**Maintenance and Services CFD**	**BID / PBID**
Transportation Facilities	X	X	X	X	X		
Water Supply	X	X	X	X	X		
Wastewater	X	X	X	X	X		
Stormwater	X	X	X	X	X		
CityNet Services (fiber)	X	X	X	X	X		
Landscape and ROW Maintenance				X		X	X
Public Safety Services				X		X	X

Given the amount and type of expected land uses within the Bayhill Specific Plan, build-out will have a transformative effect on the City of San Bruno. These effects will be significant and citywide, touching the economic, social, cultural, physical, and institutional fabric of the entire community. At the same time, the expanded development potential conferred by the Specific Plan will provide significant economic value to participating property owners and developers.

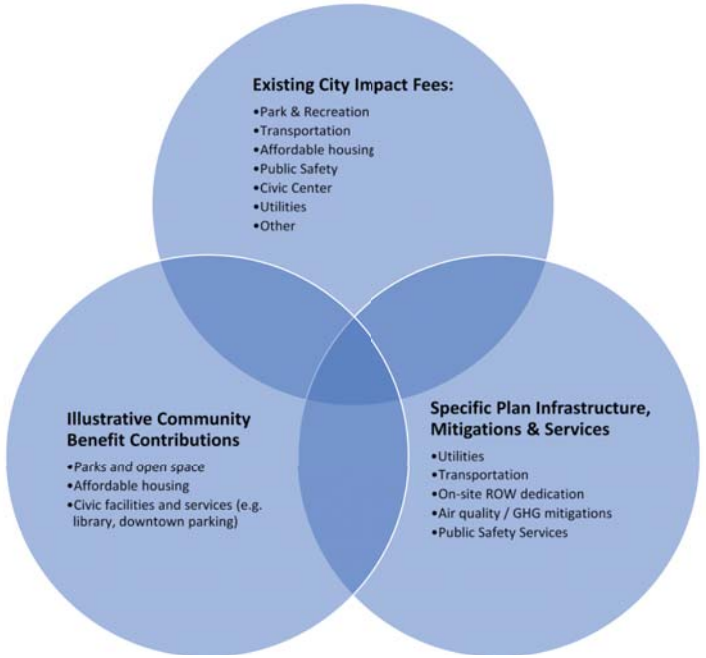
7.3 Community Benefit Program

The Community Benefit Program is designed to ensure that implementation of the Specific Plan will support the provision of public services and facilities, including civic, cultural, recreational, institutional, and others, that benefit the entire City and its residents. It seeks to accomplish this in part by ensuring that the City participates in, or captures, a portion of the economic value created by the development entitlements conferred by the Specific Plan.

While Community Benefits are separate from the infrastructure and public service obligations described in Section 7.2, they are nevertheless related and interdependent. Specific Plan infrastructure and service obligations generally address Planning Area requirements and impacts while Community Benefits are designed to support Citywide needs and goals. For example, development impact fees and other standard City payments or requirements are generally not considered Community Benefits because they are imposed to mitigate the impacts of a project, to provide capital improvements and facilities required to serve that project, and to reimburse the City for resources expended directly in connection with the project development application.

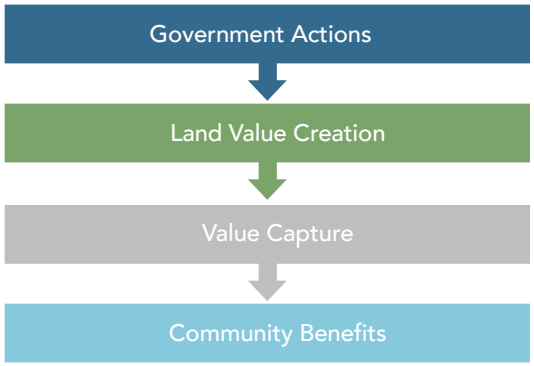
Figure 7-1 provides an illustration of these interrelated categories. The financial viability of real estate development in Bayhill will be affected by the total cost burden created by these separate requirements and they should thus be considered holistically as part of the overall implementation process.

Figure 7-1: Relationship Between Community Benefit Contributions, City Fees, and Other Required Infrastructure / Project Mitigations



Source: Economic and Planning Systems

Content for Community Benefit Program



In recent years, Community Benefit programs and policies have become an increasingly common approach for communities and local jurisdictions to benefit from real estate development. Community Benefit programs are structured around a voluntary exchange in which municipalities offer optional increases in development in return for project features, such as a city-wide park, recreation and civic facilities, funding, and other benefits desired by the community.

Community Benefit programs are premised on the concept of "value capture." Cities and government agencies create real estate value with investments in public facilities and services (e.g., transit and utilities upgrades) as well as through changes to regulations that increase the amount of development potential and/or allow higher value uses. Typically, when the public sector creates value in these ways, landowners enjoy a financial gain in the form of higher land value, which is realized when they sell or develop their land.

The term value capture reflects the situation in which the public sector recovers some of the unearned value that is created through its land use authority. In addition to capturing value, Community Benefit programs are also intended to address some of the indirect and less tangible impacts of development on the quality of life in a community such as increases in overall traffic congestion and the increased use of civic facilities and services.

Successful Community Benefit programs are tailored to be attractive to project proponents by allowing significant amounts of new development and simultaneously advance community goals. Ideally, the public sector and the project proponent share the value created by a project or plan approval. If a development project does not provide any added value to the residents of the jurisdiction where it is to be located, particularly in light of increased concerns related to traffic, affordable housing, and other growth-related impacts, there may be little incentive for elected officials to approve it. Conversely, if the public sector seeks to garner all the value, or to exact more value than is supported by development, it is possible that the project will not move forward.

Recent Community Benefits packages in the Bay Area have included a wide range of contributions, dedications, and payments related to transportation, parks and recreation, civic amenities, schools, affordable housing, and other public priorities. In most cases these benefits have taken the form of one-time infrastructure and capital facilities, but some have also included on-going or programmatic commitments, such as childcare services, project labor agreements, and other obligations.

The type and monetary value of Community Benefit contributions have varied significantly, ranging from relatively low-cost on-site improvements and/or building features to financial obligations that can exceed a hundred million dollars. In addition, the method for arriving at the appropriate level of Community Benefit contributions spans the spectrum from a strict formulaic approach (e.g. specific dollar amounts per square foot of entitlement) to project-by-project negotiated agreements. Consequently, it can be difficult to generalize or make "apples to apples" comparisons of community benefit contributions across projects and through time.

Bayhill Community Benefit Approach

ESTABLISHMENT OF A COMMUNITY BENEFIT PROGRAM

The Bayhill Specific Plan authorizes much more development than allowed under previous zoning for most properties in the Planning Area. Because of this significant increase in permitted development, a property owner and/or developer seeking to take advantage of the increase is required to participate in the Bayhill Community Benefit Program. This requirement will only apply to office and residential projects where the proposed project would exceed the base allocation allowed by the zoning that existing prior to the adoption of the Specific Plan.

The purpose of the Community Benefit Program is to ensure that major new office and residential development projects in the Planning Area advance the community goals of the City of San Bruno as a whole. It is premised on the recognition that build-out of the Bayhill Specific Plan will have transformative and wide-ranging effects on the City. Meanwhile, the land use changes and enhancements enabled by the Plan will contribute to increased real estate values for privately held property. The Community Benefit Program is designed to ensure that the City captures a portion of this value through additional or improved public facilities, services, and related amenities. Retail and hotel uses are not subject to this Community Benefit Program because of the ongoing sales and transit occupancy taxes that they contribute to the City and the services they provide to the San Bruno community as a whole.

DEFINITION OF COMMUNITY BENEFITS

The City of San Bruno will maintain a flexible and broad definition of the type of public facilities, infrastructure, services, or other contributions that might be considered as candidate community benefits sought as part of the Bayhill Specific Plan. This approach is driven by the recognition that community needs in San Bruno will evolve over time due to a variety of factors and are best addressed through Plan implementation (rather than codified in the Plan itself). In addition, the capacity of individual projects to provide Community Benefits may also evolve over time and/or vary based on the unique attributes of individual projects.

While Community Benefit projects may vary through time, the focus is on public facilities, improvements, and/or services that benefit and serve the City as a whole, not just the subject property or Plan Area. Community Benefit contributions must be over and above those required by existing City requirements or policies as part of typical project approvals and/or to mitigate project impacts. Development Impact Fee obligations or improvements needed to mitigate project impacts are not considered Community Benefits.

APPLICATION OF THE COMMUNITY BENEFIT PROGRAM

To ensure that major new development projects allowed by the Bayhill Specific Plan Area participate in the Community Benefit Program, the Plan establishes a two-tiered land use classification:

- **Tier 1**: The existing or "base" level zoning (the amount of development allowed by the existing zoning before the Specific Plan was adopted)
- **Tier 2:** A higher, additional level of development allowed by the Specific Plan that substantially exceeds the development allowed under existing zoning on a parcel before the Specific Plan was adopted.

The Bayhill Specific Plan and supporting documentation (e.g., the EIR required under CEQA) are designed to accommodate the higher level of development envisioned under the second tier. A property owner and/or developer seeking to take advantage of the higher level of office or housing development allowed in this second tier will be required to participate in the Bayhill Community Benefit Program.

Table 7-3 provides an estimate of the office development within the Plan Area that is included in Tier 2 and would be subject to the proposed Community Benefit Program. Most of the Planning Area is currently zoned as Planned Development (PD), though there are a few parcels zoned Community Office. The pre-Specific Plan zoning allows approximately 503,143 square feet of additional new development in the Plan Area as shown on **Table 7-3**. Approximately 1.9 million additional square feet of net new office development would be allowed under the Bayhill Community Benefit Program, or an increase of 92 percent over existing and already-allowed development. All new projects in the Planning Area, including those allowed by existing zoning, will remain subject to prevailing City fees, permits, and other charges levied on new development in the City.

Table 7-3: Office Development Subject to the Community Benefit Program

Development Category	Amount in Square Feet	Tier
Existing Office Development	1,557,847	Tier 1
Additional Office Development Permitted Under Pre Specific Plan Zoning[1]	503,143	Tier 1
Total Small Office Additions[2]	15,000	Exempt
New Office Development Permitted Under Specific Plan Subject to the Community Benefit Program	1,907,604	Tier 2
Total Office Development Allowed at Buildout by the Specific Plan[3]	3,983,594	

Notes:

1. All of the Office Development on parcels 5 and 15 and 175,633 of the office development on parcel 14 is permitted by the pre Specific Plan Zoning.
2. 5,000 SF additions to allow small modifications to existing buildings are allowed in the Land Use Chapter for parcels 3, 6, and 8 and are exempt from the Community Benefit Program.
3. Includes Tier 1, Tier 2, and the Total Small Office Additions shown above.

Table 7-4 on the following page lists the specific parcels and amounts of development subject to the Community Benefit Requirement. For all of these parcels, the Specific Plan allocates new office and residential development beyond the level of development allowed by the pre-Specific Plan zoning.

All but one of the office parcels listed in **Table 7-4** were zoned PD before the Specific Plan was approved. The parcels zoned PD on **Table 7-4** were not permitted any additional office development under pre-Specific Plan zoning beyond the development that currently exists on each parcel. Parcel 14 (999-1001 Bayhill Drive) was zoned Community Office (C-O) prior to Specific Plan adoption and was previously allowed additional office development by that zoning. The development allowed by the C-O zoning on Parcel 14 was significantly less than what the Specific Plan allows on this parcel as shown on **Table 7-4**.

The zoning in effect prior to the adoption of the Specific Plan did not allow any residential uses in the Specific Plan area. Parcels where residential development is permitted by the Specific Plan, Parcels 2 and 3 in the Bayhill Shopping Center and Parcels 4 (801-851 Traeger Avenue) and Parcel 13 (1111 Bayhill Drive), are subject to the Community Benefit Requirement.

FORMULAIC COMMUNITY BENEFIT CALCULATION

Property owners and/or developers subject to the Bayhill Community Benefit program will satisfy their obligations based on a formulaic calculation that is directly tied to the square feet of additional office and/or residential entitlement sought. This calculation method is clear and transparent, which will facilitate implementation, provide the development community with certainty about program costs, and make reporting and auditing of the program straightforward. This approach also allows for the City Council to make coordinated funding decisions for the combined payments of community benefits by multiple projects.

The formulaic community benefit requirements for individual projects are specified in detail in Section 7.4, Funding Policies and Implementation Actions. As described, the formula applies to Tier 2 office and market rate residential development at a rate of $35 and $10 per square foot, respectively. Since the purpose of the Community Benefit Program is to ensure that substantial new office development projects contribute to community goals, the 5,000 square foot small additions allocated to parcels 3,6 and 8 on **Table 2-2** in Chapter 2, *Land Use* are exempt. These small additions were allocated to these parcels to allow for small modifications to the existing buildings since these parcels are not recommended for more intense redevelopment.

Applicants may be allowed to meet part or all of their community benefit obligations through the direct provision of desired facilities or improvements rather than a direct financial contribution, subject

Table 7-4: Parcels Subject to the Community Benefit Requirement for Office and Residential Development

			Community Benefit Requirement Applies	
Parcel Number	**Address**	**Tier 1: Additional Office Development permitted by the zoning prior to the Specific Plan Adoption (sq. ft.)**	**Tier 2: Additional Office Development permitted by the Specific Plan (sq. ft.) sub**	**Additional Residential Dwelling Units permitted by the Specific Plan**
Bayhill Shopping Center				
1	851 Cherry Ave	0	0	210
2	899 Cherry Ave	0	0	
Bayhill General				
4	801-851 Traeger Ave	0	125,000	205
Youtube				
7	1000 Cherry Ave	0	248,000	
9	1100 Grundy Lane	0	328,877	
10	900 Cherry Ave	0	192,000	
11	1150-1250 Bayhill Dr	0	301,476	
12	950 Elm Ave	0	52,568	
13	1111 Bayhill Dr	0	363,863	158
14[1]	999-1001 Bayhill Drive	175,633	115,102	
	Unallocated sq. ft. if used for Office	0	180,718	
Total		**175,633**	**1,907,604**	**573**

Notes:

1. Parcel 14 was allowed 175,633 sq. ft. of office development by Community Office (CO) Zoning prior to the Adoption of the Specific Plan.

Source: City of San Bruno, YouTube, 2020.

to City Council approval. Participating developers will also receive a Community Benefit credit for their financial contributions toward the cost of preparing the Specific Plan that is proportional to the total Tier 2 development that a particular project represents.

Finally, developers can make a formal request to the City to have the Community Benefit contributions for a particular project or phase of development negotiated and defined in a Development Agreement (DA). The City Council would need to approve the DA based on findings that this is the best way to accomplish the overall policy objectives and goals of the Specific Plan.

7.4 Funding Policies and Implementation Actions

The following policies and actions govern the funding of private and public improvements, infrastructure, and public facilities for the Specific Plan. The policies, provided first, guide the subsequent actions including requisite studies or findings, formation and adoption of financing entities and mechanisms, and other approaches, approvals and programs.

7-1: Pay the Full Cost of Improvements and Services. The land uses within the Specific Plan shall pay the full costs of capital facilities and/or infrastructure improvements and services needed to accommodate development within the Planning Area and mitigate their impacts on other parts of the City. To implement this policy, the following actions will be taken:

a. **Establish infrastructure and service costs.** The City will require that a cost analysis be prepared, at the expense of the Applicant, that identifies all infrastructure and public service requirements and their respective costs necessary to serve the Specific Plan area and mitigate its' impacts on other parts of the City. This analysis will be updated periodically or upon initiation of each major phase of development, to ensure the information is based on the best information available. For the first phase of development, the information provided in **Table 7-1** earlier in this chapter shall satisfy the infrastructure requirements of this policy assuming development is initiated prior to 2025. However, the cost estimates in **Table 7-1** may need to be updated as more refined facility and cost data becomes available.

b. **Establish an Area Development Impact Fee Program:** The City will establish an Area Development Impact Fee Program to address the applicable costs identified in **Table 7-1** as it is updated as described in Section 7-1 to fund the expansion of infrastructure and public facilities necessary to serve the area. An Area Development Impact Fee Program will be adopted by the City and paid at the issuance of building permits for any new building space within the Plan Area.[3] The fee will be updated periodically to account for changes in infrastructure needs and costs.

   At the request by property owners and/or developers, the City may consider other financing tools and sources to provide for needed capital improvements and public services, including, without limitation, participation in Public Facilities or Services CFDs, direct financial contributions and dedications, and/or other mechanisms described in this Chapter. These alternative mechanisms may replace and/or supplement Area Development Impact fees, subject to City approval. Development will also be required to pay existing development impact and affordable housing fees and provide additional project or site-based dedications.

c. **Establish Public Right of Way Maintenance Agreement(s):** As a condition of project approval, the City will require that developers and/or property owners execute an Agreement with the City to fund or otherwise provide for the maintenance of all public right of way (ROW) within the Bayhill Plan Area. The Maintenance Agreement(s) will cover all facilities in the public right of way within or adjacent to a particular project, including without limitation, landscaping, lighting, furniture, sidewalks, and median islands. The scope and level of maintenance required will meet City standards as defined in the Agreement.

   The City will seek coordination among Bayhill property owns, to the extent possible, in order to ensure a consistent level of maintenance across the Plan Area. Bayhill property owners will be responsible for establishing the preferred and most appropriate funding and organizational mechanism(s) for meeting their obligations under this policy, subject to City approval. This requirement is consistent with the existing Codes, Covenants and Restrictions that currently apply to most of these properties.

3 Any building permits sought prior to adoption of the Area Impact Fee Program will deposit into an escrow account controlled by the City an amount equal to a preliminary estimate of the fee amount plus 10 percent. The City will refund any overpayment once the Fee Program is finalized (conversely, applicant will be responsible for any underpayment).

d. **Identify Required Land and Facility Dedications and Easements.** Specific Plan implementation will require land for public infrastructure and to meet other policy goals. Accordingly, the City may require developers and/or property owners to provide easements or dedicate land for public right-of-way and make improvements as necessary for public infrastructure and facilities needed to support development (e.g., roads, open space, utility connections).

   The City and property owners shall establish a process, and in some cases designate the approximate amount and preferred location, for necessary land contributions. Some developers may need to "oversize" or advance the construction of public facilities beyond what is required by a particular project (e.g. roadways) to ensure various phases of development stand-alone functionally and aesthetically. The timing and precise terms of land conveyance, whether through dedication, easement, deed restrictions, or other means, may vary depending on the circumstance. Land or facility dedications may be provided in-lieu of certain fee obligations if applicable and approved by the City.

e. **Establish sales and business license tax reporting and collection requirements:** The City will establish a "Tax Localization Plan" as part of conditions of approval that are documented in the conditions of approval and recorded as a Covenant, Condition and Restriction (CC&R), individual Development Agreements or other enforceable agreements to ensure that all commercial activity subject to sales and/or business license tax that occurs within the Planning Area will accrue to the City to the extent allowed by law.

f. **Consider creative and flexible financing solutions.** Such measures could include cost sharing agreements with other benefiting areas, construction and reimbursement agreements with developers, and "pre-payment" or "buy-down" options that increase certainty and avoid interest costs. For example, the City can facilitate mechanisms for future development to reimburse developers who oversize infrastructure or dedicate excess land, possibly as part of an Area Development Impact Fee ordinance or related credit and reimbursement agreements.

g. **Pay all applicable city fees.** New development shall pay all applicable city fees to ensure that all new development is paying the full costs of improvements and services needed to accommodate this development.

7-2: Plan for infrastructure and services with each phase. Development shall occur in a planned manner including provision of adequate infrastructure and services such that each phase stands alone functionally and aesthetically, should subsequent phases not be developed. To implement this policy, the following actions will be taken:

a. **The City shall require that each major phase of development prepare a Development Phasing and Financing Plan for City review and approval.** A major phase is defined as net new development in excess 100,000 square feet or a phase identified by City Staff as having a potentially significant impact on public infrastructure and services. The Development Phasing and Financing Plan shall include a detailed infrastructure and public service schedule for the proposed phase that links the timing of additional infrastructure and service provision to the level demands created by new proposed development. The Plan shall be prepared at the expense of applicants and identify the financing mechanisms and resources necessary to ensure all required infrastructure and public services can be adequately funded.

   The Plan may need to account for changing circumstances (e.g. infrastructure needs or costs), unique project specific requirements (e.g. more or less development in a specific phase than anticipated). For the first phase of development, the information provided to develop the Specific Plan shall satisfy the requirements of this policy assuming development is initiated prior to 2025. The requirement for a Development Phasing and Financing Plan may be satisfied by the terms specified in an approved Development Agreement.

7-3: Require Participation in Bayhill Community Benefit Program. New Tier 2 office and residential projects on parcels listed on **Table 7-4** must participate in the Bayhill Community Benefit Program. The requirements and implementation of the Community Benefit program are described below.

a. **Formulaic Community Benefit Calculation:** The Community Benefit requirements will be calculated on a formulaic basis as follows:

   i. **Tier 2 office projects:** Tier 2 office development will be subject to a Community

Benefit contribution of $35 per square foot of gross building space above the amount allowed under Tier 1 as shown on **Table 7-4**. The $35 per square foot amount will be applicable upon approval of the Specific Plan and subject in an annual escalation based on the Consumer Price Index (CPI).

ii. **Tier 2 residential projects:** Tier 2 market rate residential development will be subject to a Community Benefit contribution of $10 per net square footage of residential floor area. Floor area is calculated based on customary and typical calculation methods for other fees assessed on a per-square-foot basis. The fee will be applicable upon approval of the Specific Plan and subject in an annual escalation based on the CPI.

b. **Exemptions from the Community Benefit Program:** The following types of projects will not be required to participate in the Community Benefit Program:

i. Tier 1 projects – the amount of development allowed by the existing zoning before the Specific Plan was adopted.

ii. Parcels that are not recommended for large scale office redevelopment. **Table 2-2** in Chapter 2, *Land Use*, does not allow large scale redevelopment on parcels 3,6 and 8. The 5,000 square feet that is allocated for small scale building additions on these parcels are exempt.

iii. Small additions to Tier 2 projects no larger than 5,000 net new square feet. The City includes all incremental additions of structures after Specific Plan Adoption as a single addition.

iv. Deed restricted Affordable Housing

v. Commercial (non-office) and hotel development

c. **In-Lieu Community Benefit Contributions:** Applicants may be allowed to meet part or all of their community benefit obligations through the direct provision of desired facilities or improvements rather than a direct financial contribution. The applicant would need to consult with City staff and obtain City Council approval for their proposed community benefit contributions. The approval process would also need to establish a fair monetary value of the proposed contribution to ensure it is equivalent to or better than the formulaic-calculated amount as described above, which may require a third-party assessment of public benefit value.

d. **Community Benefit Credits:** Participating developers will receive a Community Benefit credit for their financial contributions toward the cost of preparing the Specific Plan and EIR. This credit will be provided on a project-by-project basis and calculated as the proportion of the total Tier 2 development in the Specific Plan as shown on **Table 7-4** that a particular project represents. To be eligible for this credit, applicants must provide evidence of financial payments to the City to cover its direct costs for preparing the Bayhill Specific Plan, EIR and / or any other related updates or addendum.

e. **Development Agreement and Community Benefits:** The process for pursuing and executing a DA in conjunction with Community Benefits will include the following:

i. Applicants using the formulaic approach described in Section 7.3 must submit a letter to the City Manager and a Development Agreement Application to initiate a Development Agreement (DA). The letter must describe (1) why a DA is being requested and (2) how any required Community Benefit contributions will be satisfied, including the commitment to pay the applicable formulaic benefit. Additionally, the letter must commit to reimbursing the City for all direct and indirect costs incurred by the City to draft and finalize the DA.

ii. If an applicant seeks to use a Development Agreement to negotiate an alternative Community Benefit Contribution to the Formulaic Community Benefit Calculation described herein, City Council approval will be required to consider an alternative to the Formulaic Community Benefit Calculation and to initiate that DA.

a. To initiate a DA in this case, the Applicant must submit a letter to the City Council that describes why an alternative to the formulaic Community Benefit calculation is the best way to accomplish the overall policy objectives of the Specific Plan. The letter must also commit to reimbursing the City for all direct and indirect costs incurred by the City to consider, draft and finalize the DA.

b. City Council review to proceed with DA negotiations will include an analysis and findings demonstrating that specific community benefits (e.g. affordable housing, community services, open space and recreation amenities) will be achieved under this approach that are unlikely to be achieved under the formulaic approach.

c. The City may seek Third Party validation of any unique circumstances (e.g. financial hardship), claimed by the Applicant.

iii. The City Council will need to approve the DA and any amendments by Ordinance in accordance with State and local regulations. Any DA must be consistent with the Specific Plan. The City Council must find that a DA is the best way to accomplish the overall policy objectives and goals of the Specific Plan, including achieving desired Community Benefits. The City Council will approve the DA concurrently (i.e. at the same time) with any project approvals and/or Specific Plan amendments that are needed to approve development covered by the DA and insure consistency between the Specific Plan and the Development Agreement.

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BAYHILL SPECIFIC PLAN

Appendix

A Figures A1–A30

B Glossary

Figure A-1: Cherry Avenue – Existing Condition Looking South of Bayhill Drive



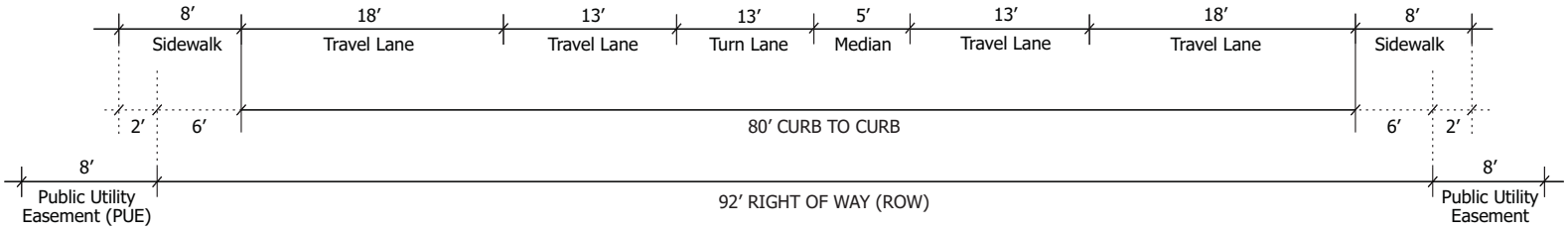
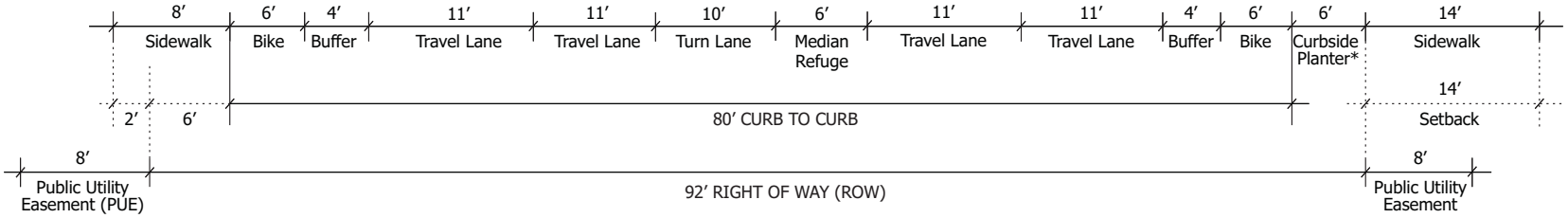


Figure A-2: Cherry Avenue – Streetscape Concept with Buffered Bike Land Looking South of Bayhill Drive





* Stormwater Planter if Applicable

Figure A-3: Cherry Avenue/Grundy Lane – Existing Condition looking South



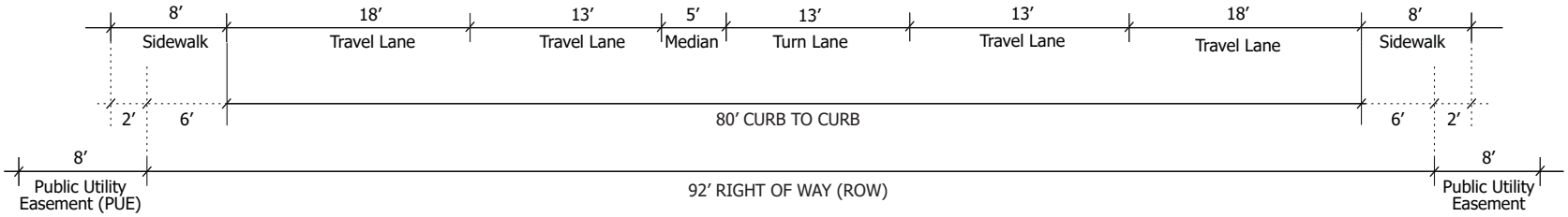
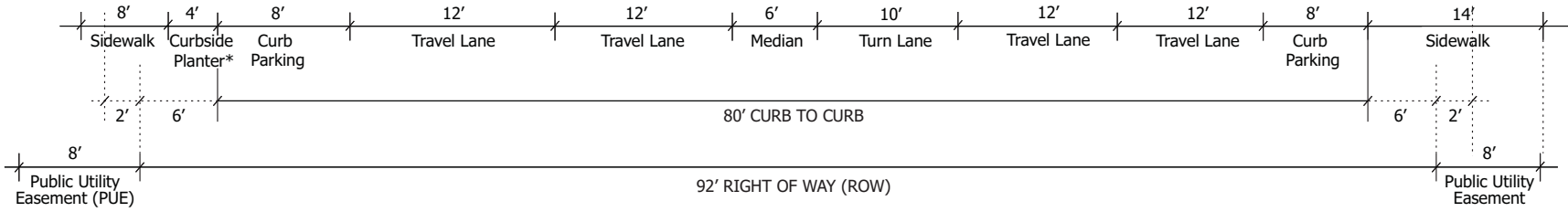


Figure A-4: Cherry Avenue/Grundy Lane – Streetscape Concept with Sharrow looking South





* Stormwater Planter if Applicable

Figure A-5: Cherry Avenue/San Bruno Avenue – Existing Condition looking North

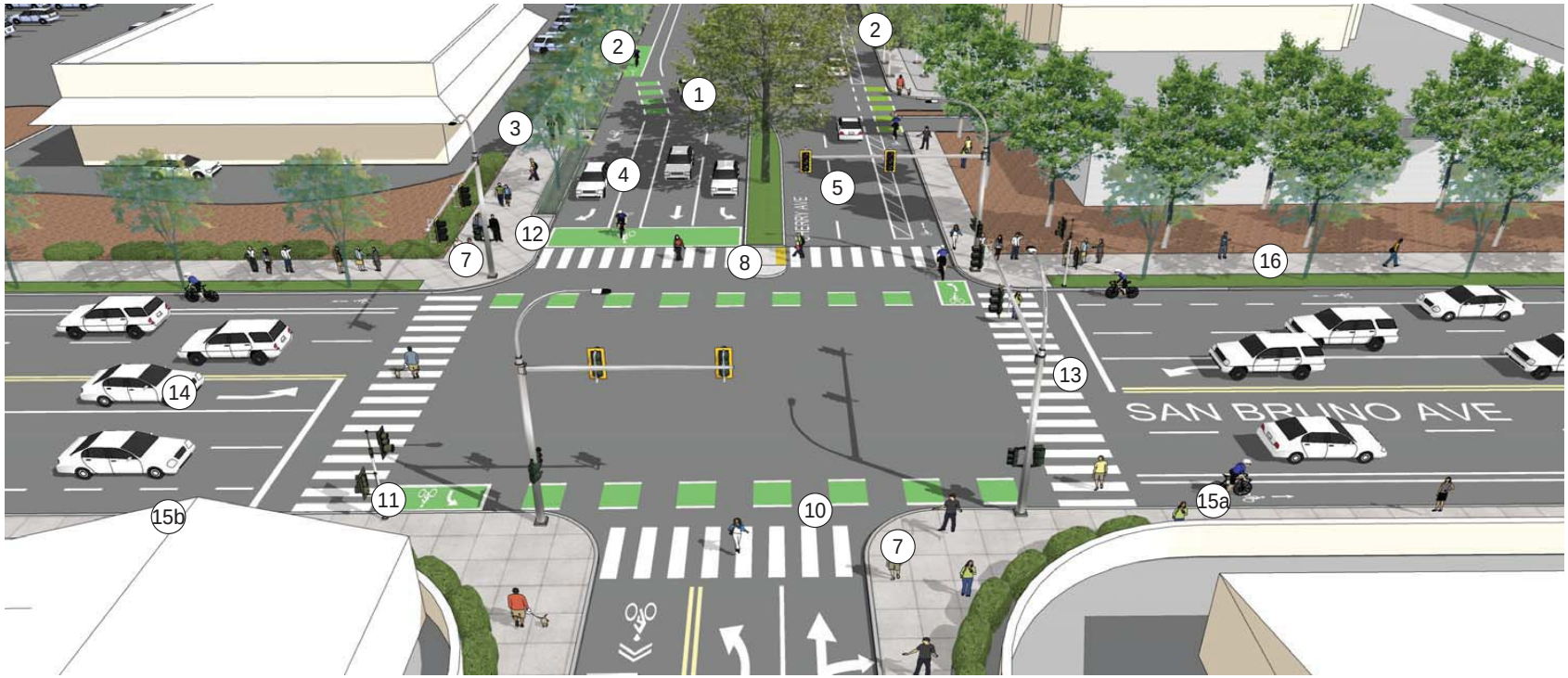


CHERRY AVENUE

South of Bayhill Drive

1. 12'-18'+ travel lanes

Figure A-6: Cherry Avenue/San Bruno Avenue – Proposed Condition Looking North



CHERRY AVENUE

South of Bayhill Drive

1. Travel lanes narrowed to 11'
2. 6' Class II bike lanes
3. 14' sidewalk with 6' stormwater or landscape planter
4. Through bike lane
5. Retain two lanes
6. New Bus shelter (*not shown here*)

INTERSECTIONS

7. Corner curb radii tightened
8. Pedestrian refuges
9. Advance yield lines at mid-block crosswalk (*not shown here*)
10. Bike lane striping extension
11. Two-stage turn queue box
12. Bike box
13. High visibility crosswalks

SAN BRUNO AVENUE

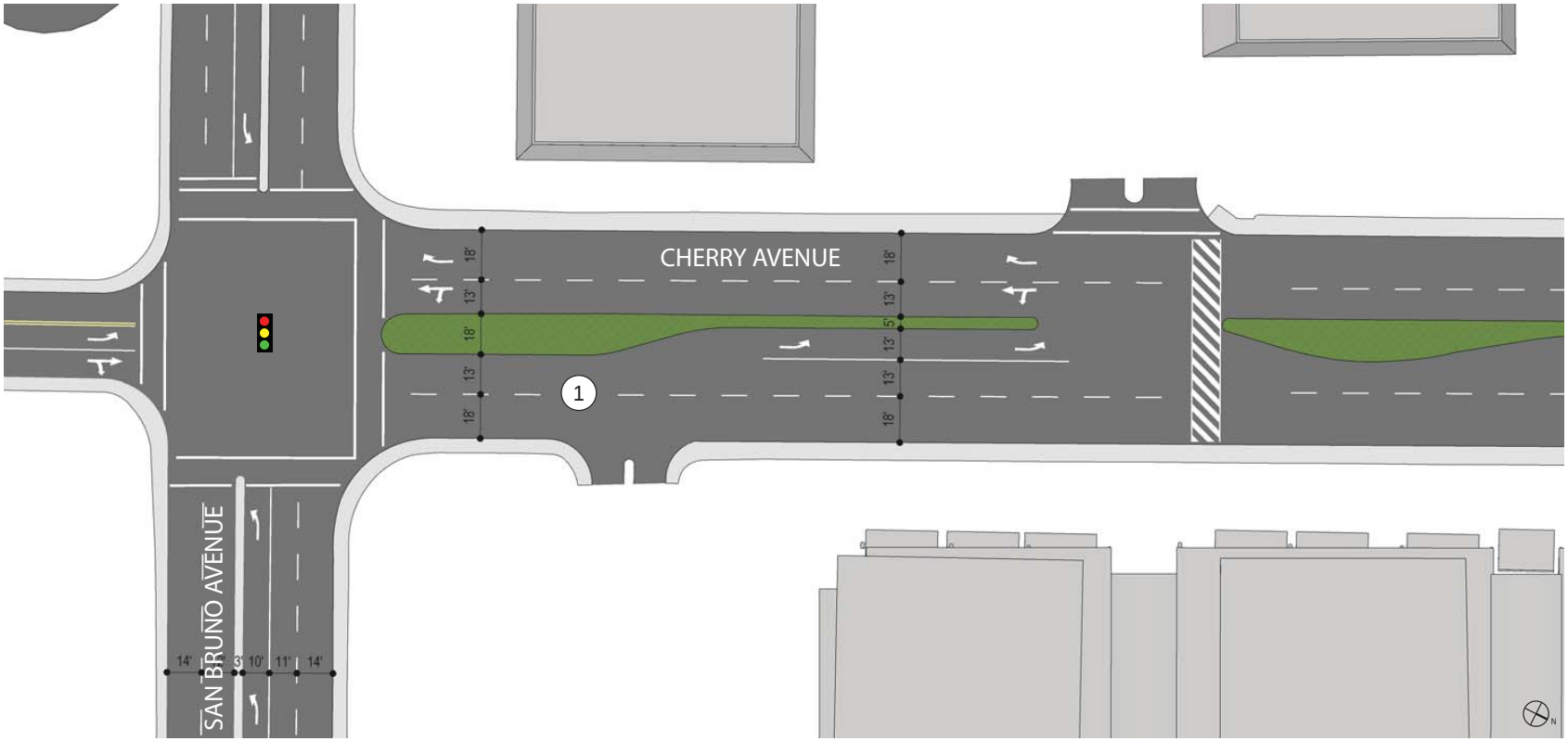
14. Travel lanes narrowed to 11', 10' median/left turn lane

15a. 5.5' bike lanes with 2' buffer

15b. 6' bike lane with no buffer at left turn pockets

16. 10' sidewalk with 6' stormwater or landscape planter (north side)

Figure A-7: Cherry Avenue (South of Bayhill Drive) – Existing



CHERRY AVENUE

South of Bayhill Drive

1. 13'-18'+ travel lanes

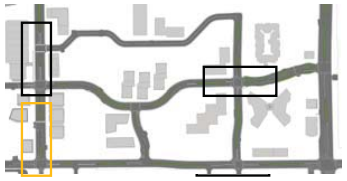
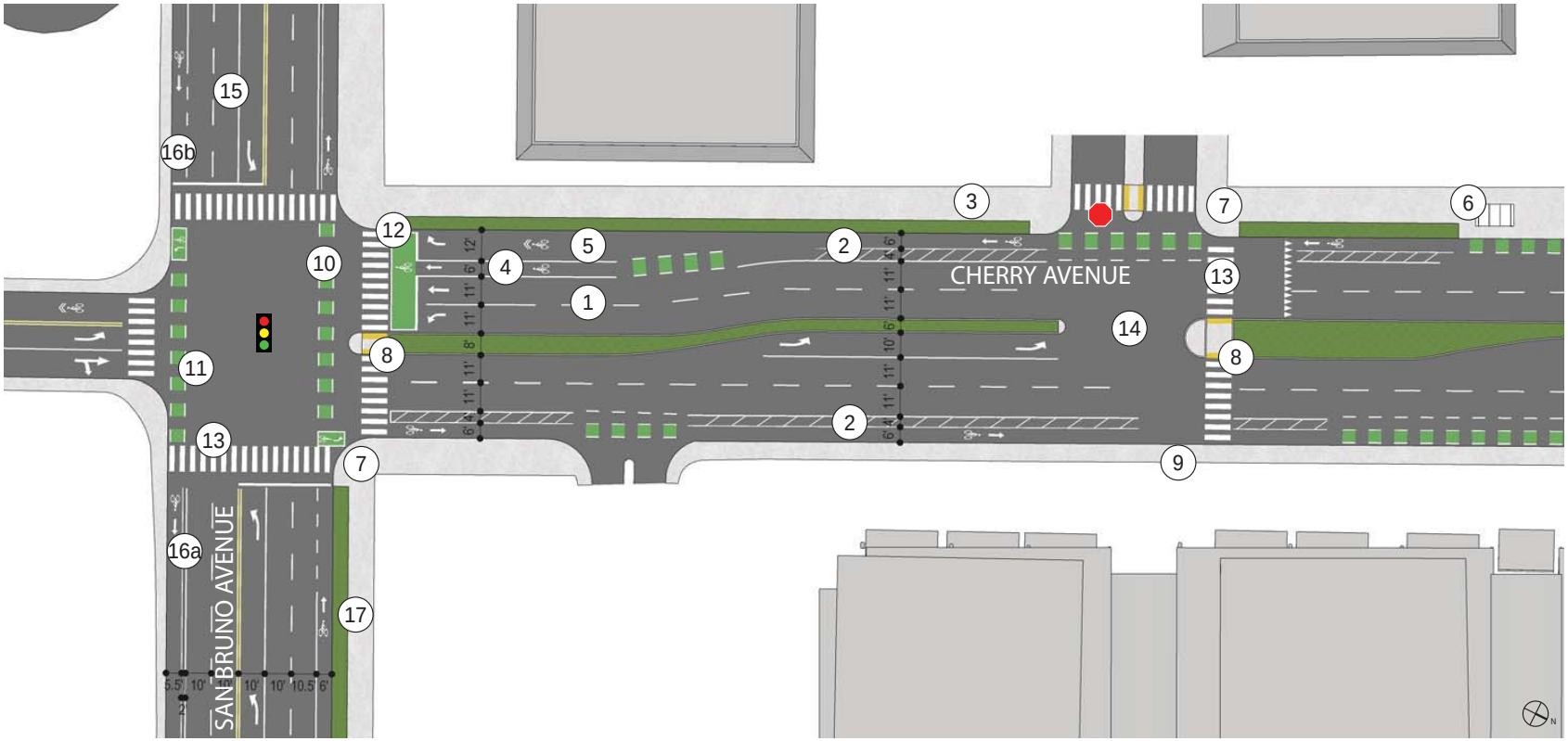


Figure A-8: Cherry Avenue (South of Bayhill Drive) – Proposed



CHERRY AVENUE

South of Bayhill Drive

1. Travel lanes narrowed to 11’
2. 6’ Class II bike lanes with 4’ buffer
3. 14’ sidewalk with 6’ stormwater or landscape planter
4. Through bike lane
5. 12’ right turn lane with sharrow
6. New bus shelter

INTERSECTIONS

7. Corner curb radii tightened
8. Pedestrian refuges
9. Advance yield lines at mid-block crosswalk
10. Bike lane striping extension
11. Two-stage turn queue box
12. Bike box
13. High visibility crosswalks
14. Unsignalized intersection

SAN BRUNO AVENUE

15. Travel lanes narrowed to 11’, 10’ median/left turn lane

16a. 5.5’ bike lanes with 2’ buffer

16b. 6’ bike lane with no buffer at left turn pockets

17. 10’ sidewalk with 6’ stormwater or landscape planter (north side)

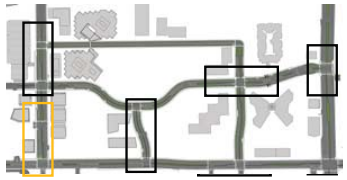
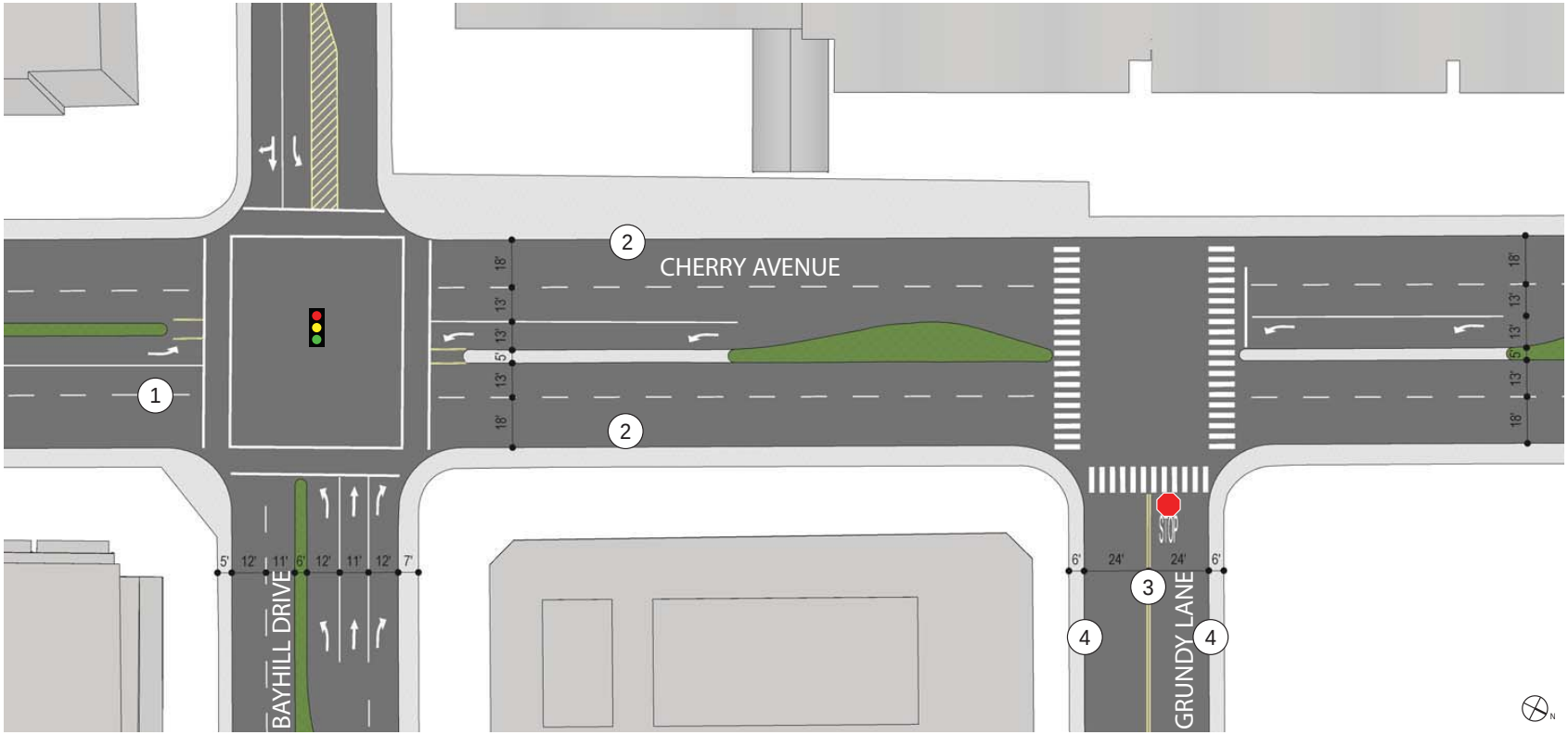


Figure A-9: Cherry Avenue (North of Bayhill Drive) and Grundy Lane – Existing



CHERRY AVENUE

North of Bayhill Drive

1. 13'+ travel lanes
2. Parallel parking

GRUNDY LANE

3. 16' travel lanes
4. Parallel parking (both sides)

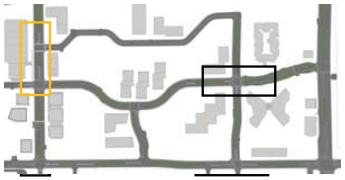
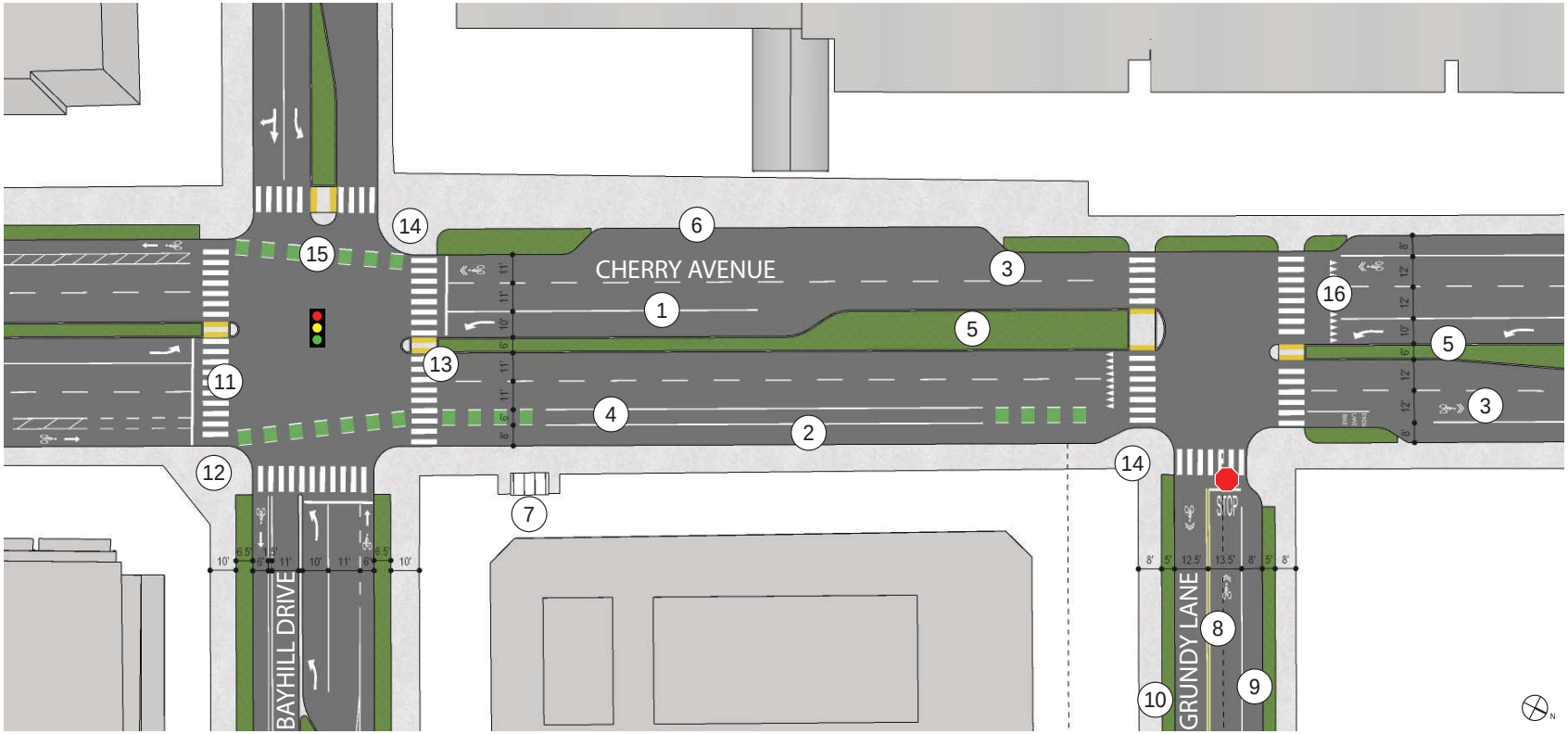


Figure A-10: Cherry Avenue (North of Bayhill Drive) and Grundy Lane – Proposed



CHERRY AVENUE

North of Bayhill Drive

1. Travel lanes narrowed to 11', 10' left turn lanes
2. 8' loading zone and bus stop
3. Sharrow
4. 6' Class II bike lane
5. Widened median
6. Shuttle bus duck-in
7. New bus shelter

GRUNDY LANE

8. 12.5' westbound sharrow, 13.5' eastbound sharrow
9. 8' parking lane (north side)
10. 8' sidewalks with 5' stormwater or landscape planters

INTERSECTIONS

11. High visibility crosswalks
12. Corner curb radii tightened
13. Pedestrian refuges
14. Bulb-outs
15. Bike lane striping extension
16. Advance yield lines

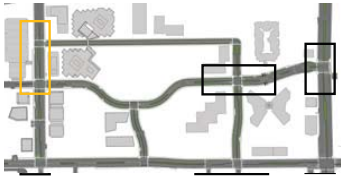


Figure A-11: Bayhill Drive – Existing Condition looking East



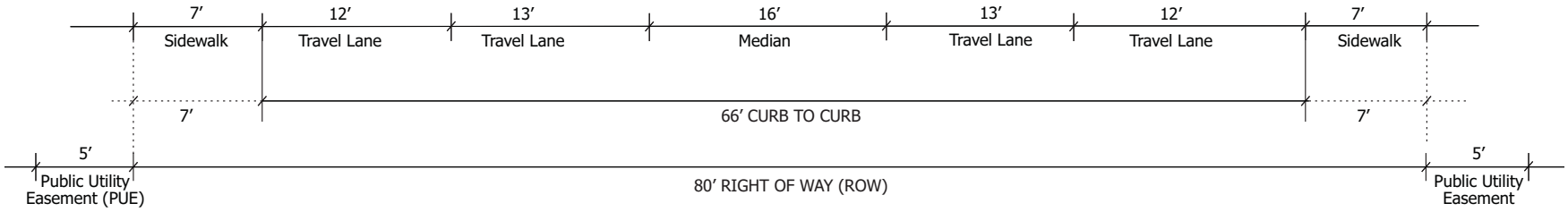
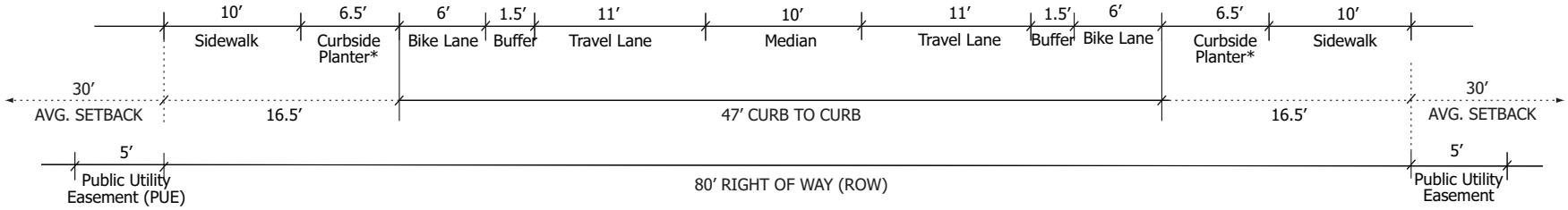


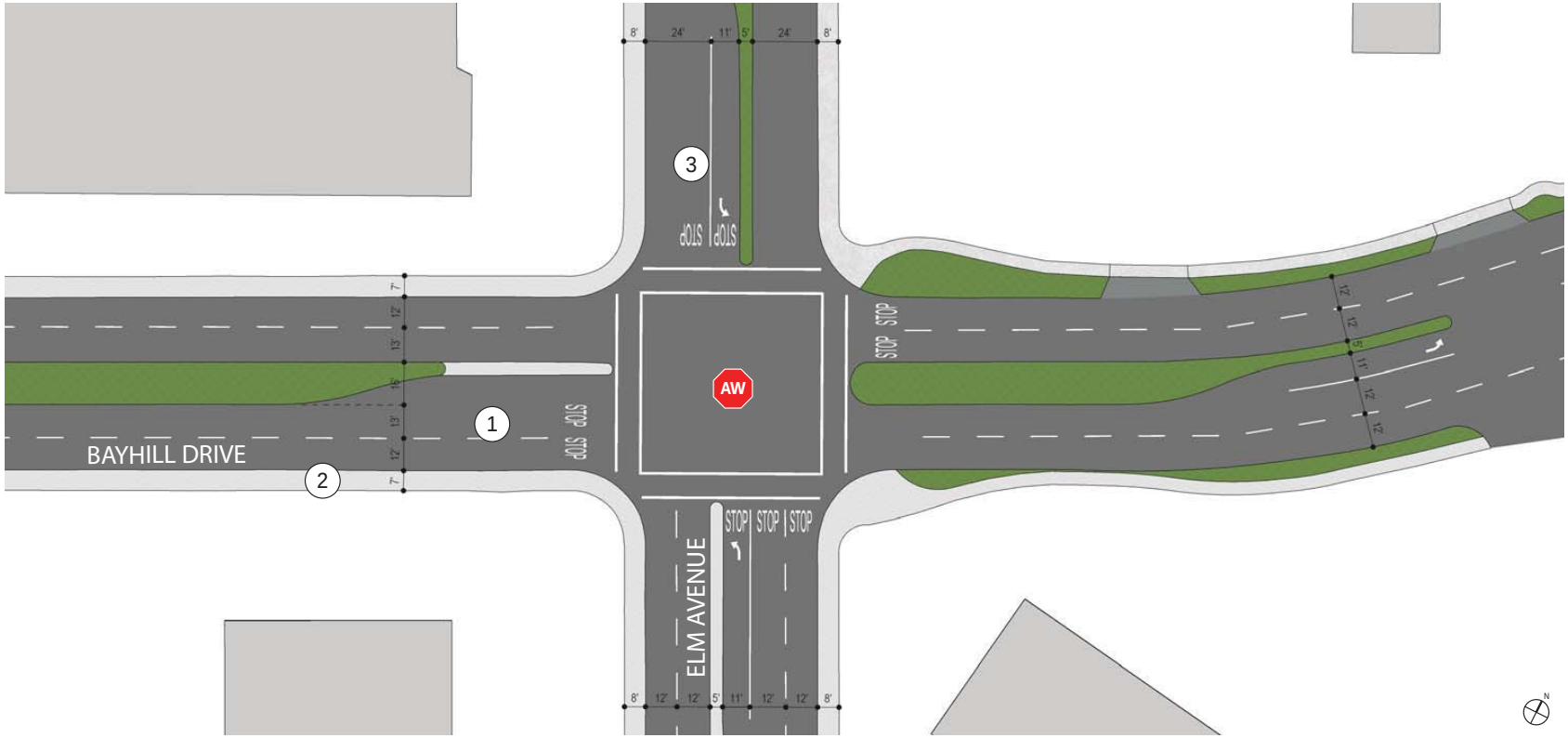
Figure A-12: Bayhill Drive – Streetscape Concept with Buffered Bike Lane looking East





* Stormwater Planter if Applicable

Figure A-13: Bayhill Drive and Elm Avenue – Existing



BAYHILL DRIVE

1. Two 12’ travel lanes in each direction, 16’ median / left turn pocket
2. 8’ sidewalks

ELM AVENUE

North of Bayhill Drive

3. One 20’+ travel lane in each direction, 16’ median/left turn pocket

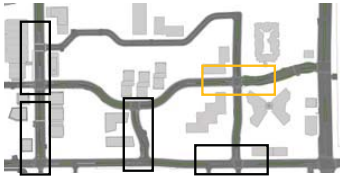
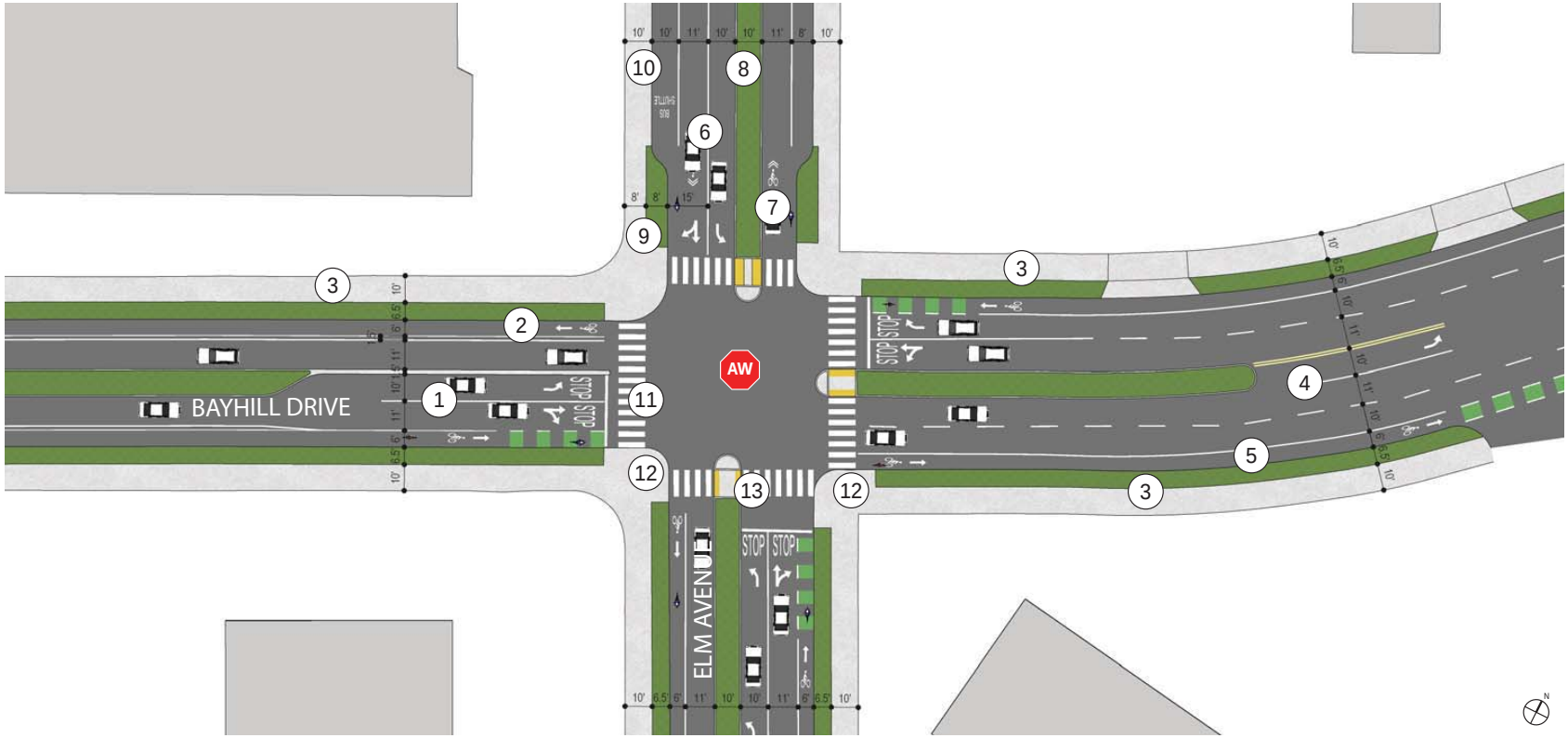


Figure A-14: Bayhill Drive and Elm Avenue – Proposed



BAYHILL DRIVE

West of Elm Avenue

1. One 11’ travel lane in each direction, 10’ median / left turn lane
2. 6’ Class II buffered bike lanes
3. 10’ sidewalks with 6.5’ stormwater or landscape planter

East of Elm Avenue

4. 11’ inner lanes, 10’ outer lanes, 10’ median/left turn lane
5. 6’ Class II bike lanes

ELM AVENUE

North of Bayhill Drive

6. Travel lanes narrowed to 11’, 10’ left turn pocket
7. Sharrows
8. Widened median
9. 8’ sidewalk with 8’ stormwater or landscape planter
10. 10’ shuttle bus duck-in with 10’ sidewalk

INTERSECTIONS

11. High visibility crosswalks
12. Corner curb radii tightened
13. Pedestrian refuges

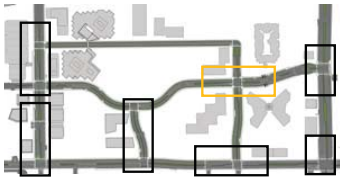


Figure A-15: Grundy Lane – Existing Condition looking East from Cherry Avenue



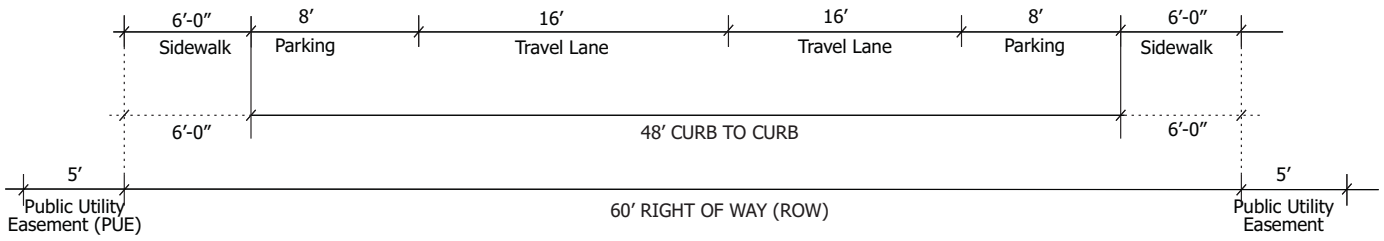
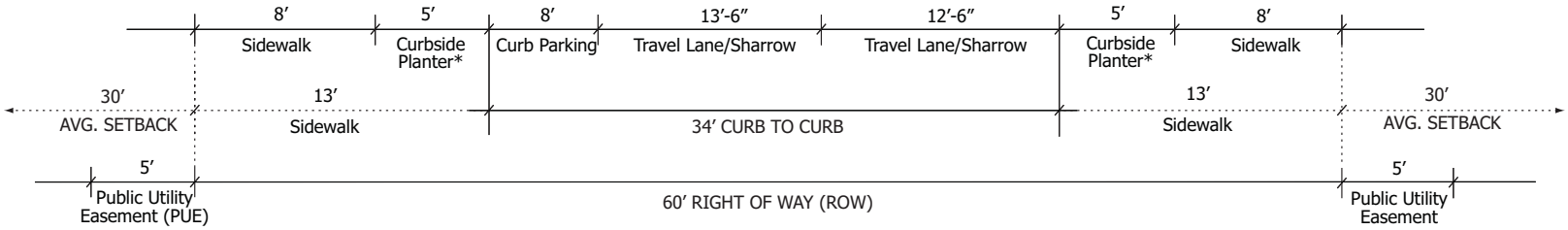


Figure A-16: Grundy Lane – Streetscape Concept with Sharrow looking East from Cherry Avenue





* Stormwater Planter if Applicable

Figure A-17: Traeger Avenue – Existing Condition looking North



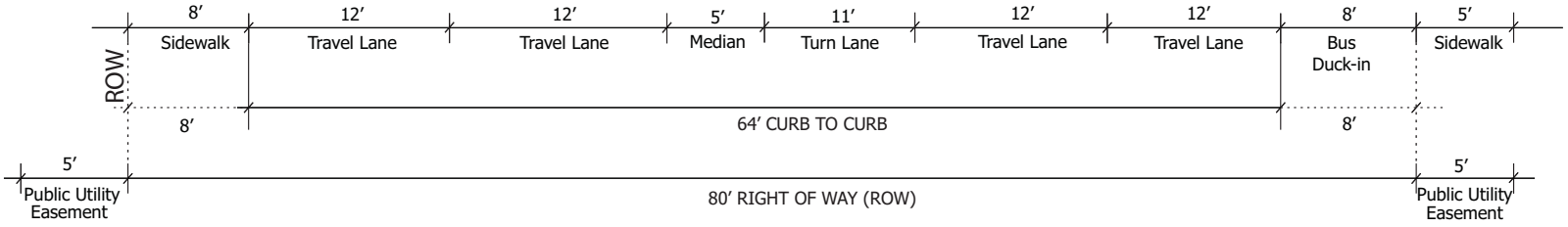
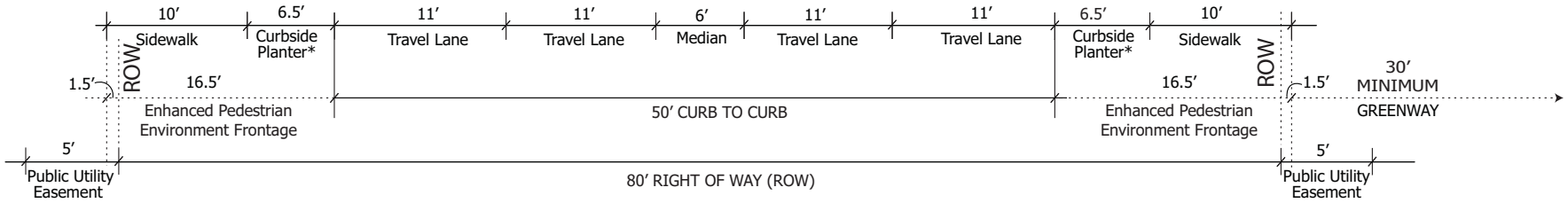


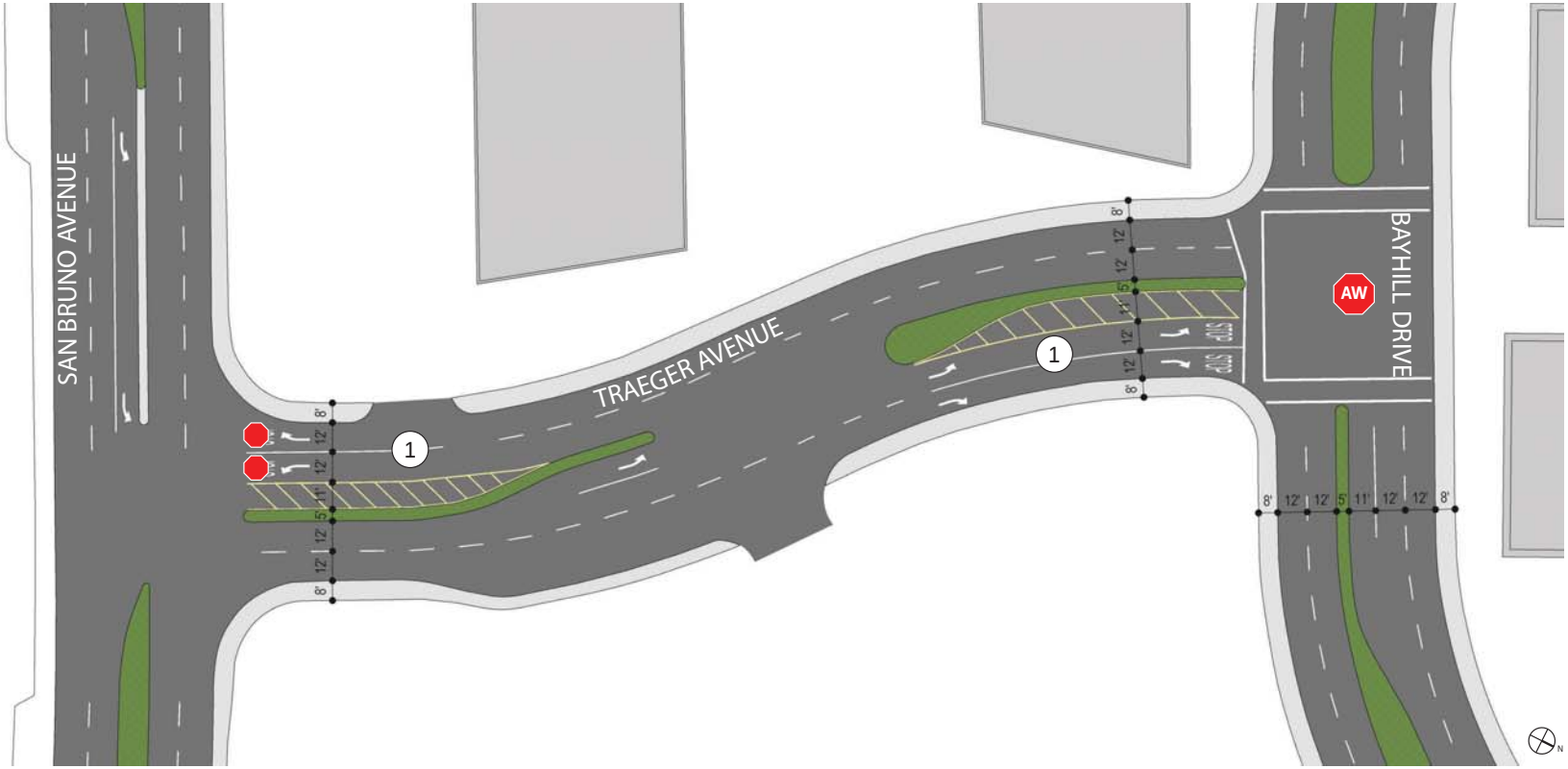
Figure A-18: Traeger Avenue –Streetscape Concept with Sharrow looking North





* Stormwater Planter if Applicable

Figure A-19: Traeger Avenue – Existing



TRAEGER AVENUE

1. 11-12’ travel lanes

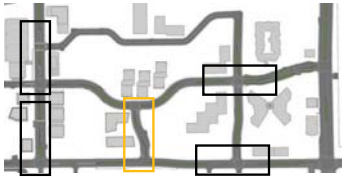
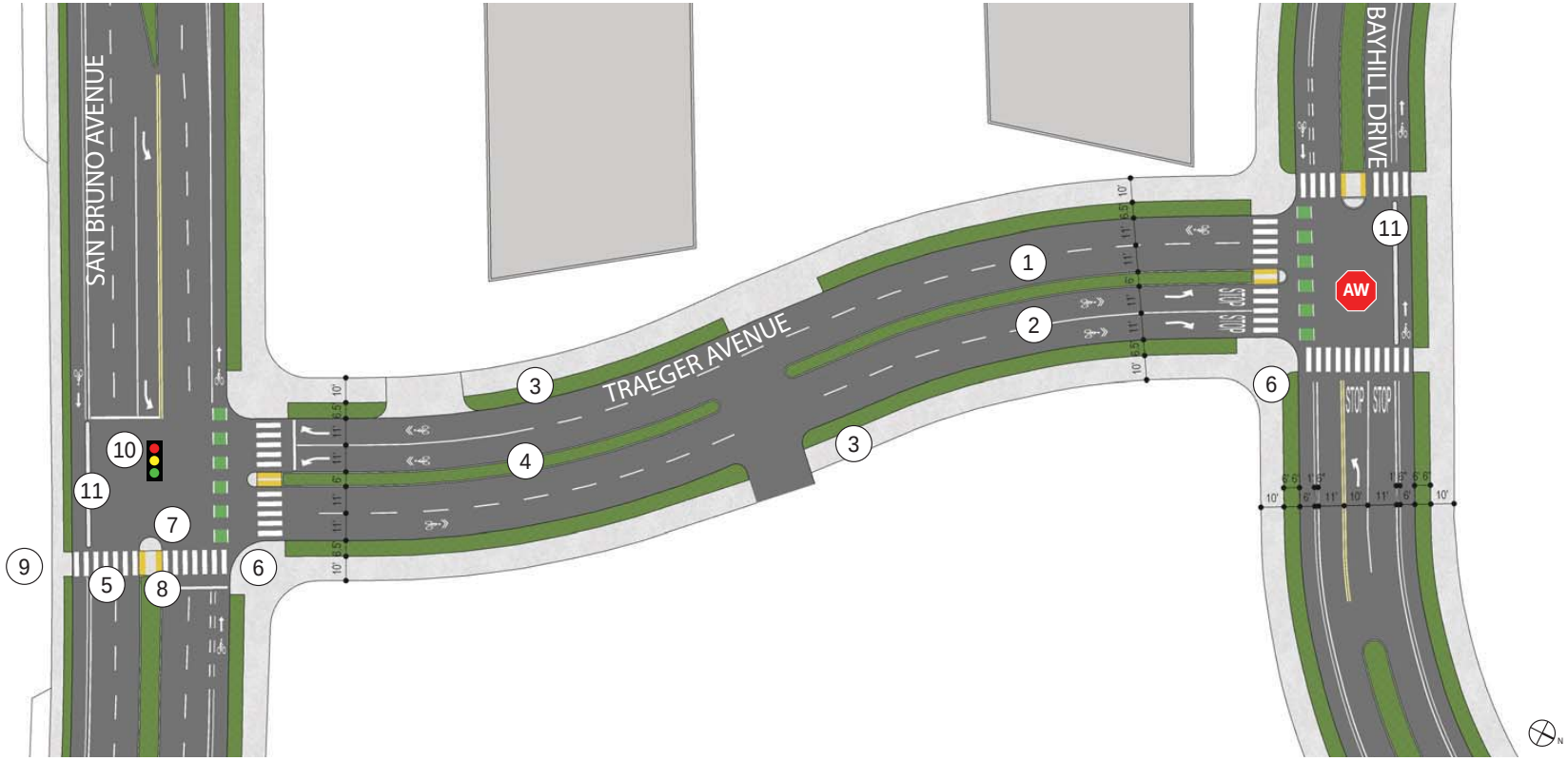


Figure A-20: Traeger Avenue – Proposed



TRAEGER AVENUE

1. 11’ travel lanes
2. Sharrows
3. 10’ sidewalks with 6.5’ stormwater or landscape planter
4. Consistent Medians

INTERSECTIONS

5. High visibility crosswalks
6. Corner curb radii tightened
7. Pedestrian refuge
8. Advance stop lines
9. Pedestrian connection to Peachwood Court
10. New traffic signal
11. Raised median at bike lanes

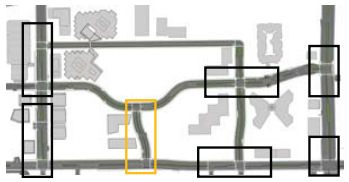


Figure A-21: Elm Avenue – Existing Condition looking North



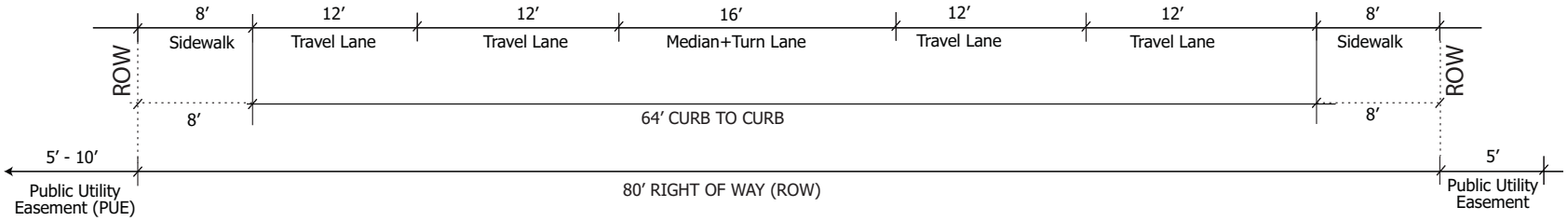
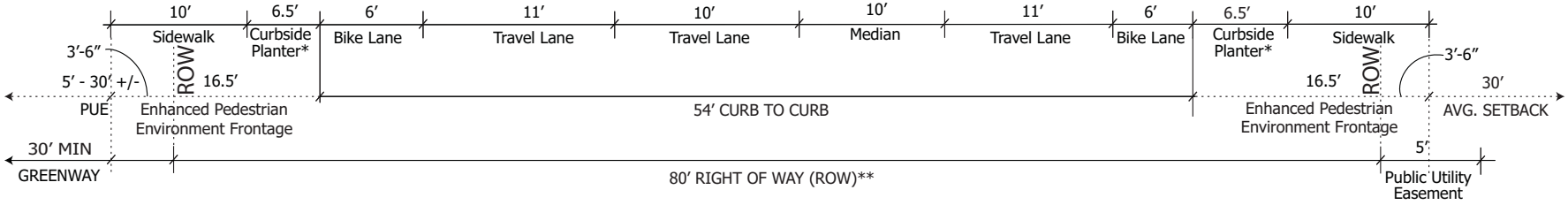


Figure A-22: Elm Avenue – Streetscape Concept with Bike Lanes looking North





* Stormwater Planter if Applicable

** Ensure SFPUC-Related Development Review and Consent per Land Use Policy 2-19

Figure A-23: San Bruno Avenue – Existing Condition looking West



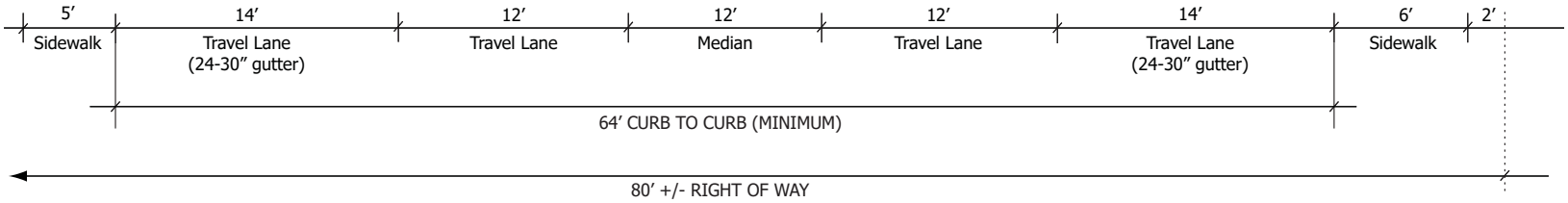
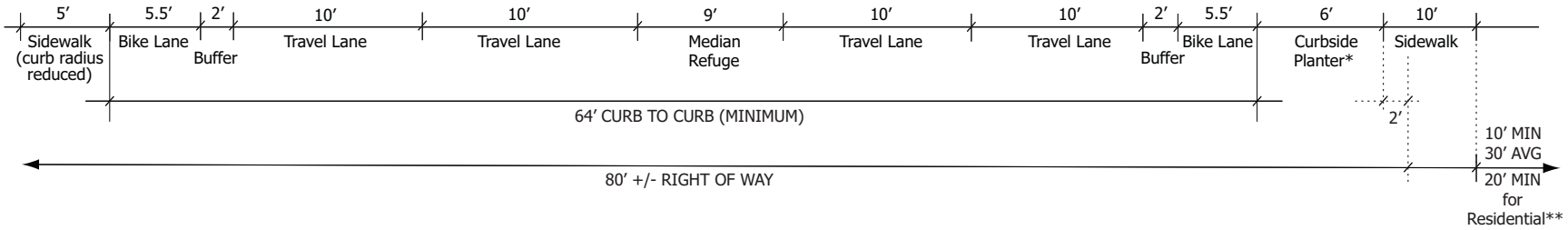


Figure A-24: San Bruno Avenue – Streetscape Concept with Buffered Bike Lane West

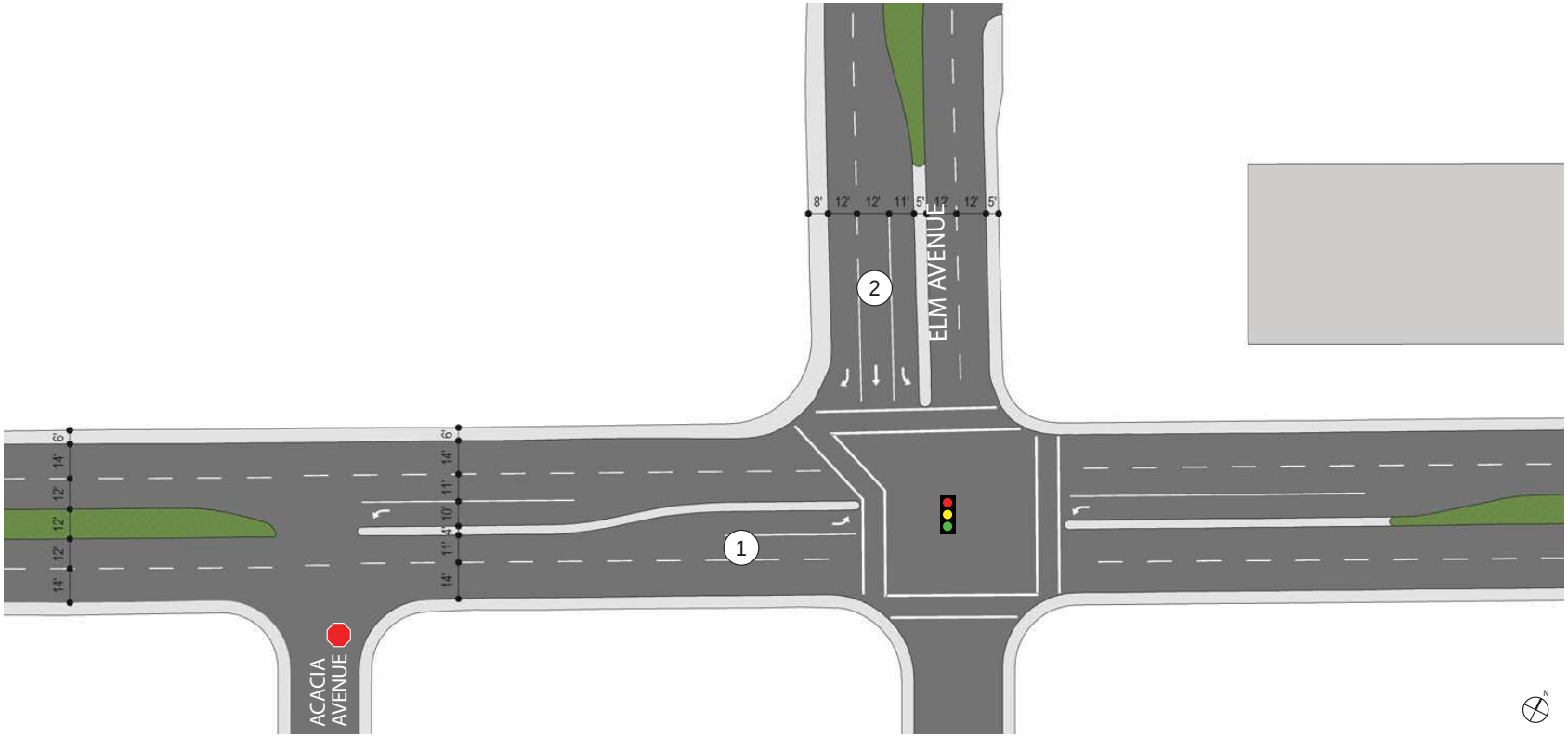




* Stormwater Planter if Applicable

** Potential Residential Use fronting San Bruno Avenue

Figure A-25: San Bruno Avenue and Elm Avenue – Existing



SAN BRUNO AVENUE

1. 12'+ travel lanes, 12' median with left turn pockets

ELM AVENUE

South of Bayhill

2. Two 12' travel lanes in each direction, 16' median/left turn pocket

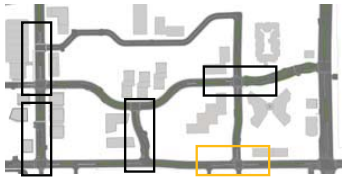
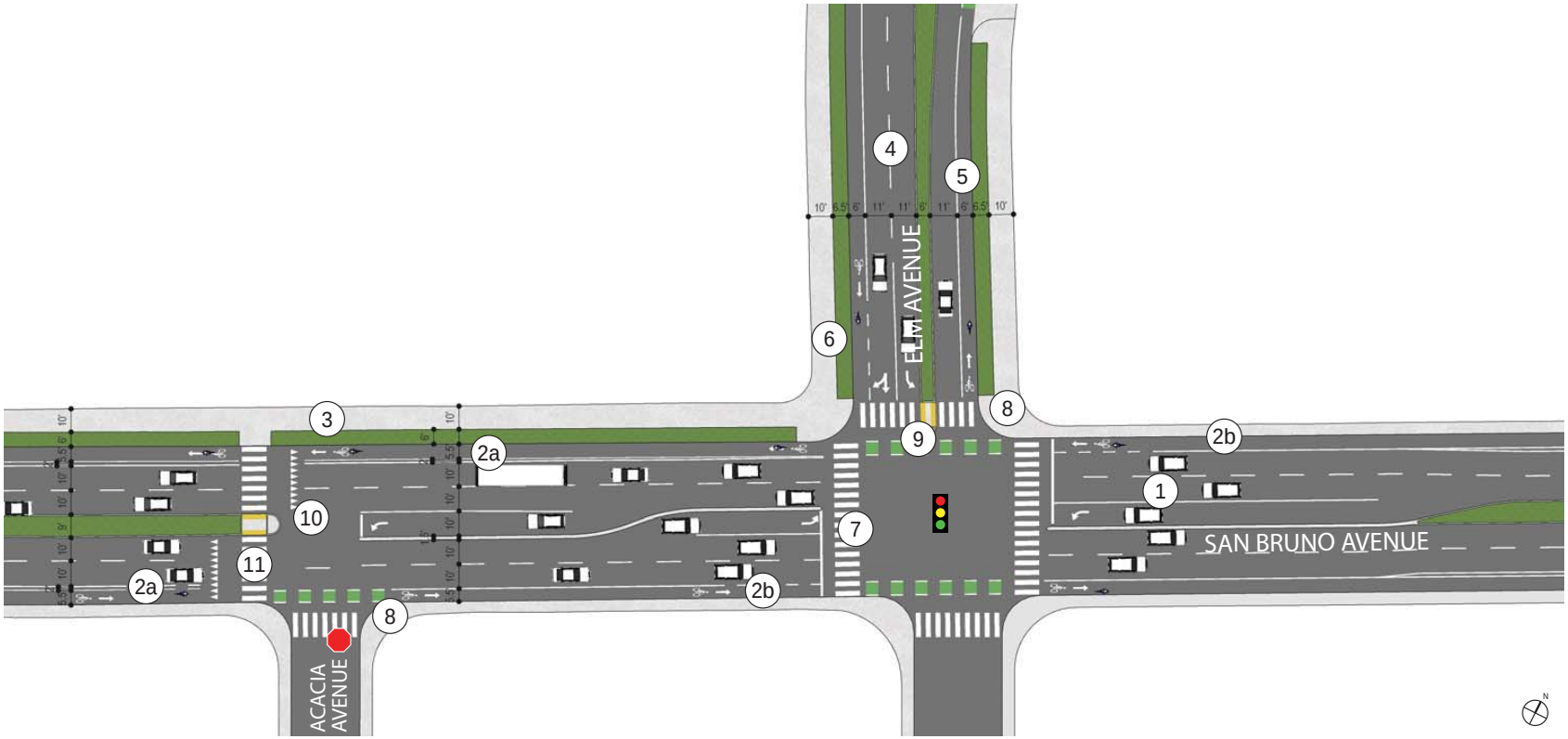


Figure A-26: San Bruno Avenue and Elm Avenue – Proposed



SAN BRUNO AVENUE

1. Travel lanes narrowed to 10', 9' median

2a. 5.5' Class II buffered bike lane, 2' buffer

2b. 5.5' Class II bike lane. No buffer to allow space for left turn pocket

3. 10' sidewalk with 6' stormwater or landscape planter (north side)

ELM AVENUE

South of Bayhill

4 Travel lanes narrowed to 11'

5. 6' Class II bike lane

6. 8' sidewalks with 10' stormwater or landscape planter

INTERSECTIONS

7. High visibility crosswalks
8. Corner curb radii tightened
9. Pedestrian refuges
10. Advance pedestrian yield lines
11. Only provide pedestrian crossing at Acacia Avenue if Civic Use is built.

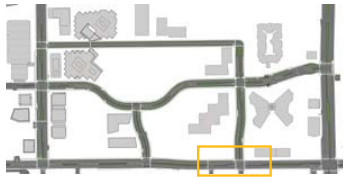
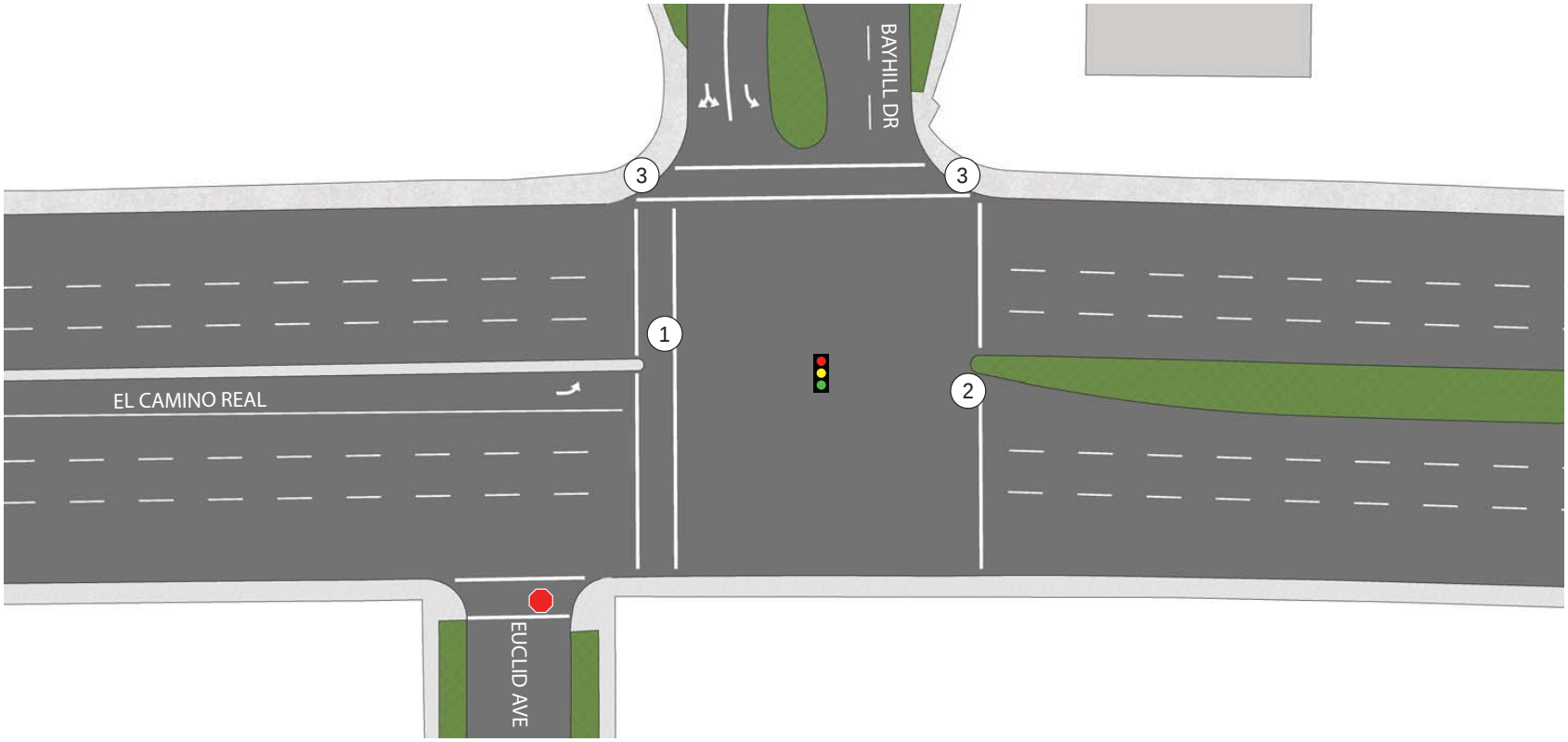


Figure A-27: El Camino Real and Euclid Avenue / Bayhill Drive – Existing



INTERSECTION

1. Long/No crosswalks without ped refuges
2. No crosswalk north of intersection
3. Wide corner curb radii

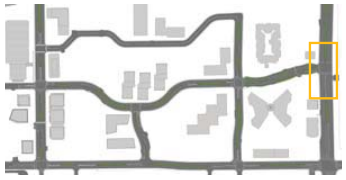
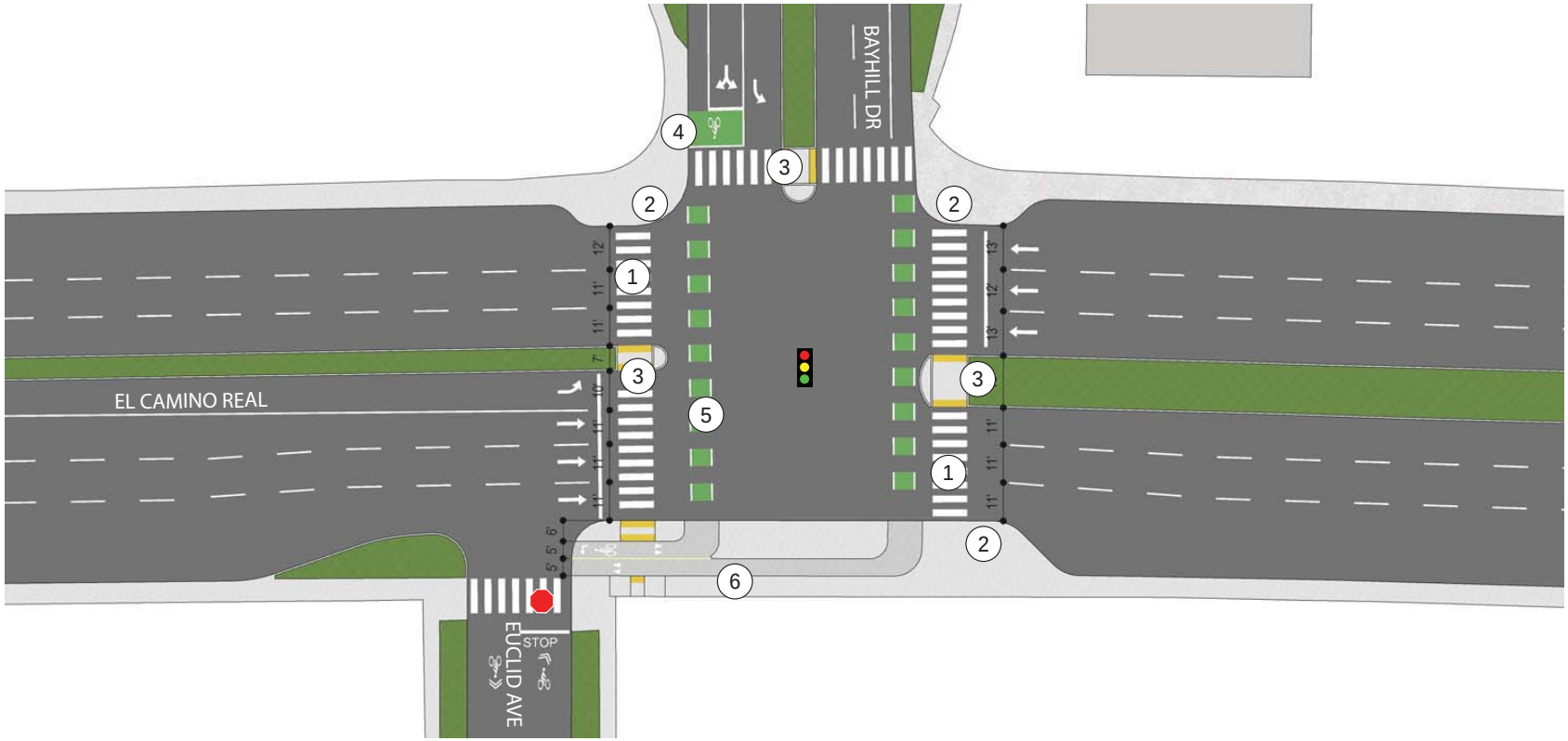


Figure A-28: El Camino Real and Euclid Avenue / Bayhill Drive – Proposed



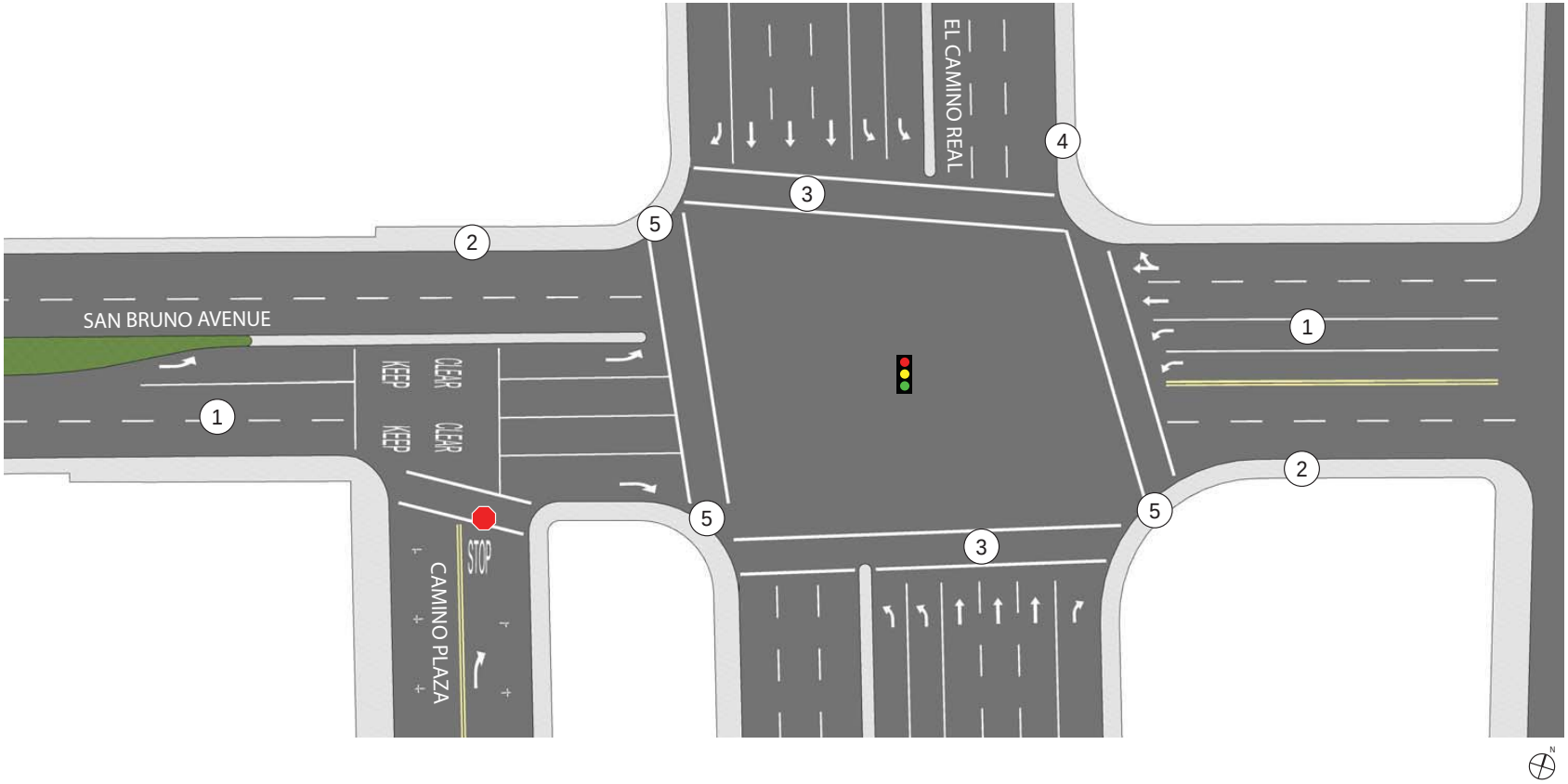
INTERSECTION

1. High visibility crosswalks
2. Bulb-outs
3. Pedestrian refuges
4. Bike box
5. Bike lane striping extension
6. Two-way cycle track to connect offset intersection

** Additional engineering studies required. Consider prohibiting westbound right turn from Euclid Avenue or modifying traffic signal at El Camino Real and Byahill Drive to include Euclid Avenue to address conflict from vehicles turning from Euclid Avenue and the partial cycle track*



Figure A-29: El Camino Real and San Bruno Avenue – Existing



SAN BRUNO AVENUE

1. 12'+ travel lanes, 12' median with left turn pockets
2. 8' sidewalks

INTERSECTION

West of San Bruno Ave

3. Long crosswalks with no ped refuges
4. > 8' Sidewalks
5. Wide corner curb radii

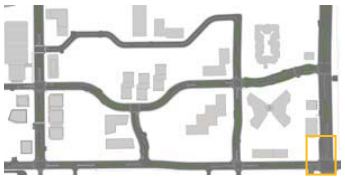
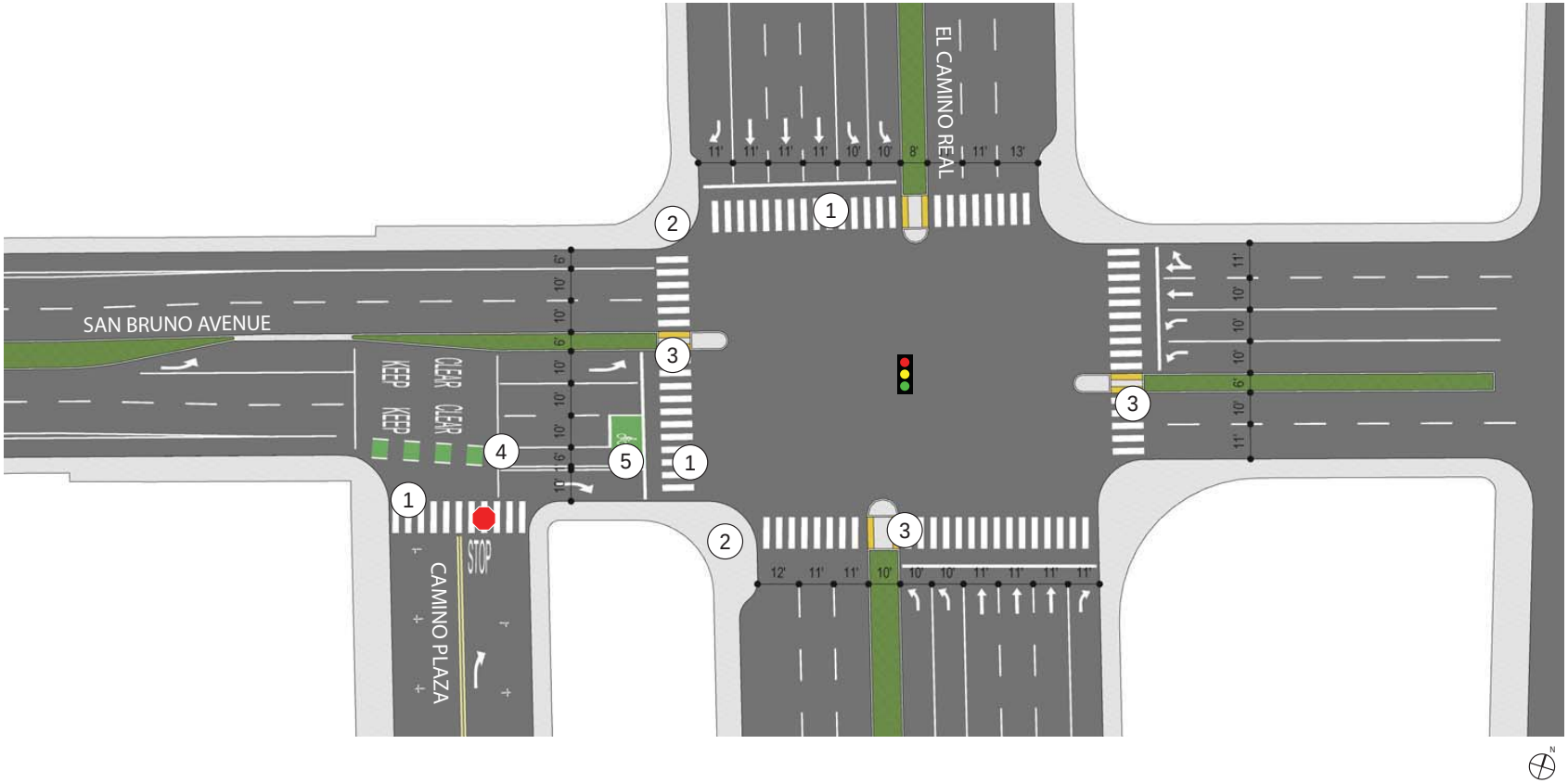
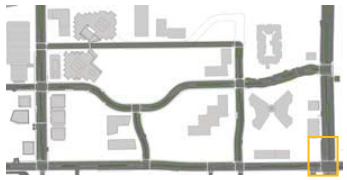


Figure A-30: El Camino Real and San Bruno Avenue – Proposed



INTERSECTION

1. High visibility crosswalks
2. Bulb-outs
3. Pedestrian refuges
4. Through Bike lane
5. Bike box



Glossary

Acronyms and Abbreviations

ABAG – Association of Bay Area Governments

AD – Assessment District

ADA – Americans with Disabilities Act

AF – Acre foot

AFY – Acre-feet per year

ALUCP – Airport Land Use Compatibility Plan for the Environs of the San Francisco International Airport

AMP – Archaeological Monitoring Plan

APN – Assessors Parcel Number

ARB – Air Resource Board

ASES – After School Education & Safety Grants

BAAQMD – Bay Area Air Quality Management District

BART – Bay Area Rapid Transit

BAWSCA – Bay Area Water Supply and Conservation Agency

bgs - below ground surface

BID – Business improvement district

BMU – Bayhill Mixed-Use Overlay

BNC – Bayhill Neighborhood Commercial

BR – Bayhill Residential Overlay

BRO – Bayhill Regional Office

C/CAG – City/County Association of Governments of San Mateo County

CA MUTCD - California Manual on Uniform Traffic Control Devices

CARB – California Air Resources Board

CBA – Community Benefits Agreement

CBSC – California Building Standard Commission

CEQA – California Environmental Quality Act

CFD – Community Facilities District

CH_4 – Methane

CIP – Capital Improvement Program

CNEL – Community Noise Equivalent Level

CMP – Construction Management Plan or Congestion Management Program

CO – Carbon monoxide

CPTED – Crime Prevention Through Environmental Design, a collection of principles and concepts which enhance safety and security through design strategies involving natural surveillance, natural access control, territorial reinforcement, and maintenance and management

CRHR – California Register of Historical Places

CUP - Conditional Use Permit

DA – Development Agreement

dB – Decibel, logarithmic unit used to measure sound level, a ratio

DBA – The "A-weighted" scale for measuring sound in decibels

DIF – Development Impact Fee

DOF – Department of Finance

DPM – Diesel Particulate Matter

EIFS – Exterior Insulation Finishing System

EIR – Environmental Impact Report

EPA – Environmental Protection Agency

ESA – Environmental Site Assessment

FAR – Floor Area Ratio

GFRC – Glass fiber reinforced concrete

GHG – Greenhouse gas

GPM – Gallons per Minute

GPP – Groundwater Protection Program

GSR – Groundwater Storage and Recovery

HFC – Hydrofluorocarbons

HRA – Health risk assessment

HVAC – Heating, ventilation, air conditioning

I - Interstate

JPA – Joint Powers Authority

LCAP – Local Control Accountability Plan

LCFF – Local Control Funding Formula

Ldn – Day-Night Average Sound Level

LEED – Leadership in Energy and Environmental Design

LID – Low Impact Development

LLMDs – Landscaping and Lighting Maintenance Districts

LOS – Level of Service, a qualitative metric that indicates the relative traffic flow quality and delay experienced by individual drivers

LUST – Leaking Underground Storage Tank

MGD – Million gallons per day

MTC – Metropolitan Transportation Commission

MWELO – Model Water Efficient Landscape Ordinance

N2O – Nitrous oxide

NAVD88 – North American Vertical Datum of 1988

NO2 – Nitrogen dioxide

NPDES – National Pollutant Discharge Elimination System

O.D. – Outside Diameter

Pb – Lead

PBID - Property Business Improvement District

PCE – Tetrachoroethylene

PDA – Priority Development Area

PFCs – Perfluorocarbons

PG&E – Pacific Gas and Electric Company

pH – a measure of hydrogen ion concentration, measure of the acidity or alkalinity of a solution

PLS – Peninsula Library Service

PM – Particulate matter

POPO – Privately-owned public open space

PUE – Public Utility Easement

RCP – Reinforced concrete pipe

ROG – Reactive organic gases

ROW – Right-of-Way

RWQCB – Regional Water Quality Control Board

RWS – Regional Water System

SB – South bound

SBPSD – San Bruno Park School District

SF6 – Sulphur hexafluoride

SFO – San Francisco International Airport

SFPUC – San Francisco Public Utilities Commission

SMUHSD – San Mateo Union High School District

SO2 – Sulphur dioxide

SQ FT – square foot

SR – State Route

SSSC - Side Street Stop Controlled

TACs – Toxic Air Contaminants

TDM – Transportation Demand Management

TNC – Transportation Network Companies

TPA – Transit Priority Area

TSPC - Traffic Safety and Parking Committee

TV - Television

UDP – Unanticipated Discovery Protocol

USGBC – United States Green Building Council

USGS – United States Geological Survey

UWMP – Urban Water Master Plan

VOCs – Volatile Organic Compounds

WQCP – Water Quality Control Plant

WSA – Water Supply Assessment

WSMP – Water System Master Plan

Appendix 3.0-1

Preliminary Geotechnical Report (Project)



YOUTUBE CAMPUS
SAN BRUNO, CALIFORNIA

PRELIMINARY GEOTECHNICAL REPORT FOR ENVIRONMENTAL IMPACT REPORT REVIEW

SUBMITTED TO
Mr. Parham Khoshkbari, GE
Google, Inc.
1600 Amphitheatre Parkway
Mountain View, CA 94043

PREPARED BY
ENGEO Incorporated

August 15, 2018
Revised August 17, 2018

PROJECT NO.
13667.000.000

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1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE

The purpose of this preliminary geotechnical exploration is to provide an assessment of the potential geotechnical concerns associated with the use of the site for the proposed technology campus. We performed the following tasks:

- Review of published geologic maps and geotechnical data for the site.
- Review of historic aerial photos.
- Acquisition of appropriate San Mateo County Environmental Health Services Division permits.
- Notification of Underground Services Alert a minimum of 48 hours prior to our exploration.
- Retention of a private utility locator to clear the proposed exploration locations of existing utilities.
- Preparation of a work plan including proposed locations for our explorations, as well as excavation checklists showing their proximity to existing utilities.
- Retention of a Professional Surveyor to determine the location and elevation of the proposed and as-drilled exploration locations.
- Subsurface field exploration and laboratory testing.
- Interpretation of subsurface field exploration data.
- Evaluation of potential geotechnical concerns.

For our use, we received the San Bruno Feasibility Study, provided by Google/REWS, dated August 2016.

This report was prepared for the exclusive use of Google, Inc. (Google) and its consultants. In the event that any changes are made in the character, design or layout of the development, we must be contacted to review the conclusions and recommendations contained in this report to evaluate the need for modifications.

1.2 SITE LOCATION AND DESCRIPTION

The project site is located in San Bruno, California as depicted on the Vicinity Map, Figure 1. The site is bounded on the north by Interstate 380, on the east by El Camino Real, on the west by Cherry Avenue, and on the south by San Bruno Avenue. Access is provided by Bayhill Drive and Grundy Lane.

The Site Plan, Figure 2A, shows site boundaries and the project site, which comprises eight parcels currently developed for commercial use. The approximately 40.2-acre site is identified by the Assessor's Parcel Numbers (APN), according to the County of San Mateo Assessor's Parcel Map, shown in the table below. The table also includes the associated parcel number as designated in the Feasibility Study and shown in Figure 2A, addresses associated with each APN, and summary of existing improvements.

TABLE 1.2-1: Project Parcels and Description

APN	FEASIBILITY STUDY PARCEL #	APPROXIMATE AREA (ACRES)	ASSOCIATED ADDRESSES	SUMMARY OF EXISTING IMPROVEMENTS
020-011-230	1 and 3	4.2	1000 Cherry Avenue	Three-story YouTube office building and surface parking lot
020-015-020	2 and 4	4.0	900 Cherry Avenue	Six-story YouTube office building and terraced surface parking lot
020-015-030	5	6.4	1150, 1200, 1250 Bayhill Drive	Three three-story office buildings with surface parking lot and ponds
020-018-010	6	9.8	1111 Bayhill Drive	Four-story office building with terraced surface parking lot, retaining wall and slope up to 20 feet high on south side
020-011-330	7	4.4	1100 Grundy Lane	Three-story office building and surface parking lot
020-019-070	8	6.1	999 and 1001 Bayhill Drive	Two three-story office buildings with surface parking lot, large pond, retaining wall up to 15 feet high in southwest corner
020-011-370	8a	0.9	N/A	Surface parking lot
020-015-040	9	4.4	950 Elm Avenue	Three-story office building and surface parking lot

Along with other utilities, a 60-inch-diameter culvert crosses the site at a depth ranging from approximately 15 to 20 feet below existing grade. The location of the culvert was identified by BKF Engineers (BKF) during their utility survey and is shown in Figure 4. Based on BKF's mapping, the culvert enters the site in the northwest corner of Parcel 7, runs east to the southeast portion of Parcel 7, continues south along the eastern boundary of Parcel 9, enters the northwest corner of Parcel 8, and exits the site at the southeastern portion of Parcel 8.

1.3 EXISTING GEOTECHNICAL DATA

We reviewed available reports for previous projects within the site vicinity. The following list includes the existing geotechnical reports, as well as environmental and groundwater monitoring reports, reviewed as part of this preliminary study:

1971 – L.T. Evans, Inc. Foundation Investigation Report

This is a foundation investigation report prepared for the, then named, Bayhill Office Building No. 1. The investigation was performed for a nine-story office building with a basement and a four-level garage located at the current 850 Cherry Avenue, northeast of the intersection of Cherry Avenue and San Bruno Avenue.

The field exploration included nine 20-inch-diameter test borings to depths ranging from 35 to 70 feet. The locations of the borings are shown on Figure 2A. The soil encountered was predominantly silty and clayey sand with lenses of silt and clay. Up to 20 feet of fill was encountered along Cherry Avenue.

Groundwater was encountered between 42 and 65 feet below ground surface.

September 1974 - L.T. Evans, Inc. Foundation Investigation Report

This is a foundation investigation report prepared for the N.V. Yusra Office Buildings. The investigation was performed for the existing structures located at 1150, 1200, and 1250 Bayhill Drive.

The field exploration included drilling four 20-inch-diameter test borings to maximum depths of 35 feet at the locations shown on Figure 2A. The soil encountered was predominantly sand with lenses of clay, silt, or mixtures of all three soil types. The borings encountered material with a low density and high moisture content at a depth of 6 feet in Boring 1 and a depth of 24 feet in Boring 4. The investigators suggest the subsurface conditions encountered indicate the site was previously traversed by gullies that flowed southeasterly. L.T. Evans concluded there was no evidence that fill that had been placed in the area prior to their study.

Groundwater was encountered at a depth of 10 feet in Borings 1 and 2, 21 feet in Boring 4, and not encountered in Boring 3. The investigators suggested the variation in groundwater elevation may indicate the infilling of an old channel.

L.T. Evans recommended over-excavating 6 feet below the building foundations, placing compacted fill, and embedding the shallow foundation 2 feet below finished grade.

December 20, 2012 – Cornerstone Earth Group Design-Level Geotechnical Investigation

This report is a design-level Geotechnical Investigation prepared for the San Francisco Police Credit Union Headquarters located at 1250 Grundy Lane. The proposed structure would include up to two levels of concrete-framed below-grade parking with a three-story steel-framed office building above. The project is currently under construction and the excavation for the below-grade parking appears to be nearly complete.

The field exploration included drilling nine auger borings using hollow-stem and solid-stem augers to depths ranging from 4 to 49½ feet below ground surface. The locations of the borings are shown on Figure 2A. The soil encountered included undocumented fill ranging in thickness from 2 to 5 feet across the majority of the site, but as thick as 12 feet in the northeast corner of the site. The fill generally consisted of medium-stiff to hard lean clay over medium dense sand. Beneath the fill, alternating layers of stiff to hard lean clay and medium dense to very dense sand with varying amounts of silt and clay were encountered to the maximum depth explored of 49½ feet.

Groundwater was not encountered in any of the borings to the maximum depth of 49½ feet below ground surface.

Cornerstone concluded that the primary geotechnical concerns at the site were the presence of non-engineered fill and moderately corrosive soil. Cornerstone also concluded that there was a low potential for liquefaction at the site due to the stiff to hard cohesive soils and medium-dense to very dense granular materials encountered, in addition to the deep groundwater level.

February 10, 2017 – ENGEO Geotechnical Exploration

We recently conducted a geotechnical exploration at a site located to the southwest of the intersection of San Bruno Avenue and El Camino Real. The site is currently occupied by one- to two-story commercial buildings and the proposed project includes two, four-story Type V residential units over a podium structure with one level of below-grade parking.

The field exploration included drilling five borings and advancing six cone penetration tests (CPT) to a maximum depth of 61½ feet below existing grade. The soil encountered included variable amounts of fill from 3 to 15 feet. The fill generally consisted of medium-stiff to stiff clay with some debris. Beneath the fill, stiff to hard sandy silt with traces of fine gravel, and medium-dense to dense silty sand with silty clay lenses were encountered. This soil was identified as the Colma Formation.

Groundwater was encountered at depths ranging from 15 to 20 feet during the field exploration.

July 11, 2005 – RGA Environmental, Inc. Subsurface Investigation Report

This report was prepared for the purpose of evaluating the environmental impact of hydraulic fluid in the soil and groundwater at the 999 and 1001 Bayhill Drive properties.

The subsurface investigation included drilling six boreholes to a maximum depth of 30 feet below ground surface. The soil encountered generally consisted of silt or clay with variable amounts of sand and gravel to a depth of approximately 22½ to 25½ feet below ground surface. Finer-grained material overlies a sand layer, which was encountered to the maximum depth of 30 feet below ground surface. The soil was identified as being part of the Colma Formation.

Groundwater was encountered at the time of drilling at depths ranging from 25 to 27 feet below ground surface. Groundwater was subsequently measured after leaving the boreholes open for a period of time and found to be at depths ranging from 18 to 19 feet below ground surface.

April 15, 2015 – AECOM Report on 1st Semiannual 2015 Groundwater Monitoring

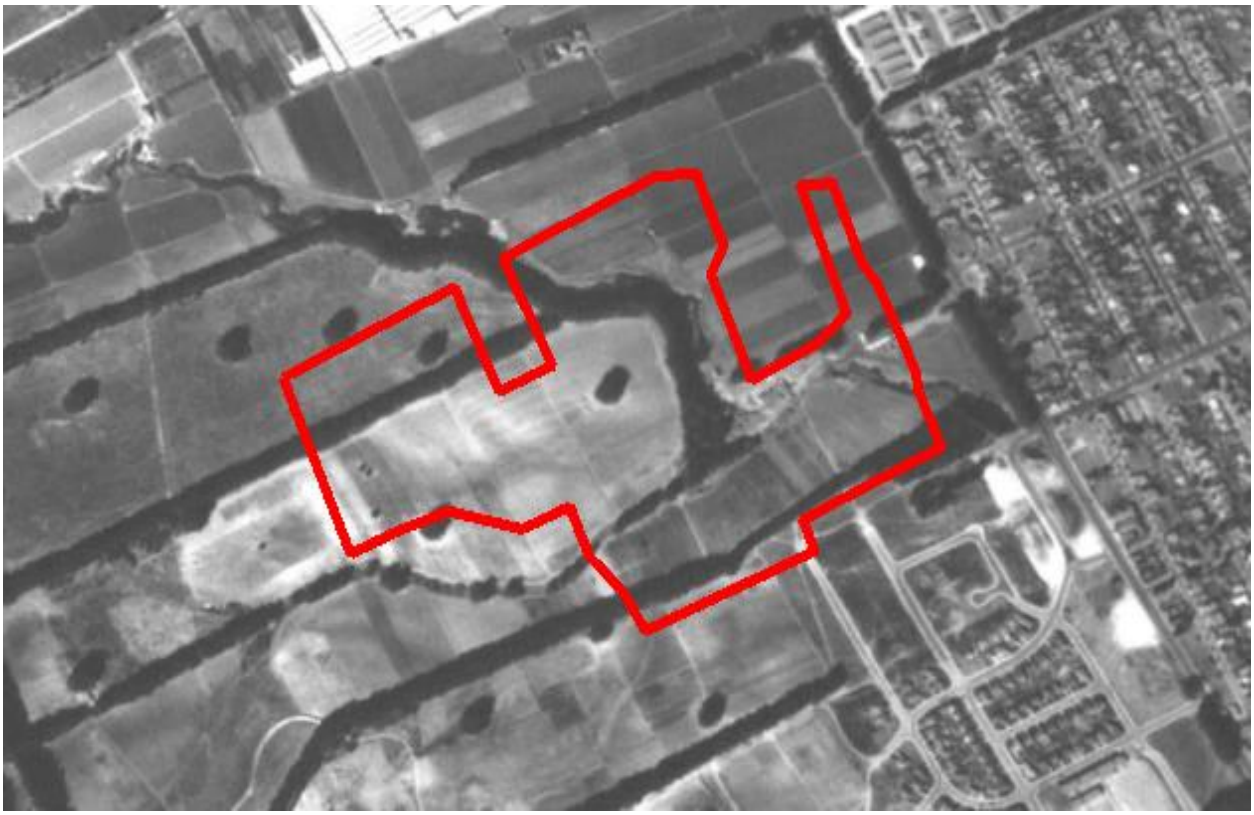
This report was prepared for the property at 801 El Camino Real, located at the east corner of the intersection of San Bruno Avenue and El Camino Real. The report indicates groundwater depth ranged from approximately 9 to 16 feet below ground surface, or elevation 24¾ to 27½ feet above mean sea level (MSL). The investigators stated groundwater flowed in the northeast direction. The report also includes a figure depicting groundwater elevation over time dating from 1989 to 2015. The groundwater elevation ranges from approximately 22 to 32 feet above MSL over this period.

2.0 FINDINGS

2.1 SITE BACKGROUND

As part of our current study, we reviewed historic aerial photographs dating back to 1943 and a U.S. Coast Historical Map from 1869. From review of stereo-paired aerial photographs from 1943, shown below, it is evident that San Bruno Creek and one of its tributaries historically traversed the site along an east-to-southeast trend prior to anthropogenic grading activities. Based on the review of the stereo-paired aerial photographs, it appears that San Bruno Creek was incised more than 10 to 15 feet. This is consistent with the depth of the culvert, which according to plans, ranges from approximately 15 to 20 feet below existing grade.

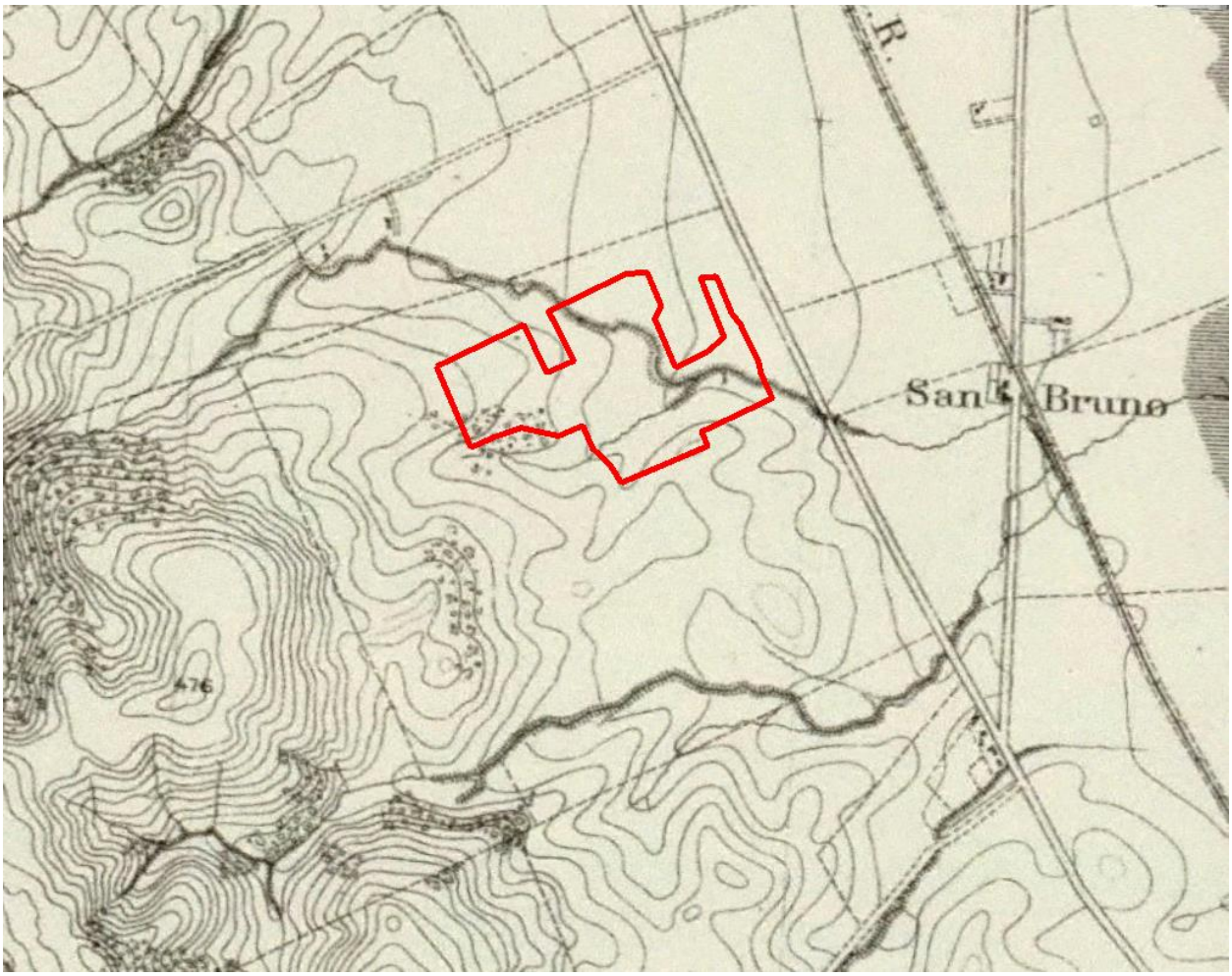
PHOTOGRAPH 2.1-1: Historic Aerial from 1943, Project Boundary in Red



Source: UC Berkeley Earth Sciences and Map Library

The 1869 U.S. Coast Survey map supports the historic presence of the incised creeks at the site. The San Bruno Creek entered the site in the northwest portion of Parcel 7, meandered south through the center of Parcel 9 and the northeast portion of Parcel 6, and cut through the center of Parcel 8 towards the east. The tributary entered the site in the western portion of Parcel 6, continued northeast to where it appears to have joined with San Bruno Creek in the northeastern portion of Parcel 6.

FIGURE 2.1-1: United States Coast Survey Map 1869, Project Boundary in Red



Source: UC Berkeley Earth Sciences and Map Library

Based on further review of historic documents, we understand the site was utilized as a dairy prior to development. During World War II, the U.S. Navy established a base on the site where it operated a Classification Center and Personnel Depot. It appears the site was graded between 1943 and 1946. San Bruno creek appears to have been dammed upstream of the site and infilled within the site limits. The existing culvert, previously mentioned in Section 1.2, was likely constructed during the infilling of the San Bruno Creek to redirect channel flow. Modular, barracks style structures were present at and within the site vicinity in 1946; located north of the site, between Parcels 3 and 7, and in Parcels 5, 8a and 8. The Naval Base remained operational following the conclusion of World War II.

PHOTOGRAPH 2.1-2: Historic Aerial from 1956 showing former Naval Base Facilities, Project Boundary in Red



Source: historicaerials.com

By 1968, several of the naval base structures north of the site were demolished. The structures between Parcels 3 and 7, and in Parcels 8a and 8 remained. By 1980, the remainder of the naval base structures were demolished, Interstate 380 was constructed to the north of the site, and the existing structures at Parcels 1, 2, and 5 were constructed. By 1987, the existing office buildings and associated improvements at Parcels 6, 7, and 9 had been constructed.

PHOTOGRAPH 2.1-3: Historic Aerial from 1980, Project Boundary in Red



Source: historicaerials.com

By 1993, the existing office buildings and associated improvements at Parcel 8 were constructed and the site appears substantially as it currently exists.

PHOTOGRAPH 2.1-4: Historic Aerial from 1993, Project Boundary in Red



Source: historicaerials.com

It is likely that the site has received fill during construction of the existing facilities and previously demolished facilities and there may be construction debris remaining from the previously demolished facilities. We suspect the early refusal of 1-CPT16 was caused by construction debris remaining from the demolition of one of the naval base structures previously located at Parcel 8a.

2.2 SURFACE CONDITIONS

Site topography generally slopes downward from the western corner of the site to the eastern corner of the site. The topography also slopes gradually downward from San Bruno Avenue towards Bayhill Drive. Site grades range from approximately Elevation 125 feet (Datum: NAVD88) in the northwestern portion of Parcel 1 to Elevation 47 feet in the southeast portion of Parcel 8.

The site is currently occupied by nine buildings ranging from three to six stories in height located within Parcels 1, 2, 5, 6, 7, 8, and 9. The four-lane Bayhill Drive, two-lane Grundy Lane, and two-lane Elm Avenue intersect the site.

Parcel 1 contains a three-story YouTube office building. Parcel 3 contains the accompanying asphalt-paved parking lot with associated planters, concrete curbs, young to mature trees, and light fixtures.

Parcel 2 contains a six-story YouTube office building. Parcel 4 contains the accompanying asphalt-paved parking lot with associated planters, concrete curbs, young to mature trees, and light fixtures. The parking lot is terraced with slopes ranging from 4 to 6 feet in height. The terraced slopes were likely constructed using artificial fill.

Parcel 5 contains three, three-story office buildings spaced approximately 50 feet apart. Ponds and water features are located adjacent to the buildings. The office buildings are bordered on the north, east, and west by asphalt-paved parking lots with associated planters, concrete curbs, young to mature trees, and light fixtures.

Parcel 6 contains a four-story office building in the north corner. The building is accompanied by an asphalt-paved parking lot with associated planters, concrete curbs, young to mature trees, and light fixtures. On the south side of the parcel near San Bruno Avenue, there is an approximately 5-foot-high retaining wall with a 2:1 backslope up to about 15 feet high.

Parcel 7 contains a three-story office building in the southern portion. The building is surrounded by an asphalt-paved parking lot with associated planters, concrete curbs, young to mature trees, and light fixtures.

Parcel 8 contains two three-story office buildings, which are attached. A large pond abuts the buildings to the north. The buildings are surrounded by an asphalt-paved parking lot with associated planters, concrete curbs, young to mature trees, and light fixtures. At the southern corner of the parcel near Elm Avenue, there is an approximately 15-foot-high retaining wall.

Parcel 8a contains an asphalt-paved parking lot with associated planters, concrete curbs, young to mature trees, and light fixtures.

Parcel 9 contains a three-story office building in the southeast portion. The building is surrounded by an asphalt-paved parking lot with associated planters, concrete curbs, young to mature trees, and light fixtures.

2.3 GEOLOGY AND SEISMICITY

2.3.1 Regional Geology

The site is located on the eastern side of the San Francisco Peninsula, in the Coast Ranges physiographic province of California. The Coast Ranges comprise a system of northwest-trending, fault-bounded mountain ranges and intervening valleys that trend approximately parallel to the right-lateral transform boundary between the North American and Pacific Plates. The present physiography and geology of the Coast Ranges are the result of deformation and deposition along the tectonic boundary between the North American plate and the Pacific plate. Plate boundary fault movements are largely concentrated along the well-known fault zones, which in the Bay Area include the San Andreas, Hayward, and Calaveras faults, as well as other lesser-order faults. Bedrock in the Coast Ranges consists of igneous, metamorphic and sedimentary rocks that range in age from Jurassic to Pleistocene.

2.3.2 Site Geology

Figure 4 shows mapped geology in the project site and vicinity. We created this map by review of aerial photographs, topographic maps, regional geologic maps, and site surface and subsurface explorations. The following sections describe each of the layers shown on Figure 4.

2.3.2.1 Artificial Fill, Qaf

Portions of the site at the location of the former San Bruno Creek are underlain by artificial fill that was placed in the 1940s and 1950s. As shown on Figure 4, the mapped artificial fill (Qaf) follows the former Creek Channel. Fill material was likely derived from local sources and, based on our field exploration, generally comprises silty sand and sandy lean clay. Due to previous activities and site use, minor fills are likely present at various locations across the site.

2.3.2.2 Holocene Alluvium, Qal

Based on our review of stereo-paired aerial photographs and historic topographic maps covering the site, it appears that the northeastern portion of the site is located along the southern margin of a Holocene alluvial fan deposit (Qal). Historic San Bruno Creek appears to form the southern boundary of the fan deposit (Figure 4).

2.3.2.3 Pleistocene Colma Formation, Qc

According to published geologic mapping covering the site by Bonilla (1998) and Brabb (1998), the site is underlain by Pleistocene Colma Formation (Qc). The Colma Formation is described as weakly consolidated, moderately well bedded, sandy clay and silty sand with well-rounded chert pebbles. Bedding structure within the vicinity is mapped as striking northwest and gently dipping 4 degrees towards the northeast (Figure 3). The Colma Formation is a late Pleistocene-age variable deposit of alluvium, sand dunes and marine sediments that has been uplifted from sea level and tilted and folded to its present configuration. The age of the Colma Formation has been estimated at approximately 80,000 to 120,000 years before present (Caskey, et. al. 2005).

2.3.3 Seismicity

Numerous small earthquakes occur every year in the San Francisco Bay Region, and larger earthquakes have been recorded and can be expected to occur in the future. Figure 6 shows the approximate locations of these faults and significant historic earthquakes recorded within the San Francisco Bay Region. Nearby active faults within 26 miles of the site and their estimated maximum earthquake magnitudes based on the USGS fault database are provided in the following table. An active fault is defined by the State Mining and Geology Board as one that has had surface displacement within Holocene time (about the last 11,000 years) (Hart and Bryant, 1997).

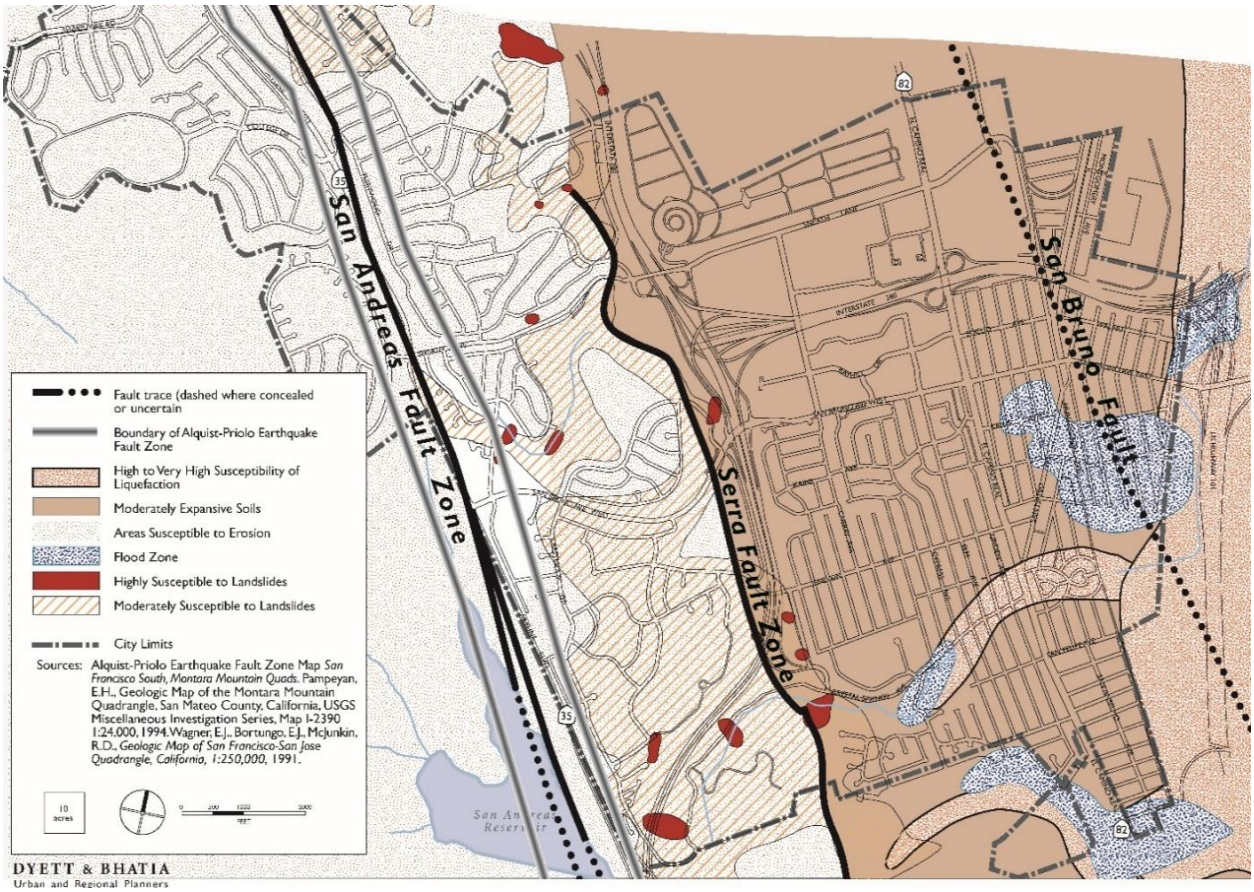
TABLE 2.3.3-1: Active Faults Capable of Producing Significant Ground Shaking at the Site

FAULT NAME	DISTANCE FROM SITE (MILES)	DIRECTION FROM SITE	MAXIMUM MOMENT MAGNITUDE
Serra	0.25	West	Unknown
San Andreas	0.9	Southwest	8.0
San Gregorio Connected	6.7	Southwest	7.5
Monte Vista-Shannon	16	Southeast	6.5
Hayward-Rodgers Creek	17	Northeast	7.3
Calaveras	26	Northeast	7.0

As shown in Figure 7, the site is not located within a currently designated Alquist-Priolo Earthquake Fault Zone and no known surface expression of active faults is believed to exist within the site. Fault rupture through the site, therefore, is not anticipated.

The Serra fault is located approximately ½ mile west of the project site. The Serra fault, although not currently included on the Alquist-Priolo Earthquake Fault Zone map for the area, is considered to be an active fault that has experienced displacement within Holocene time (Jennings, 2010). The Serra fault forms the contact between the Colma Formation and Merced Formation and is a reverse fault that dips towards the southwest likely merging with the San Andreas fault at depth (Kennedy, 2002).

FIGURE 2.3.3-1: Health and Safety Element, San Bruno General Plan



According to the Health and Safety Element of the San Bruno General Plan, the San Bruno fault is mapped approximately ¼ mile east of the project site. According to the USGS Open-File Report 98-354, "A recent study of geophysical, geomorphic, and geological data found no evidence supporting the existence of the hypothetical San Bruno fault as a mappable structure (USGS Open-File Report 97-429, 1997), and the fault has been deleted."

The Uniform California Earthquake Rupture Forecast (UCERF3, 2013) evaluated the 30-year probability of a Moment Magnitude 6.7 or greater earthquake occurring on the known active fault systems in the Bay Area. The UCERF3 generated an overall probability of 72 percent for the San Francisco Region as a whole.

2.4 FIELD EXPLORATION

Our field exploration included drilling 11 exploratory borings and advancing 18 Cone Penetration Tests (CPTs) at various locations on the site. We performed our field exploration between January 23 and February 1, 2017.

For the purpose of constructing an additional monitoring well, we drilled an exploratory boring (1-B12) on April 12, 2017.

The proposed and as-drilled locations and elevations of our explorations were surveyed by a Professional Surveyor using a survey-grade GPS station; they should be considered accurate to the degree implied by the method used. The locations of the explorations are shown in Figures 2A, 2B and 4.

2.4.1 Exploratory Borings

We observed the drilling of 12 exploratory borings at the locations shown on the Site Plan, Figure 2A. An engineer observed the drilling and logged the subsurface conditions at each location. We retained a truck-mounted drill rig and crew to advance the borings using 4-inch- and 5-inch-diameter mud rotary methods. The borings were advanced to depths ranging from 50½ to 100½ feet below existing grade. We permitted and backfilled the borings in accordance with the requirements of the San Mateo County Environmental Health Services Division.

We obtained bulk soil samples from drill cuttings and retrieved disturbed samples at various intervals in the borings using standard penetration tests with a 2-inch outside diameter (O.D.) split spoon sampler. In addition, 2.5-inch inside diameter (I.D.) samples were obtained using a Modified California Sampler.

The standard penetration resistance blow counts were obtained by dropping a 140-pound hammer through a 30-inch free fall. The 2-inch O.D. split-spoon sampler was driven 18 inches and the number of blows was recorded for each 6 inches of penetration. In addition, 2.5-inch I.D. samples were obtained using a Modified California Sampler driven into the soil with the 140-pound hammer previously described. Unless otherwise indicated, the blows per foot recorded on the boring log represent the accumulated number of blows to drive the last 1 foot of penetration; the blow counts have not been converted using any correction factors. When sampler driving was difficult, penetration was recorded only as inches penetrated for 50 hammer blows.

We used the field logs to develop the exploration logs in Appendix A. The logs depict subsurface conditions at the exploration locations for the date of exploration; however, subsurface conditions may vary with time.

2.4.2 Cone Penetration Tests

We retained a CPT rig to perform CPTs in general accordance with ASTM D-5778. Measurements include the tip resistance to penetration of the cone (Qc), the resistance of the surface sleeve (Fs), and pore pressure (U) (Robertson and Campanella, 1988). The CPT logs are presented in Appendix B.

2.5 SUBSURFACE CONDITIONS

We encountered asphalt concrete (AC) and aggregate base (AB) in each of our explorations. The thickness of AC ranged from approximately 1½ to 5 inches. The thickness of AB encountered ranged from approximately 2 to 6 inches.

We encountered varying amounts of artificial fill across the site. The artificial fill encountered primarily consisted of medium-dense to dense silty sand and soft to hard sandy silt and sandy lean clay. The artificial fill was likely composed of locally derived material from either alluvial deposits or the Colma Formation. In general, our exploratory borings encountered between 2 and 5 feet of fill across the site. We expect minor fill to exist across the site as a result of previous construction activities.

We encountered more fill in exploratory borings located near or within the extents of the historic creeks. We encountered approximately 20 feet of artificial fill in Boring 1-B10, which we believe to be associated with the infilling of San Bruno Creek. We also encountered fill within the terraced parking lot located within Parcel 4. In Boring 1-B03, we encountered approximately 8 feet of fill, likely associated with the construction of the terraced slopes.

At portions of the site, we encountered soil deposits interpreted as Holocene alluvium (Qal) underlying the artificial fill. The alluvium encountered at our exploration points ranged from approximately 2 to 3 feet in thickness and consisted of medium-stiff to stiff sandy silt and sandy lean clay. The alluvium within and adjacent to the former creek channel could be greater than 10 feet in thickness. Subsurface data is scarce east of the historic San Bruno Creek; however, we expect the thickness of the alluvium to be greater in this area as it is located within an area with strong geomorphic expression indicative of an alluvial fan deposit.

We encountered the Colma Formation underlying the entire site. In the western portion of the site, the Colma Formation generally comprises dense to very dense sand with varying amounts of silt and clay. We believe these lenses of fine-grained material to be relatively discontinuous, as is characteristic of the deposits of the Colma Formation.

In the eastern portion of the site and near the historic creeks, the Colma Formation generally comprises medium-stiff to hard silts and clays with varying amounts of sand. The fine-grained materials were interbedded with layers of dense to very dense sand with varying amounts of silt and clay. In Boring 1-B08, we encountered a layer of soft clay at a depth of 45 feet below ground surface. The layer is approximately 5 to 7 feet thick and grades to very stiff at a depth of 53 feet below ground surface.

Sounding 1-CPT16 encountered early refusal, likely due to the remnants of a foundation associated with the military structures demolished by 1968.

We developed generalized cross sections of the subsurface conditions as presented in Figure 5. We include our exploration logs in Appendix A and CPT logs in Appendix B. The exploration logs contain the soil type, color, consistency, and visual classification in general accordance with the Unified Soil Classification System. The logs graphically depict the subsurface conditions encountered at the time of the exploration.

2.6 GROUNDWATER CONDITIONS

Due to the mud rotary drilling method, we were unable to measure groundwater conditions in our borings. We attempted to measure groundwater depth in each of our CPTs using pore pressure dissipation tests. The soils encountered at the site generally contained fines, which inhibit the equilibration of pore pressure and make measuring groundwater difficult. We were able to perform successful dissipation testing to measure groundwater in 1-CPT07 and 1-CPT12.

To monitor groundwater conditions over time, we installed monitoring wells using vibrating-wire piezometers at the locations of Borings 1-B02 and 1-B07 at depths of 50½ feet below ground surface and Boring 1-B12 at a depth of 100½ feet below ground surface. These monitoring wells will provide relatively continuous groundwater data for portions of site.

We summarize our observations in the table below:

TABLE 2.6-1: Groundwater Observations during Exploration

EXPLORATION LOCATION	APPROX. DEPTH TO GROUNDWATER (FEET)	APPROX. GROUNDWATER ELEVATION (FEET)
1-CPT07	39.2	39.2
1-CPT12	47.6	27.3
1-B02 (May 23, 2017 well reading)	>50.5	<63.7
1-B07 (May 23, 2017 well reading)	43.8	29.1
1-B12 (May 23, 2017 well reading)	>100.5	<5.0

Based on our review of existing geotechnical data at the site and in the site vicinity presented in Section 1.4, we summarize our estimates of historic groundwater depth based on our review of existing geotechnical data in the table below.

TABLE 2.6-2: Estimated Groundwater Depth from Review of Existing Geotechnical Data

REPORT	SITE ADDRESS	APPROX. DEPTH TO GROUNDWATER (FEET)	APPROX. GROUNDWATER ELEVATION (FEET)
L.T. Evans (1971)	850 Cherry Avenue	42 to 65	40 to 50 (NAVD88)
L.T. Evans (1974)	1150, 1200, 1250 Bayhill Drive	10 to 21	<45 to 70 (NAVD88)
Cornerstone (2012)	1250 Grundy Lane	>49.5	<40 (NAVD88)
ENGEO (February 10, 2017)	San Bruno Avenue and El Camino Real	15 to 20	25 (NAVD88)
RGA (2005)	999 and 1001 Bayhill Drive	18 to 19	31 to 32 (msl)
AECOM (2015)	801 El Camino Real	9 to 16	24¾ to 27½ (msl)

Based on a compilation of groundwater data from our exploration and a review of existing geotechnical data, we believe groundwater to exist across the site at a relatively stable elevation of approximately 25 to 30 feet (NAVD88). Based on site topography and direction of the historic San Bruno creek, it is likely that groundwater is gradually flowing from the west corner to the east corner of the site. Therefore, groundwater elevation may be slightly higher on the west side of the site. However, ground elevation is significantly higher on the west side so groundwater depth will be significantly deeper.

As supported by measurements in the monitoring well at 1-B12, groundwater is expected to be deepest at more than 100½ feet below existing grade within Parcels 1 and 3. Groundwater is expected to be shallowest at a depth of approximately 20 feet below existing grade within Parcel 8.

For the purpose of preliminary analyses and recommendations, we have assumed a groundwater level to be at an elevation of 30 feet NAVD 88.

Fluctuations in the level of groundwater may occur due to variations in rainfall, irrigation practices, and other factors not evident at the time measurements were made.

2.7 LABORATORY TESTING

We performed laboratory tests on selected soil samples to evaluate their engineering properties. For this project, we performed laboratory testing as shown in the table below.

TABLE 2.7-1: Laboratory Testing

SOIL CHARACTERISTIC	TESTING METHOD	LOCATION OF RESULTS
Unconfined Compression	ASTM 2166	Appendix C
Consolidation – Incremental Loading	ASTM D2435	Appendix C
#200 Wash	ASTM D1140	Appendix C
Moisture Content and Unit Weight	ASTM D7263	Appendix A
Plasticity Index, Wet Method	ASTM D4318	Appendix C
Corrosivity	ASTM D1498, D4972, G57, D4327	Appendix C

3.0 DISCUSSION AND PRELIMINARY CONCLUSIONS

Based on this preliminary study, the project site is feasible for the proposed development provided the preliminary recommendations contained in this report and future design-level geotechnical studies are incorporated into the design plans. A site-specific geotechnical exploration should be performed as part of the design process for each phase and parcel. The exploration would include CPTs, borings and laboratory soil testing to provide data for preparation of specific recommendations regarding grading, foundation design, and drainage for the proposed buildings. The exploration will also allow for more detailed evaluations of the geotechnical issues discussed below and afford the opportunity to provide recommendations regarding techniques and procedures to be implemented during construction to mitigate potential geotechnical/geological hazards.

Based upon our field exploration and review of readily available published maps and reports for the site, the main geotechnical concerns for the proposed site development include:

- The presence of non-engineered fill related to historical creek filling, previous NAVY facilities and current development.
- The potential for cyclic softening of some of the silt below the groundwater table during a seismic event on the eastern side of the site.
- The potential presence of groundwater and its influence on below-grade construction.
- The need for shoring systems to protect the excavation walls, adjacent streets and improvements, and the potential need for dewatering of excavations extending below the groundwater surface.

These items and other geotechnical issues are discussed in the following sections of this report.

3.1 EXISTING FILL

As stated previously, based on our understanding of site history and development, the site is underlain by non-engineered fill up to 20 feet in thickness in some areas where the historical creek was backfilled (Figure 4). In areas outside of the historical creek, non-engineered fill ranges from 2 to 5 feet. The shallower fill appears to have been placed in order to grade the current site conditions.

Because no record exists regarding the placement of the fill, it should be considered non-engineered. Non-engineered fill can undergo excessive settlement, especially under new fill or building loads. Based on preliminary conversations with you and the design team, basements ranging from 30 to 40 feet in depth are planned below the proposed development. Therefore, the majority of the non-engineered fill will be removed during the excavation for the basements. If any buildings are constructed without basements, or the depth of basement does not extend below the bottom of the existing fill, the presence of the fill should be mitigated either by grading or through foundation design.

Fill also extends laterally beyond the borders of the building sites. Considering the type of soil encountered in the fill layer as discussed in Section 2.5, without proper shoring techniques, the remaining portion of the fill outside of the building footprint could potentially collapse into the building excavation.

In the event the development plans change and the excavation depth is less than the thickness of the existing fill, we should be contacted to discuss alternatives for site preparation. We present fill removal recommendations in Section 4.2.

3.2 SEISMIC HAZARDS

Potential seismic hazards resulting from a nearby moderate to major earthquake can generally be classified as primary and secondary. The primary effect is ground rupture, also called surface faulting. The common secondary seismic hazards include ground shaking, soil liquefaction/cyclic softening and ground lurching. The following sections present a discussion of these hazards as they apply to the site. Based on topographic and lithologic data, the risk of regional subsidence or uplift, landslides, tsunamis, or seiches is considered low to negligible at the site.

3.2.1 Ground Rupture

Since there are no known active faults crossing the property and the site is not located within an Earthquake Fault Special Study Zone (Figure 7), ground rupture is unlikely at the subject property.

3.2.2 Ground Shaking

An earthquake of moderate to high magnitude generated within the San Francisco Bay region could cause considerable ground shaking at the site, similar to that which has occurred in the past. To mitigate the shaking effects, structures should be designed using sound engineering judgment and the current California Building Code (CBC) requirements, as a minimum. Seismic design provisions of current building codes generally prescribe minimum lateral forces, applied statically to the structure, combined with the gravity forces of dead-and-live loads. The code-prescribed lateral forces are generally considered to be substantially smaller than the actual forces that would be associated with a major earthquake. Therefore, structures should be able to: (1) resist minor earthquakes without damage, (2) resist moderate earthquakes without structural

damage but with some nonstructural damage, and (3) resist major earthquakes without collapse but with some structural as well as nonstructural damage. Conformance to the current building code does not constitute any kind of guarantee that significant structural damage would not occur in the event of a maximum magnitude earthquake; however, it is reasonable to expect that a well-designed and well-constructed structure will not collapse or cause loss of life in a major earthquake (SEAOC, 1996).

3.2.3 Liquefaction

Soil liquefaction results from loss of strength during cyclic loading, such as that imposed by earthquakes. Soils most susceptible to liquefaction are clean, loose, saturated, uniformly graded, fine-grained sands. Empirical evidence indicates that loose to medium-dense gravel, silty sand, low-plasticity silt, and some low-plasticity clay are also potentially liquefiable.

In order to assess liquefaction potential at the site, we first evaluated the susceptibility to liquefaction of the site soils. Since liquefaction potential is different for sand-like and clay-like soils our assessment included determining whether the soils were coarse grained or fine grained; and if they were considered fine-grained, would they behave like a sand or a clay for liquefaction analysis.

3.2.3.1 Liquefaction Assessment and Conclusions

Based on the susceptibly and classification of the site soils, we performed a detailed liquefaction potential analysis of the CPT soundings to estimate liquefaction potential using the computer software CLiq Version 1.7 developed by GeoLogismiki. The software is based on the procedure introduced by the 1996 National Center for Earthquake Engineering Research (NCEER) workshop and the 1998 NCEER/National Science Foundation (NSF) workshop. The workshops are summarized by Youd et al. (2001) and updated by Robertson (2009). We estimated the Cyclic Stress Ratio (CSR) for a Peak Ground Acceleration (PGA_M) value of 0.94g as outlined in the latest building code with an earthquake magnitude of 8.0. We used a groundwater elevation of 30 feet (NAVD88) for this analysis.

We performed our analysis of liquefaction potential using the Robertson (2009) method due to the fact that our site soil matches well with the criteria developed by the author. The criteria being that sand-like soils are evaluated based on their density, intermediate soils are evaluated based on their density and amount of fines, and clay-like soils are evaluated based on their undrained shear strength.

The analysis indicates that thin layers within the Colma formation will settle less than ¾ inch due to some cyclic softening and minor liquefaction. CPT 1-CPT-17, shows ½ inch of additional settlement at a depth of 36 to 40 feet, but the adjacent Boring 1-B10 shows that the material within the same depth is too dense to liquefy. Based on this, liquefaction and cyclic softening do not pose a hazard to the proposed development.

For design purposes, we recommend obtaining subsurface geotechnical data below the proposed foundation once the building layout and type are known.

3.2.4 Dynamic Densification Settlement

Densification of loose granular soils above the groundwater surface can cause settlement of the ground surface due to earthquake-induced vibrations. Because the excavation for the below-grade parking will extend below the existing fill above the water table and because of the relatively

high density of the sand within the Colma formation, the risk of dynamic densification is negligible at the site.

3.2.5 Ground Lurching

Ground lurching is a result of the rolling motion imparted to the ground surface during energy released by an earthquake. Such rolling motion can cause ground cracks to form in weaker soils. The potential for the formation of these cracks is considered greater at contacts between deep alluvium and bedrock. Such an occurrence is possible at the site as in other locations in the Bay Area region, but based on the site location, it is our opinion that the offset is expected to be minor. We provide recommendations for foundation and pavement design in this report that are intended to reduce the potential for adverse impacts from lurch cracking.

3.2.6 Flooding

Based on site elevation and distance from water sources, flooding is not expected at the subject site; however, the Civil Engineer should review pertinent information relating to possible flood levels for the subject site based on final pad elevations and provide appropriate design measures for development of the project.

3.3 2016 CBC SEISMIC DESIGN PARAMETERS

Based on the subsurface conditions encountered and CPT shear wave velocity testing, we classified proposed Parcels 1, 2, 3, and 4 as Site Class C and proposed Parcels 5, 6, 7, 8, 8a, and 9 as Site Class D in accordance with the 2016 CBC. We provide the 2016 CBC seismic design parameters for a Site Class C and Site Class D in Table 3.3-1 below, which includes design spectral response acceleration parameters based on the mapped Risk-Targeted Maximum Considered Earthquake (MCE_R) spectral response acceleration parameters.

TABLE 3.3-1: 2016 CBC Seismic Design Parameters, Latitude: 37.62987° **Longitude:** -122.42481°

PARAMETER	VALUE	VALUE
Site Class	C	D
Mapped MCE_R Spectral Response Acceleration at Short Periods, S_S (g)	2.47	2.45
Mapped MCE_R Spectral Response Acceleration at 1-second Period, S_1 (g)	1.19	1.18
Site Coefficient, F_A	1.00	1.00
Site Coefficient, F_V	1.30	1.50
MCE_R Spectral Response Acceleration at Short Periods, S_{MS} (g)	2.47	2.45
MCE_R Spectral Response Acceleration at 1-second Period, S_{M1} (g)	1.55	1.76
Design Spectral Response Acceleration at Short Periods, S_{DS} (g)	1.65	1.63
Design Spectral Response Acceleration at 1-second Period, S_{D1} (g)	1.03	1.18
Mapped MCE Geometric Mean (MCE_G) Peak Ground Acceleration, PGA (g)	0.95	0.94
Site Coefficient, F_{PGA}	1.00	1.00

PARAMETER	VALUE	VALUE
MCE_G Peak Ground Acceleration adjusted for Site Class effects, PGA_M (g)	0.95	0.94
Long-period transition-period, T_L	12 sec	12 sec

3.4 STATIC AND PERCHED GROUNDWATER

Based on our findings described in Section 2.6 of this report and the proposed development, groundwater may impact basement design and construction at the eastern half of the site. This includes proposed Parcels 8 and the eastern portions of proposed Parcels 6, 7 and 9. We believe that this would be the case, since proposed basement depths can range from 30 to 40 feet, and the shallowest groundwater depth at the eastern side of the site is 20 feet below ground surface. Groundwater above the proposed bottom of the excavations can:

1. Require construction dewatering.
2. Result in unstable conditions at the base of excavation requiring stabilization prior to foundation construction.
3. Cause moisture damage to sensitive floor coverings.
4. Transmit moisture vapor through slabs causing excessive mold/mildew build-up, fogging of windows, and damage to computers and other sensitive equipment.
5. Require waterproofing for the proposed basement structures.

3.5 EXCAVATION

As discussed previously, excavations may be necessary for the construction of the proposed basements. During excavation of the basements, the sides of the excavation may need to be shored. Support of adjacent settlement-sensitive structures should be addressed in the design of temporary construction support. The primary considerations related to the selection of the shoring systems are:

1. Distance of the excavation from improvements sensitive to movement that will remain after building construction, and
2. Potential presence of groundwater during construction.

4.0 PRELIMINARY RECOMMENDATIONS

The following preliminary recommendations are for initial land planning and preliminary estimating purposes. Final recommendations regarding site grading and foundation construction will be provided after design-level exploration has been undertaken.

4.1 DEMOLITION AND STRIPPING

Site development will commence with the removal of buried structures, including abandoned utilities. All debris should be removed from any location to be graded and from areas to receive fill or structures. The depth of removal of such material should be determined by the Geotechnical Engineer in the field at the time of grading.

The existing pavement section (asphalt concrete/concrete and underlying aggregate base) and all existing landscaping should be removed from areas to receive fill or structures, or those areas to serve for borrow.

4.2 EXISTING FILL REMOVAL

Most of the existing fill will be removed by the proposed basement excavations. We recommend removing existing fill to competent soils, as determined by ENGEO, in areas to receive new fill, pavement, and other ancillary improvements. Figure 4 displays the approximate lateral extent of existing fill at the site.

4.3 ACCEPTABLE FILL

Onsite soil material is suitable as fill material provided it is processed to remove concentrations of organic material, debris, and particles greater than 8 inches in maximum dimension. Imported fill material should meet the above requirements and have a plasticity index less than 25.

4.4 FILL PLACEMENT

For land planning and cost estimating purposes, the following compaction control requirements should be anticipated for general fill areas:

Test Procedures:	ASTM D-1557.
Required Moisture Content:	Not less than 2 percentage points above optimum moisture content.
Minimum Relative Compaction:	Not less than 90 percent relative compaction.

Relative compaction refers to the in-place dry density of soil expressed as a percentage of the maximum dry density of the same material.

5.0 PRELIMINARY FOUNDATION RECOMMENDATIONS

The main considerations in foundation design for this project are the potential for groundwater to be shallower than the proposed foundations (see Section 3.4) and potential for uplift. During design-level exploration, We will develop foundation recommendations using data obtained from our field exploration, laboratory test results, and engineering analysis. For the preliminary planning purposes, we recommend the following recommended foundation options address the effects of the native expansive soil and differential soil movement:

1. Shallow foundations with slabs-on-grade.
2. Structural mat foundation.

6.0 FUTURE STUDIES

As previously discussed, a site-specific, design-level geotechnical exploration should be performed as part of the design process. The exploration should include borings and laboratory soil testing to provide data for preparation of specific recommendations regarding grading, foundation design, and drainage for the proposed development. The exploration will also allow for more detailed evaluations of the geotechnical issues discussed in this report and afford the

opportunity to provide recommendations regarding techniques and procedures to be implemented during construction to mitigate potential geotechnical/geological hazards.

7.0 LIMITATIONS AND UNIFORMITY OF CONDITIONS

This report presents geotechnical recommendations for preliminary design of the improvements discussed in Section 1.3 for the YouTube campus project. If changes occur in the nature or design of the project, we should be allowed to review this report and provide additional recommendations. It is the responsibility of the owner to transmit the information and recommendations of this report to the appropriate organizations or people involved in design of the project, including but not limited to developers, owners, buyers, architects, engineers, and designers. The conclusions and recommendations contained in this report are solely professional opinions and are valid for a period of no more than 2 years from the date of report issuance.

We strived to perform our professional services in accordance with generally accepted geotechnical engineering principles and practices currently employed in the area; no warranty is expressed or implied. There are risks of earth movement and property damages inherent in building on or with earth materials. We are unable to eliminate all risks; therefore, we are unable to guarantee or warrant the results of our services.

This report is based upon field and other conditions discovered at the time of report preparation. We developed this report with limited subsurface exploration data. We assumed that our subsurface exploration data are representative of the actual subsurface conditions across the site. Considering possible underground variability of soil, rock, stockpiled material, and groundwater, additional unexpected costs may be required to complete the project. We recommend that the owner establish a contingency fund to cover such costs. If unexpected conditions are encountered, ENGEO should be notified immediately to review these conditions and provide additional and/or modified recommendations, as necessary.

Our services did not include excavation sloping or shoring, soil volume change factors, flood potential, or a geohazard exploration. In addition, our geotechnical exploration did not include work to determine the existence of possible hazardous materials. If any hazardous materials are encountered during construction, the proper regulatory officials should be notified immediately.

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Actual field or other conditions will necessitate clarifications, adjustments, modifications or other changes to ENGEO's recommendations. Therefore, ENGEO must be engaged to prepare the necessary clarifications, adjustments, modifications or other changes before construction activities commence or further activity proceeds. If ENGEO's scope of services does not include onsite construction observation, or if other persons or entities are retained to provide such services, ENGEO cannot be held responsible for any or all claims arising from or resulting from the performance of such services by other persons or entities, and from any or all claims arising from or resulting from clarifications, adjustments, modifications, discrepancies or other changes necessary to reflect changed field or other conditions.

We determined the lines designating the interface between layers on the exploration logs using visual observations. The transitions between the materials may be abrupt or gradual. The exploration logs contain information concerning samples recovered, indications of the presence of various materials such as clay, sand, silt, rock, existing fill, etc., and observations of groundwater encountered. The field logs also contain our interpretation of the subsurface conditions between sample locations. Therefore, the logs contain both factual and interpretative information. Our recommendations are based on the contents of the final logs, which represent our interpretation of the field logs.

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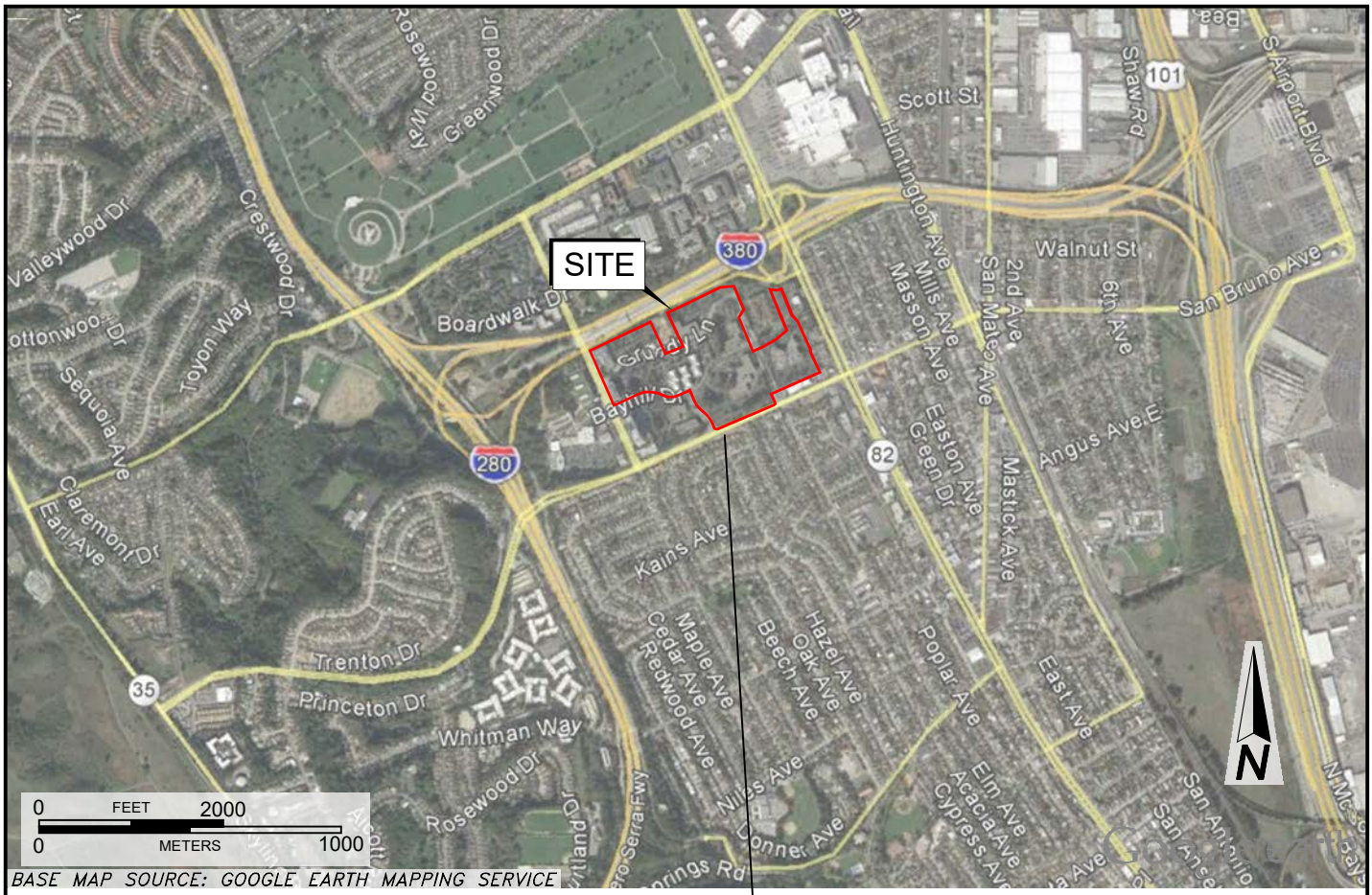
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FIGURES

FIGURE 1: Vicinity Map
FIGURE 2A: Geotechnical Exploration Site Plan
FIGURE 2B: 1943 Historical Aerial Site Plan
FIGURE 3: Regional Geologic Maps
FIGURE 4: Site-Specific Geological Map
FIGURE 5: Geologic Cross Sections
FIGURE 6: Regional Faulting and Seismicity
FIGURE 7: Regional Hazards Maps

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BASE MAP SOURCE: GOOGLE EARTH MAPPING SERVICE



IMAGE SOURCE: GOOGLE EARTH MAPPING SERVICE

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VICINITY MAP

YOUTUBE CAMPUS

SAN BRUNO, CALIFORNIA

PROJECT NO.: 13667.000.000		FIGURE NO. 1
SCALE: AS SHOWN		
DRAWN BY: LL	CHECKED BY: PJE	

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SITE

1-CPT01 1-B01 1-CPT02 1-B02 1-B12 EB-1 EB-2 EB-3 EB-4 EB-5 EB-6 EB-7 EB-8 EB-9 1-CPT03 1-B03 1-CPT04 1-B04 1-B11 1-B05 1-CPT05 1-CPT06 1-B06 1-CPT07 1-B07 1-CPT08 1-CPT09 1-CPT10 1-CPT11 1-CPT12 1-CPT13 1-B08 1-CPT14 1-CPT15 1-CPT16 1-B10 1-CPT17 1-CPT18 1-B09

B1 B2 B3 B4 B5 B6 B7 B8 B9

1 2 3 4 5 6 7 8 8a 9

GRUNDY LANE
ELM AVENUE
BAYHILL DRIVE
CHERRY AVENUE
SAN BRUNO AVENUE

N

0 FEET 250
0 METERS 125

EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

1-B12	BORING (ENGEO, 2017)
EB-9	BORING (CONERSTONE, 2012)
B4	BORING (L.T. EVANS INC, 1974)
B9	BORING (L.T. EVANS INC, 1971)
1-CPT18	CONE PENETRATION TEST (ENGEO, 2017)
9	BUILDING PARCEL

BASE SOURCE: GOOGLE EARTH MAPPING SERVICE

Google earth

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GEOTECHNICAL EXPLORATION SITE PLAN

YOUTUBE CAMPUS

SAN BRUNO, CALIFORNIA

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CHECKED BY: PJE

FIGURE NO. 2A

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SITE

A'
B'
C'
A
B
C

1-CPT01
1-CPT02
1-CPT03
1-CPT04
1-CPT05
1-CPT06
1-CPT07
1-CPT08
1-CPT09
1-CPT10
1-CPT11
1-CPT12
1-CPT13
1-CPT14
1-CPT15
1-CPT16
1-CPT17
1-CPT18

1-B01
1-B02
1-B03
1-B04
1-B05
1-B06
1-B07
1-B08
1-B09
1-B10
1-B11
1-B12

EB-1
EB-2
EB-3
EB-4
EB-5
EB-6
EB-7
EB-8
EB-9

B1
B2
B3
B4
B5
B6
B7
B8
B9

ELM AVENUE
GRUNDY LANE
BAYHILL DRIVE
CHERRY AVENUE
SAN BRUNO AVENUE

380

N

0 FEET 250
0 METERS 125

EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

1-B12 — BORING (ENGEO, 2017)
EB-9 — BORING (CONERSTONE, 2012)
B4 — BORING (L.T. EVANS INC, 1974)
B9 — BORING (L.T. EVANS INC, 1971)
1-CPT18 — CONE PENETRATION TEST (ENGEO, 2017)
C C' — CROSS SECTION LOCATION

BASE SOURCE: 1943 AERIAL

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1943 HISTORIC AERIAL SITE PLAN

YOUTUBE CAMPUS
SAN BRUNO, CALIFORNIA

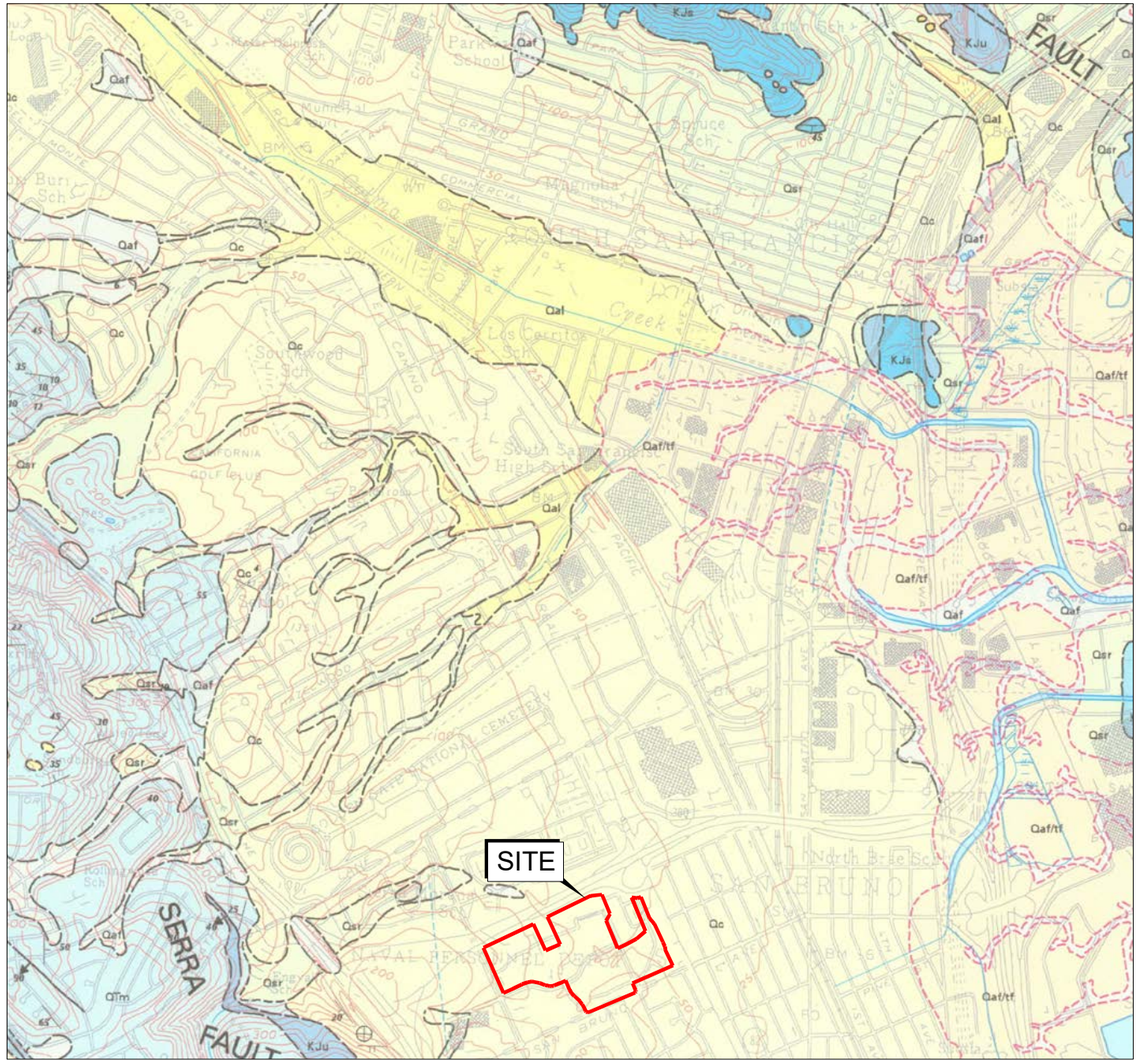
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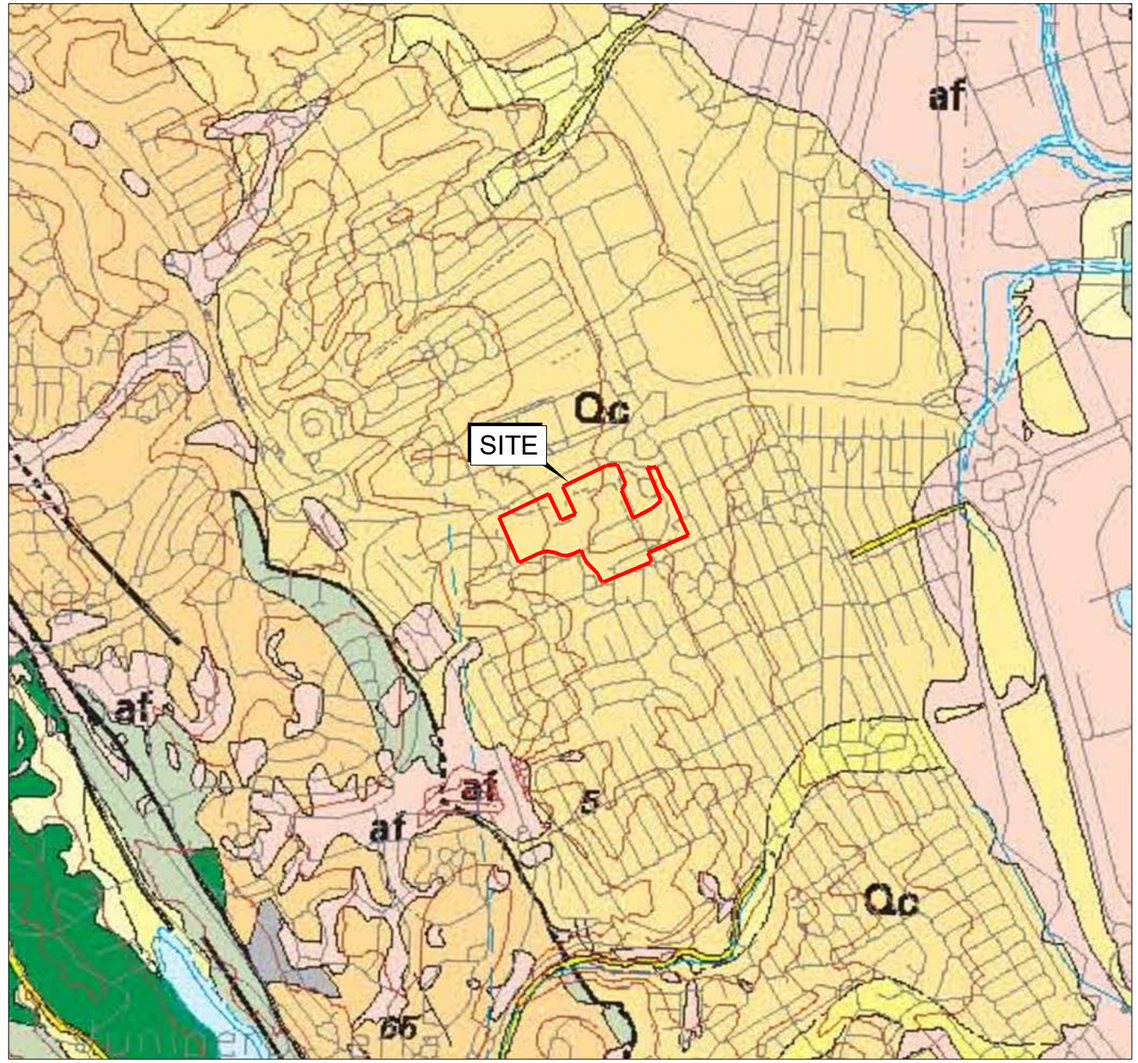
FIGURE NO. 2B

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N

0 FEET 2000

0 METERS 1000

EXPLANATION

Qaf	ARTIFICIAL FILL
Qaf/tf	ARTIFICIAL FILL OVER TIDAL FLAT
Qal	ALLUVIUM
Qsr	SLOPE DEBRIS AND RAVINE FILL
Qc	COLMA FORMATION
KJs	SANDSTONE AND SHALE
KJu	SHEARED ROCKS

REGIONAL GEOLOGIC MAP - BONILLA

BASE MAP SOURCE: BONILLA, OPEN FILE REPORT 98-0354

EXPLANATION

af	ARTIFICIAL FILL
Qcl	COLLUVIUM (HOLOCENE)
Qc	COLMA FORMATION

REGIONAL GEOLOGIC MAP - BRABB

BASE MAP SOURCE: BRABB, GRAYMER, AND JONES, 1998

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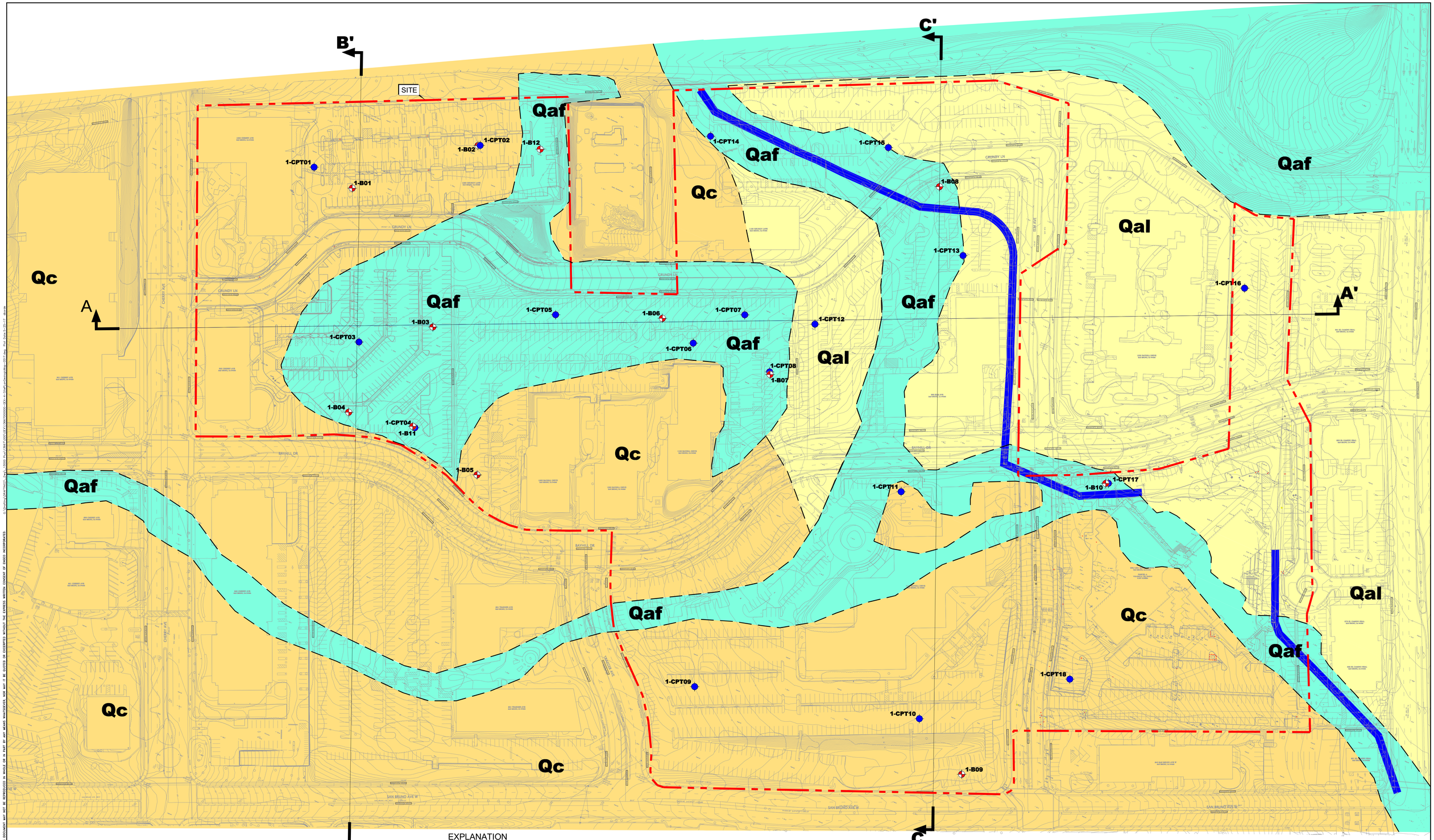
REGIONAL GEOLOGIC MAPS
YOUTUBE CAMPUS
SAN BRUNO, CALIFORNIA

PROJECT NO.: 13667.000.000
SCALE: AS SHOWN
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FIGURE NO. 3

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EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

- 1-B12 — BORING (ENGEO, 2017)
- 1-CPT18 — CONE PENETRATION TEST (ENGEO, 2017)
- GEOLOGIC CONTACT
- Qal — ALLUVIUM
- Qaf — FILL
- Qc — COLMA FORMATION
- EXISTING CULVERT LOCATION PROVIDED BY BKF
- C — C' CROSS SECTION LOCATION

N

0 FEET 80
0 METERS 40

BASE MAP SOURCE: BKF

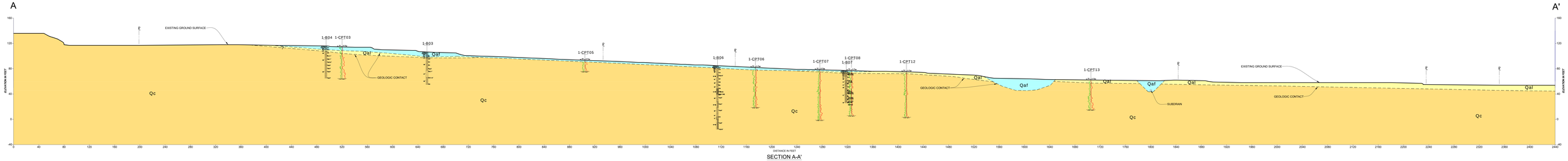
ENGEO Expect Excellence

SITE-SPECIFIC GEOLOGIC MAP
YOUTUBE CAMPUS
SAN BRUNO, CALIFORNIA

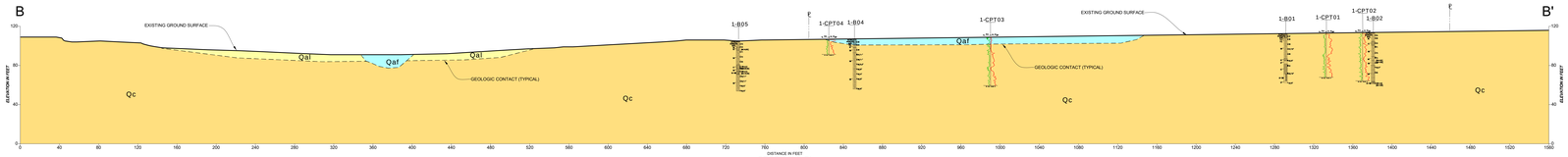
PROJECT NO.: 13667.000.000 | FIGURE NO. 4
SCALE: AS SHOWN
DRAWN BY: SRP | CHECKED BY: PE

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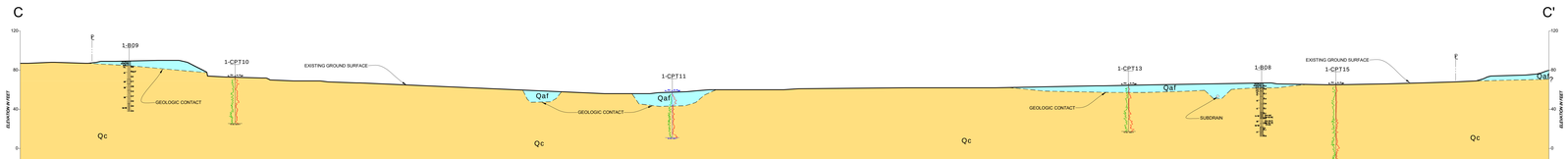
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SECTION A-A'
1"=40'



SECTION B-B'
1"=40'



SECTION C-C'
1"=40'



EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

Qal	ALLUVIUM
Qaf	FILL
Qc	COLMA FORMATION
1-B06	BORING
1-CPT13	CONE PENETRATION TEST

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GEOLOGIC CROSS SECTIONS
YOUTUBE CAMPUS
SAN BRUNO, CALIFORNIA

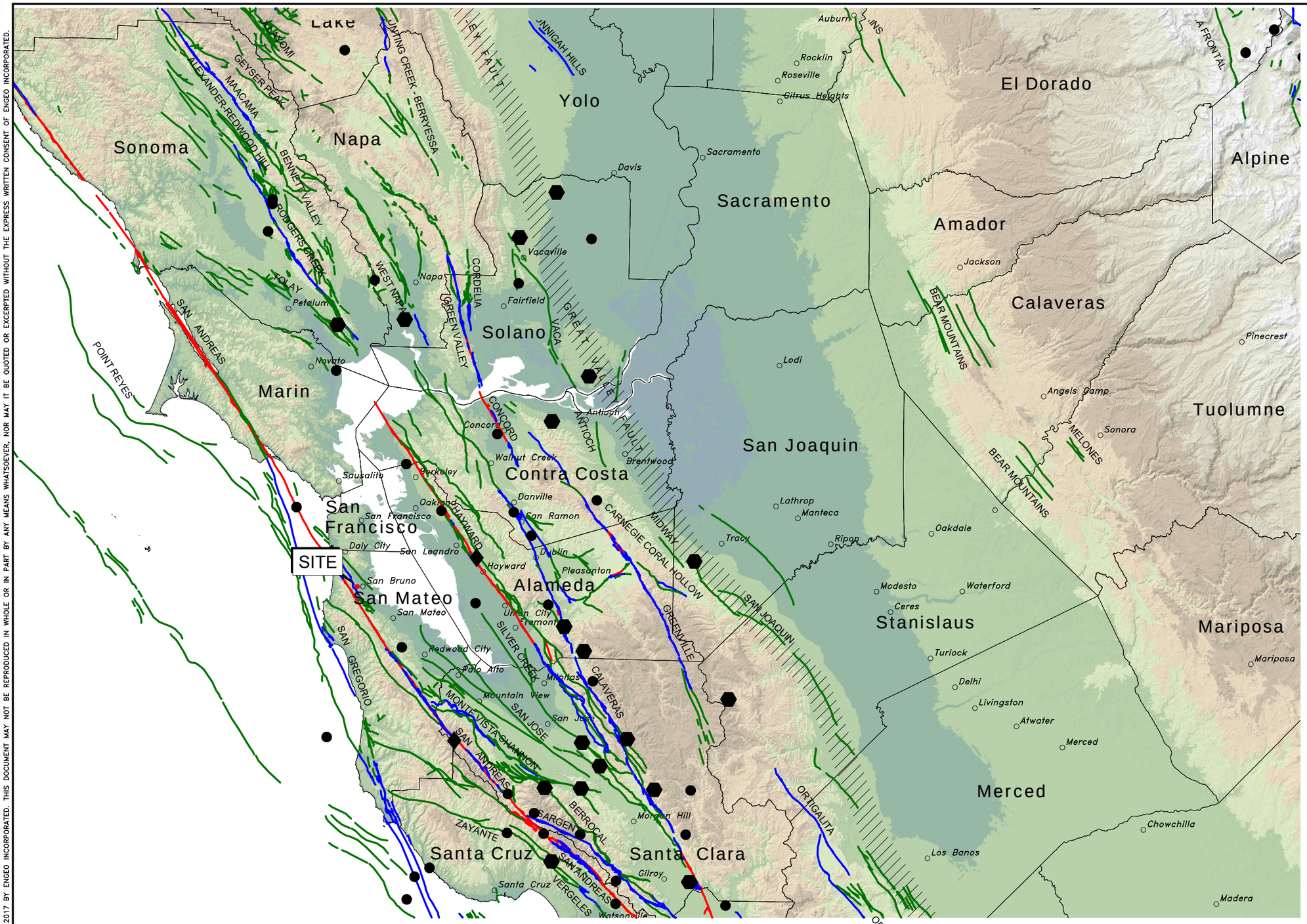
PROJECT NO. 13607.000.000
DATE AS SHOWN
DRAWN BY: SSP CHECKED BY: PE

FIGURE NO.
5

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BASE MAP SOURCE:
COLOR HILLSHADE IMAGE BASED ON THE NATIONAL ELEVATION DATASET (NED) AT 30 METER RESOLUTION
U.S.G.S. QUATERNARY FAULT DATABASE, NOVEMBER, 2010
U.S.G.S. HISTORIC EARTHQUAKE DATABASE (1800–2000)

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REGIONAL FAULTING AND SEISMICITY

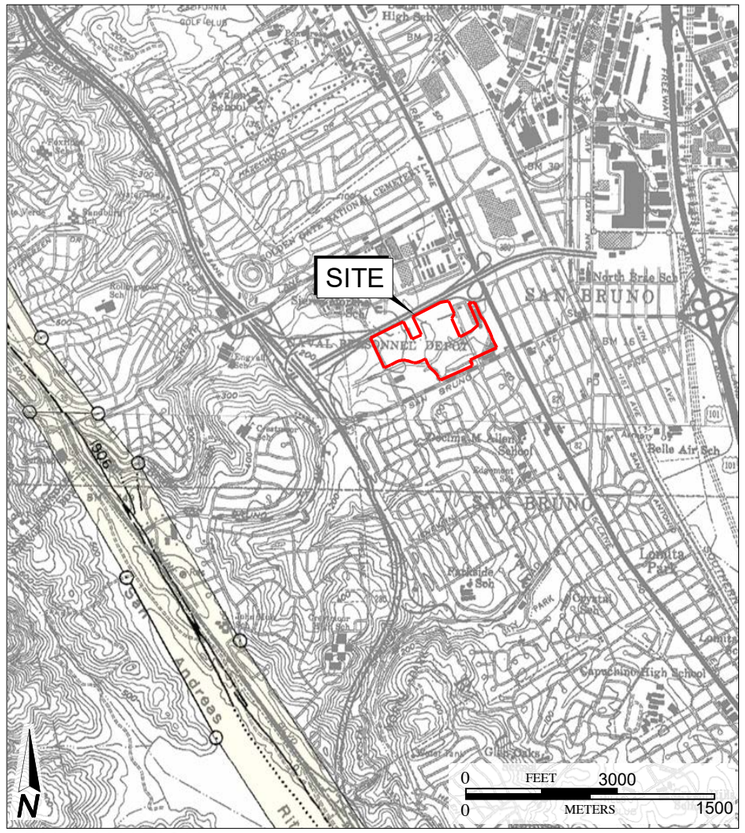
YOUTUBE CAMPUS
SAN BRUNO, CALIFORNIA

PROJECT NO.: 13667.000.000	FIGURE NO. 6
SCALE: AS SHOWN	
DRAWN BY: LL	CHECKED BY: PJE

G:\Drafting\DRAFTING2_Dwg_13000 Plus\13667\000\GEX\13667000000-GEX-6-REGFAULTMAP-0517.dwg Plot Date: 5-25-17 dborde

ORIGINAL FIGURE PRINTED IN COLOR

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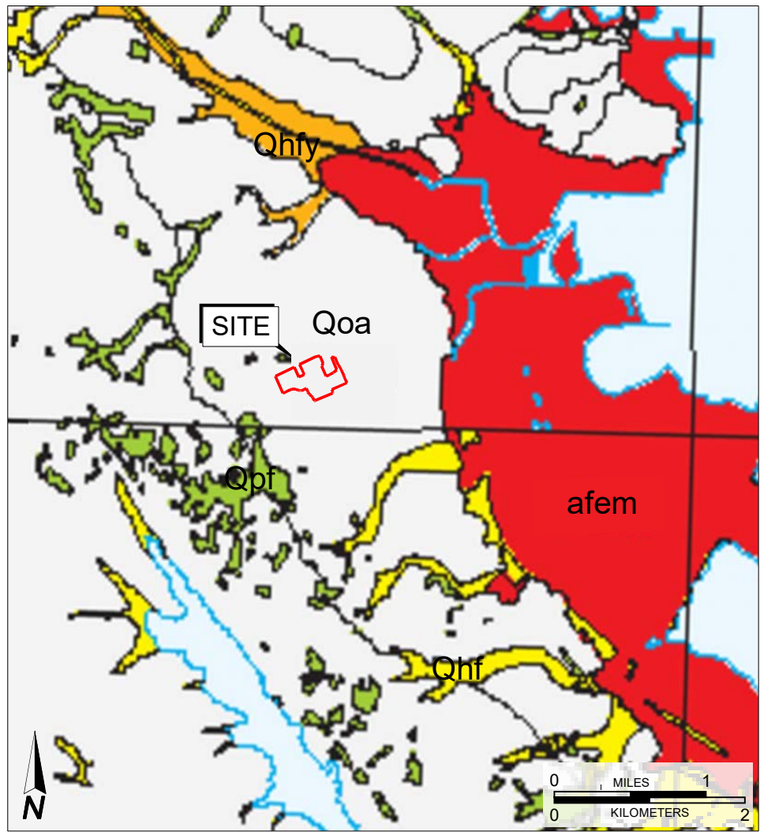
EXPLANATION

1906 C — FAULTS CONSIDERED TO HAVE BEEN ACTIVE DURING HOLOCENE TIME AND TO HAVE A RELATIVELY HIGH POTENTIAL FOR SURFACE RUPTURE; SOLID LINE WHERE ACCURATELY LOCATED, LONG DASH WHERE APPROXIMATELY LOCATED, SHORT DASH WHERE INFERRED, DOTTED WHERE CONCEALED; QUERY (?) INDICATES ADDITIONAL UNCERTAINTY. EVIDENCE OF HISTORIC OFFSET INDICATED BY YEAR OF EARTHQUAKE-ASSOCIATED EVENT OR C FOR DISPLACEMENT CAUSED BY CREEP OR POSSIBLE CREEP

EARTHQUAKE FAULT ZONE BOUNDARIES; DELINEATED AS STRAIGHT-LINE SEGMENTS THAT CONNECT ENCIRCLED TURNING POINTS SO AS TO DEFINE EARTHQUAKE FAULT ZONE SEGMENTS

EARTHQUAKE FAULT ZONE MAP

BASE MAP SOURCE: CDMG, 1993

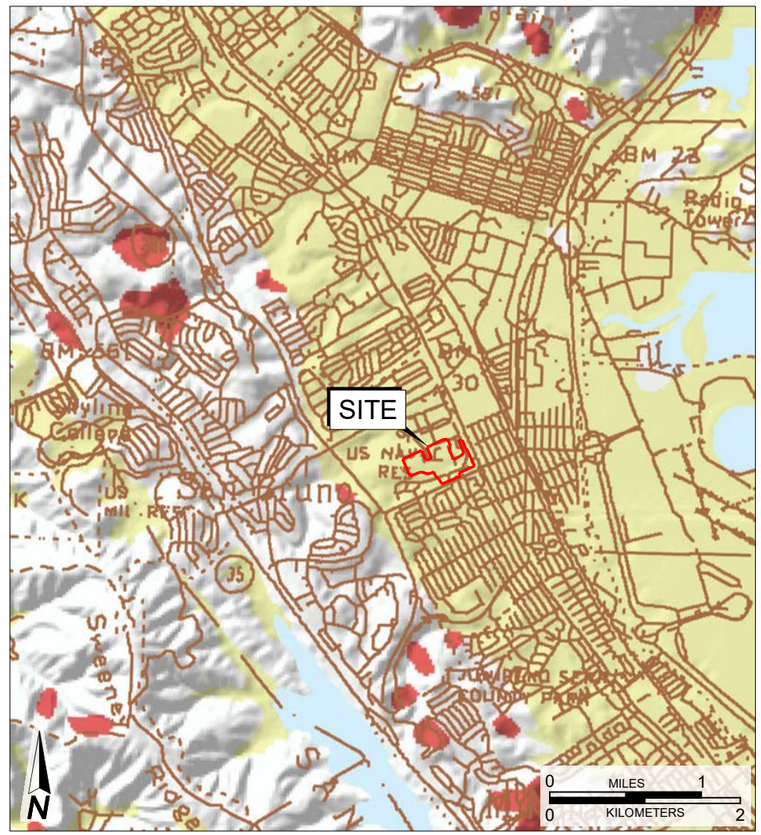


EXPLANATION

- VERY HIGH
- HIGH
- MEDIUM
- LOW
- VERY LOW

LIQUEFACTION SUSCEPTIBILITY MAP

BASE MAP SOURCE: WITTER, 2006



EXPLANATION

- MOSTLY LANDSLIDE
- MANY LANDSLIDES
- FEW LANDSLIDES
- FLAT LAND

LANDSLIDE SUSCEPTIBILITY MAP

BASE MAP SOURCE: WENTWORTH, 1997

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REGIONAL HAZARD MAPS
YOUTUBE CAMPUS
SAN BRUNO, CALIFORNIA

PROJECT NO.: 13667.000.000
SCALE: AS SHOWN
DRAWN BY: LL
CHECKED BY: PJE

FIGURE NO. 7

G:\Drafting\DRAFTING2_Dwg_13000 Plus\13667\000\GEX\13667000000-GEX-7-Hazards-0517.dwg Plot Date: 5-25-17 dborde

ORIGINAL FIGURE PRINTED IN COLOR



APPENDIX A

BORING LOG KEY
EXPLORATION LOGS

KEY TO BORING LOGS

MAJOR TYPES			DESCRIPTION
COARSE-GRAINED SOILS MORE THAN HALF OF MAT'L LARGER THAN #200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE	CLEAN GRAVELS WITH LESS THAN 5% FINES	GW - Well graded gravels or gravel-sand mixtures GP - Poorly graded gravels or gravel-sand mixtures
		GRAVELS WITH OVER 12 % FINES	GM - Silty gravels, gravel-sand and silt mixtures GC - Clayey gravels, gravel-sand and clay mixtures
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE	CLEAN SANDS WITH LESS THAN 5% FINES	SW - Well graded sands, or gravelly sand mixtures SP - Poorly graded sands or gravelly sand mixtures
		SANDS WITH OVER 12 % FINES	SM - Silty sand, sand-silt mixtures SC - Clayey sand, sand-clay mixtures
FINE-GRAINED SOILS MORE THAN HALF OF MAT'L SMALLER THAN #200 SIEVE	SILTS AND CLAYS LIQUID LIMIT 50 % OR LESS		ML - Inorganic silt with low to medium plasticity CL - Inorganic clay with low to medium plasticity OL - Low plasticity organic silts and clays
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50 %		MH - Elastic silt with high plasticity CH - Fat clay with high plasticity OH - Highly plastic organic silts and clays
	HIGHLY ORGANIC SOILS		PT - Peat and other highly organic soils

For fine-grained soils with 15 to 29% retained on the #200 sieve, the words "with sand" or "with gravel" (whichever is predominant) are added to the group name.

For fine-grained soil with >30% retained on the #200 sieve, the words "sandy" or "gravelly" (whichever is predominant) are added to the group name.

GRAIN SIZES

U.S. STANDARD SERIES SIEVE SIZE				CLEAR SQUARE SIEVE OPENINGS				
200	40	10	4	3/4 "	3"	12"		
SILTS AND CLAYS	SAND			GRAVEL			COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE			

RELATIVE DENSITY

SANDS AND GRAVELS	BLOWS/FOOT (S.P.T.)
VERY LOOSE	0-4
LOOSE	4-10
MEDIUM DENSE	10-30
DENSE	30-50
VERY DENSE	OVER 50

CONSISTENCY

SILTS AND CLAYS	STRENGTH*
VERY SOFT	0-1/4
SOFT	1/4-1/2
MEDIUM STIFF	1/2-1
STIFF	1-2
VERY STIFF	2-4
HARD	OVER 4

SAMPLER SYMBOLS

- Modified California (3" O.D.) sampler
- California (2.5" O.D.) sampler
- S.P.T. - Split spoon sampler
- Shelby Tube
- Dames and Moore Piston
- Continuous Core
- Bag Samples
- Grab Samples
- NR No Recovery

MOISTURE CONDITION

DRY	Dusty, dry to touch
MOIST	Damp but no visible water
WET	Visible freewater

LINE TYPES

- ———— Solid - Layer Break
- – – – – – Dashed - Gradational or approximate layer break

GROUND-WATER SYMBOLS

- Groundwater level during drilling
- Stabilized groundwater level

(S.P.T.) Number of blows of 140 lb. hammer falling 30" to drive a 2-inch O.D. (1-3/8 inch I.D.) sampler

* Unconfined compressive strength in tons/sq. ft., asterisk on log means determined by pocket penetrometer

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LOG OF BORING 1-B01

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 1/25/2017
HOLE DEPTH: Approx. 50½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 114.17 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			CONCRETE Asphaltic concrete, 4.5"												
			AGGREGATE BASE (AB) 2"												
			SILTY SAND (SM), dark brown, organic odor, wood debris [FILL]												
			SILTY SAND (SM), yellowish brown, dense, moist, fine- to coarse-grained sand, contains trace angular fine gravel [FILL]			37									
	110														
5			SILTY SAND (SM), light grayish brown, dense, moist, fine- to medium-grained sand, iron oxide staining, contains clay, trace fine gravel [COLMA FORMATION]			39									
			Reddish brown, less fines												
	105														
10			Yellowish brown, very dense, fine-grained sand			68				17					
	100														
15			Light grayish brown, cemented			97/10"									
	95														
20			More silt			88									
	90														
25			SANDY LEAN CLAY (CL), light grayish brown, hard, moist												
						50/6"									
			POORLY GRADED SAND (SP), reddish brown, very dense, moist, fine- to medium-grained sand											>4.5*	PP
	85														
30															

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B01

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 1/25/2017
HOLE DEPTH: Approx. 50½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 114.17 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			SANDY LEAN CLAY (CL), light grayish brown, very stiff to hard, moist, fine-grained sand			52				63			2500*	>4.5*	PP+TV
35	80														
			Mottled with reddish brown			82/10"								>4.5*	PP
40	75		POORLY GRADED SAND WITH SILT (SP-SM), reddish brown, very dense, moist, fine-grained sand												
45	70														
			POORLY GRADED SAND (SP), reddish brown, very dense, moist, fine- to medium-grained sand			50/6"									
50	65		Boring terminated at a depth of 50 1/2 feet below ground surface. Depth to groundwater was not measured due to drilling method.												

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B02

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 1/26/2017
HOLE DEPTH: Approx. 52½ ft.
HOLE DIAMETER: 5.0 in.
SURF ELEV (NAVD88): 108.2 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			CONCRETE Asphaltic concrete, 4"												
			AGGREGATE BASE (AB) 5"												
			SANDY SILT (ML), light yellowish brown, hard, moist, fine-grained sand [COLMA FORMATION]			54									
	105														
5						50									
			More clay												
	100														
			SANDY LEAN CLAY (CL), brown mottled with light grayish brown, hard, moist, fine-grained sand, iron oxide staining												
10						34									
	95		SILTY SAND (SM), light grayish brown mottled with orange, dense to very dense, moist, manganese staining												
15						71									
	90														
20			Very dense, more fines, cemented, contains clay			75									
	85														
25			SANDY SILT (ML), light grayish brown mottled with orange, hard, moist, fine-grained sand			74					15	102		0.47	UC
	80														
			SILTY SAND (SM), light grayish brown, dense to very dense, moist, fine-grained sand, manganese staining, cemented												
30															

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B02

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 1/26/2017
HOLE DEPTH: Approx. 52½ ft.
HOLE DIAMETER: 5.0 in.
SURF ELEV (NAVD88): 108.2 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			SILTY SAND (SM), light grayish brown, dense to very dense, moist, fine-grained sand, manganese staining, cemented			49									
	75														
			WELL GRADED SAND WITH SILT AND GRAVEL (SW), reddish brown mottled with light grayish brown, very dense, moist, fine- to coarse-grained sand, fine to coarse gravel, subrounded to rounded gravel, pockets of silt			50/4"									
35															
	70														
40			Less gravel, some weathered rock fragments			85									
	65														
45															
	60														
50			SILTY CLAYEY SAND (SC-SM), light yellowish brown mottled with orange, medium dense to dense, fine-grained sand			31	23	19	4	45	16				
			Boring terminated at a depth of 52 1/2 feet below ground surface. Depth to groundwater was not measured due to drilling method.												

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B03

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 1/25/2017
HOLE DEPTH: Approx. 51½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 108.86 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			CONCRETE Asphaltic concrete, 1.5"												
			AGGREGATE BASE (AB) 5"												
			SILTY SAND (SM), reddish brown, loose, moist, fine- to medium-grained sand [FILL]												
	105														
5			Light gray mottled with reddish brown SANDY SILT (ML), dark brown, medium stiff, moist, fine-grained sand, organic odor, roots [FILL]			5									
			More sand, trace fine gravel SANDY LEAN CLAY (CL), reddish brown, medium stiff to stiff, moist, iron oxide staining [HOLOCENE ALLUVIUM]			14									
	100														
10			SILTY SAND (SM), light grayish brown, very dense, fine-grained sand, contains trace coarse-grained sand and fine gravel, cemented [COLMA FORMATION]			56									
	95														
15			Dense			41				34					
	90														
20			Very dense			51									
	85														
25			Less fines			50/5"									
	80														
30															

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B03

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 1/25/2017
HOLE DEPTH: Approx. 51½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 108.86 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			POORLY GRADED SAND (SP), yellowish brown, very dense, moist, fine- to medium-grained sand, some fine gravel and coarse-grained sand, cemented			94/11"									
35	75														
40	70		SILTY SAND (SM), light grayish brown, very dense, moist, fine- to medium-grained sand, some fine gravel and coarse-grained sand			87/11.5"				25					
45	65														
50	60		Less gravel and coarse-grained sand			58									
			Boring terminated at a depth of 51 1/2 feet below ground surface. Depth to groundwater was not measured due to drilling method.												

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B04

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 1/26/2017
HOLE DEPTH: Approx. 51 ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 105.1 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			CONCRETE Asphaltic concrete, 2.5"												
			AGGREGATE BASE (AB) 4"												
			SILTY SAND (SM), light yellowish brown mottled with reddish brown, medium dense, moist, fine- to medium-grained sand, some coarse-grained sand, trace fine gravel [FILL]			20									
5	100		SANDY SILT (ML), dark brown, medium stiff to stiff, moist, fine-grained sand, organic odor, contains trace organics [HOLOCENE ALLUVIUM]			24									
10	95		SILTY SAND (SM), yellowish brown mottled with reddish brown, dense to very dense, moist, fine-grained sand, manganese staining [COLMA FORMATION]			40				45					
15	90		Light grayish brown, very dense, cemented			97/11"									
20	85		Light grayish brown mottled with reddish brown			98/11"									
25	80		More coarse-grained sand, rounded to subrounded fine gravel, more fines, iron oxide staining			50/5.5"									
30															

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B04

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 1/26/2017
HOLE DEPTH: Approx. 51 ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 105.1 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			SILTY SAND (SM), light grayish brown mottled with reddish brown, very dense, moist, fine-grained sand, some coarse-grained sand and fine gravel, cemented			50/6"				18					
35	70					50/4"									
40	65					50/6"									
45	60														
50	55		Reddish brown, fine- to medium-grained sand			50/6"									
			Boring terminated at a depth of 51 feet below ground surface. Depth to groundwater was not measured due to drilling method.												

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B05

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 1/27/2017
HOLE DEPTH: Approx. 51 ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 88.59 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			CONCRETE Asphaltic concrete, 5"												
			AGGREGATE BASE (AB) 4"												
	85		SILTY SAND (SM), light grayish brown mottled with orange, very dense, dry, fine-grained sand, some clay [COLMA FORMATION]			73									
5			Dense, more clay, trace coarse-grained sand			44				27	8.8				
	80		CLAYEY SAND (SC), light grayish brown, dense, moist, fine- to coarse-grained sand, contains trace fine subrounded to rounded gravel, cementation												
10			SILTY SAND (SM), light yellowish brown, very dense, moist, fine-grained sand, light cementation			71									
	75														
15						72									
	70														
20			Dense, more silt, thin clay lenses			36									
	65		SANDY LEAN CLAY (CL), light grayish brown, stiff to hard, moist, low plasticity, fine-grained sand, contains silt												
25						17	39	21	18	69	22.8				
			More silt			78/11"									
	60		SILTY CLAYEY SAND (SC-SM), light grayish brown, very dense, moist, fine-grained sand											>4.5*	PP
30															

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B05

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 1/27/2017
HOLE DEPTH: Approx. 51 ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 88.59 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			SILTY CLAYEY SAND (SC-SM), light grayish brown, medium dense to dense, moist, fine-grained sand			33	26	21	5	47	19.3				
	55		SILTY SAND (SM), light grayish brown mottled with orange, very dense, moist, fine-grained sand, light cementation												
35						95/11"									
	50														
40			Reddish brown, fine to medium-grained sand			93/11"									
	45														
45						50/5"									
	40														
50			Less fines			50/6"									
			Boring terminated at a depth of 51 feet below ground surface. Depth to groundwater was not measured due to drilling method.												

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B06

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 1/30/2017
HOLE DEPTH: Approx. 100½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 84.85 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			CONCRETE Asphaltic concrete, 4"												
			AGGREGATE BASE (AB) 6"												
			SILTY SAND (SM), dark brown, moist, fine-grained sand, contains organics [FILL]												
			SANDY LEAN CLAY (CL), reddish yellow, very stiff, moist, fine-grained sand, contains some coarse-grained sand, trace organics, roots [FILL]			26									
5	80		SILTY SAND (SM), yellowish brown, very dense, moist, fine-grained sand, manganese staining, contains trace coarse-grained sand and fine gravel, cementation [COLMA FORMATION]			79									
10	75		Light grayish brown mottled with orange, dense, fine to medium-grained sand, trace fine gravel			44									
15	70		POORLY GRADED SAND WITH SILT (SP-SM), light grayish brown mottled with orange, very dense, moist, fine- to medium-grained sand, cemented			50/4.5"									
20	65		SANDY SILT (ML), light grayish brown mottled with orange, very stiff to hard, fine-grained sand, iron oxide staining, contains trace fine gravel			57									
25	60		SILTY SAND (SM), light grayish brown, very dense, moist, contains clay, trace fine gravel and rock fragments			80									
30	55														

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B06

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 1/30/2017
HOLE DEPTH: Approx. 100½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 84.85 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			SILTY SAND (SM), light grayish brown, dense, moist, contains clay, trace fine gravel and rock fragments			51									
35	50		Dark reddish brown, fine- to coarse-grained sand			36				25					
			SANDY SILTY CLAY (CL-ML), yellowish brown, dense to very stiff, moist, fine-grained sand, iron oxide staining												
40	45		Gray, more fines			22	27	22	5	70	17.6				
45	40		More clay												
			SILTY SAND (SM), grayish brown, dense, moist, fine- to medium-grained sand, iron oxide staining, contains clay			59				21					
50	35		Yellowish brown, very dense, fine- to coarse-grained sand, trace fine gravel			50/5"									
55	30														
			POORLY GRADED SAND WITH SILT (SP-SM), light grayish brown, very dense, moist, fine- to medium-grained sand												
60	25														

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B06

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 1/30/2017
HOLE DEPTH: Approx. 100½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 84.85 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
65	20		POORLY GRADED SAND WITH SILT (SP-SM), light grayish brown, very dense, moist, fine- to medium-grained sand			50/4"									
			SILTY SAND (SM), light grayish brown, very dense, moist to wet, fine- to medium-grained sand												
70	15					50/6"									
75	10		SILT WITH SAND (ML), grayish brown, stiff to very stiff, moist to wet, fine-grained sand, contains clay, iron oxide staining												
80	5		LEAN CLAY WITH SAND (CL), bluish gray, stiff to very stiff, moist to wet, low plasticity, fine-grained sand			22									
85	0		POORLY GRADED SAND WITH SILT (SP-SM), yellowish brown, very dense, moist to wet, fine-grained sand												
90	-5														

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B06

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 1/30/2017
HOLE DEPTH: Approx. 100½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 84.85 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			POORLY GRADED SAND WITH SILT (SP-SM), yellowish brown, very dense, moist to wet, fine-grained sand			50/6"									
95	-10														
100	-15					50/5.5"									
			Boring terminated at a depth of 100 1/2 feet below ground surface. Depth to groundwater was not measured due to drilling method.												

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B07

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 1/31/2017
HOLE DEPTH: Approx. 51½ ft.
HOLE DIAMETER: 5.0 in.
SURF ELEV (NAVD88): 72.35 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			CONCRETE Asphaltic concrete, 2"												
			AGGREGATE BASE (AB) 3"												
			SILTY SAND (SM), dark grayish brown, moist to dry, contains organics [FILL]												
	70		LEAN CLAY (CL), reddish brown, stiff to very stiff, moist [FILL]			32					25.7	103.3	4000*	>4.5*	PP+TV
			LEAN CLAY WITH SAND (CL), yellowish brown mottled with orange, hard, moist, fine-grained sand [COLMA FORMATION]												
5			SANDY LEAN CLAY (CL), yellowish brown mottled with reddish brown, hard, moist, fine- to coarse-grained sand, contains fine rounded gravel			70								>4.5*	PP
	65														
			SILTY SAND (SM), light yellowish brown, dense to very dense, moist, fine-grained sand, contains pockets of silty clay												
10						51									
	60														
			Light grayish brown, trace fine gravel, iron oxide staining			17									
15			LEAN CLAY (CL), grayish brown mottled with reddish brown, stiff to very stiff, moist, contains some fine-grained sand				32	16	16		20				
	55														
			SANDY LEAN CLAY (CL), light grayish brown, very stiff to hard, moist, fine-grained sand			55				55					
20			Mottled with orange												
	50														
			SILTY SAND (SM), light grayish brown mottled with dark red, dense, moist to wet, fine- to coarse-grained sand, contains trace fine gravel			43									
25															
	45														
			LEAN CLAY WITH SAND (CL), bluish gray, stiff, moist, fine-grained sand												
30															

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B07

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 1/31/2017
HOLE DEPTH: Approx. 51½ ft.
HOLE DIAMETER: 5.0 in.
SURF ELEV (NAVD88): 72.35 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			LEAN CLAY WITH SAND (CL), bluish gray, stiff, moist, fine-grained sand			16									
	40					30	29	21	8		25.1	102.9	1200*	2.5*	PP+TV
			More fine-grained sand												
35			Less fine-grained sand			15							1100*	1.25*	PP+TV
	35		More fine-grained sand and silt												
40			Stiff to very stiff, more fine-grained sand, contains silt, trace fine gravel			21					20.3	108.9	1200*	1.25 2.25*	UC PP+TV
	30														
45			Dark grayish brown, hard, more silt			77				72	18	112.9			
	25										28.6	93.5	3400*	>4.5*	PP+TV
50			SILTY SAND (SM), reddish brown, dense, moist to wet, fine- to medium-grained sand, contains trace fine gravel			57									
			Boring terminated at a depth of 51 1/2 feet below ground surface. Depth to groundwater was not measured due to drilling method.												

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B08

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 1/31/2017
HOLE DEPTH: Approx. 54½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 66.72 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
0	65		CONCRETE Asphaltic concrete, 2"												
			AGGREGATE BASE (AB) 4"												
			LEAN CLAY WITH SAND (CL), dark yellowish brown, stiff, moist, fine-grained sand, contains trace coarse-grained sand and fine gravel [FILL]			25									
			SILT WITH SAND (ML), dark brown, very stiff to hard, moist, fine-grained sand, organic odor, contains trace organics [FILL]										1520*	2.75*	PP+TV
5	60		CLAYEY GRAVEL (GC), dark yellowish brown, dense, dry to moist, fine to coarse gravel, fine- to coarse-grained sand, angular to subangular [COLMA FORMATION]			66									
			LEAN CLAY (CL), dark yellowish brown, medium stiff to stiff, moist, medium plasticity, some fine-grained sand, some coarse, angular gravel			17									
10	55														
			CLAYEY SAND WITH GRAVEL (SC), dark yellowish brown mottled with reddish orange, medium dense to dense, moist, fine- to coarse-grained sand, fine to coarse gravel, angular rock fragments, iron oxide staining			44									
15	50														
20	45		Medium dense, fine gravel, pockets of clean sand			26									
			LEAN CLAY WITH SAND (CL), yellowish brown mottled with orange, stiff, moist, fine-grained sand												
25	40		Grayish brown mottled with orange, very stiff, more fine gravel			31							2800*	3.25*	PP+TV
			No fine gravel												
30															

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B08

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 1/31/2017
HOLE DEPTH: Approx. 54½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 66.72 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			SANDY SILTY CLAY (CL-ML), light grayish brown mottled with orange, stiff to very stiff, moist to wet, fine-grained sand, iron oxide staining			21					25.4 26.1	100 103.7	800*	0.94 1.5*	UC PP+TV
35	35		Becomes wet			32	27	22	5	63			800*	1.5*	PP+TV
	30		SILTY SAND (SM), light grayish brown mottled with orange, medium dense to dense, wet, fine-grained sand, iron oxide staining												
40			More fines			59									
	25		SANDY SILT (ML), bluish gray, hard, wet, fine-grained sand												
45			FAT CLAY (CH), bluish gray mottled with black, soft, wet, contains silt, lens of organic material			6									
	20					11							1000*	0.75*	PP+TV
50															
	15		Very stiff			36							3500*	4*	PP+TV
			Boring terminated at a depth of 54 1/2 feet below ground surface. Depth to groundwater was not measured due to drilling method.												

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B09

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 1/27/2017
HOLE DEPTH: Approx. 51½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 86.78 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			CONCRETE Asphaltic concrete, 2"												
			AGGREGATE BASE (AB) 4"												
	85		SILTY SAND (SM), light reddish brown, moist, organic odor, contains trace organics [FILL]												
5			SANDY SILT (ML), reddish brown, hard, moist, fine-grained sand, contains trace fine gravel and clay [COLMA FORMATION]			80								>4.5*	PP
	80														
10			Mottled with black, trace rock fragments, roots, manganese staining			98/9"								>4.5*	PP
	75														
15			Mottled with black and light grayish brown, no gravel, more clay			61									
	70														
20			WELL GRADED SAND (SW), dark reddish brown, very dense, moist, fine- to coarse-grained sand, rock fragments, angular, organic odor, contains clay			77									
	65														
25			SILTY SAND (SM), light grayish brown mottled with orange, very dense, dry to moist, fine-grained sand, contains clay, trace medium-grained sand			58									
	60														
30															

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B09

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 1/27/2017
HOLE DEPTH: Approx. 51½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 86.78 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
	55		SILTY SAND (SM), light grayish brown mottled with orange, dense to very dense, dry to moist, fine-grained sand, contains clay, trace medium-grained sand			43									
35			Reddish brown mottled with light grayish brown, fine- to medium-grained sand, trace rock fragments, trace fine gravel, pockets of silty clay, manganese staining			47									
	50														
40						53									
	45														
45			Light grayish brown mottled with orange, moist, fine-grained sand			64									
	40														
50			More fines			54									
			Boring terminated at a depth of 51 1/2 feet below ground surface. Depth to groundwater was not measured due to drilling method.												

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B10

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 2/1/2017
HOLE DEPTH: Approx. 51½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 54.53 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			CONCRETE Asphaltic concrete, 2"												
			AGGREGATE BASE (AB) 6"												
			SANDY SILT (ML), brown, dry, fine-grained sand, contains trace organics [FILL]												
			SANDY LEAN CLAY (CL), yellowish brown, hard, moist, fine- to medium-grained sand, fine to coarse gravel, angular rock fragments, iron oxide staining, contains silt, pockets of silty sand [FILL]			37								>4.5*	PP
5	50		Mottled with dark brown, very stiff, contains roots, more clay			26							1250*	2.75*	PP+TV
10	45		SILTY SAND (SM), gray, medium dense, wet, fine- to medium-grained sand, contains organics, wood debris [FILL]			17									
15	40		SANDY SILT (ML), gray mottled with grayish green, soft to medium stiff, wet, fine- to medium-grained sand, contains trace fine gravel, contains clay, glass fragment, wood debris [FILL]			28									
			SANDY GRAVEL (GW), greenish gray mottled with reddish brown, dense, wet, fine to coarse gravel, rock fragments, angular fine- to coarse-grained sand [FILL]												
20	35		LEAN CLAY WITH SAND (CL), pale olive mottled with reddish yellow, soft to medium stiff, medium plasticity, fine-grained sand, manganese and iron oxide staining [COLMA FORMATION]			8									
25	30		SANDY LEAN CLAY (CL), light grayish brown mottled with reddish yellow, medium stiff, wet, low plasticity, fine-grained sand, contains trace fine gravel			30									
						15					21.4	107.3		0.70	UC
													600*	0.75*	PP+TV
30	25														

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B10

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 2/1/2017
HOLE DEPTH: Approx. 51½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 54.53 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			SANDY LEAN CLAY (CL), light grayish brown mottled with reddish yellow, very stiff, low plasticity, fine-grained sand, contains trace fine gravel			29							2000*	4*	PP+TV
35	20		SILTY SAND (SM), light grayish brown mottled with reddish yellow, dense to very dense, wet, fine-grained sand			65							2500*	>4.5*	PP+TV
40	15		Cemented			87/11"								>4.5*	PP
45	10					32				37					
50	5		SANDY SILT (ML), light grayish brown mottled with reddish yellow, very stiff to hard, wet, fine-grained sand			25				68					
			Boring terminated at a depth of 51 1/2 feet below ground surface. Depth to groundwater was not measured due to drilling method.												

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B11

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 2/1/2017
HOLE DEPTH: Approx. 50¾ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 99.96 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
0			CONCRETE Asphaltic concrete, 2"												
			AGGREGATE BASE (AB) 4"												
			SILTY SAND (SM), light yellowish brown mottled with reddish brown, dry, fine- to coarse-grained sand, contains trace fine gravel [FILL]												
5	95		SANDY SILT (ML), dark brown, dry, fine-grained sand [COLMA FORMATION]												
			Light brown, more fines												
10	90		SILTY SAND (SM), yellowish brown, very dense, moist, fine-grained sand, cemented, some pockets of cemented silt			50/6"									
15	85														
20	80		Light grayish brown, manganese staining			68									
			SANDY SILT (ML), light grayish brown mottled with reddish yellow, very stiff to hard, moist, fine-grained sand												
25	75					35				64	17				
			SILTY SAND (SM), light grayish brown mottled with reddish yellow, very dense, moist, fine-grained sand												
30	70														

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B11

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 2/1/2017
HOLE DEPTH: Approx. 50¾ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 99.96 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			SILTY SAND (SM), light grayish brown mottled with reddish yellow, very dense, moist, fine-grained sand			69									
35	65		More medium-grained sand, less fines			92/11"									
40	60					50/5.5"									
45	55		More fines			90/10"									
50	50		Less fines			50/4"									
			Boring terminated at a depth of 50 3/4 feet below ground surface. Depth to groundwater was not measured due to drilling method.												

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B12

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 4/12/2017
HOLE DEPTH: Approx. 100½ ft.
HOLE DIAMETER: 8.0 in.
SURF ELEV (NAVD88): 105.54 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Britton Exploration
DRILLING METHOD: Hollow Stem Auger
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
0	105		Asphaltic concrete, 3"												
			AGGREGATE BASE (AB) 5"												
			SILTY SAND WITH GRAVEL (SM), brown, dry, fine- to coarse-grained sand, subrounded fine to coarse gravel, contains clay [FILL]												
5	100		SILTY SAND (SM), reddish yellow, moist, fine-grained sand, contains clay [COLMA FORMATION]												
10	95														
			SANDY LEAN CLAY (CL), yellowish brown, hard, moist, iron oxide and manganese staining												
15	90					40									
			SILTY SAND (SM), yellowish brown, dense, moist, fine-grained sand, iron oxide staining												
20	85														
25	80														
30															

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B12

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 4/12/2017
HOLE DEPTH: Approx. 100½ ft.
HOLE DIAMETER: 8.0 in.
SURF ELEV (NAVD88): 105.54 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Britton Exploration
DRILLING METHOD: Hollow Stem Auger
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
0	75		SILTY SAND (SM), light grayish brown, dense, moist, fine-grained sand, iron oxide staining			44									
35	70														
40	65		medium dense, more fines			20									
45	60														
50	55		dense, less fines			49									
55	50														
60															

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B12

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 4/12/2017
HOLE DEPTH: Approx. 100½ ft.
HOLE DIAMETER: 8.0 in.
SURF ELEV (NAVD88): 105.54 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Britton Exploration
DRILLING METHOD: Hollow Stem Auger
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
	45		SILTY SAND (SM), light grayish brown, very dense, moist, fine-grained sand, iron oxide staining			62									
65	40														
70	35														
75	30														
80	25		less fines, trace coarse-grained sand			83									
85	20														
90															

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B12

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 4/12/2017
HOLE DEPTH: Approx. 100½ ft.
HOLE DIAMETER: 8.0 in.
SURF ELEV (NAVD88): 105.54 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Britton Exploration
DRILLING METHOD: Hollow Stem Auger
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
	15		SILTY SAND (SM), light grayish brown, very dense, moist, fine-grained sand, iron oxide staining												
95	10														
100						50/6"									
			Boring terminated at a depth of 100 1/2 feet below ground surface. Groundwater was not encountered at the time of drilling.												

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17



APPENDIX B

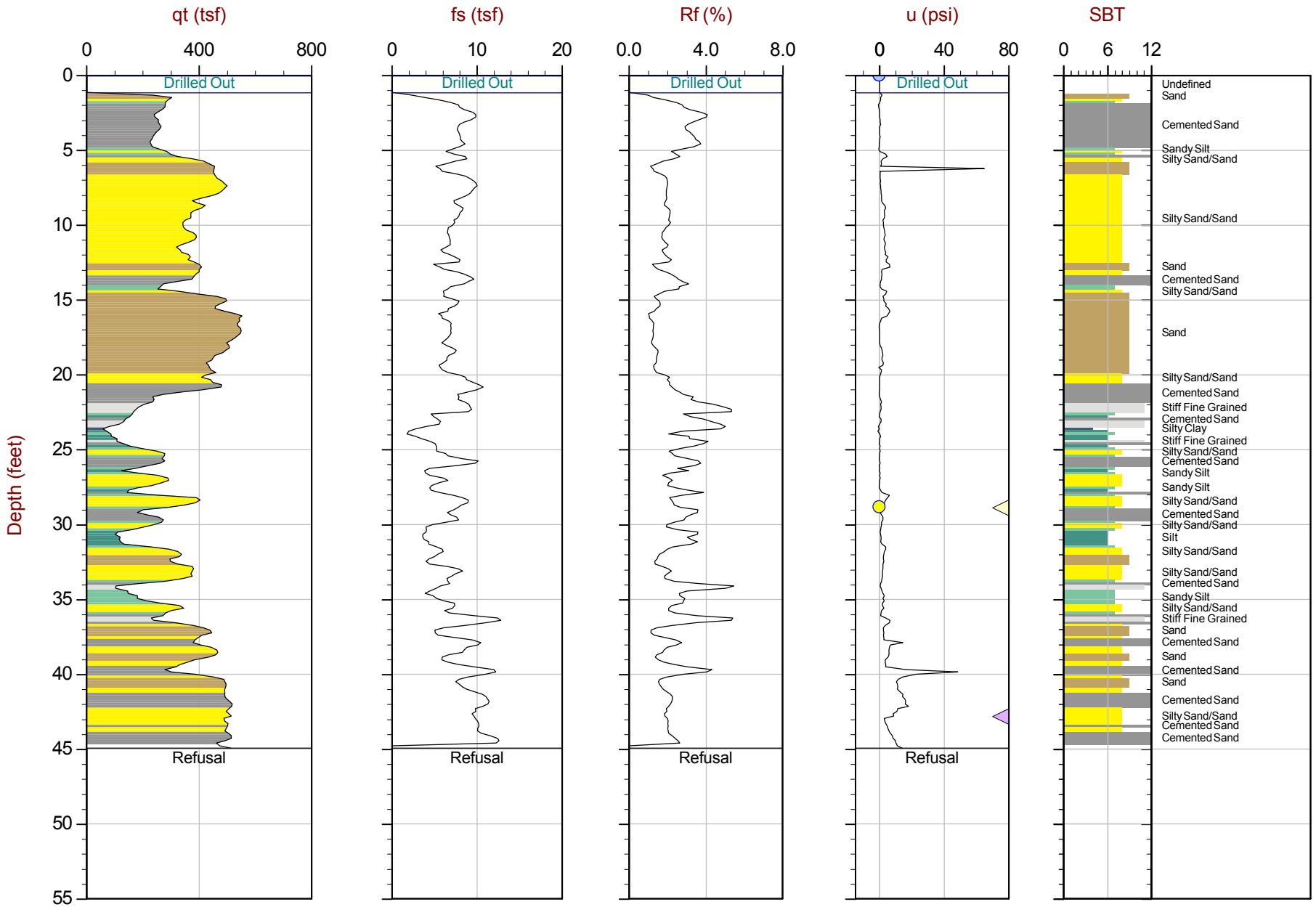
CONE PENETRATION TEST LOGS

CALIFORNIA PUSH TECHNOLOGIES INCORPORATED

ENGEO Inc.

Job No: 17-56008
Date: 01:23:17 12:01
Site: You Tube Campus, San Bruno, CA

Sounding: 1-CPT01
Cone: 448:T1500F15U500



Max Depth: 13.700 m / 44.95 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point
Overplot Item:

File: 17-56008_CP01.COR
Unit Wt: SBT Zones

SBT: Robertson and Campanella, 1986
Coords: UTM 10N N: 4164855m E: 550710m
Page No: 1 of 1

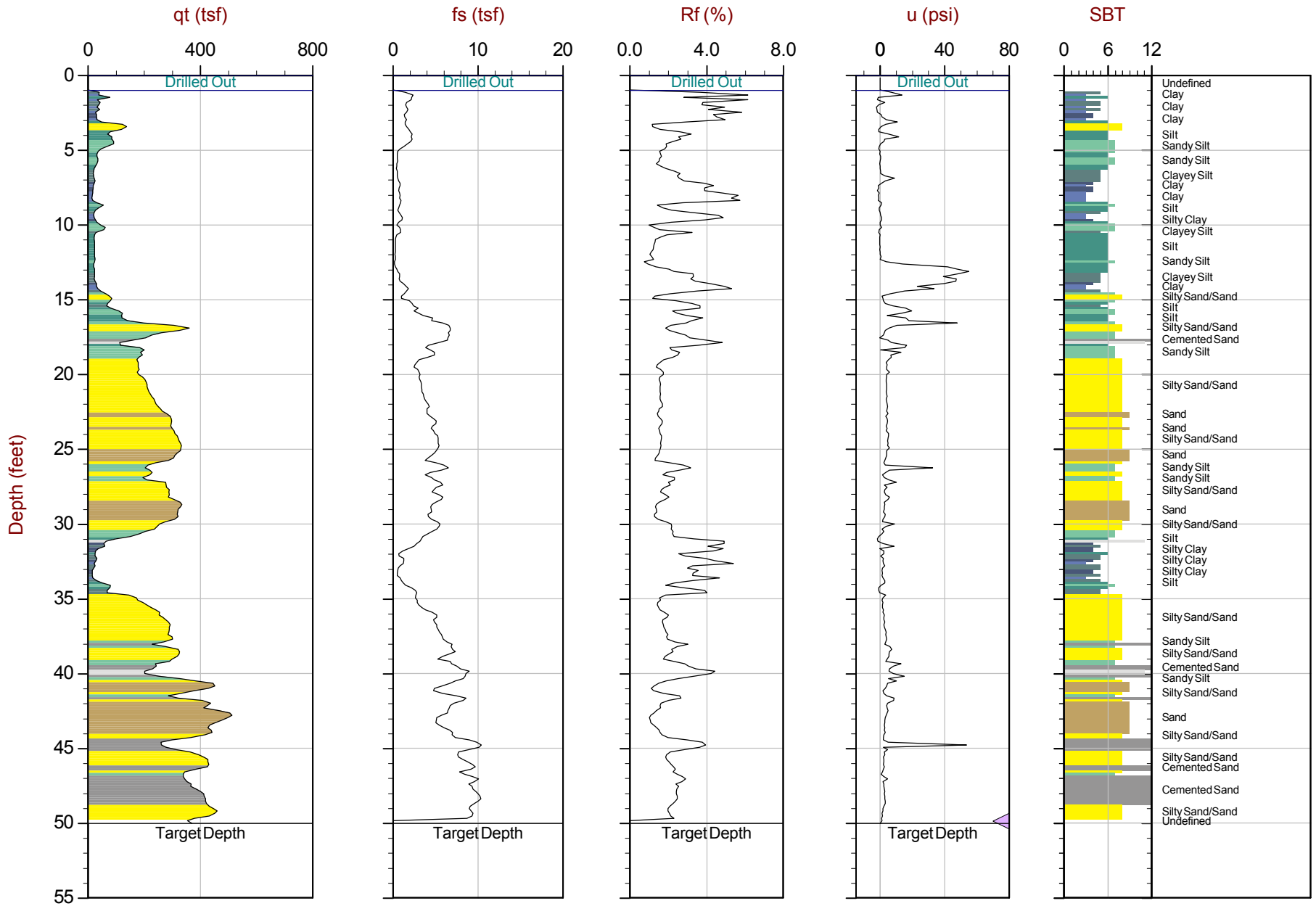
Assumed Ueq
Ueq
Dissipation, equilibrium achieved
Dissipation, equilibrium not achieved
Hydrostatic Line

CALIFORNIA PUSH TECHNOLOGIES INCORPORATED

ENGEO Inc.

Job No: 17-56008
Date: 01:24:17 08:03
Site: You Tube Campus, San Bruno, CA

Sounding: 1-CPT03
Cone: 448:T1500F15U500



Max Depth: 15.250 m / 50.03 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point
Overplot Item:

File: 17-56008_CP03.COR
Unit Wt: SBT Zones

SBT: Robertson and Campanella, 1986
Coords: UTM 10N N: 4164766m E: 550781m
Page No: 1 of 1

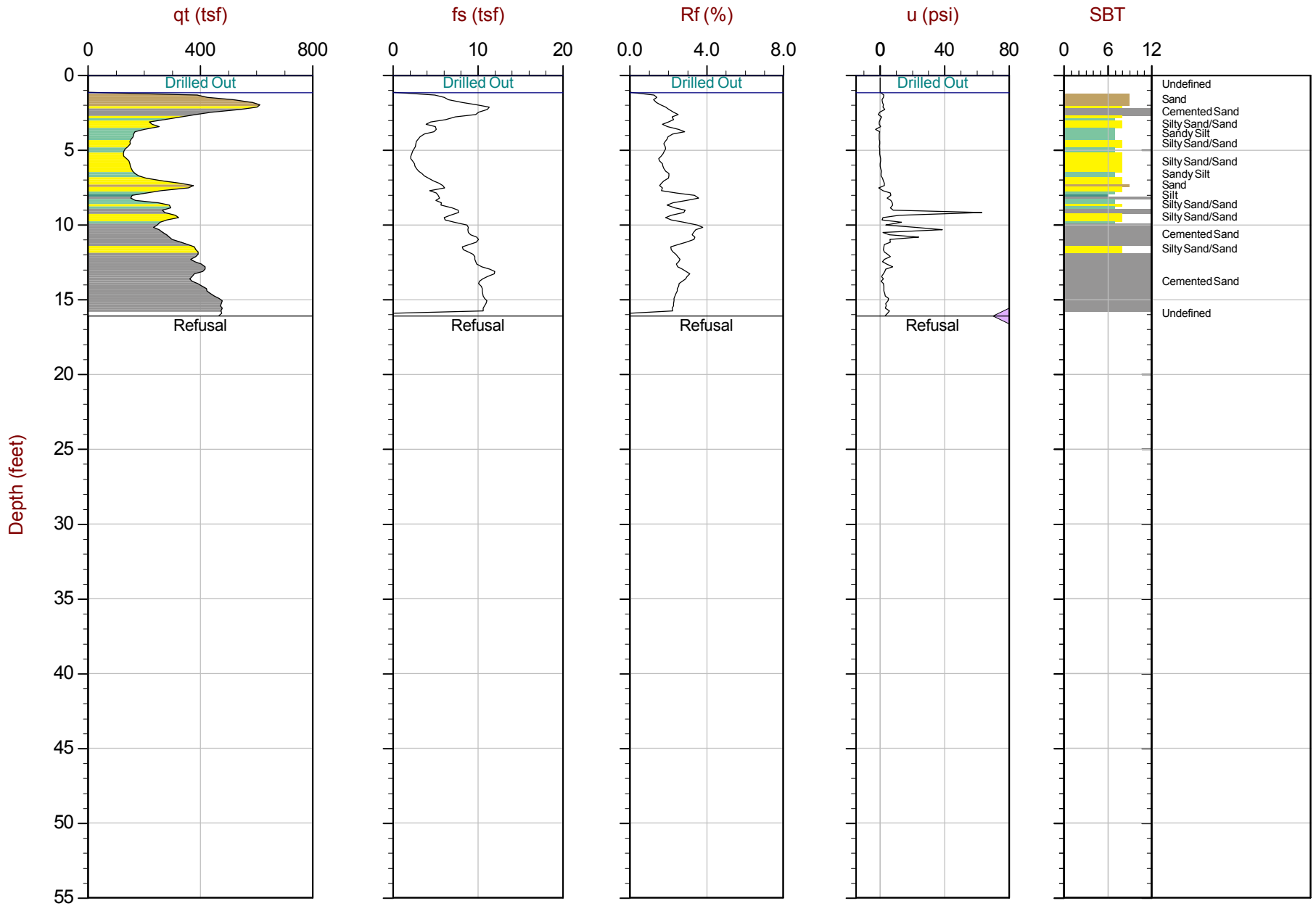
Assumed Ueq
Ueq
Dissipation, equilibrium achieved
Dissipation, equilibrium not achieved
Hydrostatic Line

CALIFORNIA PUSH TECHNOLOGIES INCORPORATED

ENGEO Inc.

Job No: 17-56008
Date: 01:24:17 09:10
Site: You Tube Campus, San Bruno, CA

Sounding: 1-CPT04
Cone: 448:T1500F15U500



Max Depth: 4.900 m / 16.08 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point
Overplot Item:

File: 17-56008_CP04.COR
Unit Wt: SBT Zones

SBT: Robertson and Campanella, 1986
Coords: UTM 10N N: 4164733m E: 550832m
Page No: 1 of 1

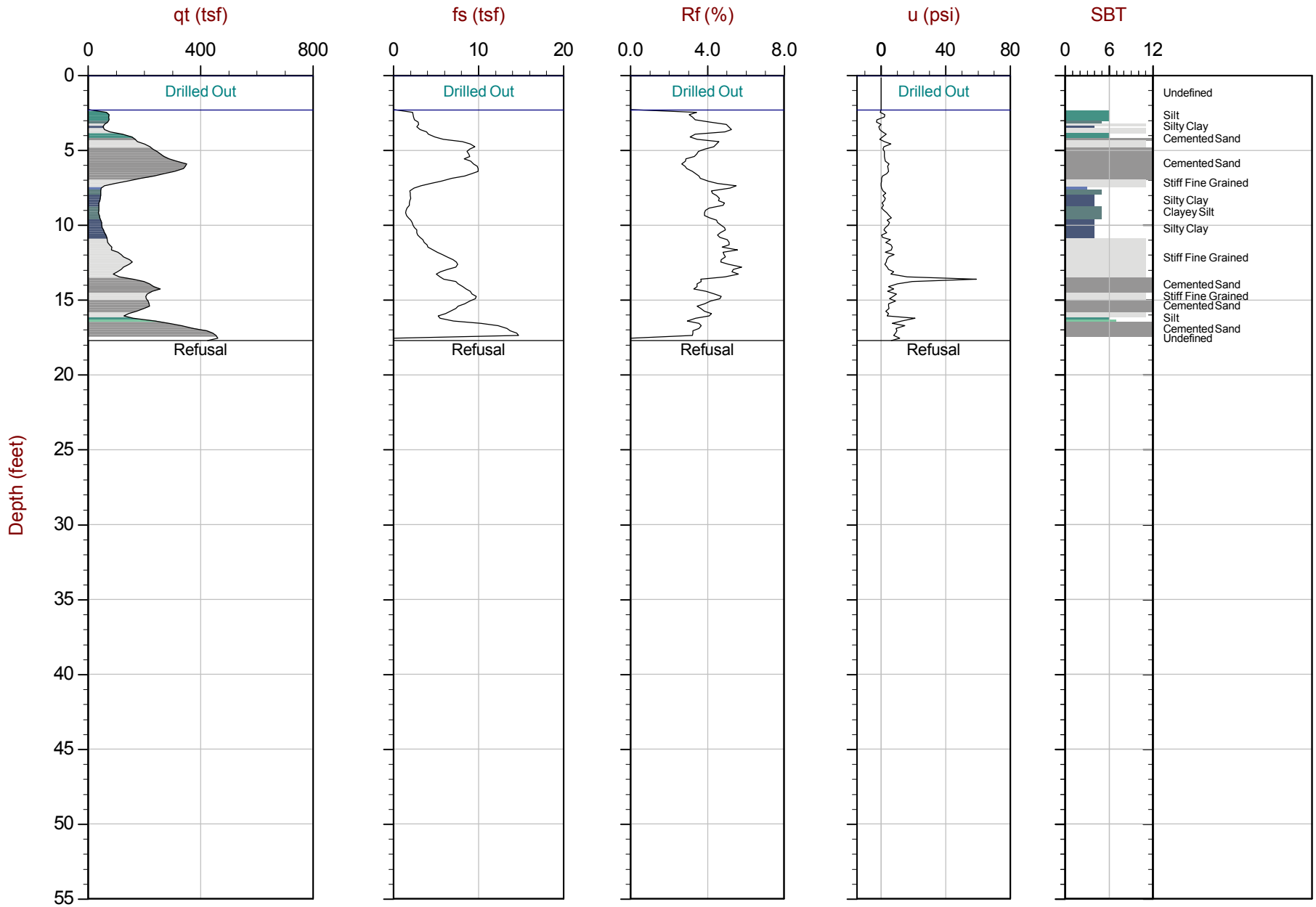
Assumed Ueq
Ueq
Dissipation, equilibrium achieved
Dissipation, equilibrium not achieved
Hydrostatic Line

CALIFORNIA PUSH TECHNOLOGIES INCORPORATED

ENGEO Inc.

Job No: 17-56008
Date: 01:24:17 12:12
Site: You Tube Campus, San Bruno, CA

Sounding: 1-CPT05b
Cone: 448:T1500F15U500



Max Depth: 5.400 m / 17.72 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point
Overplot Item:

File: 17-56008_CP05B.COR
Unit Wt: SBT Zones

SBT: Robertson and Campanella, 1986
Coords: UTM 10N N: 4164832m E: 550882m
Page No: 1 of 1

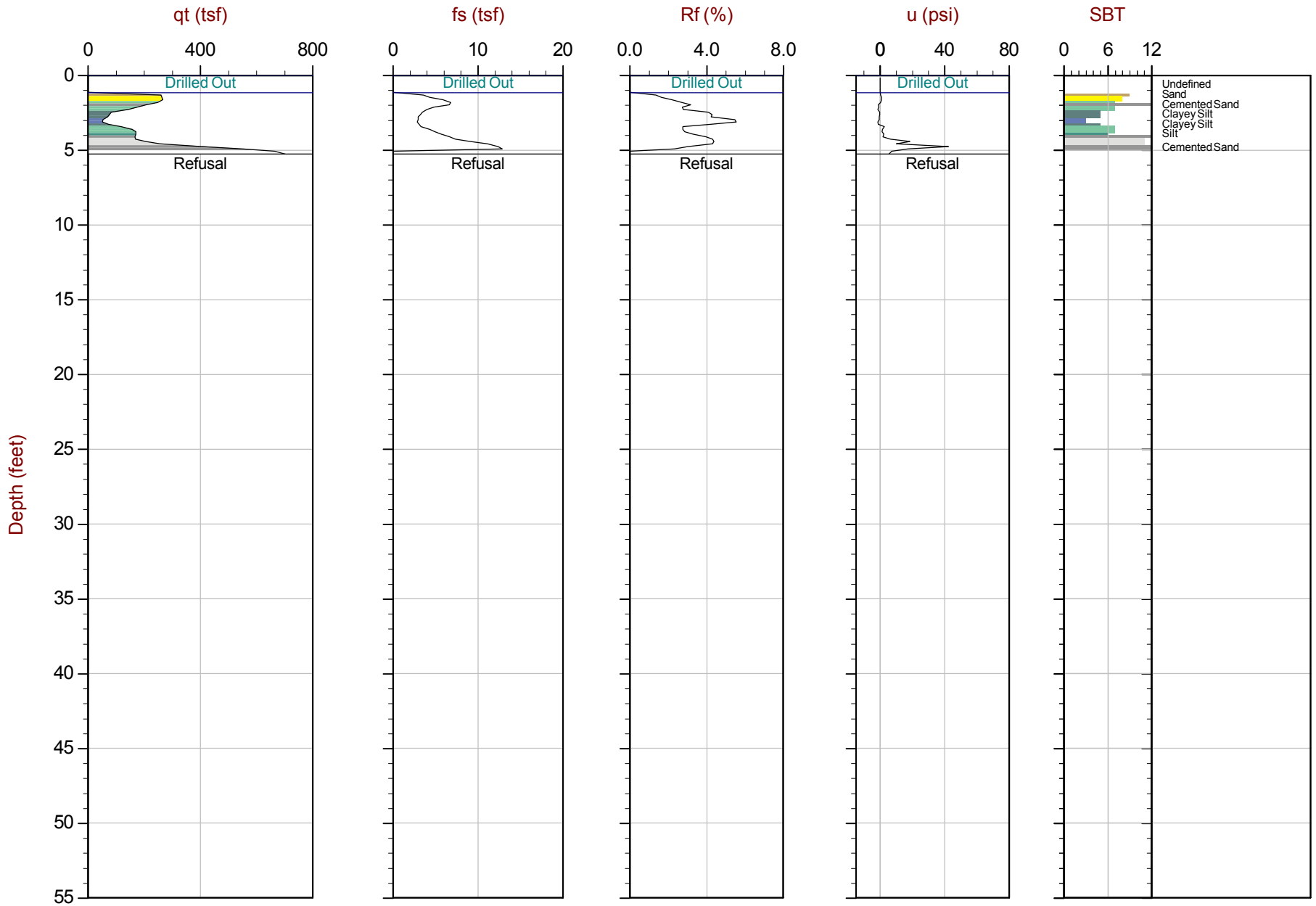
Assumed Ueq
Ueq
Dissipation, equilibrium achieved
Dissipation, equilibrium not achieved
Hydrostatic Line

CALIFORNIA PUSH TECHNOLOGIES INCORPORATED

ENGEO Inc.

Job No: 17-56008
Date: 01:24:17 10:11
Site: You Tube Campus, San Bruno, CA

Sounding: 1-CPT05
Cone: 448:T1500F15U500



Max Depth: 1.600 m / 5.25 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point
Overplot Item:

File: 17-56008_CP05.COR
Unit Wt: SBT Zones

SBT: Robertson and Campanella, 1986
Coords: UTM 10N N: 4164830m E: 550881m
Page No: 1 of 1

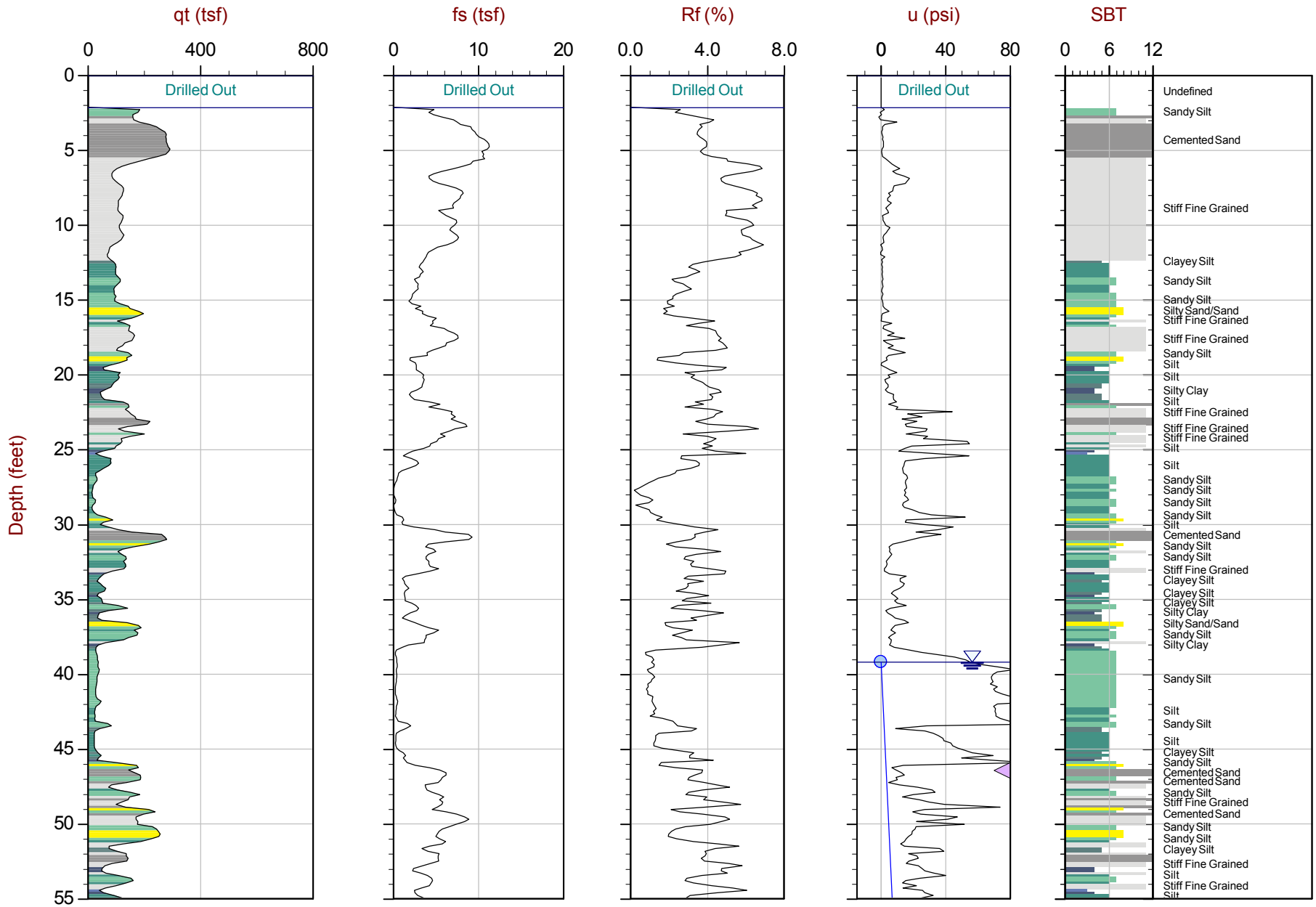
Assumed Ueq
Ueq
Dissipation, equilibrium achieved
Dissipation, equilibrium not achieved
Hydrostatic Line

CALIFORNIA PUSH TECHNOLOGIES INCORPORATED

ENGEO Inc.

Job No: 17-56008
Date: 01:24:17 10:53
Site: You Tube Campus, San Bruno, CA

Sounding: 1-CPT06
Cone: 448:T1500F15U500



Max Depth: 19.250 m / 63.16 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point
Overplot Item:

File: 17-56008_CP06.COR
Unit Wt: SBT Zones

SBT: Robertson and Campanella, 1986
Coords: UTM 10N N:4164849m E:550963m
Page No: 1 of 2

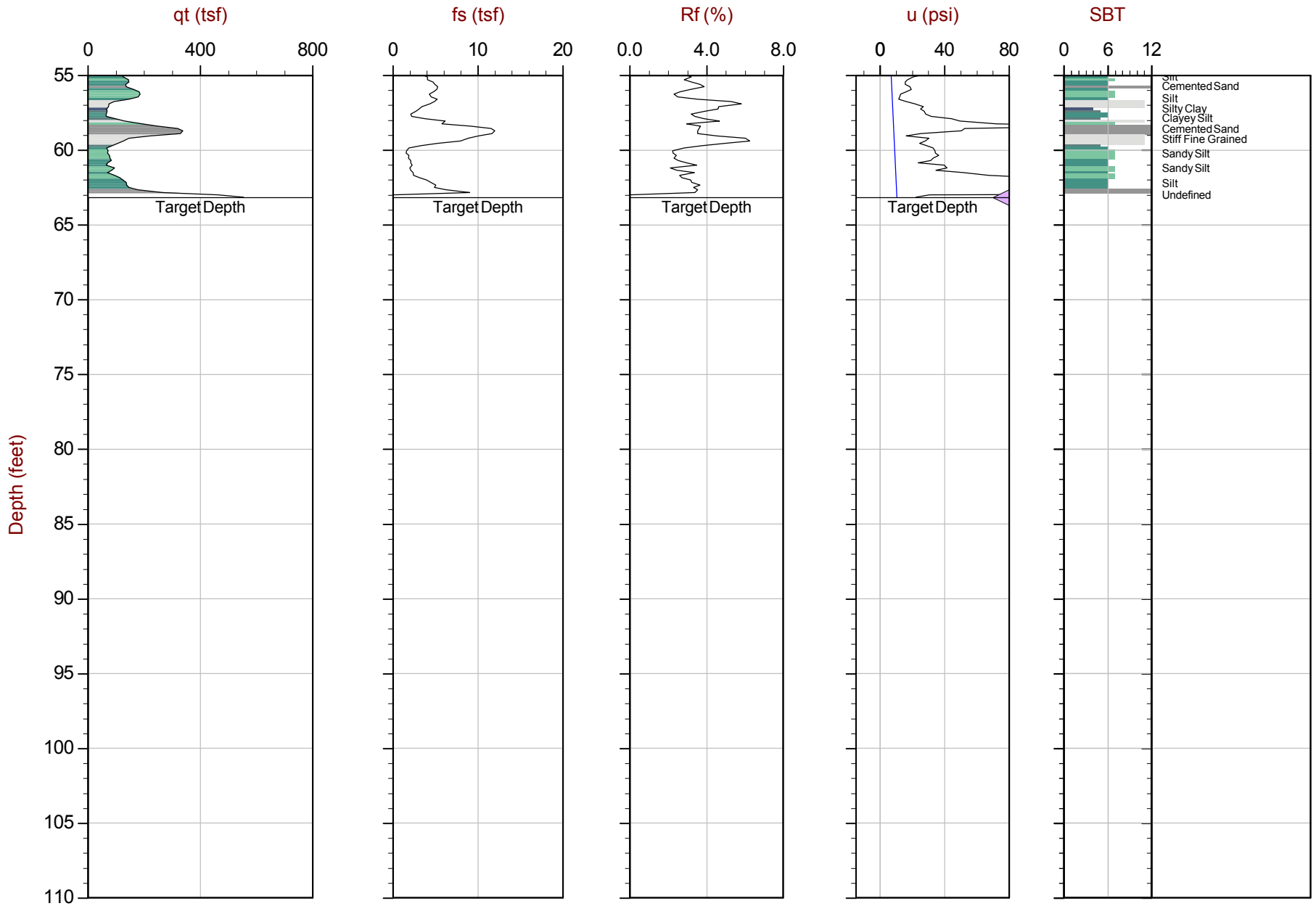
Assumed Ueq
Ueq
Dissipation, equilibrium achieved
Dissipation, equilibrium not achieved
Hydrostatic Line

CALIFORNIA PUSH TECHNOLOGIES INCORPORATED

ENGEO Inc.

Job No: 17-56008
Date: 01:24:17 10:53
Site: You Tube Campus, San Bruno, CA

Sounding: 1-CPT06
Cone: 448:T1500F15U500



Max Depth: 19.250 m / 63.16 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point
Overplot Item:

File: 17-56008_CP06.COR
Unit Wt: SBT Zones

SBT: Robertson and Campanella, 1986
Coords: UTM 10N N: 4164849m E: 550963m
Page No: 2 of 2

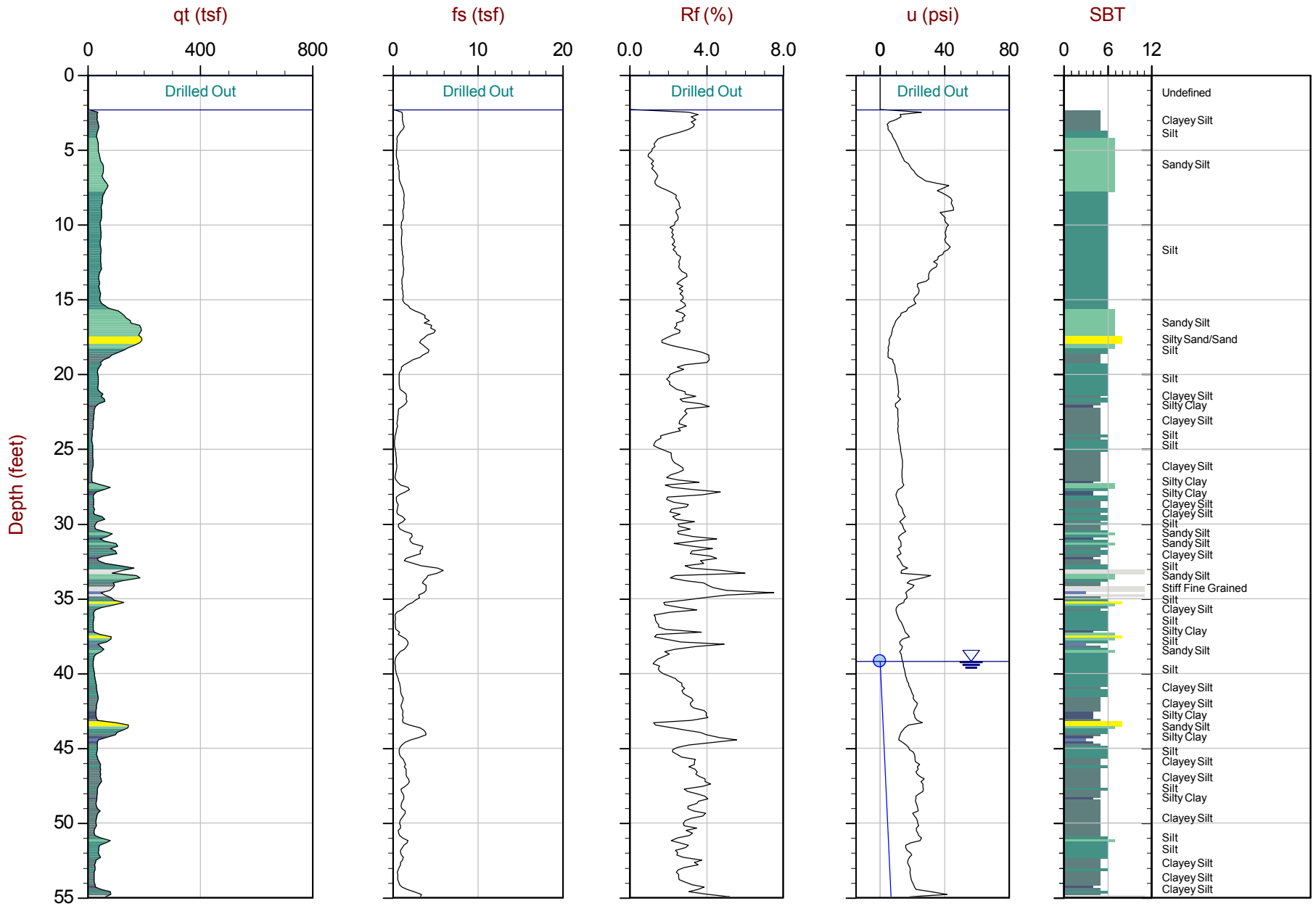
Assumed Ueq
Ueq
Dissipation, equilibrium achieved
Dissipation, equilibrium not achieved
Hydrostatic Line

CALIFORNIA PUSH TECHNOLOGIES INCORPORATED

ENGEO Inc.

Job No: 17-56008
Date: 01:24:17 13:06
Site: You Tube Campus, San Bruno, CA

Sounding: 1-CPT07
Cone: 383:T1500F15U500



Max Depth: 24.250 m / 79.56 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point
Overplot Item:

File: 17-56008_CP07.COR
Unit Wt: SBT Zones

SBT: Robertson and Campanella, 1986
Coords: UTM 10N N: 4164882m E: 550982m
Page No: 1 of 2

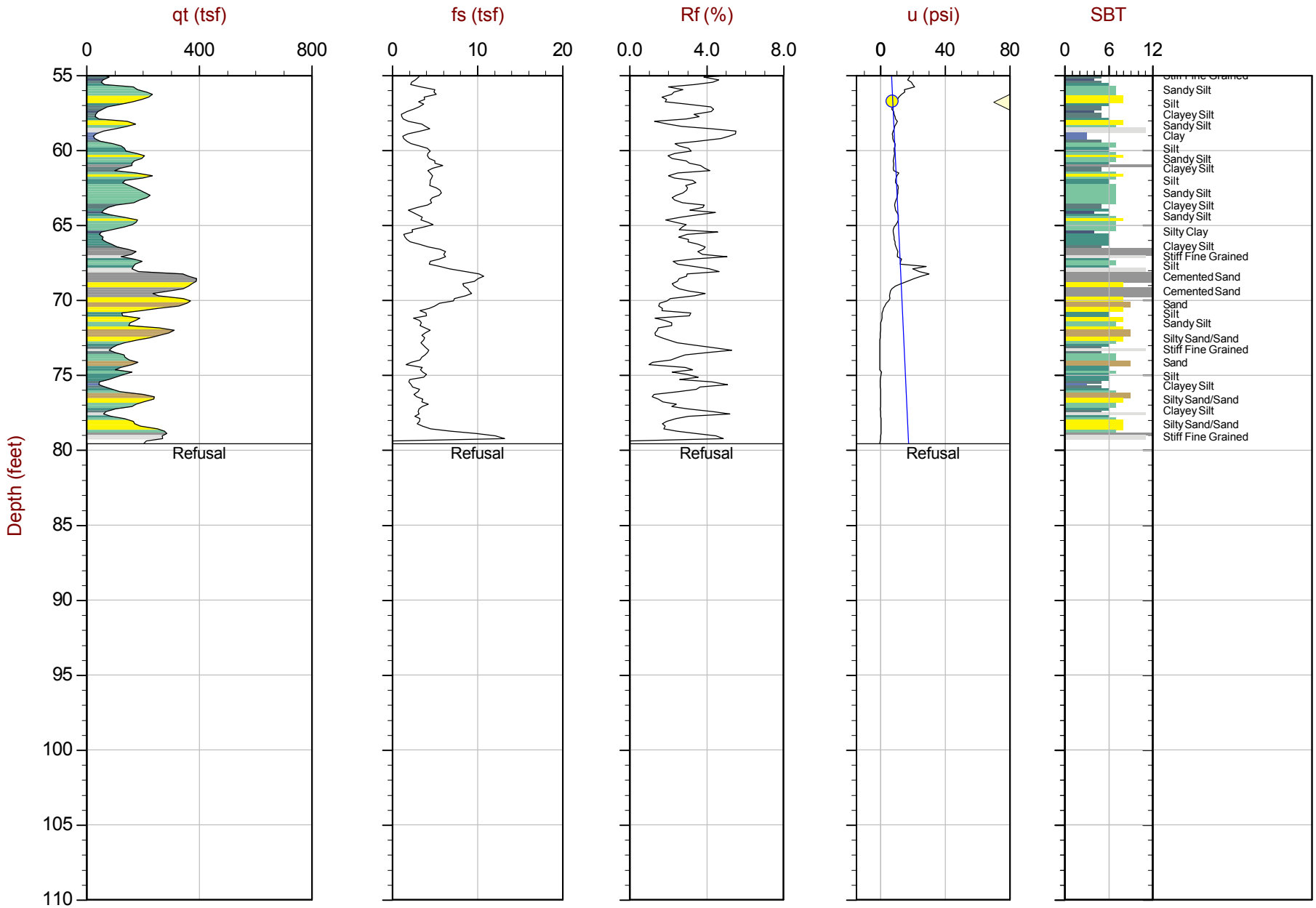
Assumed Ueq
Ueq
Dissipation, equilibrium achieved
Dissipation, equilibrium not achieved
Hydrostatic Line

CALIFORNIA PUSH TECHNOLOGIES INCORPORATED

ENGEO Inc.

Job No: 17-56008
Date: 01:24:17 13:06
Site: You Tube Campus, San Bruno, CA

Sounding: 1-CPT07
Cone: 383:T1500F15U500



Max Depth: 24.250 m / 79.56 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point
Overplot Item:

File: 17-56008_CP07.COR
Unit Wt: SBT Zones

SBT: Robertson and Campanella, 1986
Coords: UTM 10N N: 4164882m E: 550982m
Page No: 2 of 2

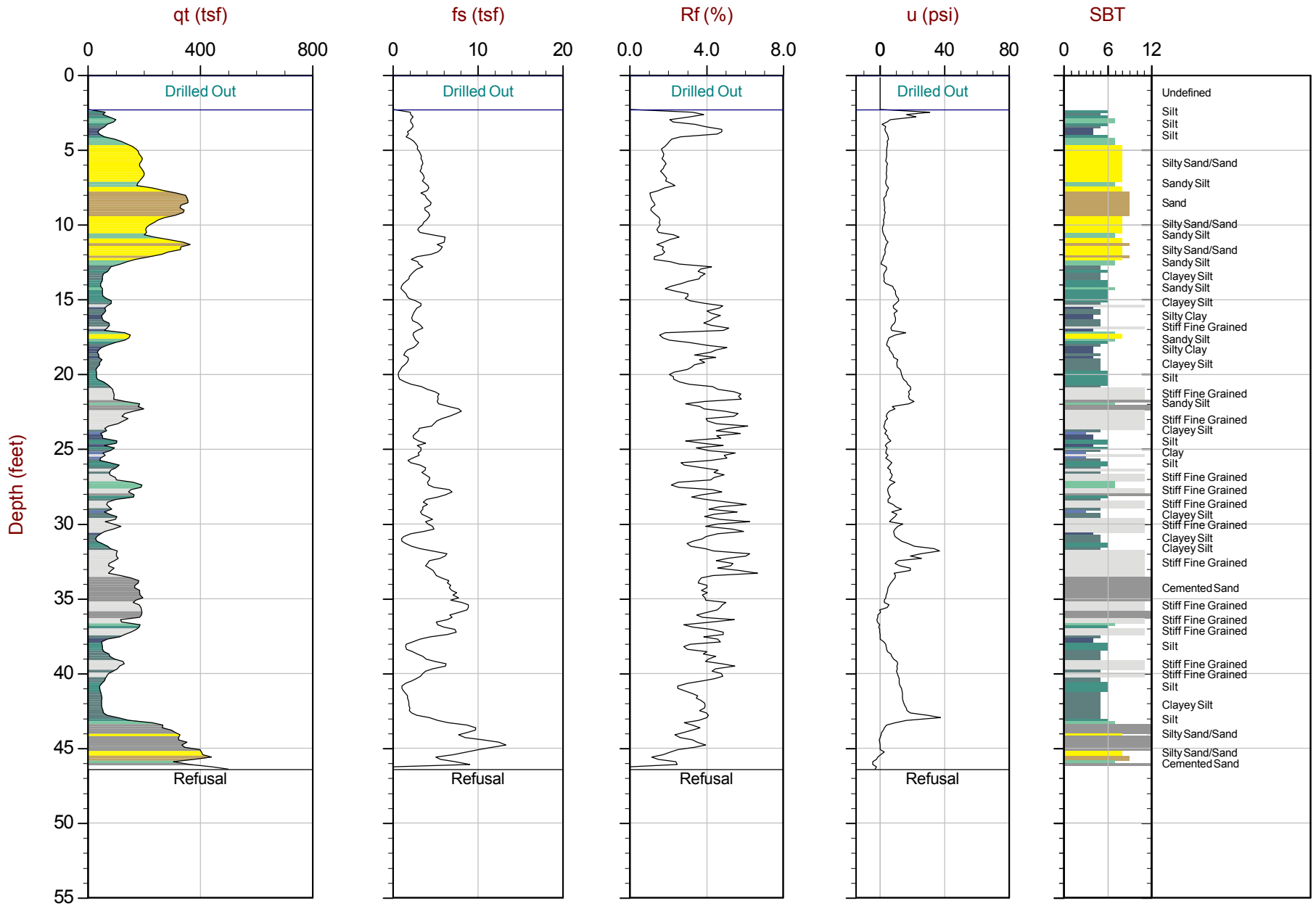
Assumed Ueq
Ueq
Dissipation, equilibrium achieved
Dissipation, equilibrium not achieved
Hydrostatic Line

CALIFORNIA PUSH TECHNOLOGIES INCORPORATED

ENGEO Inc.

Job No: 17-56008
Date: 01:25:17 10:13
Site: You Tube Campus, San Bruno, CA

Sounding: 1-CPT11
Cone: 383:T1500F15U500



Max Depth: 14.150 m / 46.42 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point
Overplot Item: Assumed Ueq, Ueq

File: 17-56008_CP11.COR
Unit Wt: SBT Zones

Dissipation, equilibrium achieved
Dissipation, equilibrium not achieved
Hydrostatic Line

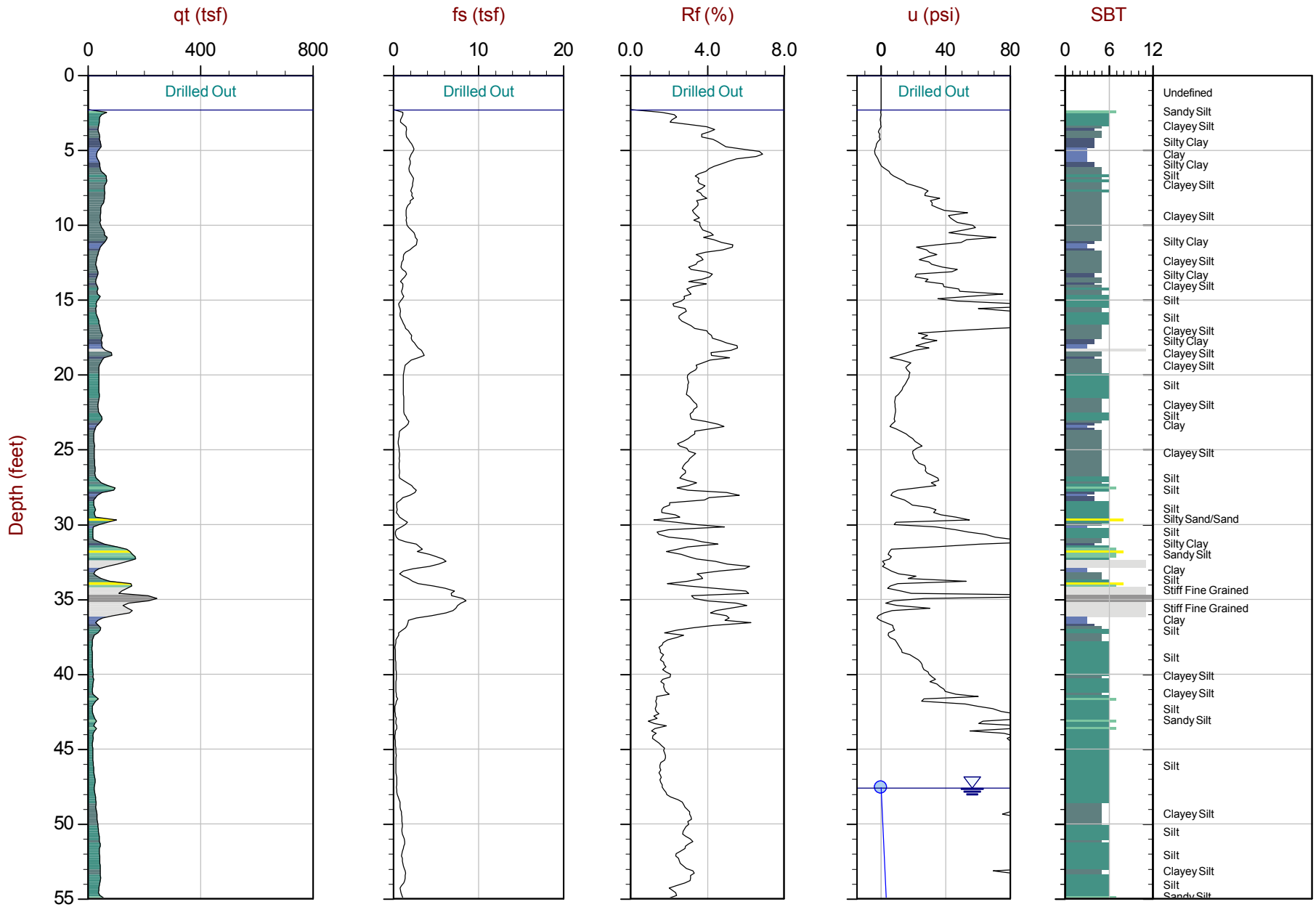
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Coords: UTM 10N N: 4164824m E: 551113m
Page No: 1 of 1

CALIFORNIA PUSH TECHNOLOGIES INCORPORATED

ENGEO Inc.

Job No: 17-56008
Date: 01:25:17 11:17
Site: You Tube Campus, San Bruno, CA

Sounding: 1-CPT12
Cone: 383:T1500F15U500



Max Depth: 21.900 m / 71.85 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point
Overplot Item:

File: 17-56008_CP12.COR
Unit Wt: SBT Zones

SBT: Robertson and Campanella, 1986
Coords: UTM 10N N: 4164894m E: 551022m
Page No: 1 of 2

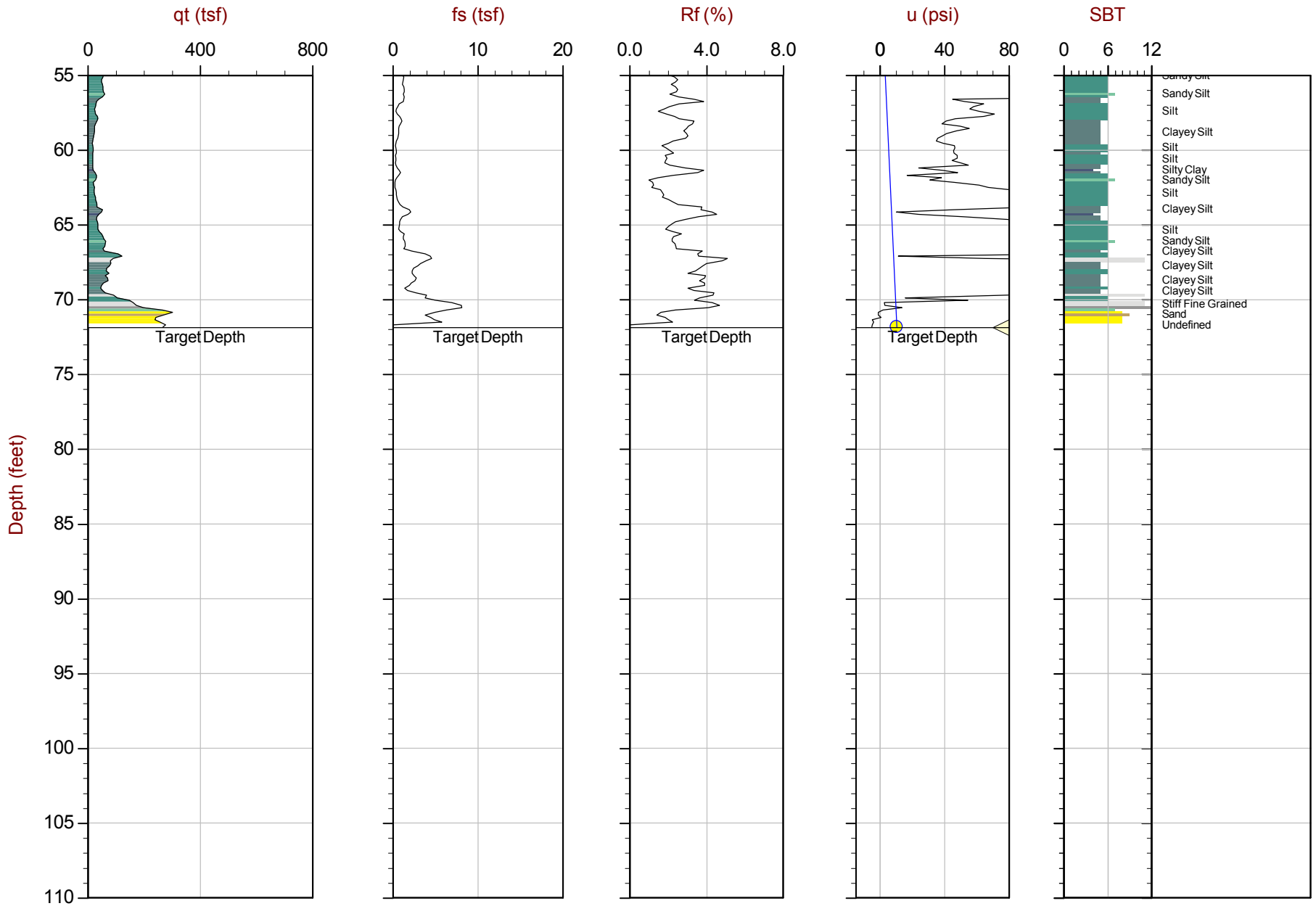
Assumed Ueq
Ueq
Dissipation, equilibrium achieved
Dissipation, equilibrium not achieved
Hydrostatic Line

CALIFORNIA PUSH TECHNOLOGIES INCORPORATED

ENGEO Inc.

Job No: 17-56008
Date: 01:25:17 11:17
Site: You Tube Campus, San Bruno, CA

Sounding: 1-CPT12
Cone: 383:T1500F15U500



Max Depth: 21.900 m / 71.85 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point
Overplot Item:

File: 17-56008_CP12.COR
Unit Wt: SBT Zones

SBT: Robertson and Campanella, 1986
Coords: UTM 10N N: 4164894m E: 551022m
Page No: 2 of 2

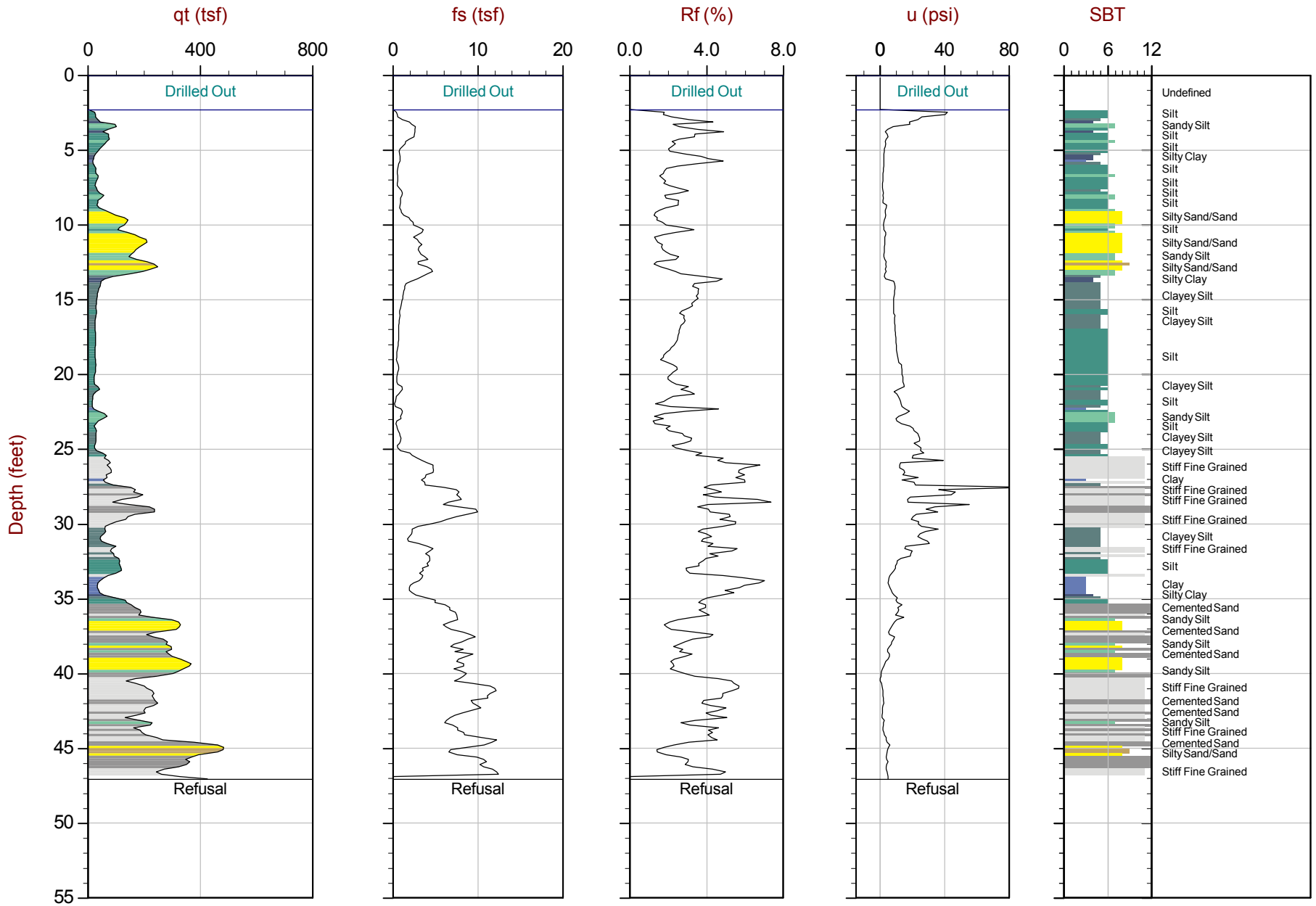
Assumed Ueq
Ueq
Dissipation, equilibrium achieved
Dissipation, equilibrium not achieved
Hydrostatic Line

CALIFORNIA PUSH TECHNOLOGIES INCORPORATED

ENGEO Inc.

Job No: 17-56008
Date: 01:25:17 12:35
Site: You Tube Campus, San Bruno, CA

Sounding: 1-CPT13
Cone: 383:T1500F15U500



Max Depth: 14.350 m / 47.08 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point
Overplot Item:

File: 17-56008_CP13.COR
Unit Wt: SBT Zones

SBT: Robertson and Campanella, 1986
Coords: UTM 10N N: 4164968m E: 551086m
Page No: 1 of 1

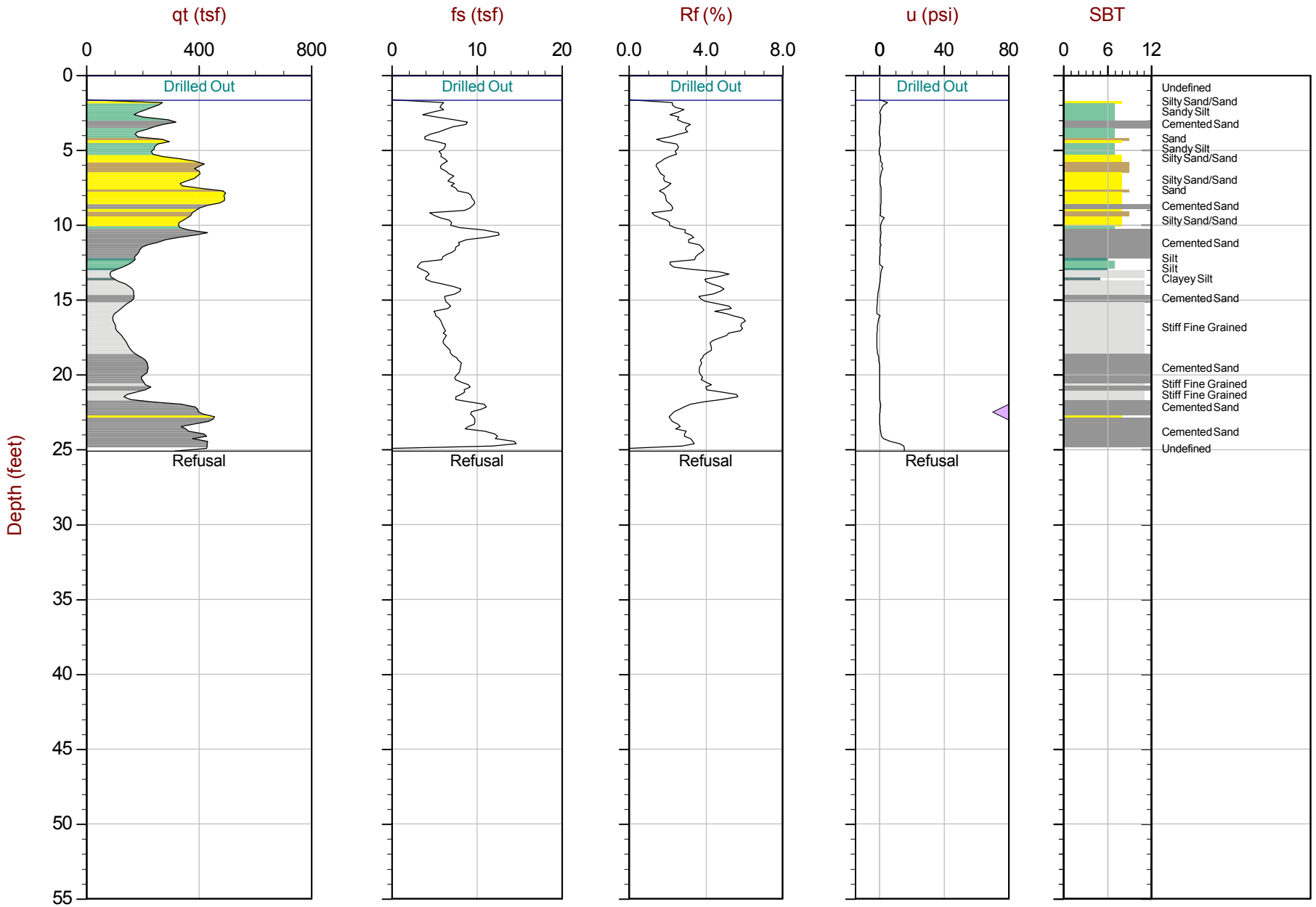
Assumed Ueq
Ueq
Dissipation, equilibrium achieved
Dissipation, equilibrium not achieved
Hydrostatic Line

CALIFORNIA PUSH TECHNOLOGIES INCORPORATED

ENGEO Inc.

Job No: 17-56008
Date: 01:25:17 13:46
Site: You Tube Campus, San Bruno, CA

Sounding: 1-CPT14
Cone: 383:T1500F15U500



Max Depth: 7.650 m / 25.10 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point
Overplot Item:

File: 17-56008_CP14.COR
Unit Wt: SBT Zones

SBT: Robertson and Campanella, 1986
Coords: UTM 10N N: 4164965m E: 550918m
Page No: 1 of 1

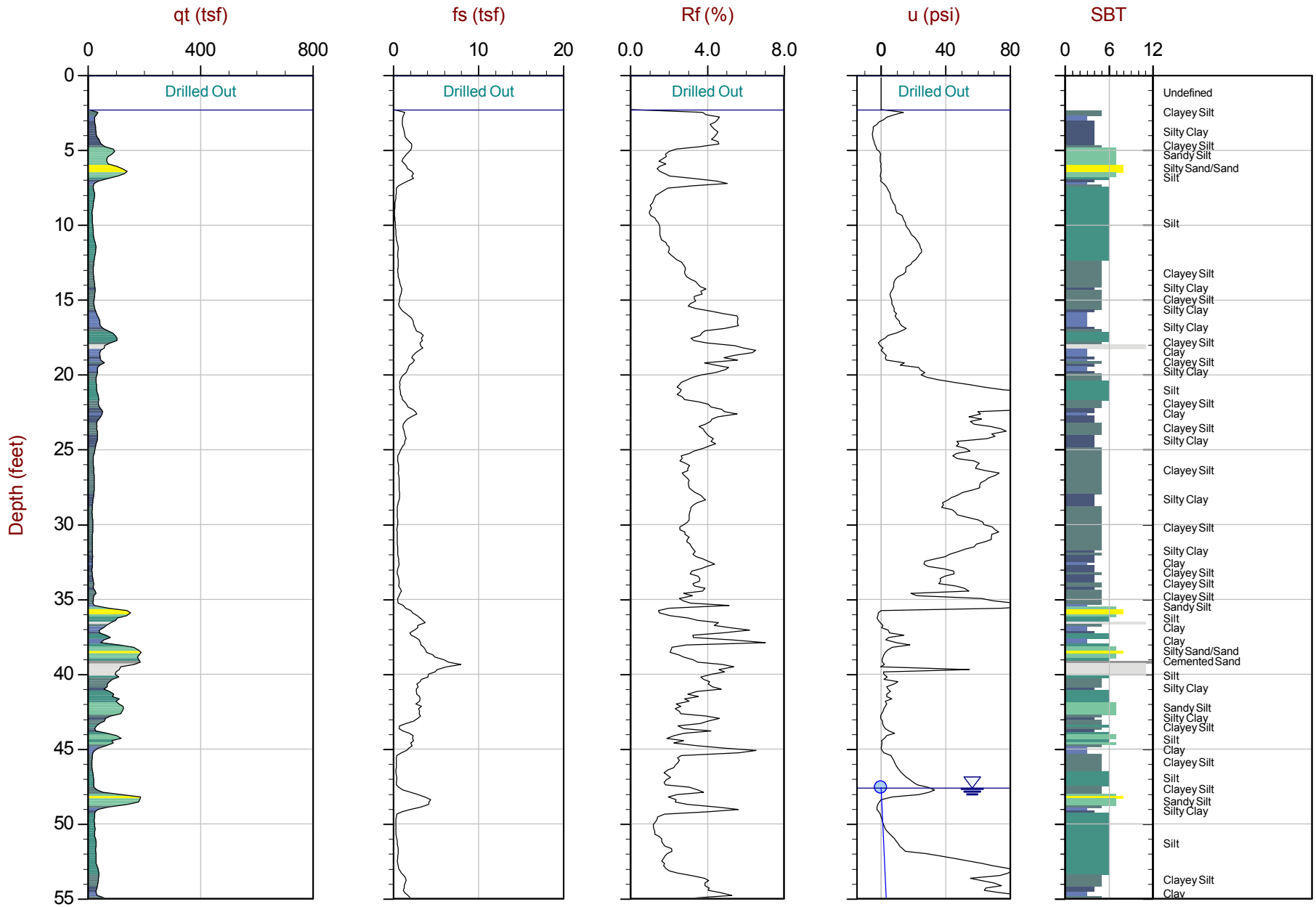
Assumed Ueq
Ueq
Dissipation, equilibrium achieved
Dissipation, equilibrium not achieved
Hydrostatic Line

CALIFORNIA PUSH TECHNOLOGIES INCORPORATED

ENGEO Inc.

Job No: 17-56008
Date: 01:25:17 14:39
Site: You Tube Campus, San Bruno, CA

Sounding: 1-CPT15
Cone: 383:T1500F15U500



Max Depth: 24.400 m / 80.05 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point
Overplot Item:

File: 17-56008_CP15.COR
Unit Wt: SBT Zones

SBT: Robertson and Campanella, 1986
Coords: UTM 10N N: 4165008m E: 551018m
Page No: 1 of 2

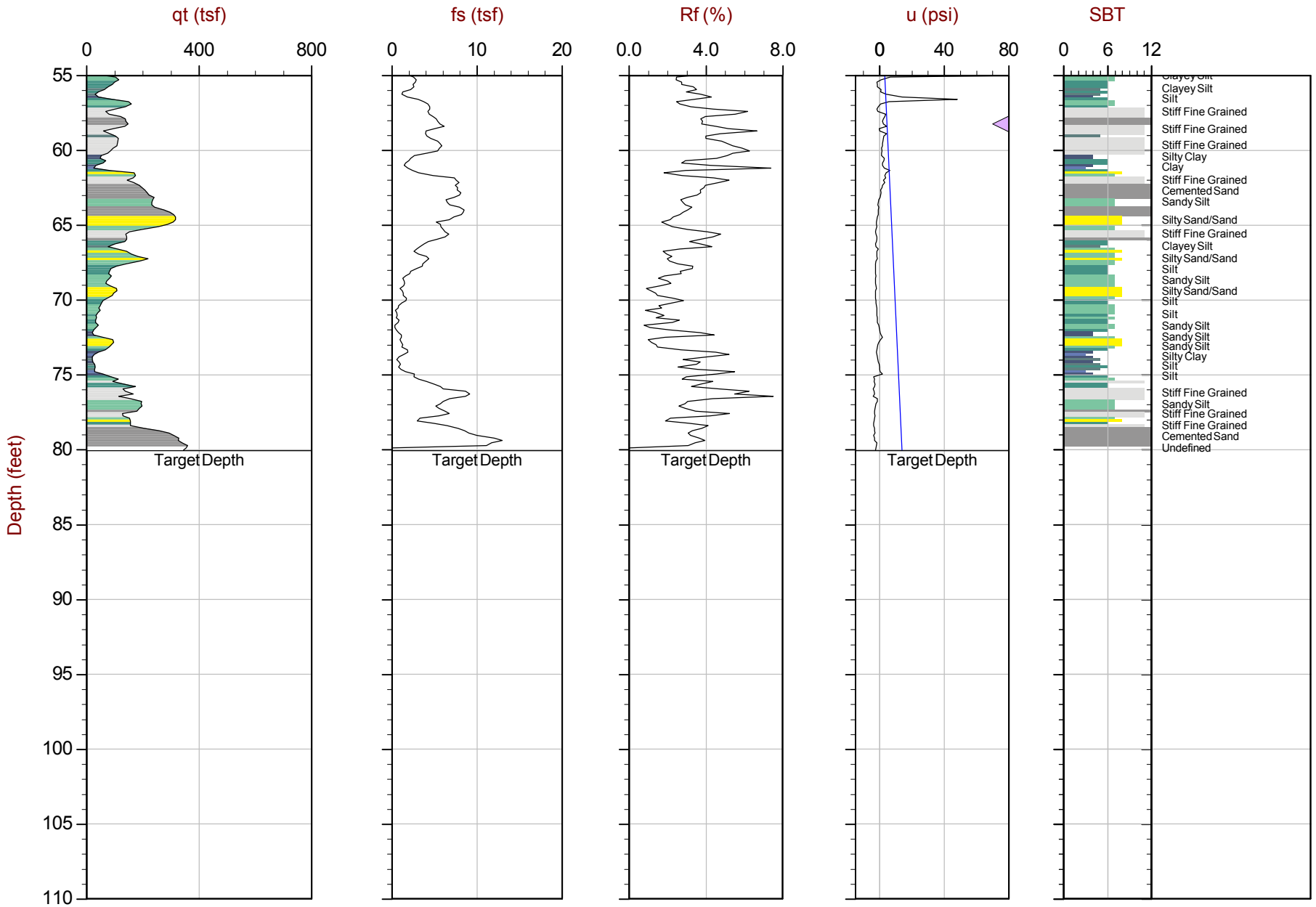
Assumed Ueq
Ueq
Dissipation, equilibrium achieved
Dissipation, equilibrium not achieved
Hydrostatic Line

CALIFORNIA PUSH TECHNOLOGIES INCORPORATED

ENGEO Inc.

Job No: 17-56008
Date: 01:25:17 14:39
Site: You Tube Campus, San Bruno, CA

Sounding: 1-CPT15
Cone: 383:T1500F15U500



Max Depth: 24.400 m / 80.05 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point
Overplot Item:

File: 17-56008_CP15.COR
Unit Wt: SBT Zones

SBT: Robertson and Campanella, 1986
Coords: UTM 10N N: 4165008m E: 551018m
Page No: 2 of 2

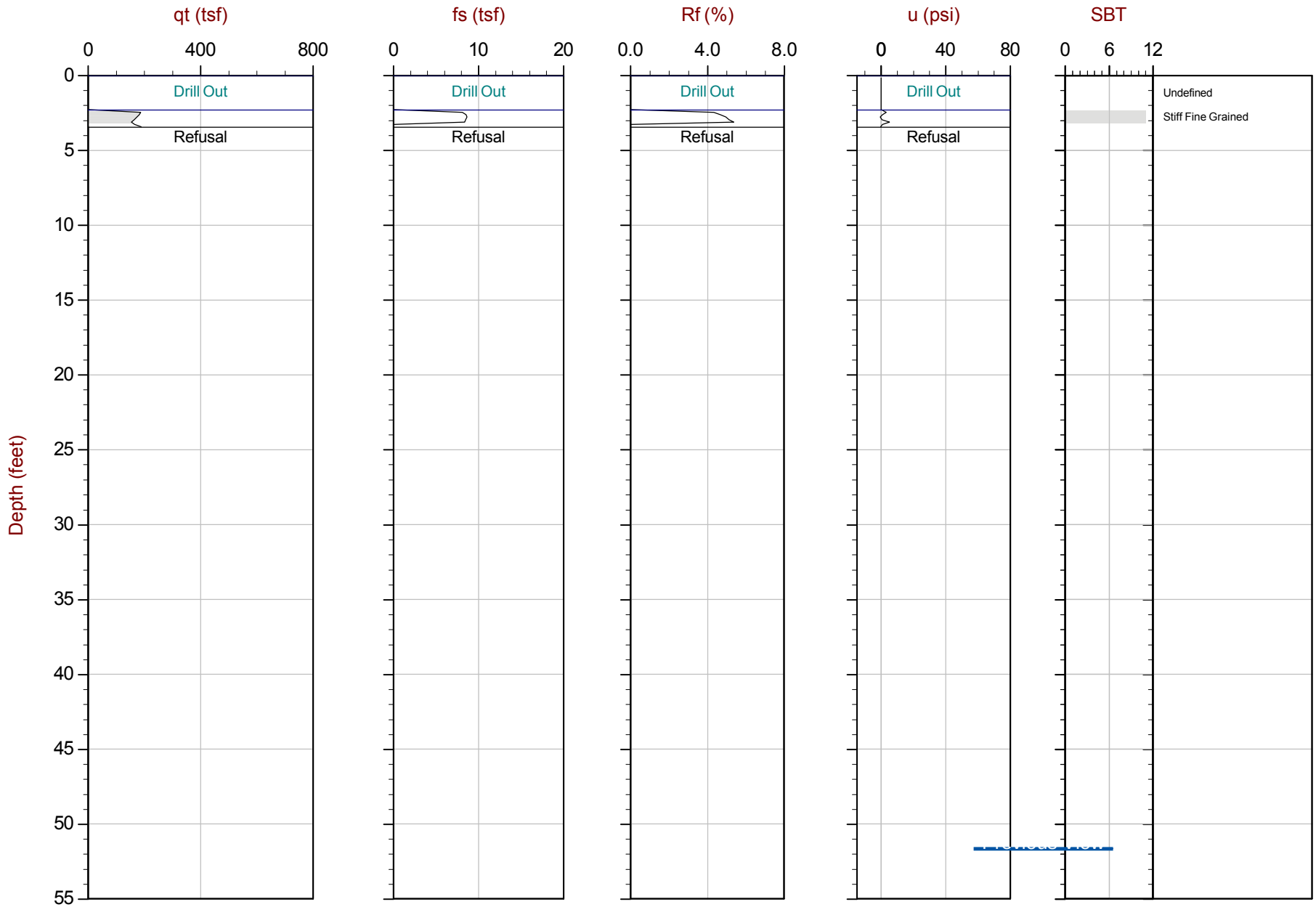
Assumed Ueq
Ueq
Dissipation, equilibrium achieved
Dissipation, equilibrium not achieved
Hydrostatic Line

CALIFORNIA PUSH TECHNOLOGIES INCORPORATED

ENGEO Inc.

Job No: 17-56008
Date: 01:26:17 09:51
Site: You Tube Campus, San Bruno, CA

Sounding: 1-CPT18
Cone: 383:T1500F15U500



Max Depth: 1.050 m / 3.44 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point
Overplot Item:

File: 17-56008_CP18.COR
Unit Wt: SBT Zones

SBT: Robertson and Campanella, 1986
Coords: UTM 10N N: 4164769m E: 551252m
Page No: 1 of 1

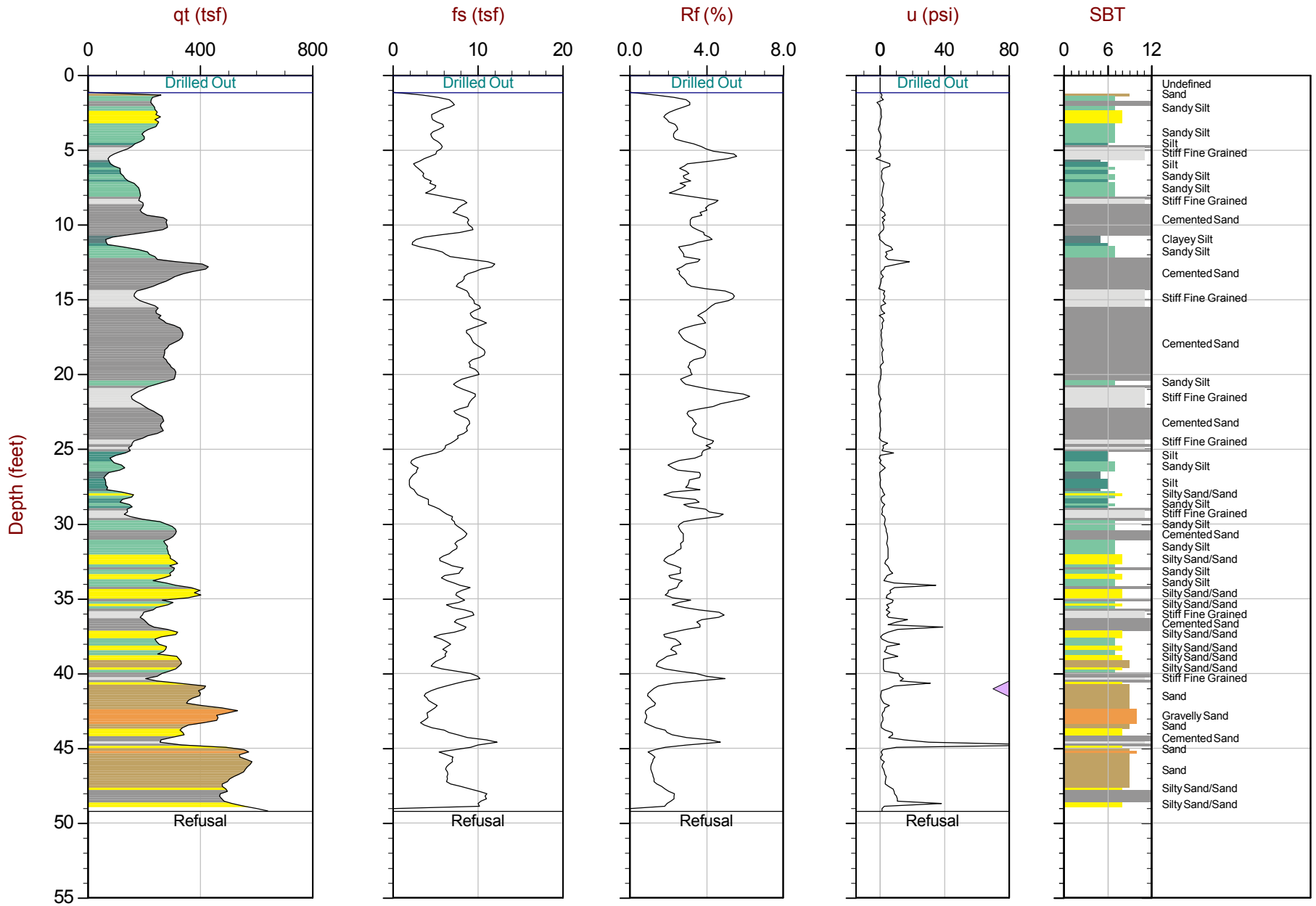
Assumed Ueq
Ueq
Dissipation, equilibrium achieved
Dissipation, equilibrium not achieved
Hydrostatic Line

CALIFORNIA PUSH TECHNOLOGIES INCORPORATED

ENGEO Inc.

Job No: 17-56008
Date: 01:23:17 14:22
Site: You Tube Campus, San Bruno, CA

Sounding: 1-SCPT02
Cone: 448:T1500F15U500



Max Depth: 15.000 m / 49.21 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point
Overplot Item:

File: 17-56008_SP02.COR
Unit Wt: SBT Zones

SBT: Robertson and Campanella, 1986
Coords: UTM 10N N: 4164903m E: 550798m
Page No: 1 of 1

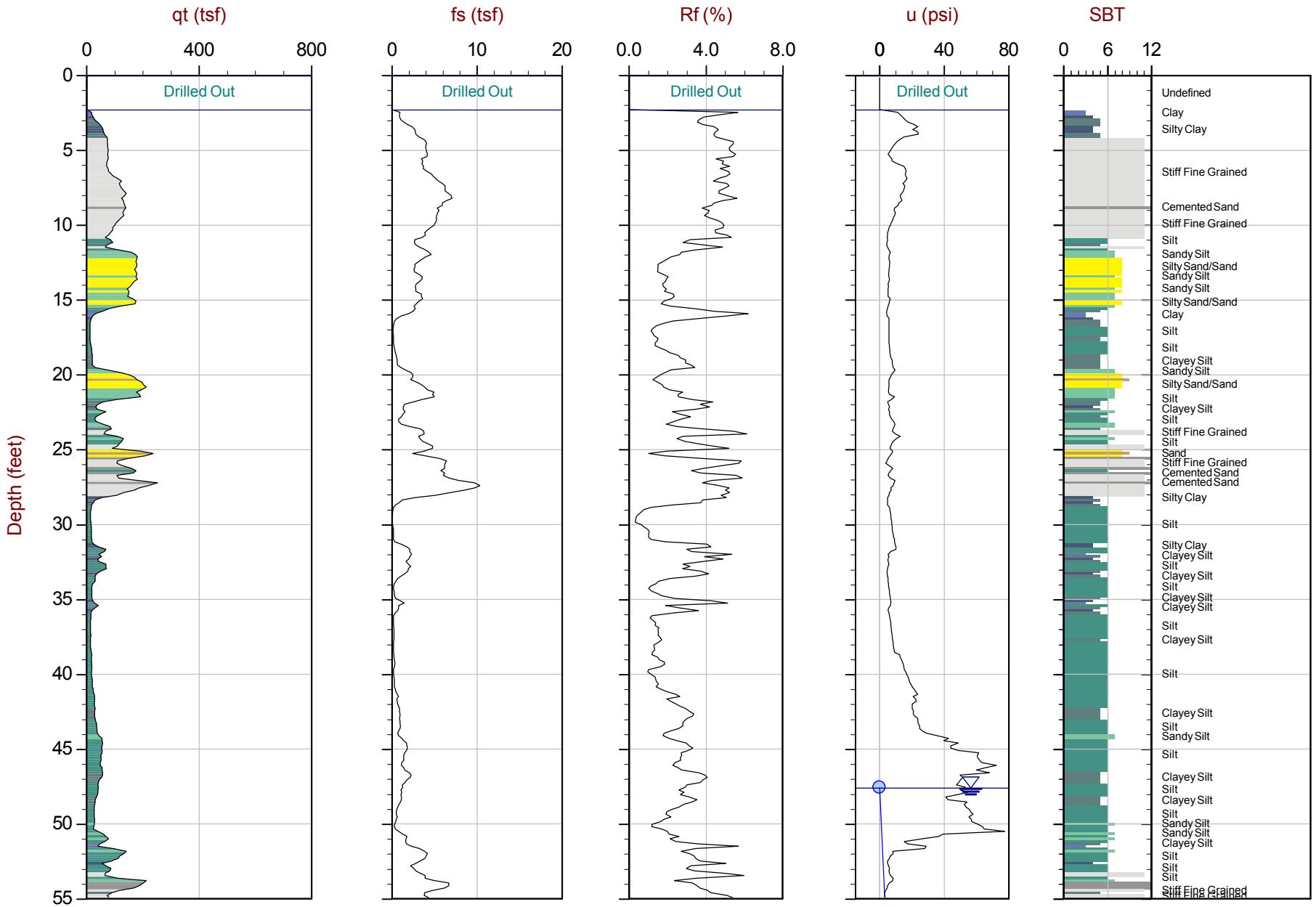
Assumed Ueq
Ueq
Dissipation, equilibrium achieved
Dissipation, equilibrium not achieved
Hydrostatic Line

CALIFORNIA PUSH TECHNOLOGIES INCORPORATED

ENGEO Inc.

Job No: 17-56008
Date: 01:24:17 14:30
Site: You Tube Campus, San Bruno, CA

Sounding: 1-SCPT08
Cone: 383:T1500F15U500



Max Depth: 21.750 m / 71.36 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point
Overplot Item:

File: 17-56008_SP08.COR
Unit Wt: SBT Zones

SBT: Robertson and Campanella, 1986
Coords: UTM 10N N: 4164853m E: 551013m
Page No: 1 of 2

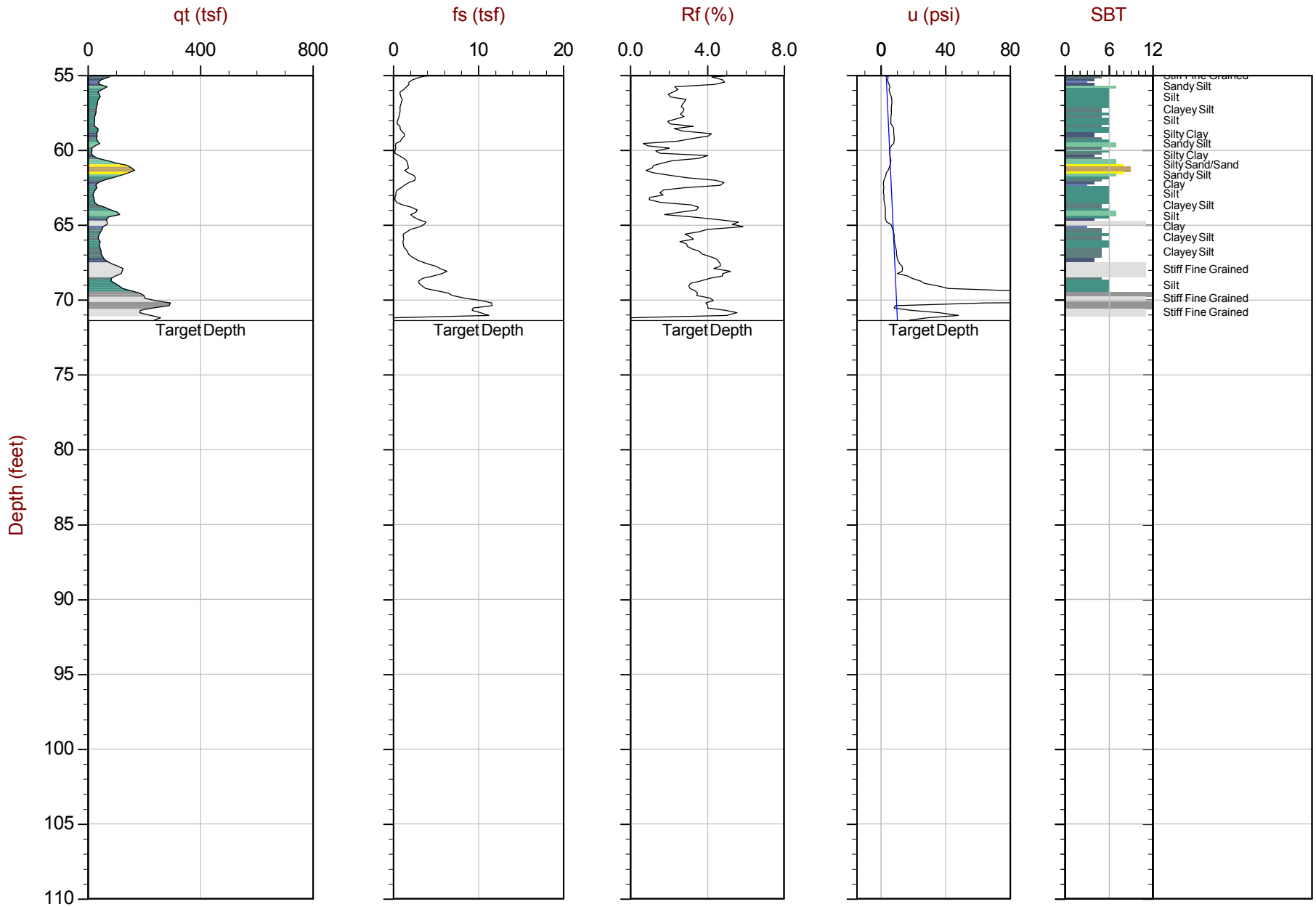
Assumed Ueq
Ueq
Dissipation, equilibrium achieved
Dissipation, equilibrium not achieved
Hydrostatic Line

CALIFORNIA PUSH TECHNOLOGIES INCORPORATED

ENGEO Inc.

Job No: 17-56008
Date: 01:24:17 14:30
Site: You Tube Campus, San Bruno, CA

Sounding: 1-SCPT08
Cone: 383:T1500F15U500



Max Depth: 21.750 m / 71.36 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point
Overplot Item:

File: 17-56008_SP08.COR
Unit Wt: SBT Zones

SBT: Robertson and Campanella, 1986
Coords: UTM 10N N: 4164853m E: 551013m
Page No: 2 of 2

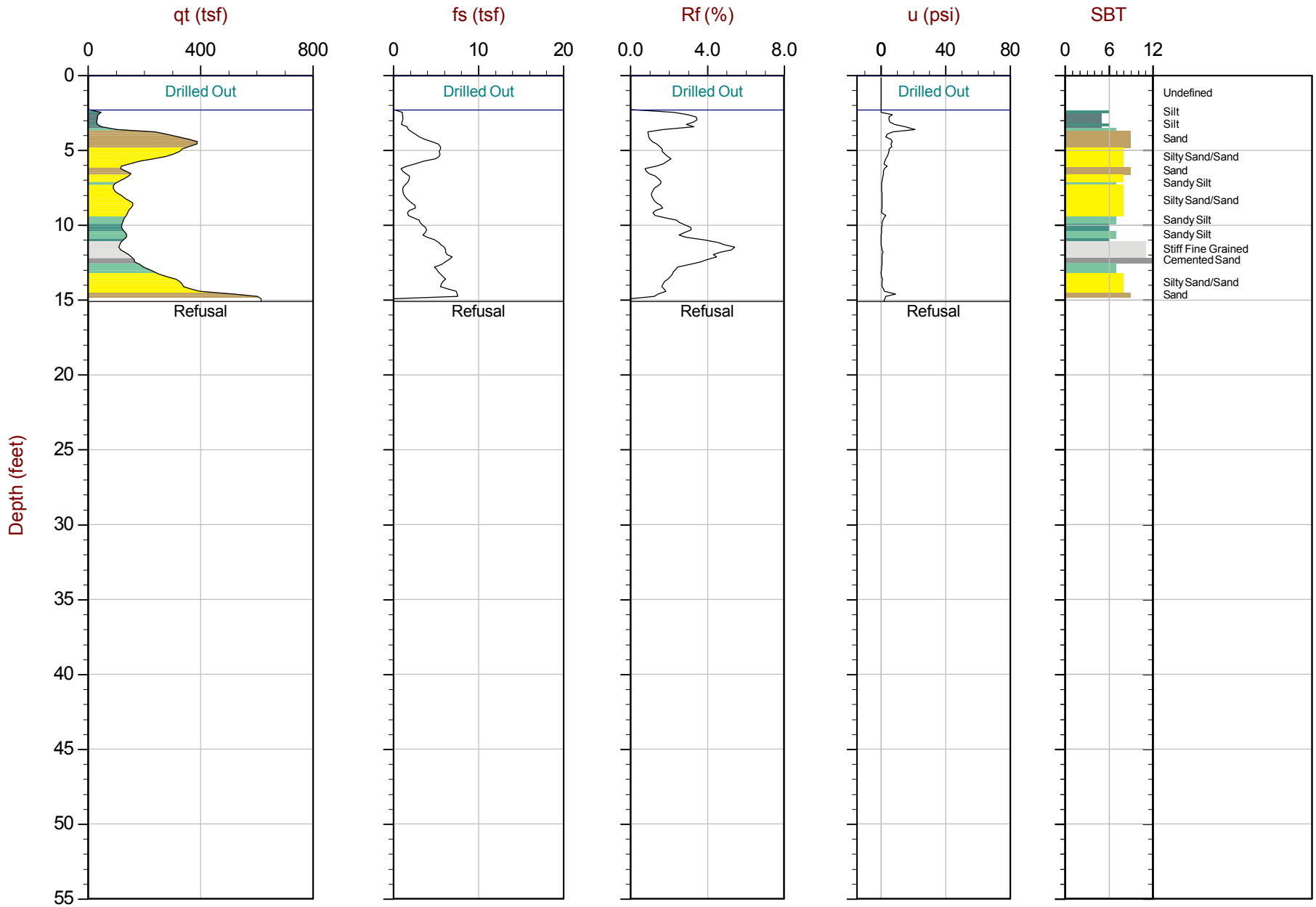
Assumed Ueq
Ueq
Dissipation, equilibrium achieved
Dissipation, equilibrium not achieved
Hydrostatic Line

CALIFORNIA PUSH TECHNOLOGIES INCORPORATED

ENGEO Inc.

Job No: 17-56008
Date: 01:25:17 07:35
Site: You Tube Campus, San Bruno, CA

Sounding: 1-SCPT09
Cone: 383:T1500F15U500



Max Depth: 4.600 m / 15.09 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point
Overplot Item:

Assumed Ueq
Ueq

File: 17-56008_SP09.COR
Unit Wt: SBT Zones

Dissipation, equilibrium achieved
Dissipation, equilibrium not achieved

Hydrostatic Line

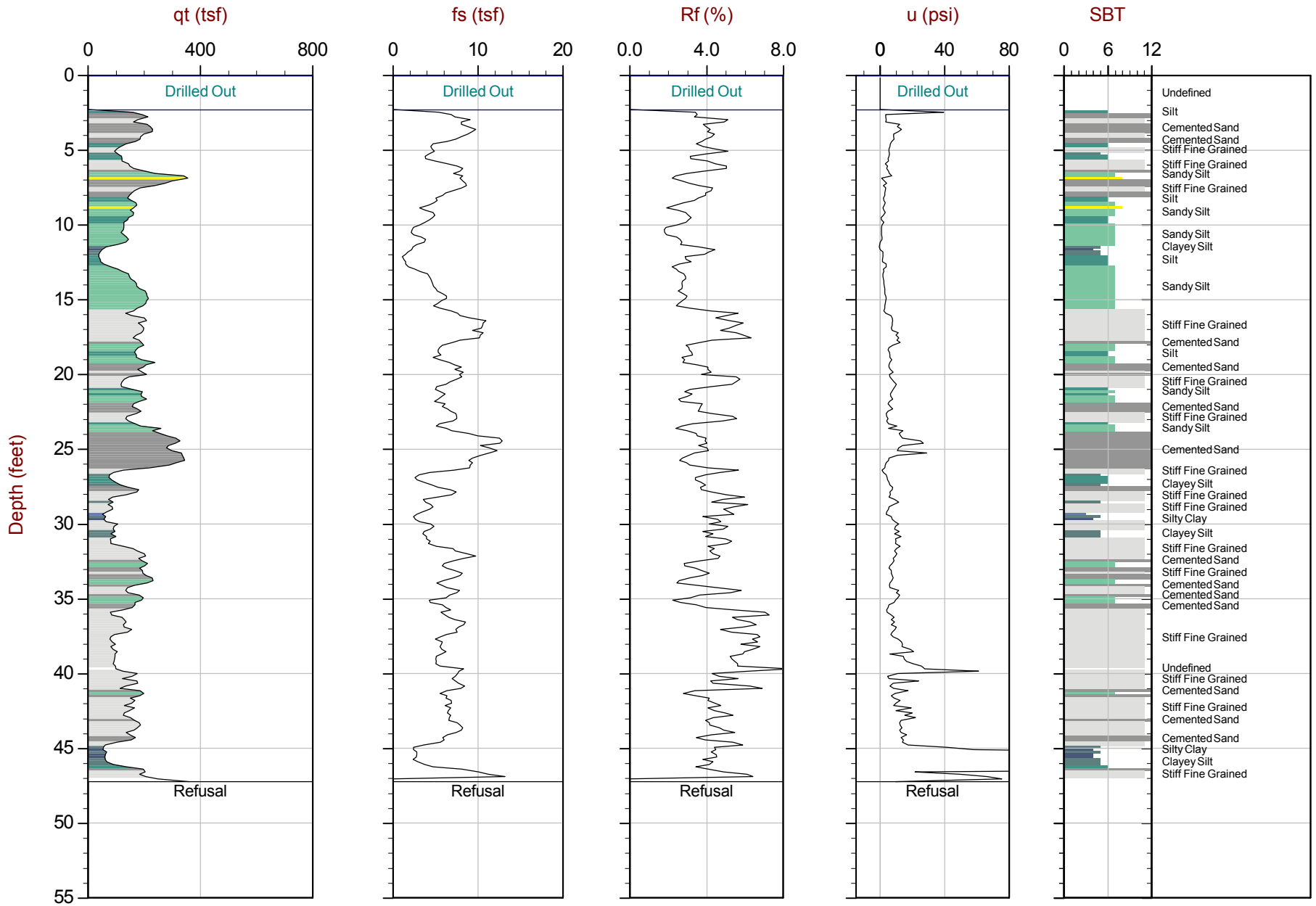
SBT: Robertson and Campanella, 1986
Coords: UTM 10N N: 4164668m E: 551056m
Page No: 1 of 1

CALIFORNIA PUSH TECHNOLOGIES INCORPORATED

ENGEO Inc.

Job No: 17-56008
Date: 01:25:17 08:45
Site: You Tube Campus, San Bruno, CA

Sounding: 1-SCPT10
Cone: 383:T1500F15U500



Max Depth: 14.400 m / 47.24 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point
Overplot Item:

File: 17-56008_SP10.COR
Unit Wt: SBT Zones

SBT: Robertson and Campanella, 1986
Coords: UTM 10N N: 4164706m E: 551183m
Page No: 1 of 1

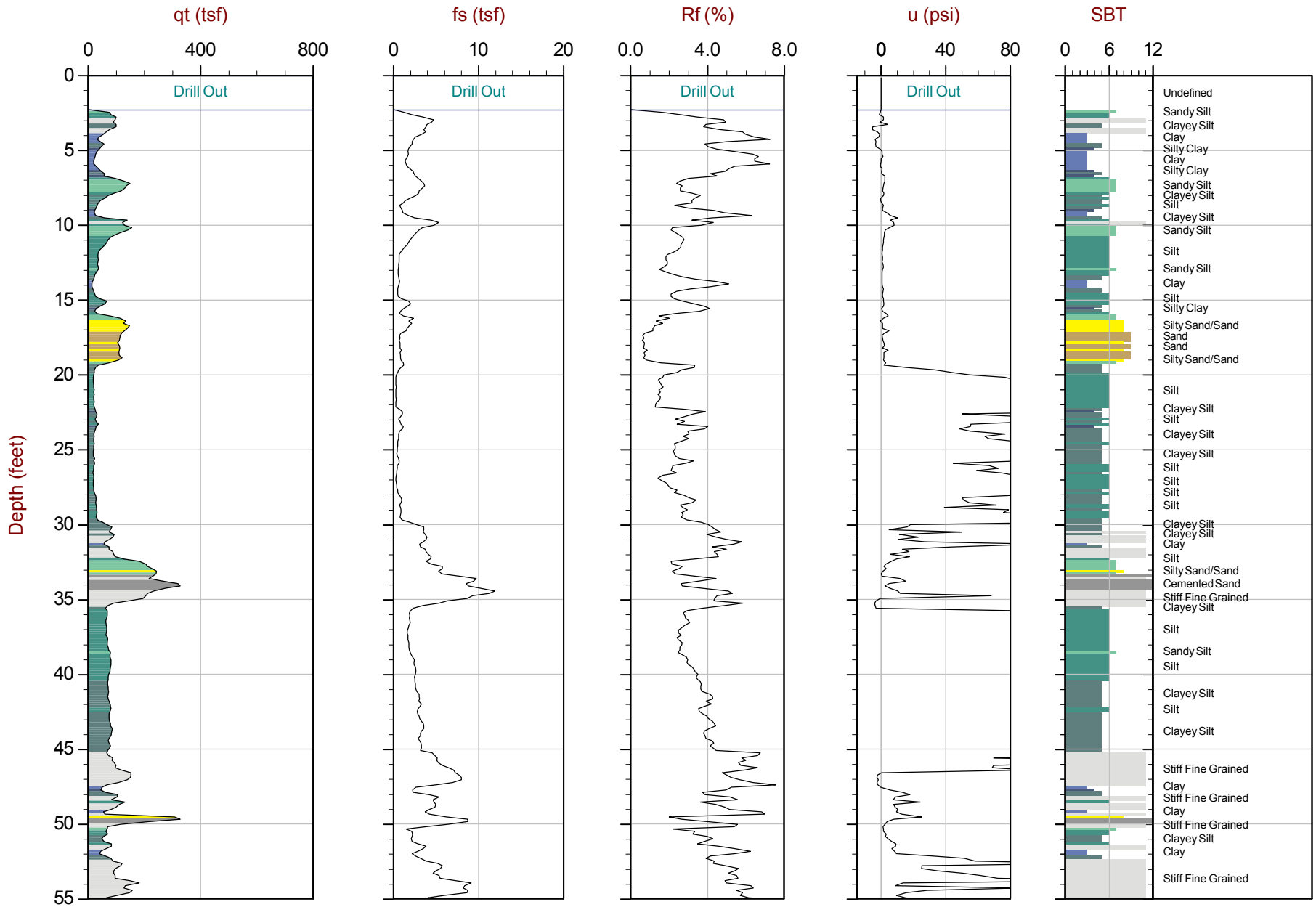
Assumed Ueq
Ueq
Dissipation, equilibrium achieved
Dissipation, equilibrium not achieved
Hydrostatic Line

CALIFORNIA PUSH TECHNOLOGIES INCORPORATED

ENGEO Inc.

Job No: 17-56008
Date: 01:26:17 08:11
Site: You Tube Campus, San Bruno, CA

Sounding: 1-SCPT17
Cone: 383:T1500F15U500



Max Depth: 18.450 m / 60.53 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point
Overplot Item:

File: 17-56008_SP17.COR
Unit Wt: SBT Zones

SBT: Robertson and Campanella, 1986
Coords: UTM 10N N: 4164887m E: 551217m
Page No: 1 of 2

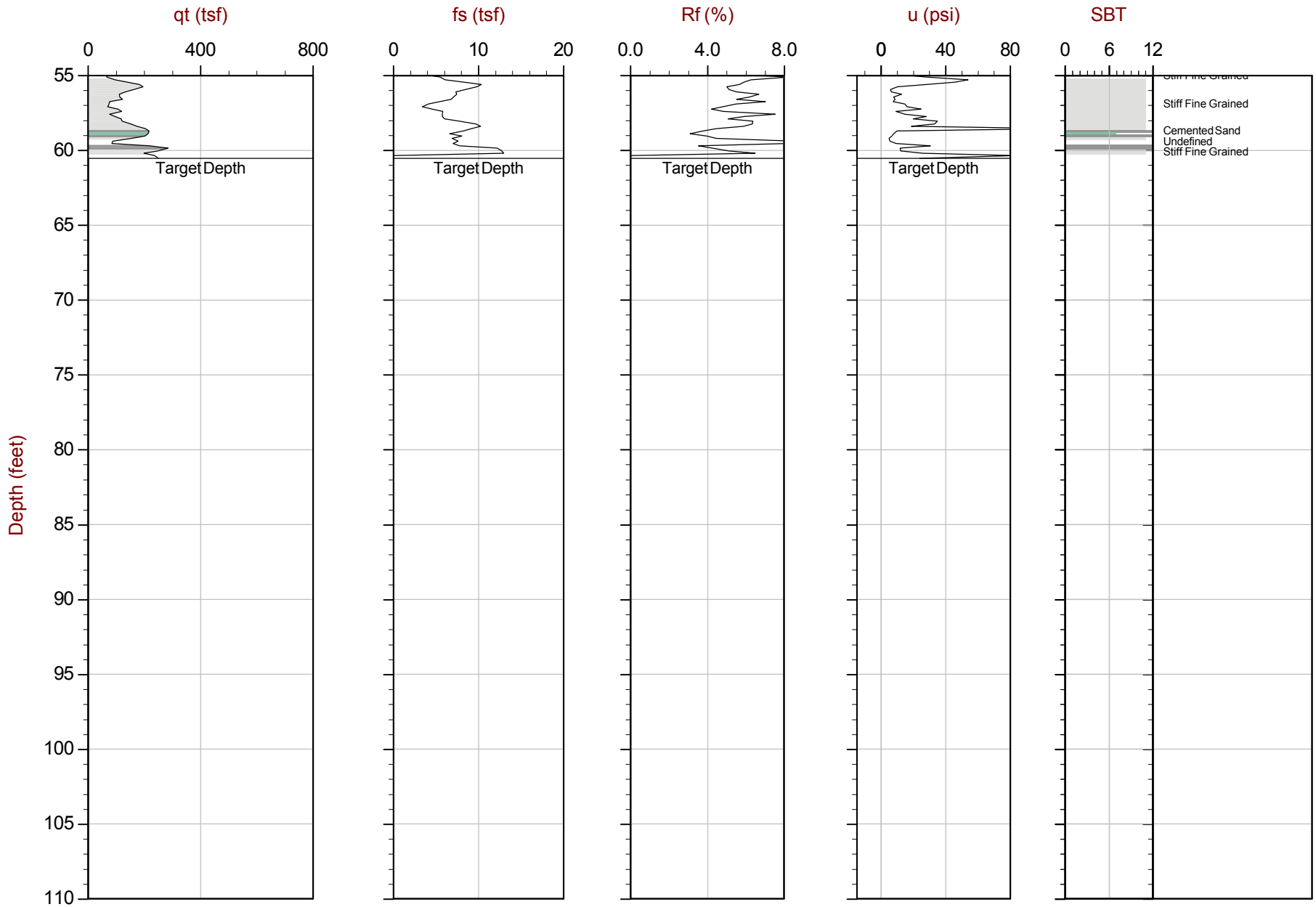
Assumed Ueq
Ueq
Dissipation, equilibrium achieved
Dissipation, equilibrium not achieved
Hydrostatic Line

CALIFORNIA PUSH TECHNOLOGIES INCORPORATED

ENGEO Inc.

Job No: 17-56008
Date: 01:26:17 08:11
Site: You Tube Campus, San Bruno, CA

Sounding: 1-SCPT17
Cone: 383:T1500F15U500



Max Depth: 18.450 m / 60.53 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point
Overplot Item:

File: 17-56008_SP17.COR
Unit Wt: SBT Zones

SBT: Robertson and Campanella, 1986
Coords: UTM 10N N: 4164887m E: 551217m
Page No: 2 of 2

Assumed Ueq
Ueq
Dissipation, equilibrium achieved
Dissipation, equilibrium not achieved
Hydrostatic Line

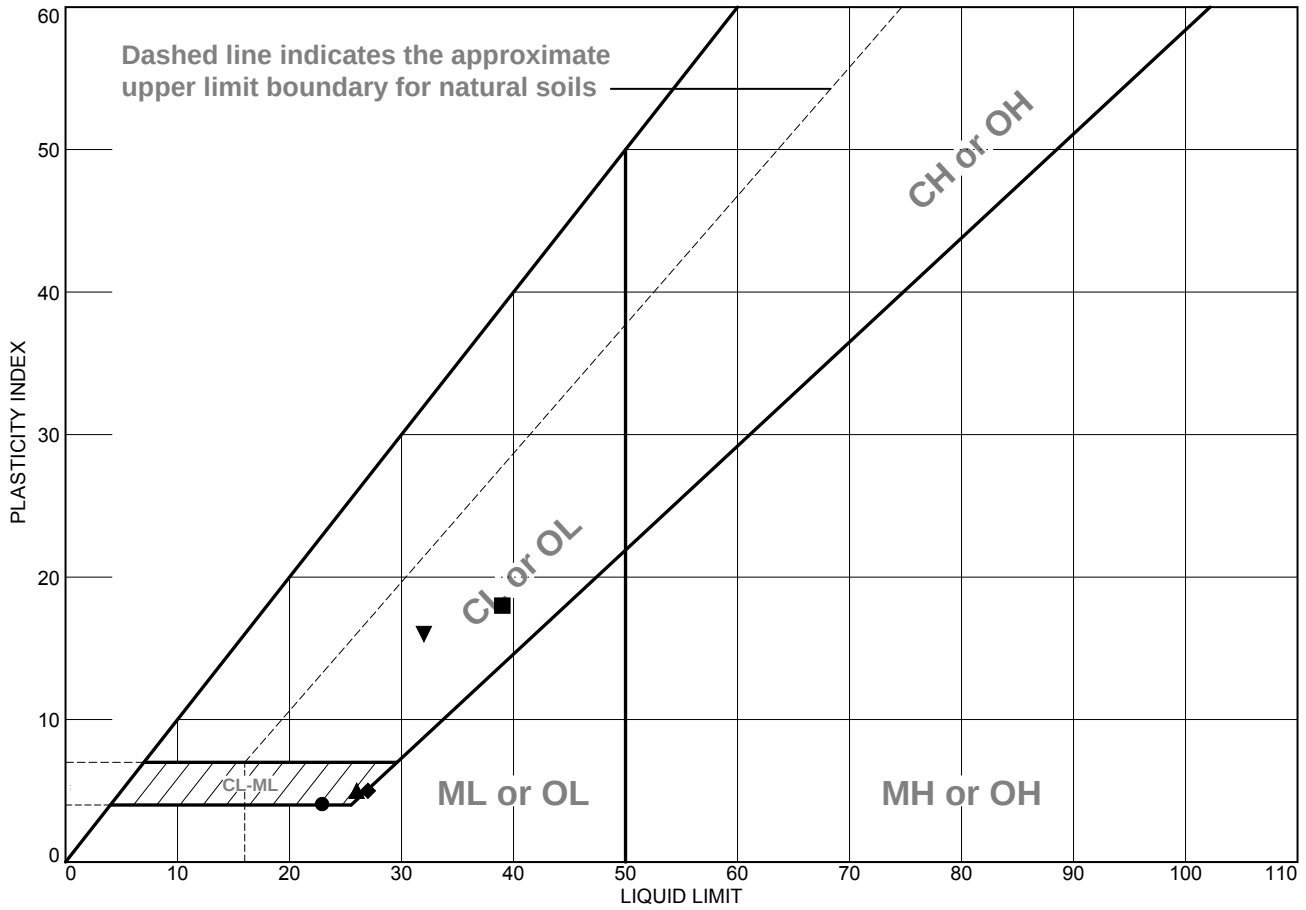


APPENDIX C

LABORATORY TEST DATA

Liquid and Plastic Limits Test Report
Particle Size Distribution Report
Unconfined Compression Test
Incremental Consolidation Report
Analytical Results of Soil Corrosion

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	See exploration logs	23	19	4		44.5	
■	See exploration logs	39	21	18		68.6	
▲	See exploration logs	26	21	5		47.2	
◆	See exploration logs	27	22	5			
▼	See exploration logs	32	16	16			

Project No. 13667.000.000 **Client:** Google Incorporated

Project: Google Master Planning Services - Geotechnical Engineering

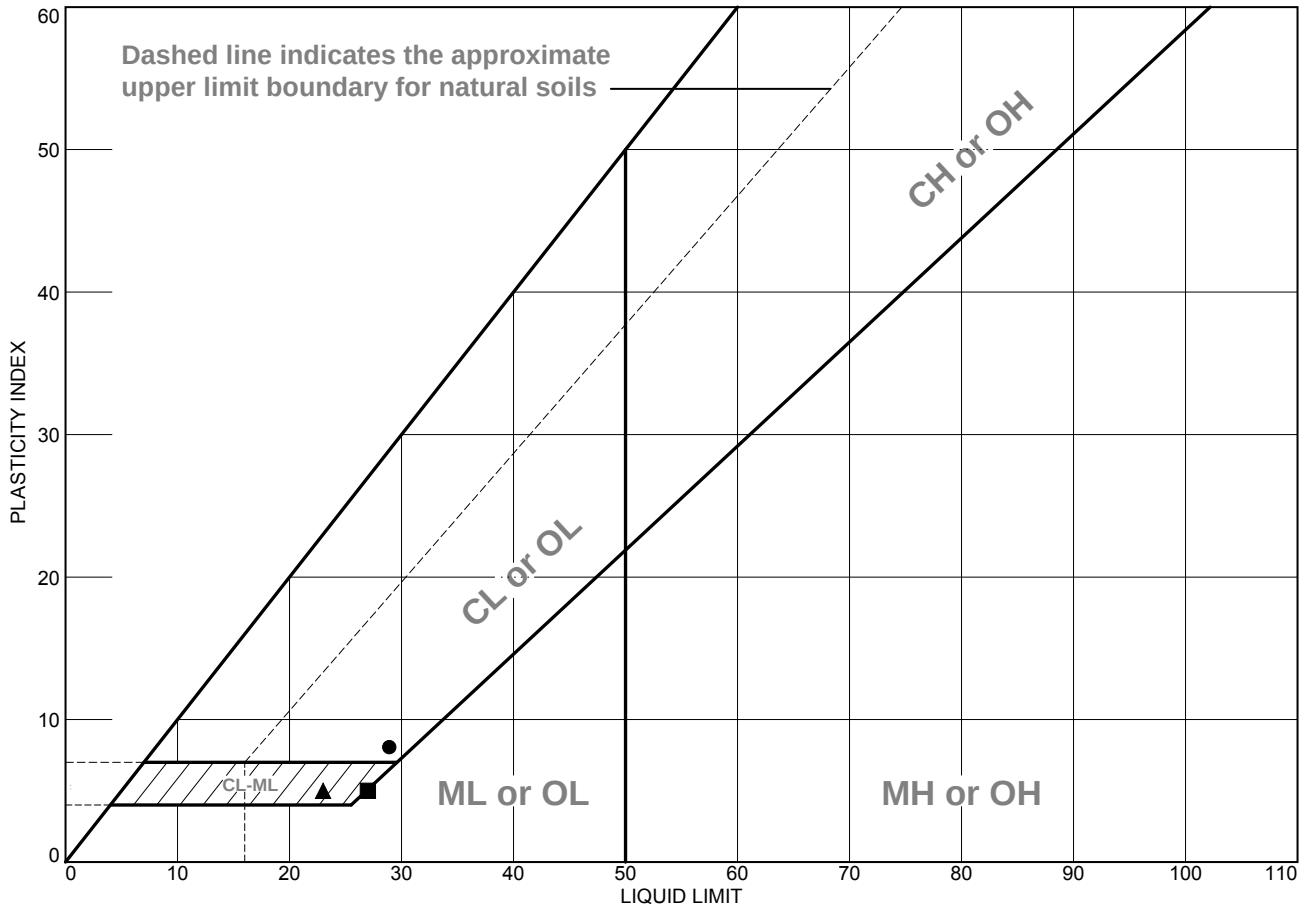
●**Depth:** 51.5 feet **Sample Number:** 1-B02 @ 51.5
■**Depth:** 25.5 feet **Sample Number:** 1-B05 @ 25.5
▲**Depth:** 30.5 feet **Sample Number:** 1-B05 @ 30.5
◆**Depth:** 40.8-41.2 feet **Sample Number:** 1-B06 @ 40.8
▼**Depth:** 15.5-16.0 feet **Sample Number:** 1-B07 @ 15.5

ENGEO INCORPORATED

Remarks:
●PI: ASTM D4318, Wet method
Grain Size: ASTM D1140
■PI: ASTM D4318, Wet method
Grain Size: ASTM D1140
▲PI: ASTM D4318, Wet method
Grain Size: ASTM D1140
◆ASTM D4318, Wet method
▼ASTM D4318, Wet method

Tested By: M. Quasem **Checked By:** T. Borde

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	See exploration logs	29	21	8			
■	See exploration logs	27	22	5		62.8	
▲	See exploration logs	23	18	5			

Project No. 13667.000.000 **Client:** Google Incorporated

Project: Google Master Planning Services - Geotechnical Engineering

●**Depth:** 32.5-33.0 feet **Sample Number:** 1-B07 @ 32.5

■**Depth:** 35.5-36.0 feet **Sample Number:** 1-B08 @ 35.5

▲**Depth:** 27.5-28.0 feet **Sample Number:** 1-B10 @ 27.5

ENGEO INCORPORATED

Remarks:

●ASTM D4318, Wet method

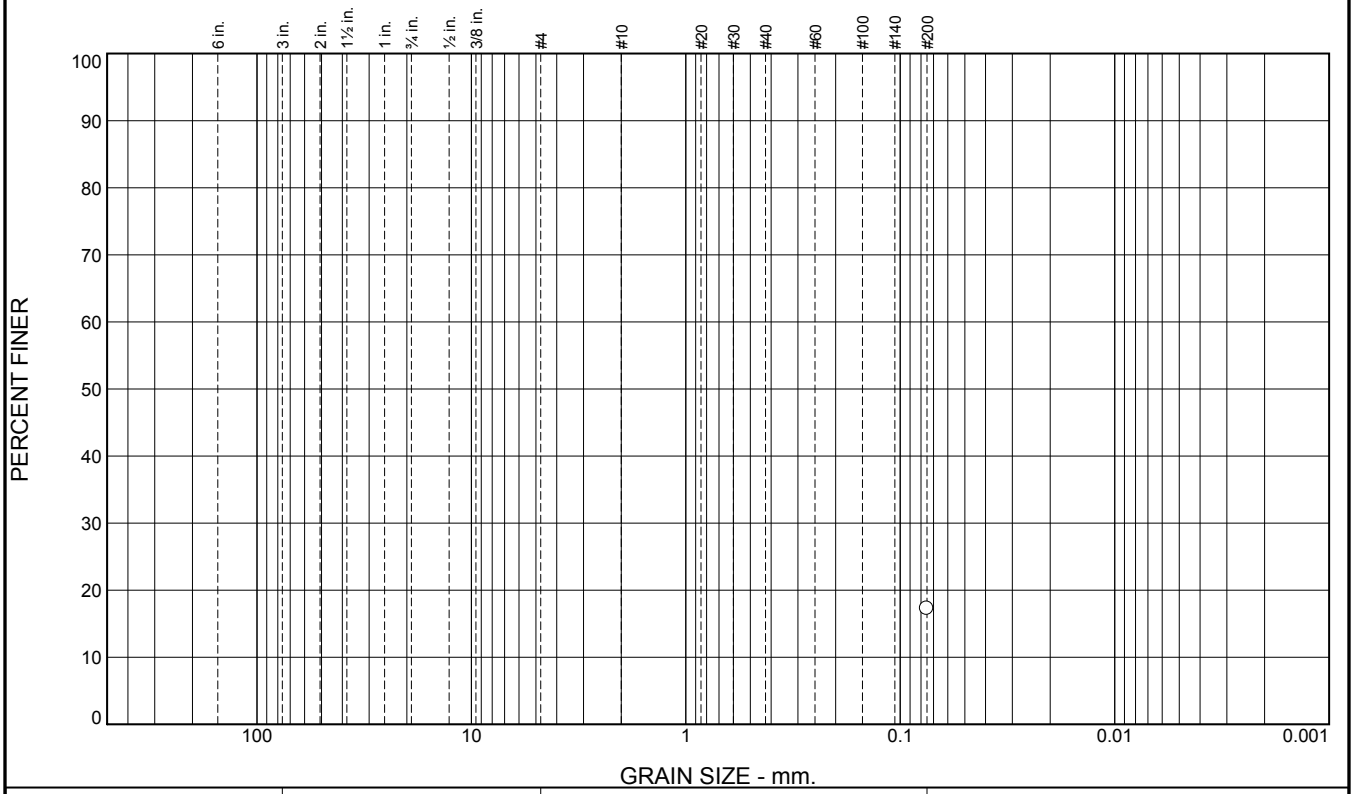
■PI: ASTM D4318, Wet method
Grain Size: ASTM D1140

▲ASTM D4318, wet method

Figure

Tested By: ○ M. Quasem □ M. Quasem △ I. McCauley **Checked By:** T. Borde

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						17.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	17.3		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Grain Size: ASTM D1140

Sample Number: 1-B01 @ 10.5 **Depth:** 10.5 feet

Date: 2.15.17

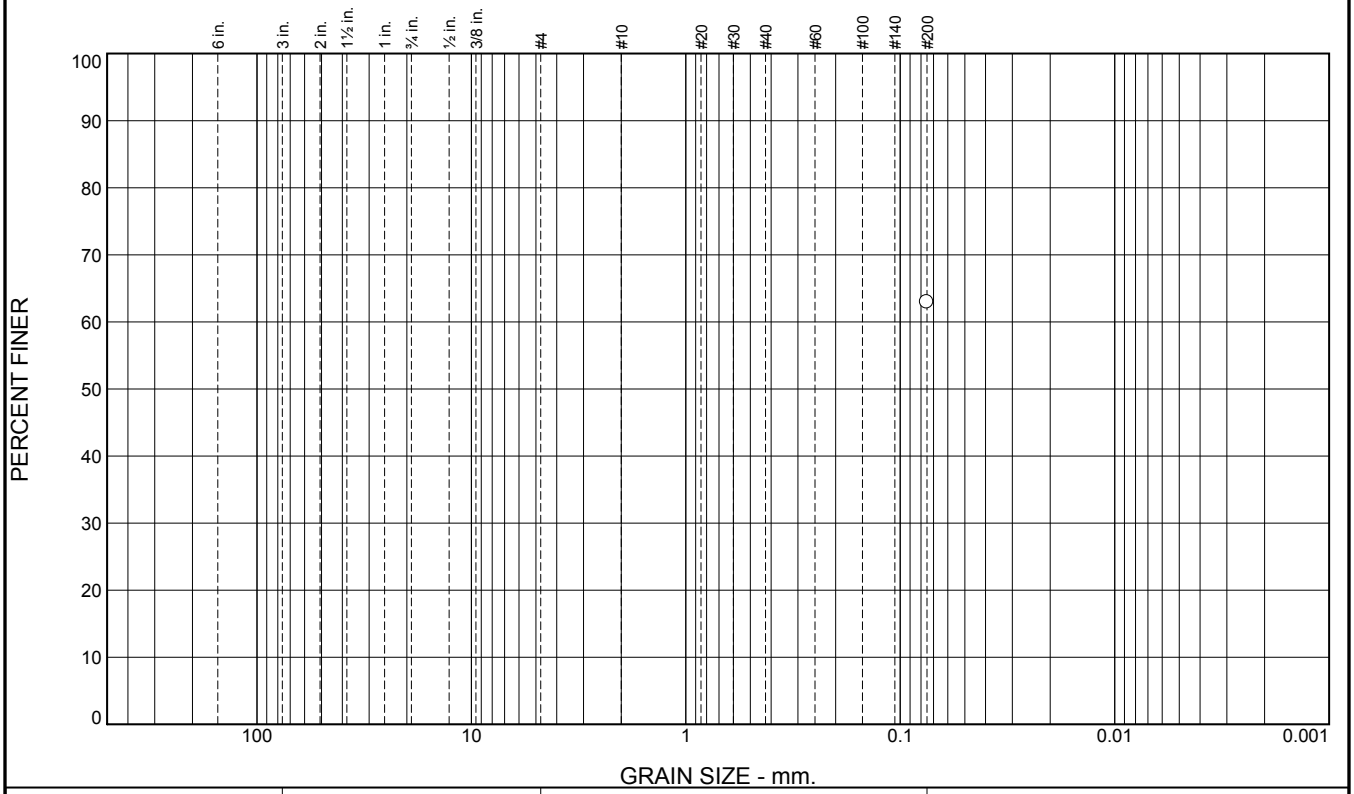
ENGEO INCORPORATED

Client: Google Incorporated
Project: Google Master Planning Services - Geotechnical Engineering

Project No: 13667.000.000

Tested By: M. Quasem **Checked By:** T. Borde

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						62.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	62.9		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140

Sample Number: 1-B01 @ 33 **Depth:** 33.0-33.5 feet

Date: 2/16/17

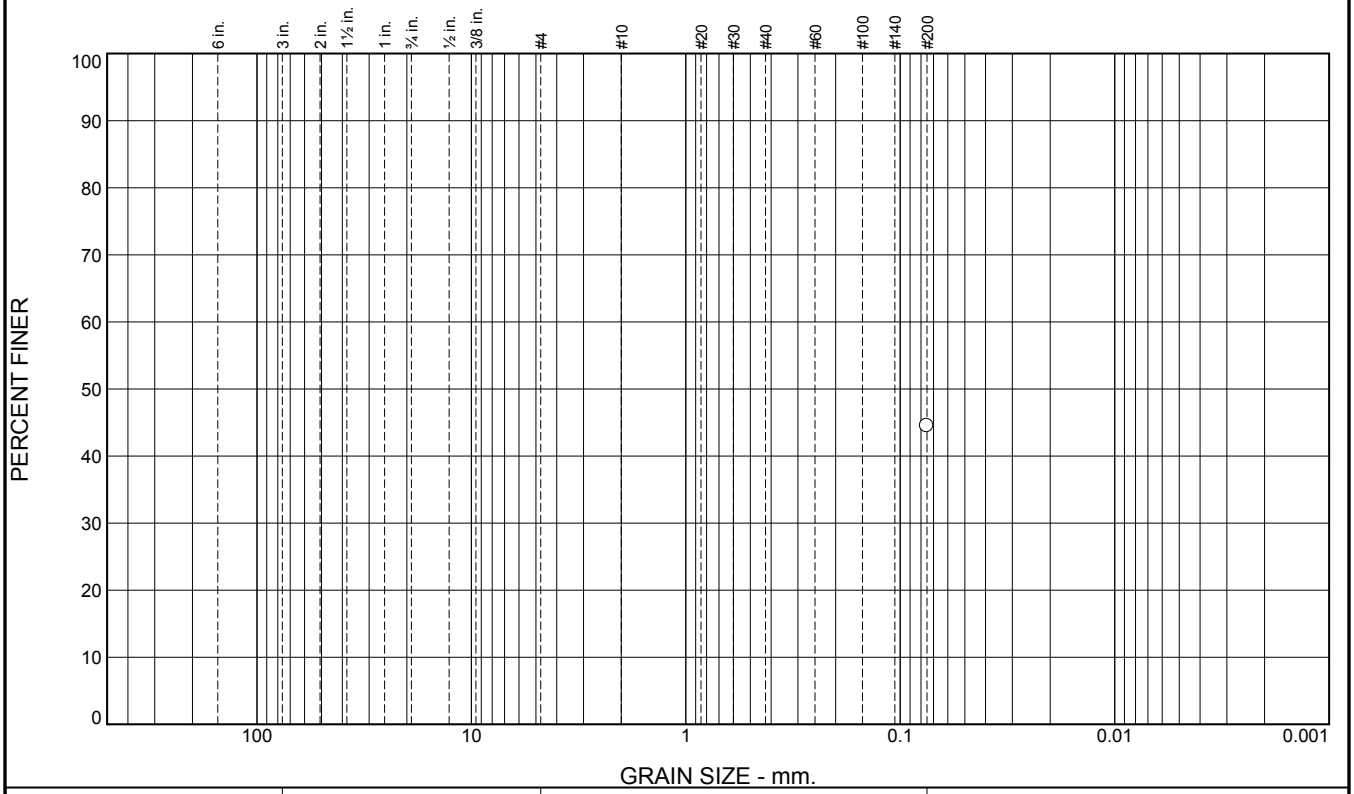
ENGEO INCORPORATED

Client: Google Incorporated
Project: Google Master Planning Services - Geotechnical Engineering

Project No: 13667.000.000

Tested By: T. Borde **Checked By:** M. Quasem

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						44.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	44.5		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL= 19 LL= 23 PI= 4

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Grain Size: ASTM D1140
PI: ASTM D4318, Wet Method

Sample Number: 1-B02 @ 51.5 **Depth:** 51.5 feet

Date: 2.15.17

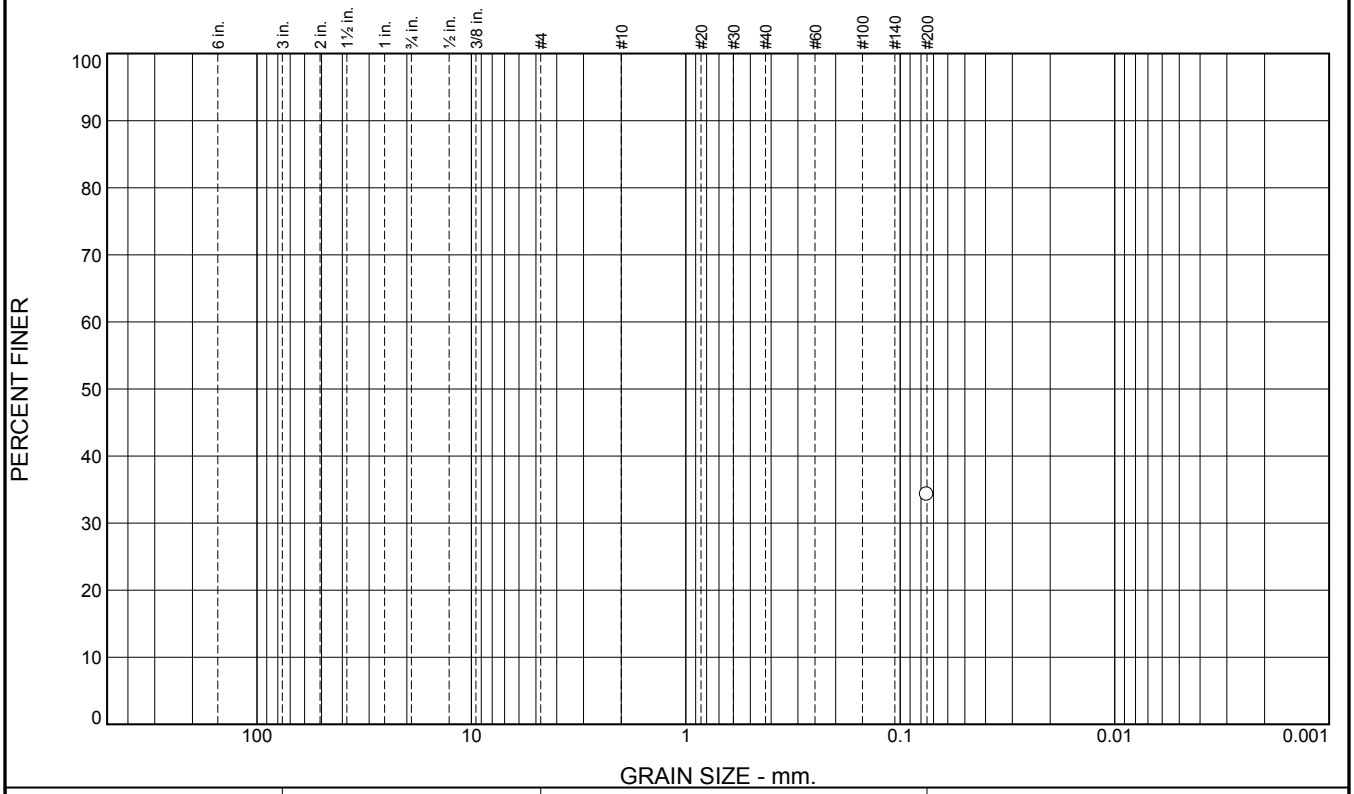
ENGEO INCORPORATED

Client: Google Incorporated
Project: Google Master Planning Services - Geotechnical Engineering

Project No: 13667.000.000

Tested By: M. Quasem **Checked By:** T. Borde

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						34.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	34.3		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Grain Size: ASTM D1140

Sample Number: 1-B03 @ 15.5 **Depth:** 15.5 feet

Date: 2.15.17

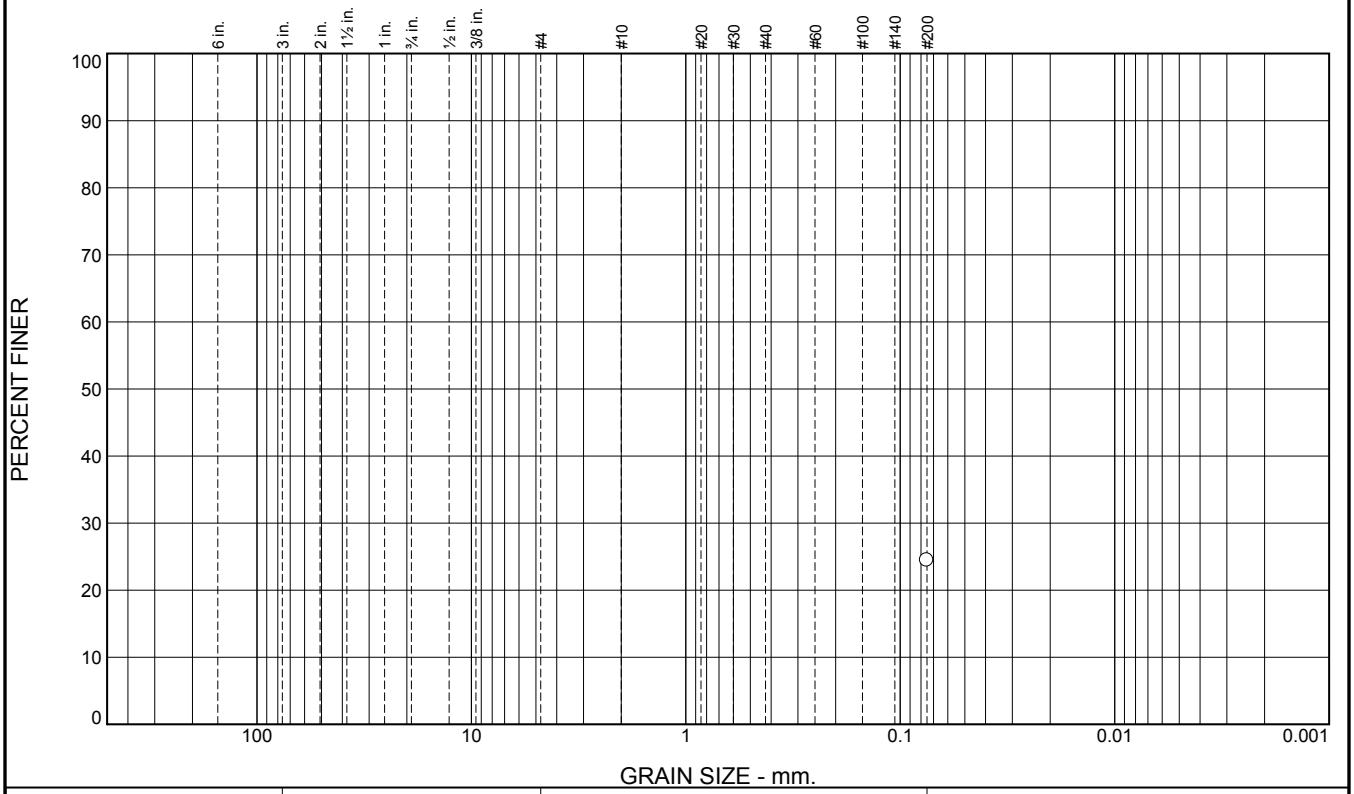
ENGEO INCORPORATED

Client: Google Incorporated
Project: Google Master Planning Services - Geotechnical Engineering

Project No: 13667.000.000

Tested By: M. Quasem **Checked By:** T. Borde

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						24.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	24.5		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Grain Size: ASTM D1140

Sample Number: 1-B03 @ 40.5 **Depth:** 40.5 feet

Date: 2.15.17

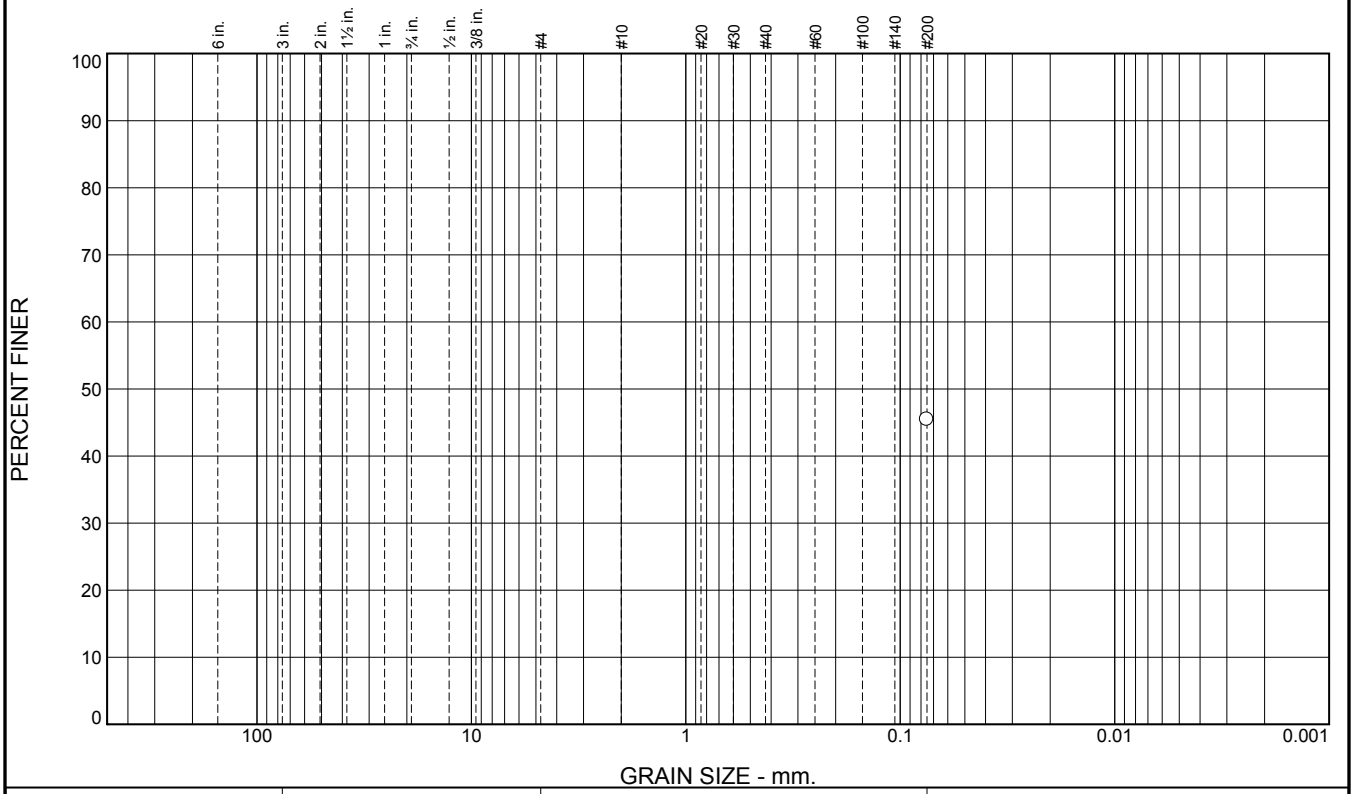
ENGEO INCORPORATED

Client: Google Incorporated
Project: Google Master Planning Services - Geotechnical Engineering

Project No: 13667.000.000

Tested By: M. Quasem **Checked By:** T. Borde

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						45.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	45.4		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Grain Size: ASTM D1140

Sample Number: 1-B04 @ 10.5 **Depth:** 10.5 feet

Date: 2.15.17

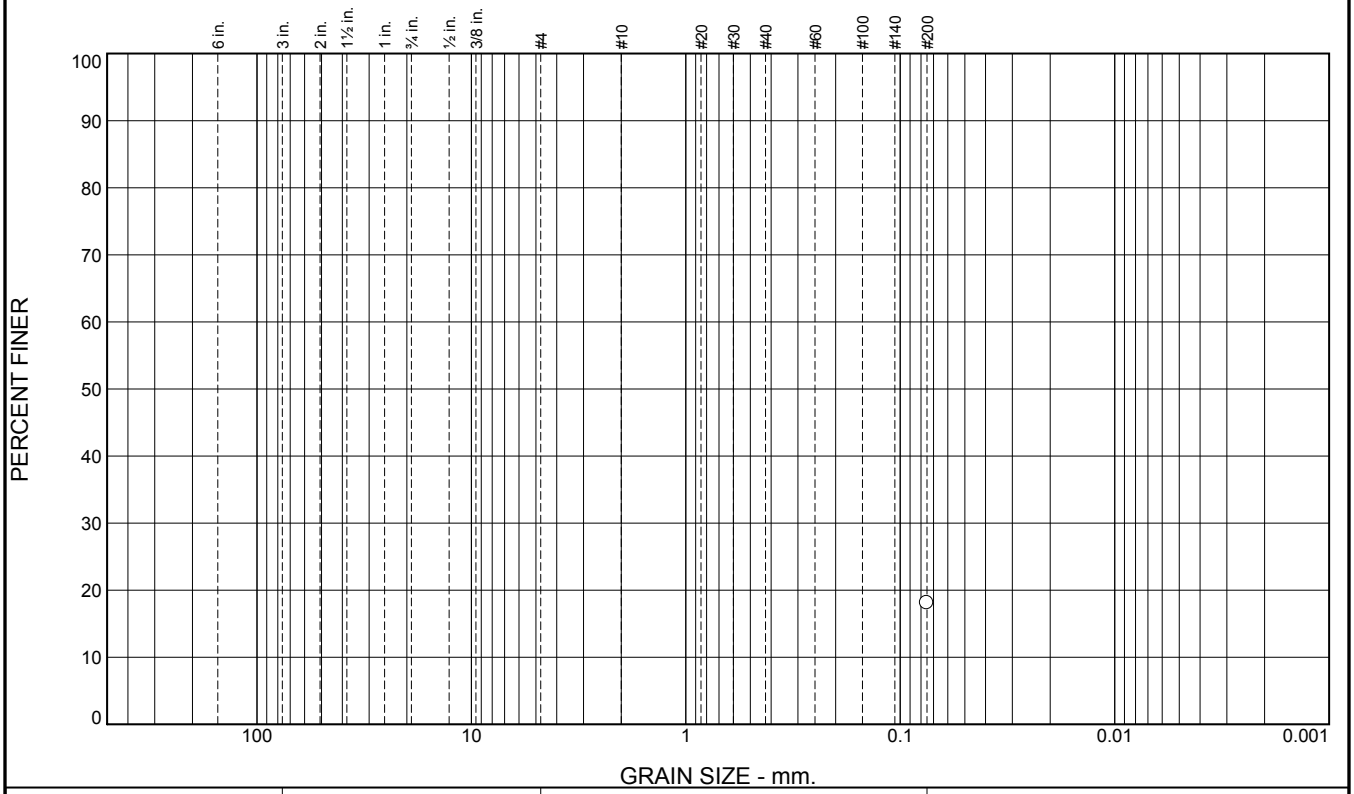
ENGEO INCORPORATED

Client: Google Incorporated
Project: Google Master Planning Services - Geotechnical Engineering

Project No: 13667.000.000

Tested By: M. Quasem **Checked By:** T. Borde

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						18.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	18.1		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Grain Size: ASTM D1140

Sample Number: 1-B04 @ 30.5 **Depth:** 30.5 feet

Date: 2.15.17

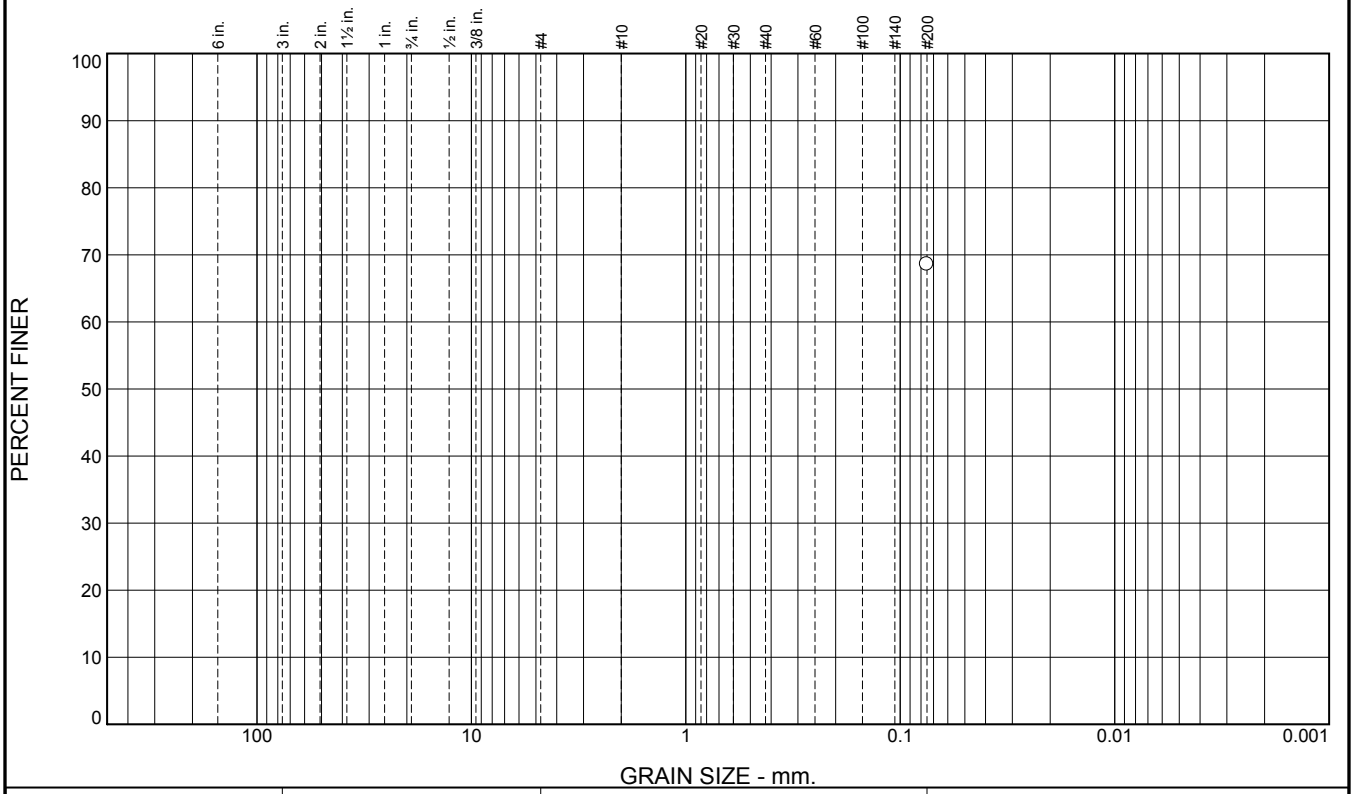
ENGEO INCORPORATED

Client: Google Incorporated
Project: Google Master Planning Services - Geotechnical Engineering

Project No: 13667.000.000

Tested By: M. Quasem **Checked By:** T. Borde

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						68.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	68.6		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL= 21 LL= 39 PI= 18

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Grain Size: ASTM D1140
PI: ASTM D4318, Wet Method

Sample Number: 1-B05 @ 25.5 **Depth:** 25.5 feet

Date: 2.15.17

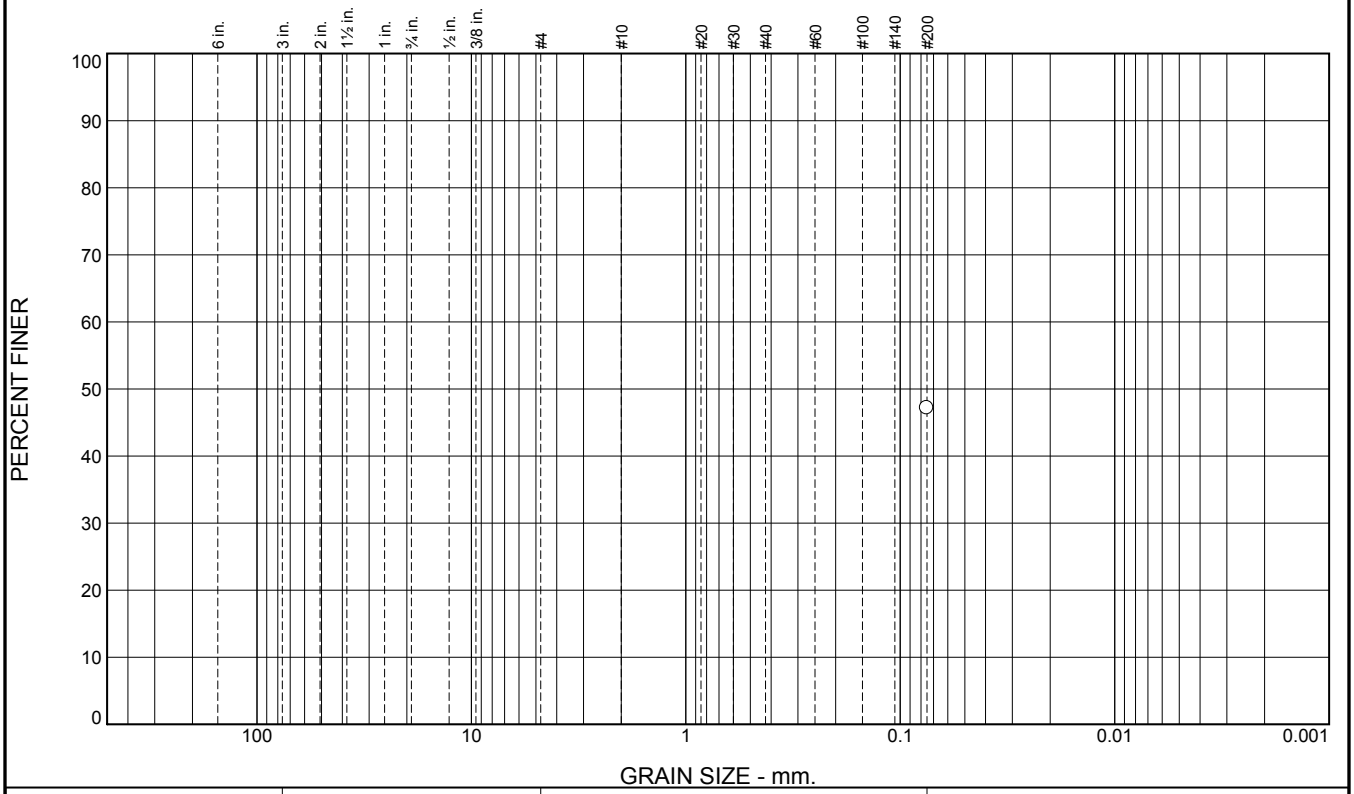
ENGEO INCORPORATED

Client: Google Incorporated
Project: Google Master Planning Services - Geotechnical Engineering

Project No: 13667.000.000

Tested By: M. Quasem **Checked By:** T. Borde

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						47.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	47.2		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL= 21 LL= 26 PI= 5

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Grain Size: ASTM D1140
PI: ASTM D4318, Wet Method

Sample Number: 1-B05 @ 30.5 **Depth:** 30.5 feet

Date: 2.15.17

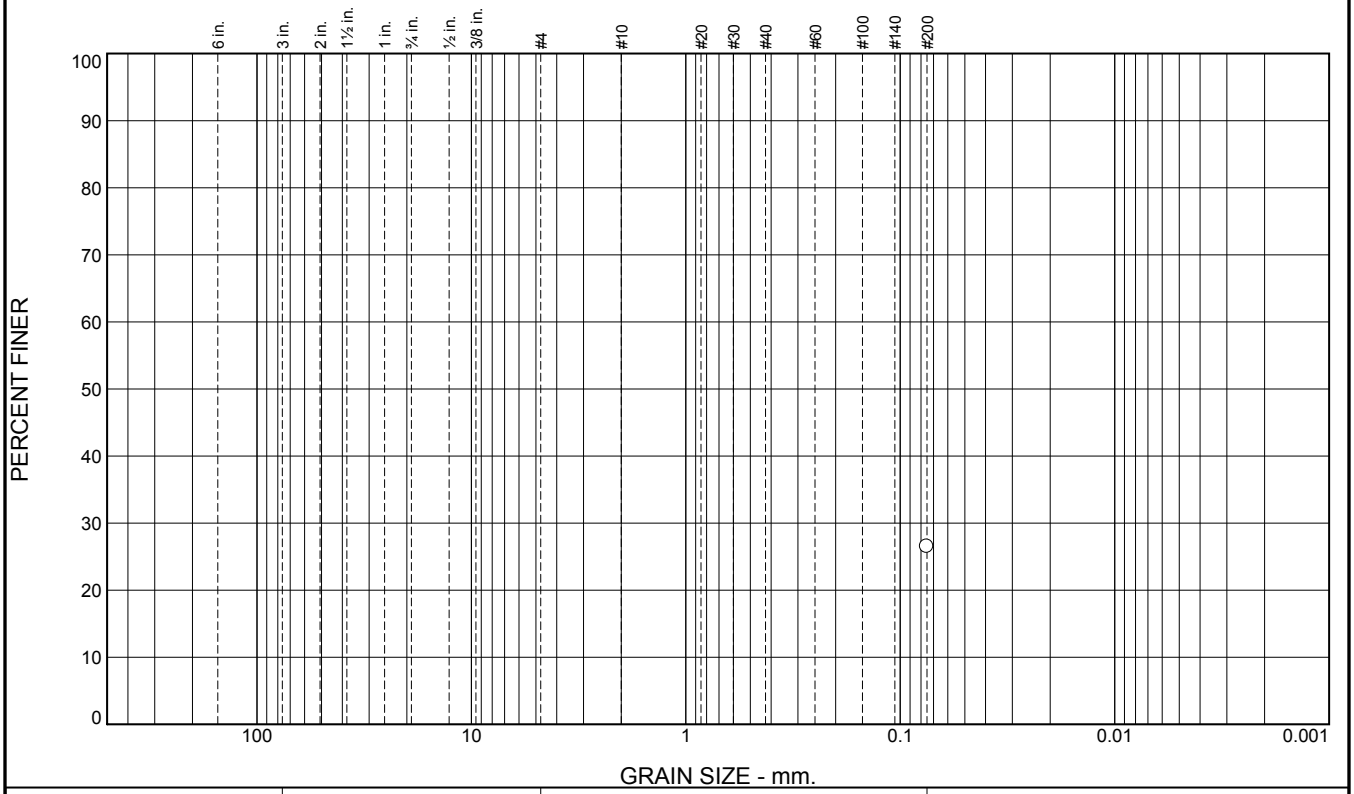
ENGEO INCORPORATED

Client: Google Incorporated
Project: Google Master Planning Services - Geotechnical Engineering

Project No: 13667.000.000

Tested By: M. Quasem **Checked By:** T. Borde

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						26.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	26.5		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Grain Size: ASTM D1140

Sample Number: 1-B05 @ 6 **Depth:** 6.0-6.5 feet

Date: 2.15.17

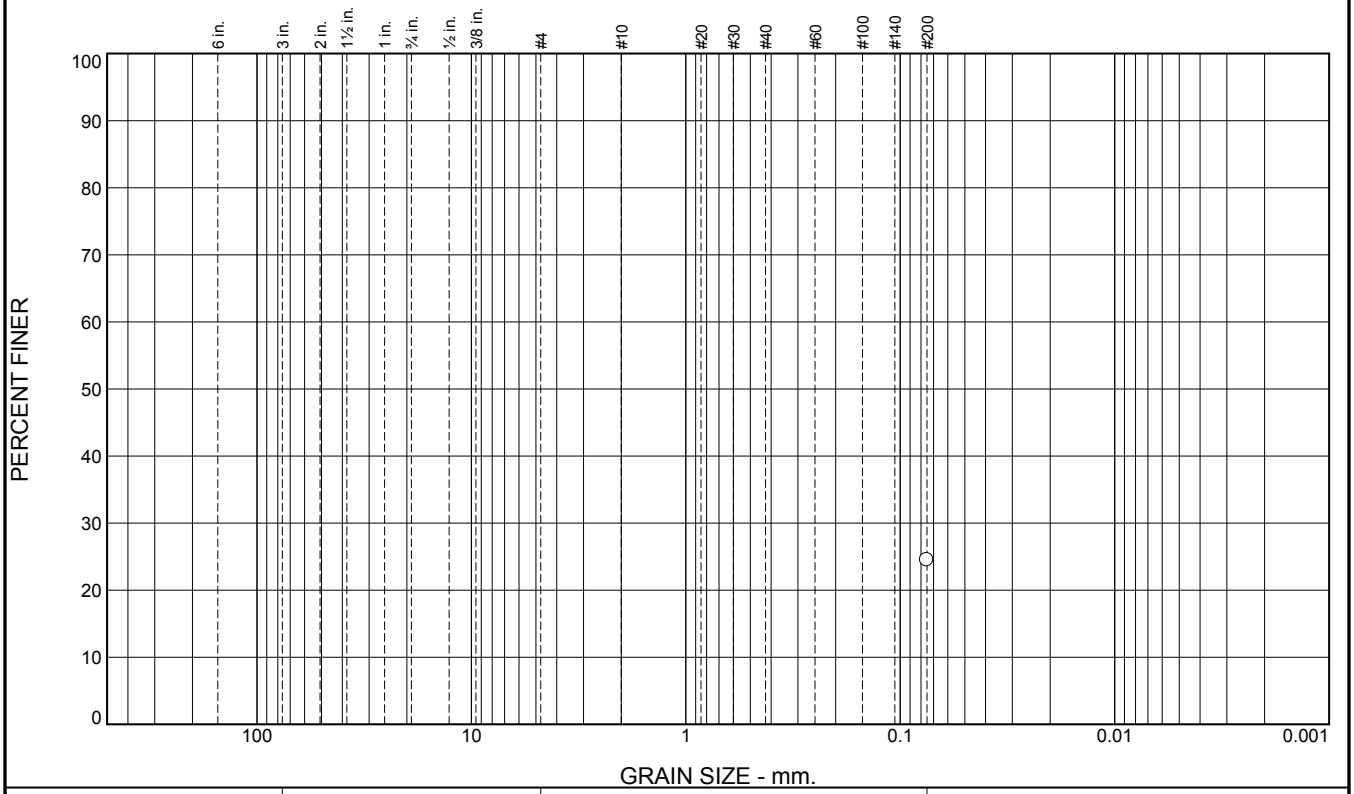
ENGEO INCORPORATED

Client: Google Incorporated
Project: Google Master Planning Services - Geotechnical Engineering

Project No: 13667.000.000

Tested By: M. Quasem **Checked By:** T. Borde

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						24.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	24.5		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Grain Size: ASTM D1140

Sample Number: 1-B06 @ 35.5 **Depth:** 35.5-36.25 feet

Date: 2.15.17

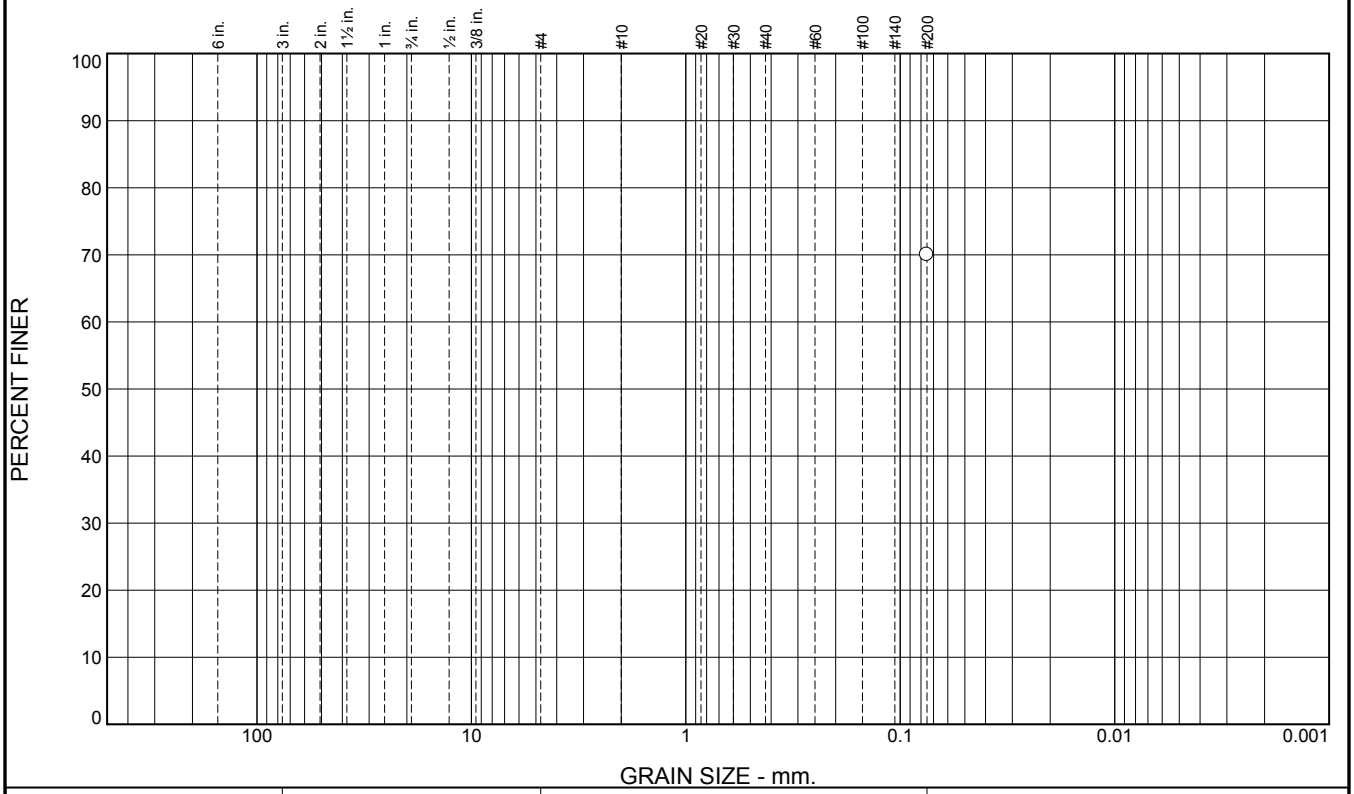
ENGEO INCORPORATED

Client: Google Incorporated
Project: Google Master Planning Services - Geotechnical Engineering

Project No: 13667.000.000

Tested By: M. Quasem **Checked By:** T. Borde

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						70.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	70.0		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Grain Size: ASTM D1140

Sample Number: 1-B06 @ 40.5 **Depth:** 40.5-40.8 feet

Date: 2.15.17

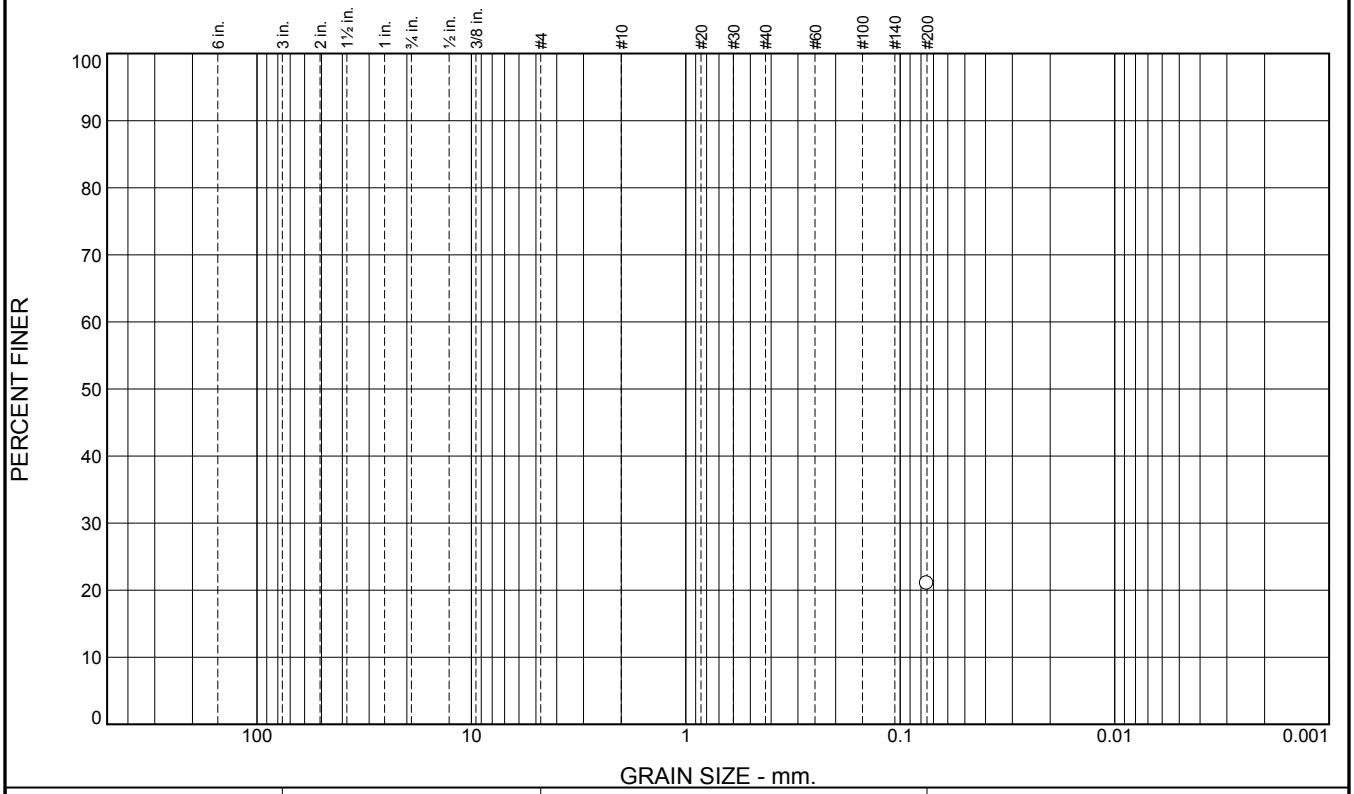
ENGEO INCORPORATED

Client: Google Incorporated
Project: Google Master Planning Services - Geotechnical Engineering

Project No: 13667.000.000

Tested By: M. Quasem **Checked By:** T. Borde

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						21.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	21.0		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140

Sample Number: 1-B06 @ 46 **Depth:** 46.0-46.5 feet

Date: 2/16/17

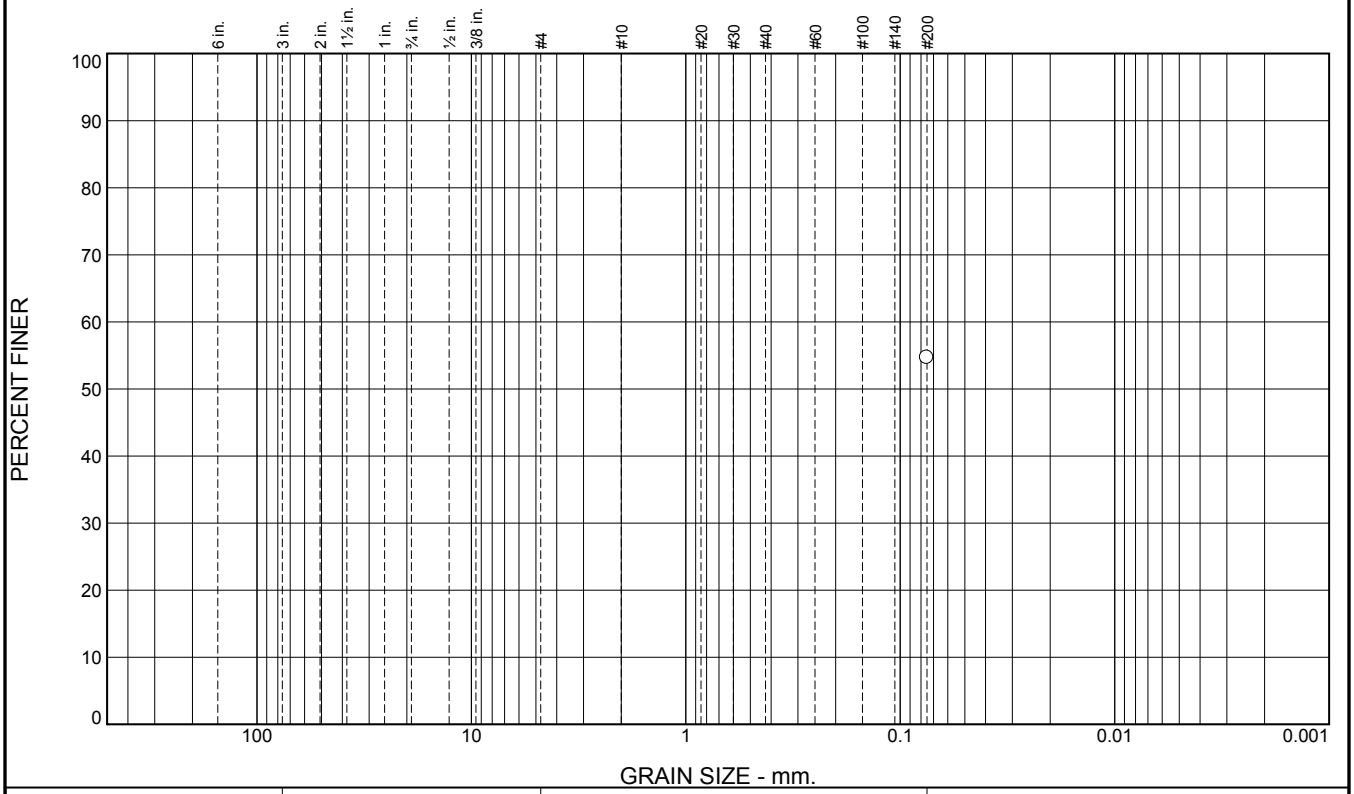
ENGEO INCORPORATED

Client: Google Incorporated
Project: Google Master Planning Services - Geotechnical Engineering

Project No: 13667.000.000

Tested By: T. Borde **Checked By:** M. Quasem

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						54.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	54.7		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140

Sample Number: 1-B07 @ 20.5 **Depth:** 20.5-21.0 feet

Date: 2/16/17

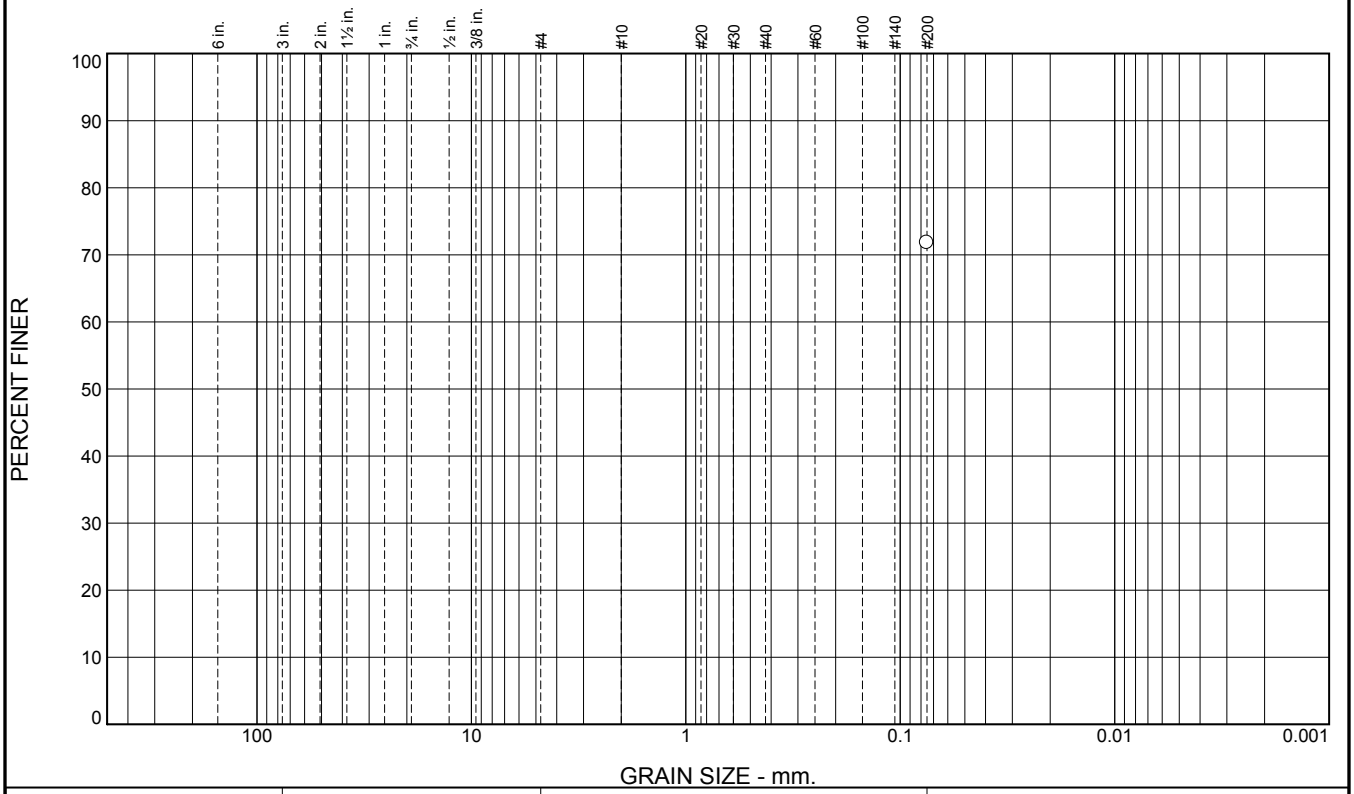
ENGEO INCORPORATED

Client: Google Incorporated
Project: Google Master Planning Services - Geotechnical Engineering

Project No: 13667.000.000

Tested By: T. Borde **Checked By:** M. Quasem

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						71.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	71.8		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140

Sample Number: 1-B07 @ 45.5 **Depth:** 45.5-46.0 feet

Date: 2/16/17

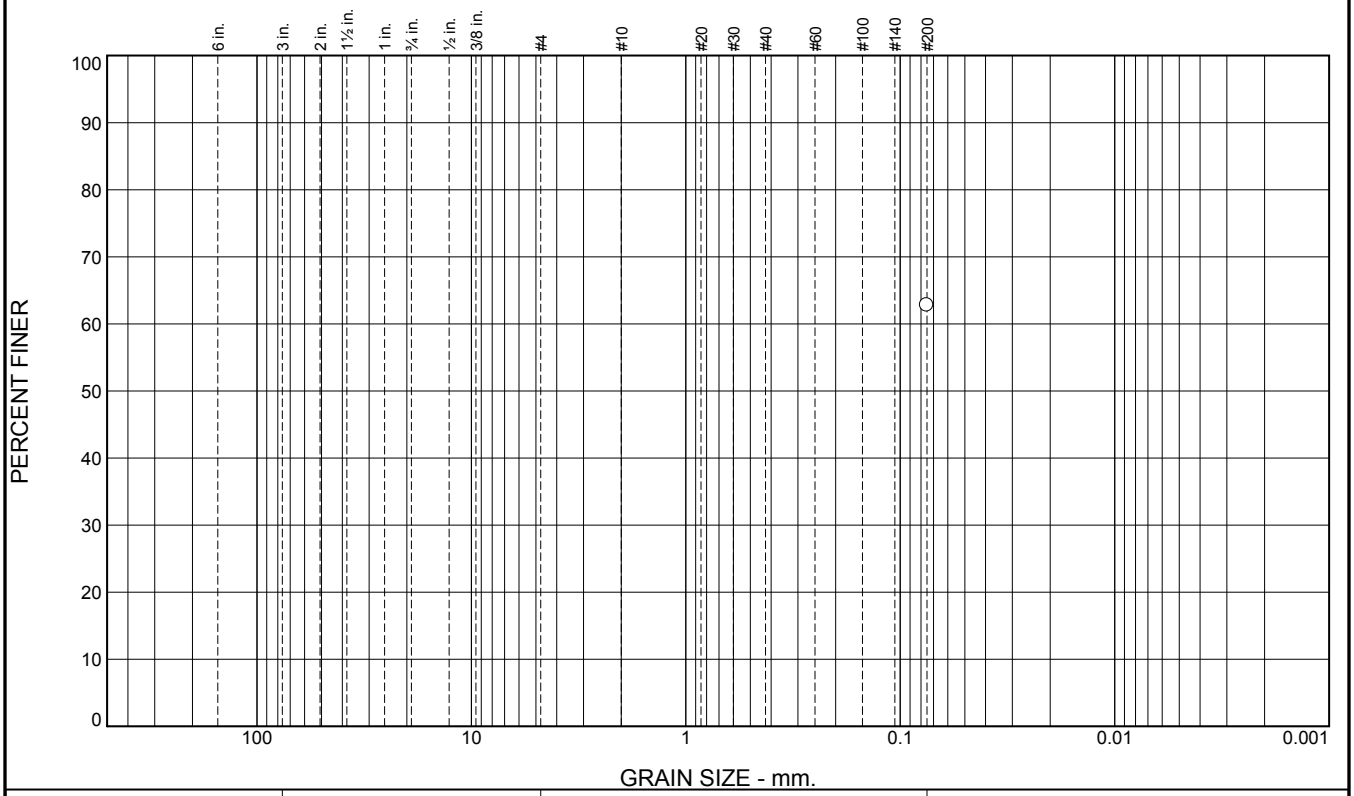
ENGEO INCORPORATED

Client: Google Incorporated
Project: Google Master Planning Services - Geotechnical Engineering

Project No: 13667.000.000

Tested By: T. Borde **Checked By:** M. Quasem

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						62.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	62.8		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL= 22 LL= 27 PI= 5

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Grain Size: ASTM D1140
PI: ASTM D4318, Wet method

Sample Number: 1-B08 @ 35.5 **Depth:** 35.5-36.0 feet

Date: 2/16/17

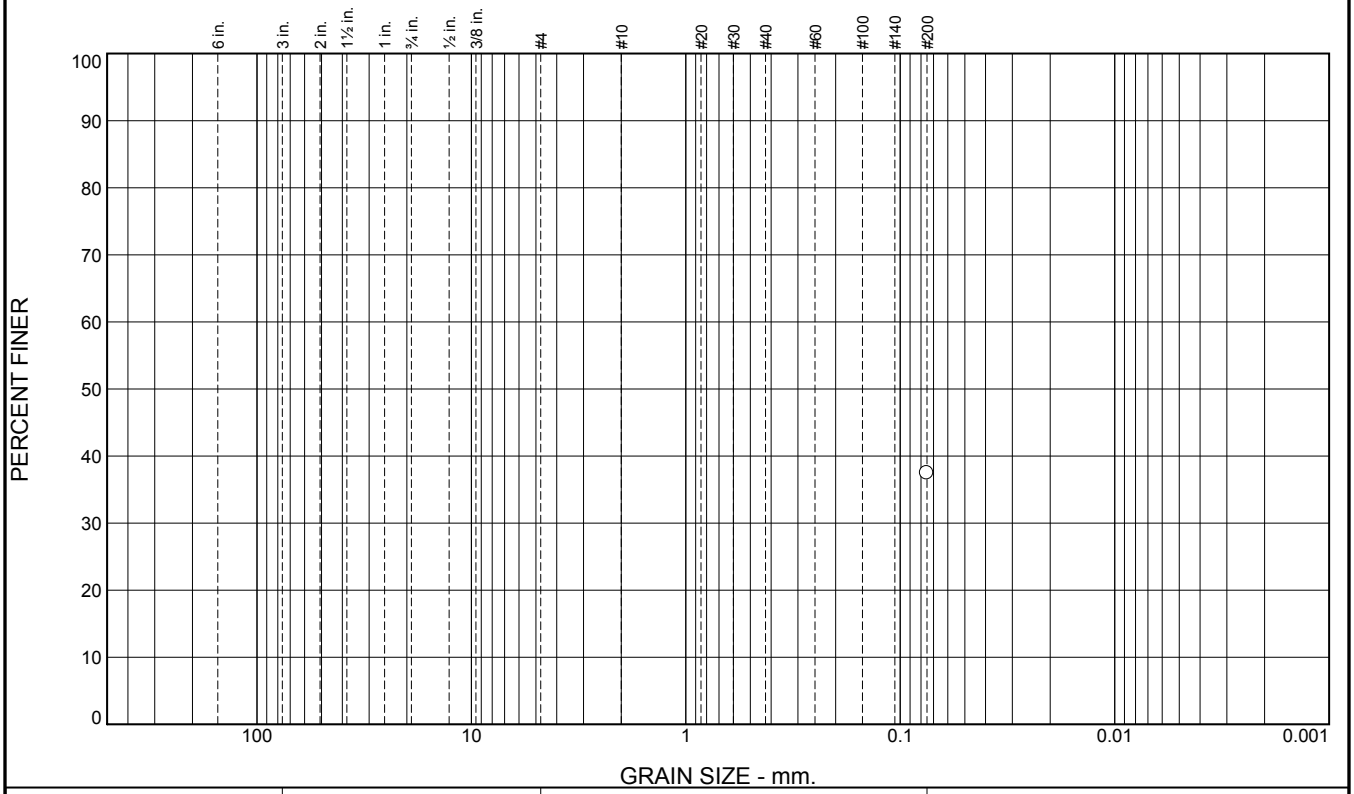
ENGEO INCORPORATED

Client: Google Incorporated
Project: Google Master Planning Services - Geotechnical Engineering

Project No: 13667.000.000

Tested By: T. Borde **Checked By:** M. Quasem

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						37.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	37.4		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Grain Size: ASTM D1140

Sample Number: 1-B10 @ 45.5 **Depth:** 45.5 feet

Date: 2.15.17

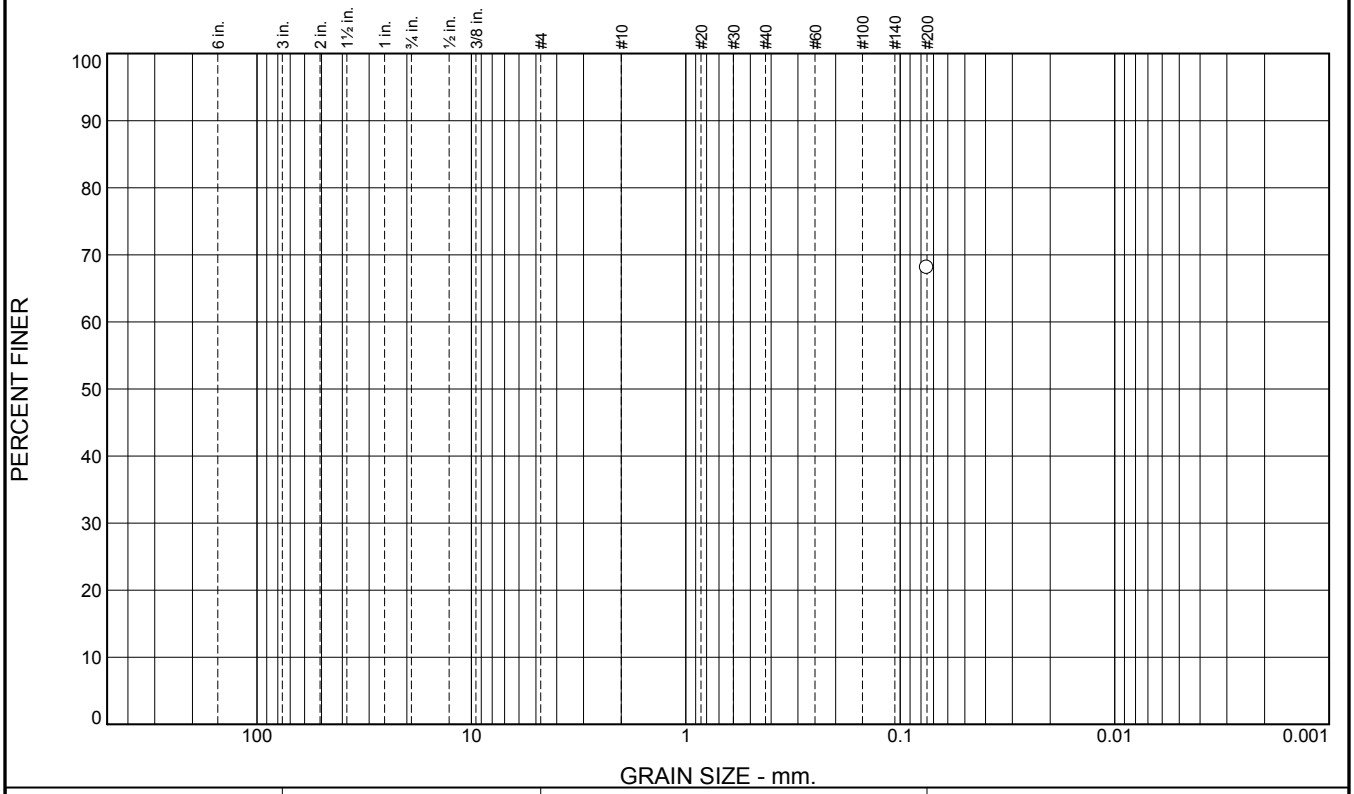
ENGEO INCORPORATED

Client: Google Incorporated
Project: Google Master Planning Services - Geotechnical Engineering

Project No: 13667.000.000

Tested By: M. Quasem **Checked By:** T. Borde

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						68.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	68.1		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Grain Size: ASTM D1140

Sample Number: 1-B10 @ 50.5 **Depth:** 50.5 feet

Date: 2.15.17

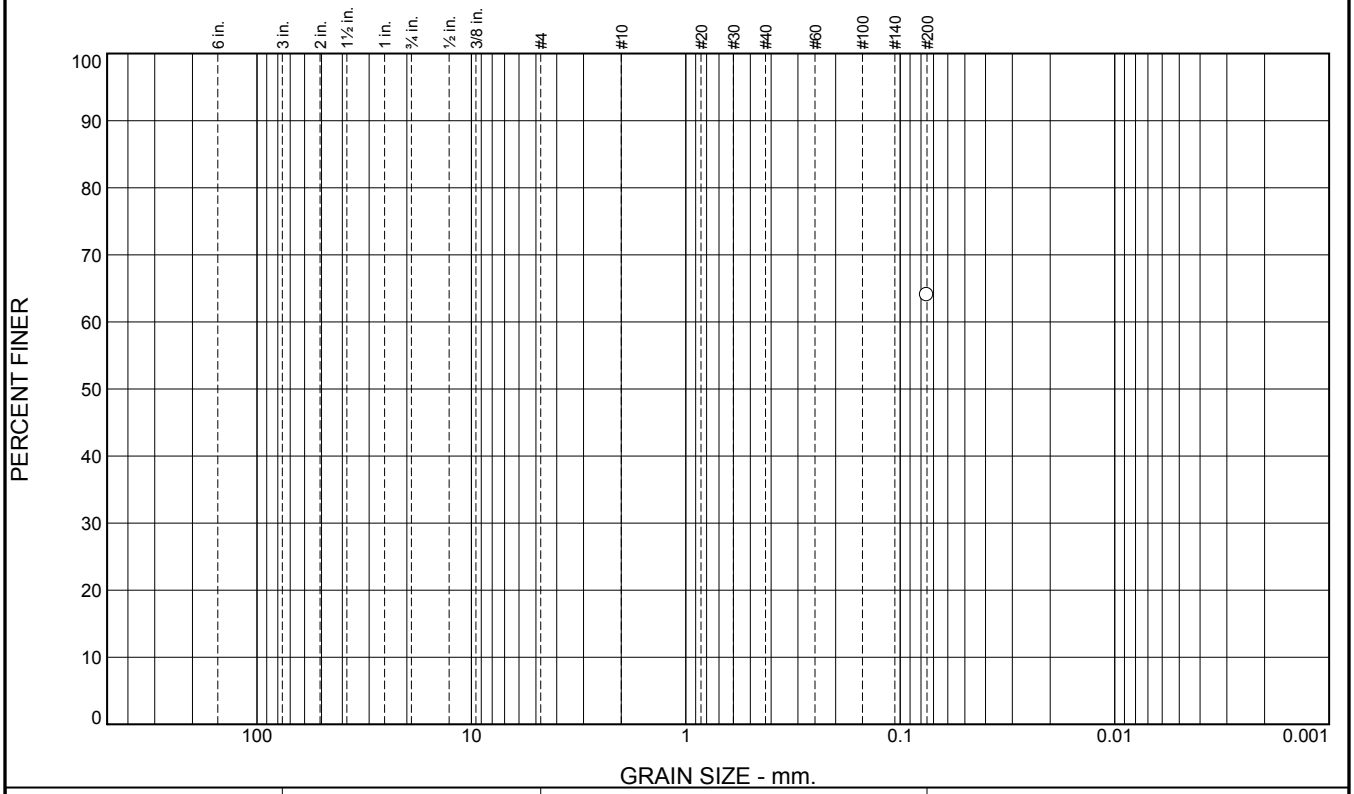
ENGEO INCORPORATED

Client: Google Incorporated
Project: Google Master Planning Services - Geotechnical Engineering

Project No: 13667.000.000

Tested By: M. Quasem **Checked By:** T. Borde

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						64.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	64.0		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Grain Size: ASTM D1140

Sample Number: 1-B11 @ 25.5 **Depth:** 25.5 feet

Date: 2.15.17

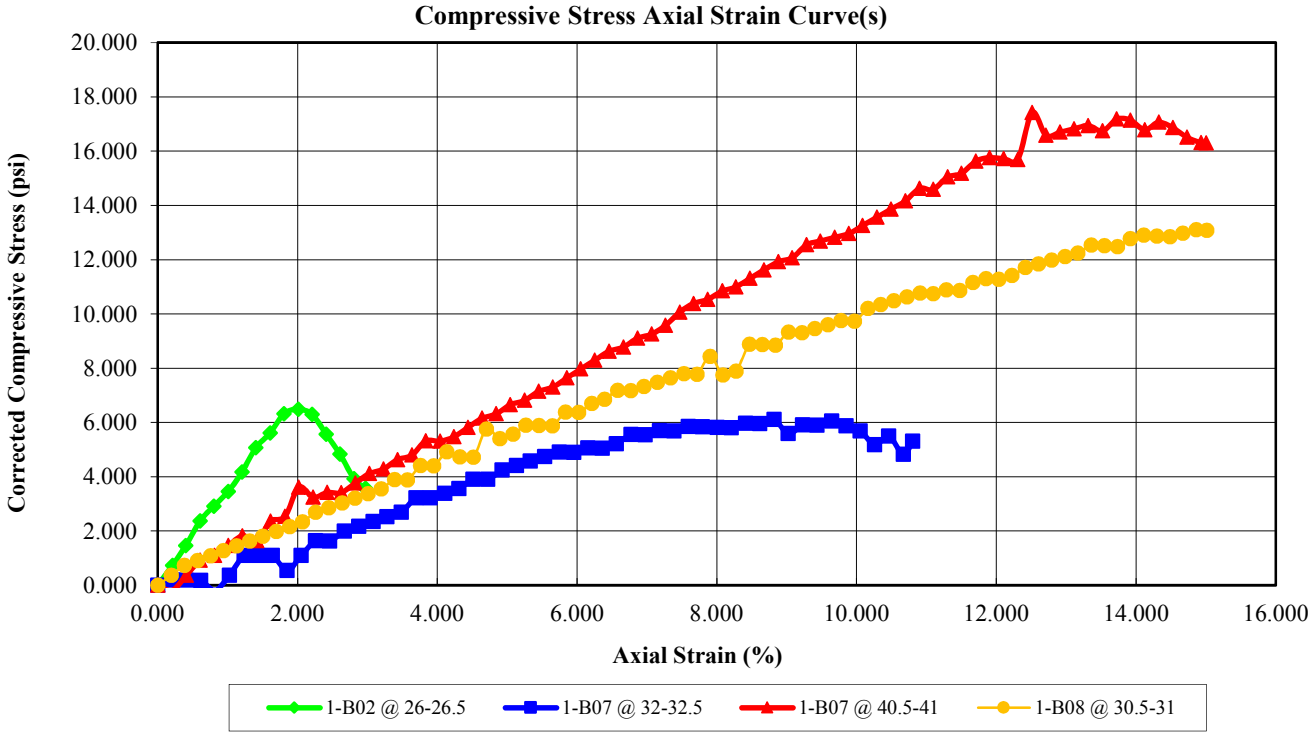
ENGEO INCORPORATED

Client: Google Incorporated
Project: Google Master Planning Services - Geotechnical Engineering

Project No: 13667.000.000

Tested By: M. Quasem **Checked By:** T. Borde

UNCONFINED COMPRESSION TEST REPORT
(ASTM D2166)



	SPECIMEN			
BEFORE TEST	**1-B02@26-26.5**	**1-B07@32-32.5**	**1-B07@40.5-41**	**1-B08@30.5-31**
Moisture Content (%)	14.9	25.1	20.3	25.4
Dry Density (pcf)	102.1	102.9	108.9	100.0
Saturation (%)	63.51	100.00	100.00	100.00
Void Ratio	0.62	0.61	0.52	0.65
Diameter (in)	2.389	2.375	2.386	2.394
Height (in)	5.030	4.916	4.998	5.361
Height-To-Diameter Ratio	2.105	2.070	2.095	2.239
TEST DATA				
Unconfined Compressive Strength (psf)	934.261	879.608	2508.660	1886.098
Undrained Shear Strength (psf)	467.131	439.804	1254.330	943.049
Strain Rate (in./min.)	0.05	0.05	0.05	0.05
Specific Gravity (Assumed)	2.650	2.650	2.650	2.650
Strain at Failure (%)	2.01	8.82	12.51	14.86

Test Remarks

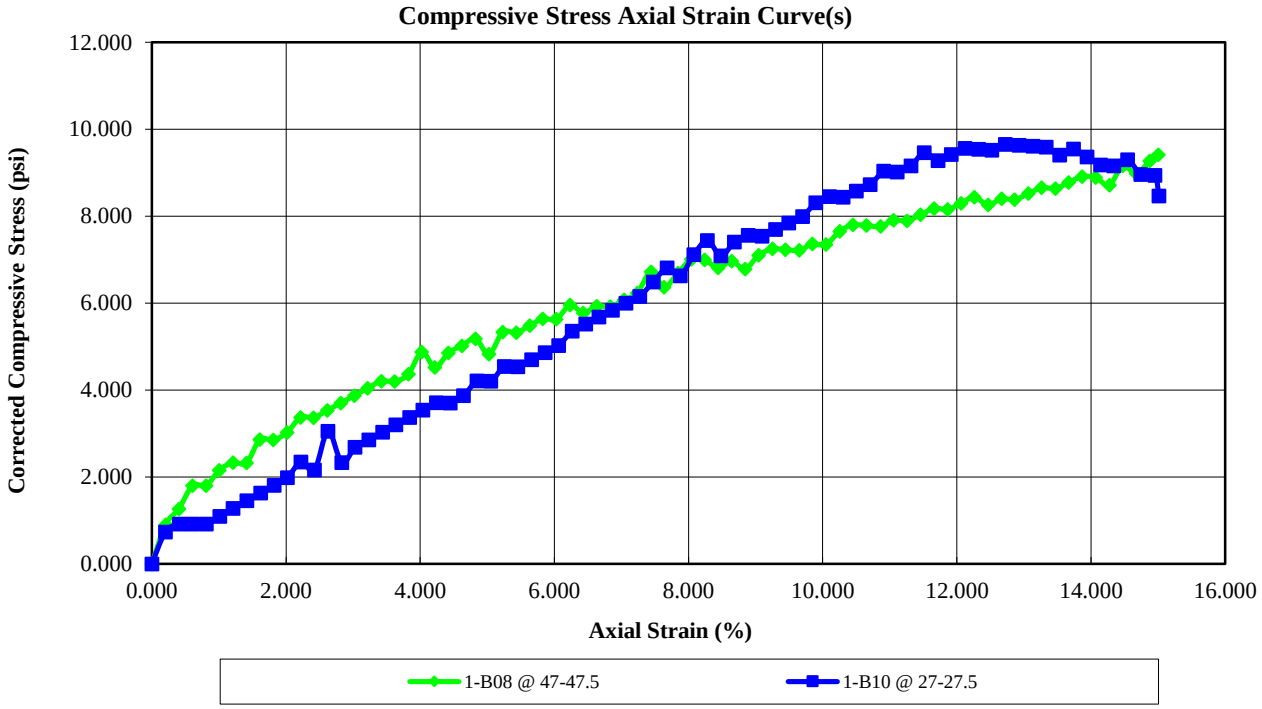
SPECIMEN	DESCRIPTION
1-B02@26-26.5	See exploration logs
1-B07@32-32.5	See exploration logs
1-B07@40.5-41	See exploration logs
1-B08@30.5-31	See exploration logs

PROJECT NAME: Google Master Planning Services - Geotechnical Engineering
PROJECT NO: 13667.000.000
CLIENT: Google Incorporated
LOCATION: Mountain View, CA
PHASE NO: 001

Test Date: 02/14/17
Tested By: T. Borde
Reviewed By: M. Quasem

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UNCONFINED COMPRESSION TEST REPORT
(ASTM D2166)



	SPECIMEN	
BEFORE TEST	**1-B08@47-47.5**	**1-B10@27-27.5**
Moisture Content (%)	28.6	21.4
Dry Density (pcf)	93.5	107.3
Saturation (%)	98.73	100.00
Void Ratio	0.77	0.54
Diameter (in)	2.405	2.386
Height (in)	5.017	4.992
Height-To-Diameter Ratio	2.086	2.092
TEST DATA		
Unconfined Compressive Strength (psf)	1354.946	1390.314
Undrained Shear Strength (psf)	677.473	695.157
Strain Rate (in./min.)	0.05	0.05
Specific Gravity (Assumed)	2.650	2.650
Strain at Failure (%)	15.00	12.72

Test Remarks

SPECIMEN	DESCRIPTION
1-B08@47-47.5	See exploration logs
1-B10@27-27.5	See exploration logs

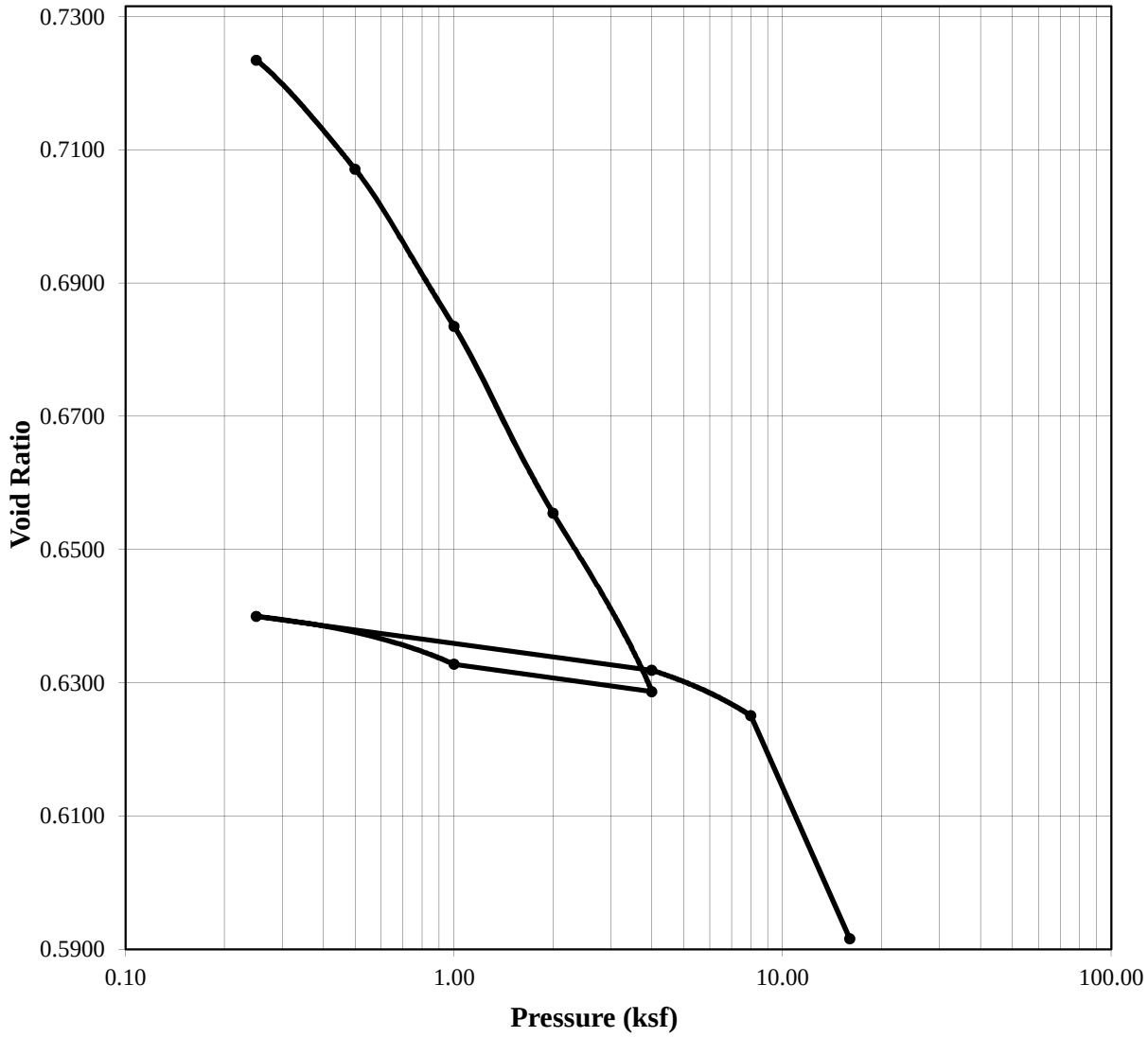
PROJECT NAME: Google Master Planning Services - Geotechnical Engineering
PROJECT NO: 13667.000.000
CLIENT: Google Incorporated
LOCATION: Mountain View, CA
PHASE NO: 001

Test Date: 02/14/17
Tested By: T. Borde
Reviewed By: M. Quasem

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Incremental Consolidation

ASTM D2435 - Method B

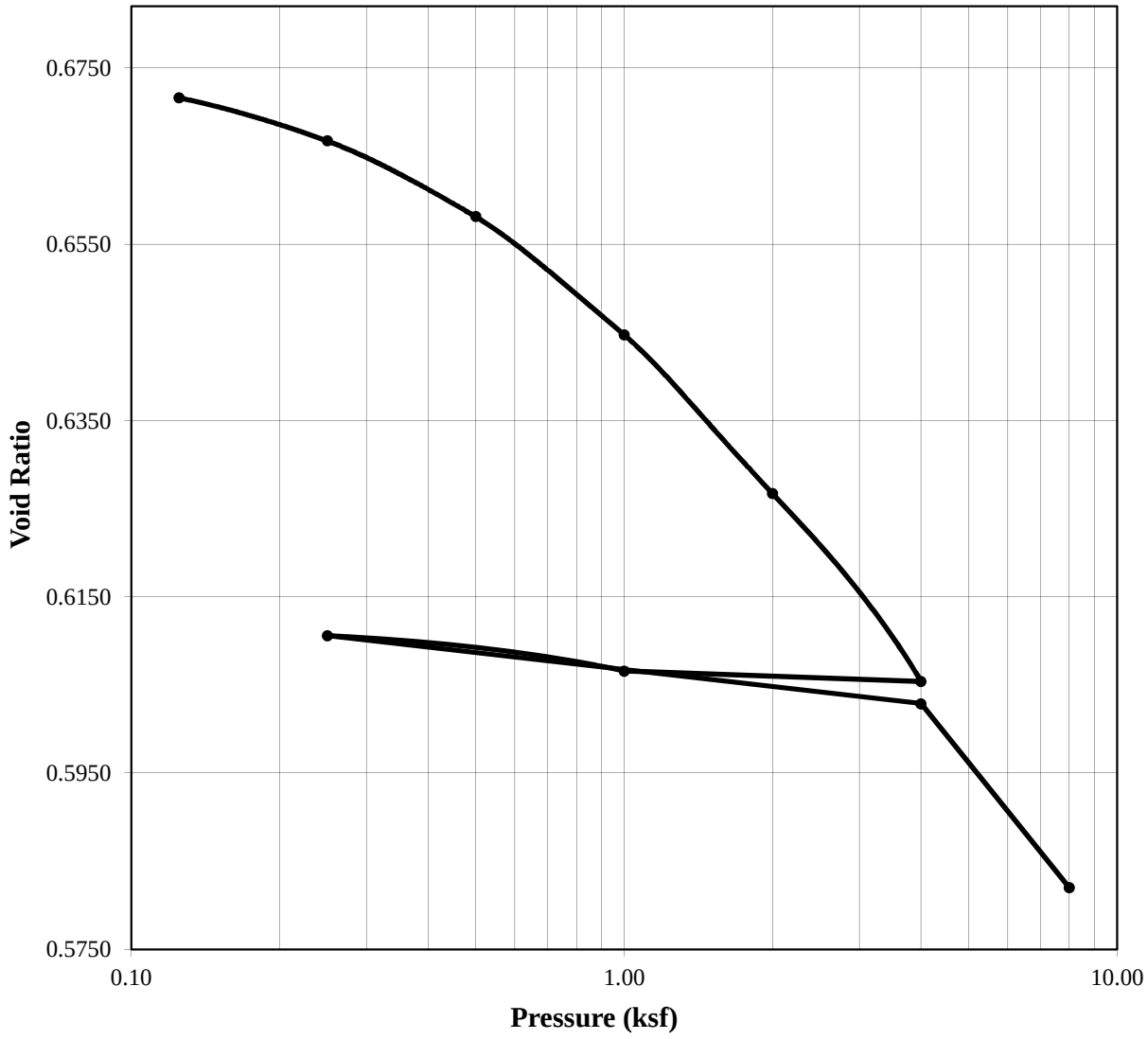


	Before	After	ASTM D4318 - Wet Method		Test Date:	02/14/17
Moisture (%):	24.50	20.67	**Liquid Limit:**	**n/a**		
Dry Density (pcf):	94.81	109.10	**Plastic Limit:**	**n/a**		
Saturation (%):	83.63	100.00	**ASTM D854 - Measured**			
Void Ratio:	0.8004	0.5931	**Specific Gravity:**	**2.736**		
Soil Description:	See exploration logs		**Remarks:**			
Project Number:	13667.000.000		**Depth:**	35.5-36		
Sample Number:	1-B07 @ 35.5-36		**Boring #:**	1-B07		
Project Name:	Google Master Planning Services - Geotech					
Client:	Google Incorporated					
Location:	San Bruno, CA					
Tested By: I. McCauley	**Checked By:** K. Lecce					

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Expect Excellence

Incremental Consolidation

ASTM D2435 - Method B



	Before	After	ASTM D4318 - Wet Method		Test Date:	02/15/17
Moisture (%):	23.07	18.09	**Liquid Limit:**	**23**		
Dry Density (pcf):	99.29	112.35	**Plastic Limit:**	**18**		
Saturation (%):	90.86	100.03	**ASTM D854 - Measured**			
Void Ratio:	0.6769	0.5735	**Specific Gravity:**	**2.668**		
Soil Description:	See exploration logs		**Remarks:**			
Project Number:	13667.000.000		**Depth:**	27.5-28		
Sample Number:	1-B10 @ 27.5		**Boring #:**	1-B10		
Project Name:	Google Master Planning - Geotec					
Client:	Google Incorporated					
Location:	San Bruno, CA					
Tested By:	I. McCauley	**Checked By:**	K. Lecce			

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California State Certified Laboratory No. 2153

CERCO analytical
1100 Willow Pass Court, Suite A
Concord, CA 94520-1006
925 462 2771 Fax. 925 462 2775
www.cercoanalytical.com

Client: ENGEO Incorporated
Client's Project No.: 13667.000.000
Client's Project Name: You Tube Campus
Date Sampled: 17-Feb-17
Date Received: 17-Feb-17
Matrix: Soil
Authorization: Signed Chain of Custody

Date of Report: 23-Feb-2017

Job/Sample No.	Sample I.D.	Redox (mV)	pH	Conductivity (umhos/cm)*	Resistivity (100% Saturation) (ohms-cm)	Sulfide (mg/kg)*	Chloride (mg/kg)*	Sulfate (mg/kg)*
1702137-001	1-BO5 @ 15.5'	470	7.37	-	5,200	-	N.D.	28
1702137-002	1-BO7 @ 30.5'	460	8.46	-	1,900	-	N.D.	22
1702137-003	1-BO2 @ 2.5'	420	5.41	-	1,000	-	52	85

Method:	ASTM D1498	ASTM D4972	ASTM D1125M	ASTM G57	ASTM D4658M	ASTM D4327	ASTM D4327
Reporting Limit:	-	-	10	-	50	15	15
Date Analyzed:	22-Feb-2017	22-Feb-2017	-	21-Feb-2017	-	22-Feb-2017	22-Feb-2017

Cheryl McMillen
Laboratory Director

* Results Reported on "As Received" Basis
N.D. - None Detected

Quality Control Summary - All laboratory quality control parameters were found to be within established limits



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Appendix 3.0-2

Preliminary Geotechnical Report (Phase I Development)



YOUTUBE CAMPUS PHASE I
SAN BRUNO, CALIFORNIA

PRELIMINARY GEOTECHNICAL REPORT

SUBMITTED TO
Mr. Shawn Christman
Ellis Partners
111 Sutter Street, Suite 800
San Francisco, CA 94101

PREPARED BY
ENGEO Incorporated

August 5, 2019

PROJECT NO.
13667.000.002

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Expect Excellence

Project No.
13667.000.002

August 5, 2019

Mr. Shawn Christman
Ellis Partners
111 Sutter Street, Suite 800
San Francisco, CA 94101

Subject: YouTube Campus Phase I
San Bruno, California

PRELIMINARY GEOTECHNICAL REPORT

Dear Mr. Christman:

With your authorization, we performed a geotechnical exploration for the proposed site of Phase 1 of the YouTube Campus located in San Bruno, California. This report presents our geotechnical observations, as well as our preliminary conclusions and recommendations for the project. We also provide site grading, drainage, and foundation recommendations for use during land planning.

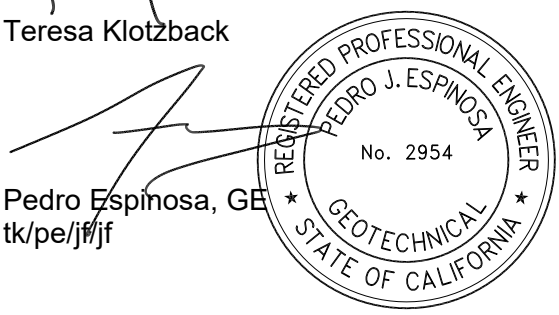
Based upon our initial assessment, it is our opinion that the proposed YouTube Phase I campus is feasible from a geotechnical standpoint. We will provide design-level conclusions and recommendations for the project during the building permit application process.

We are pleased to have been of service to you on this project and are prepared to consult further with you and your design team as the project progresses. If you have any questions regarding the contents of this report, please do not hesitate to contact us.

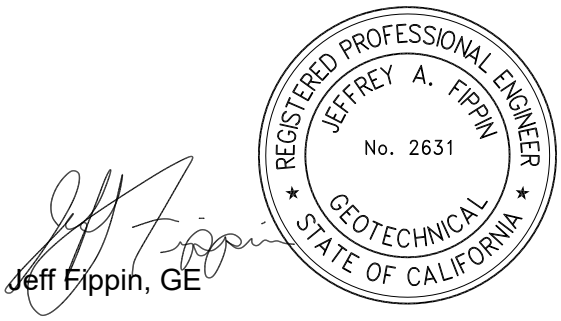
Sincerely,

ENGEO Incorporated

Teresa Klotzback



Pedro Espinosa, GE



Jeff Fippin, GE

tk/pe/jf/jf

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1.0 INTRODUCTION

1.1 PURPOSE AND SCOPE

The purpose of this preliminary geotechnical report is to provide an assessment of geotechnical concerns associated with the proposed construction of Phase 1 of the YouTube Campus. Our services included the following tasks:

- Review of published geologic maps and geotechnical data for the site.
- Review of historic aerial photos.
- Acquisition of appropriate San Mateo County Environmental Health Services Division permits.
- Notification of Underground Services Alert a minimum of 48 hours prior to our exploration.
- Retention of a private utility locator to clear the proposed exploration locations of existing utilities.
- Preparation of a work plan including proposed locations for our explorations, as well as excavation checklists showing their proximity to existing utilities.
- Performance of a subsurface field exploration and laboratory testing program.
- Interpretation of subsurface field exploration data.
- Evaluation of potential geotechnical concerns.

For our use, we received the following documents from Ellis Partners:

- SHoP Architects, Site Plan and Sections, Sheets SK-201 and SK-202, dated August 20, 2018.
- Ellis Partners, Basis of Design Pre-Schematic Design Report, 57 sheets, dated October 13, 2017.
- FYFE, Column Strengthening As-Built, Title Sheet and Sheets 1 and 2, YouTube, 900 Cherry Ave., San Bruno, CA, Revision 1 dated September 29, 2014, Project No. AAJA-J29Z60.
- Robinson and Mills Architecture and Planning, Bayhill Two Foundation Plans (1000 Cherry Avenue), Sheets S.1 through S.10, Bayhill Office Center, San Bruno, CA, Revision 1 dated October 9, 1978.

We previously prepared an overall master plan geotechnical report, dated August 15, 2018, and revised August 17, 2018. This report presents preliminary updates to the master plan report that are specific to the Phase I scope.

We prepared this report for the exclusive use of Google and its consultants. In the event that any changes are made in the character, design or layout of the development, we must be contacted to review the conclusions and recommendations contained in this report to evaluate the need for modifications.

1.2 SITE LOCATION AND DESCRIPTION

The YouTube Campus project site is located in San Bruno, California. As shown on the Vicinity Map, Figure 1, the site is bounded on the north by Interstate 380, on the east by El Camino Real, on the west by Cherry Avenue, and on the south by San Bruno Avenue. Access is provided by

Bayhill Drive and Grundy Lane. The approximately 40.2-acre project site comprises eight parcels currently developed for commercial use. The YouTube Campus will consist of five phases of ground-up office campus development. The geotechnical recommendations outlined herein relate to the first phase of the YouTube Campus development, known as Phase 1, which is shown on the Site Plan, Figure 2A.

Phase 1 development includes the construction of two buildings and will be completed by 2022. Phase 1 North, is located at the north side of Grundy Lane and includes a three-story building above a three-level parking garage. Phase 1 South, is located at the south side of Grundy Lane and it includes a three-story building above a three-level parking garage. We provide a summary of the associated square footage, Assessor's Parcel Numbers (APN) per County of San Mateo, and street addresses in the table below.

TABLE 1.2-1: Project Parcels and Description

PHASE 1 BUILDINGS	PROPOSED SQUARE FEET	APN	ASSOCIATED ADDRESS
Phase 1 North	248,000	020-011-230	1000 Cherry Avenue
Phase 1 North Garage	404,000		
Phase 1 South	192,000	020-015-020	900 Cherry Avenue
Phase 1 South Garage	306,000		

Currently, the Phase 1 basement depths are anticipated to be at an elevation of 61 feet (NAVD88), approximately 45 to 55 feet from top of Sub-level 03 slab (the lowest basement level) to top of ground-level slab.

1.3 EXISTING GEOTECHNICAL DATA

As part of this preliminary geotechnical report for Phase 1, we reviewed available reports for previous projects within the site vicinity, including existing geotechnical reports as well as environmental and groundwater monitoring reports. This section provides a summary of the subsurface conditions encountered in each of the previous reports.

1971 – L.T. Evans, Inc. Foundation Investigation Report

This reference is a foundation investigation report prepared for the building at 850 Cherry Avenue, which was named Bayhill Office Building No. 1 at the time. The investigation was performed for a nine-story office building with a basement and a four-level garage located northeast of the intersection of Cherry Avenue and San Bruno Avenue.

The field exploration included nine 20-inch-diameter test borings to depths ranging from 35 to 70 feet. The soil encountered was predominantly silty and clayey sand with lenses of silt and clay. Up to 20 feet of fill was encountered along Cherry Avenue.

Groundwater was encountered between 42 and 65 feet below ground surface.

September 1974 - L.T. Evans, Inc. Foundation Investigation Report

This reference is a foundation investigation report prepared for the N.V. Yusra Office Buildings. The investigation was performed for the existing structures located at 1150, 1200, and 1250 Bayhill Drive.

The field exploration included drilling four 20-inch-diameter test borings to maximum depths of 35 feet. The soil encountered was predominantly sand with lenses of clay, silt, or mixtures of all three soil types. The borings encountered material with a low density and high moisture content at a depth of 6 feet in Boring 1 and a depth of 24 feet in Boring 4. The investigators suggest the subsurface conditions encountered indicate the site was previously traversed by gullies that flowed southeasterly. L.T. Evans concluded there was no evidence that fill that had been placed in the area prior to their study.

Groundwater was encountered at a depth of 10 feet in Borings 1 and 2, 21 feet in Boring 4, and not encountered in Boring 3. The investigators suggested the variation in groundwater elevation may indicate the infilling of an old channel.

L.T. Evans recommended overexcavating 6 feet below the building foundations, placing compacted fill, and embedding the shallow foundation 2 feet below finished grade.

December 20, 2012 – Cornerstone Earth Group Design-Level Geotechnical Investigation

This reference is a design-level Geotechnical Investigation report prepared for the San Francisco Police Credit Union Headquarters located at 1250 Grundy Lane. The proposed structure would include up to two levels of concrete-framed below-grade parking with a three-story steel-framed office building above. The project is currently under construction and the excavation for the below-grade parking structure appears to be nearly complete.

The field exploration included drilling nine auger borings using hollow-stem and solid-stem augers to depths ranging from 4 to 49½ feet below ground surface. The soil encountered included non-engineered fill ranging in thickness from 2 to 5 feet across the majority of the site, but as thick as 12 feet in the northeast corner of the site. The fill generally consisted of medium-stiff to hard lean clay over medium dense sand. Beneath the fill, alternating layers of stiff to hard lean clay and medium dense to very dense sand with varying amounts of silt and clay were encountered to the maximum depth explored of 49½ feet.

Groundwater was not encountered in any of the borings to the maximum depth of 49½ feet below ground surface.

Cornerstone concluded that the primary geotechnical concerns at the site were the presence of non-engineered fill and moderately corrosive soil. Cornerstone also concluded that there was a low potential for liquefaction at the site due to the stiff to hard cohesive soil and medium-dense to very dense granular materials encountered, in addition to the deep groundwater level.

February 10, 2017 – ENGEO Geotechnical Exploration

We conducted a geotechnical exploration at a site located to the southwest of the intersection of San Bruno Avenue and El Camino Real. The site is currently occupied by one- to two-story commercial buildings and the proposed project includes two four-story Type V residential units over a podium structure with one level of below-grade parking.

The field exploration included drilling five borings and advancing six cone penetration tests (CPT) to a maximum depth of 61½ feet below existing grade. The soil encountered included variable amounts of fill from 3 to 15 feet. The fill generally consisted of medium-stiff to stiff clay with some debris. Beneath the fill, we encountered stiff to hard sandy silt with traces of fine gravel, and

medium-dense to dense silty sand with silty clay lenses. We identified the soil below the fill as the Colma Formation.

We encountered groundwater at depths ranging from 15 to 20 feet during the field exploration.

August 15, 2017, Revised August 17, 2018 – ENGEO Geotechnical Exploration

We performed a geotechnical exploration for the overall YouTube campus. The field exploration included drilling five borings and advancing four cone penetration tests (CPT) to a maximum depth of 52½ feet below existing grade. The soil encountered within the Phase 1 boundary included varying amounts of fill up to 8 feet in thickness. The fill generally consisted of loose to dense silty sand and soft to hard sandy lean clay. At the surface or beneath the artificial fill, we encountered dense to very dense sand with varying amounts of silt and clay. We identified the soil below the fill as the Colma formation.

As part of this study, we measured groundwater depth using pore pressure dissipation testing and installed monitoring wells using vibrating-wire piezometers. Based on review of this data as well as existing geotechnical data, we determined groundwater to exist across the site a relatively stable elevation of approximately 25 to 30 feet (NAVD88).

2.0 FINDINGS

2.1 SITE BACKGROUND

As part of this study, we reviewed historic aerial photographs, historic maps, and other historic documents. Based on our review, we understand the site was utilized as a dairy prior to development. During World War II, the U.S. Navy established a base on the site that was used as a Classification Center and Personnel Depot. It appears the site was graded between 1943 and 1946. Modular, barracks-style structures are evident at and within the site vicinity in a photograph from 1946, including structures located to the east of Phase 1 North. The Naval Base remained operational following the conclusion of World War II. By the time of a 1968 photograph, several of the naval base structures were demolished, although the structures to the east of Phase 1 North remained. By the time of a 1980 photograph, the remainder of the naval base structures were demolished, Interstate 380 was constructed to the north of the site, and the existing office buildings located at 1000 Cherry Avenue and 900 Cherry Avenue were constructed.

From review of stereo-paired aerial photographs from 1943, shown in Figure 2B, it is evident that San Bruno Creek and one of its tributaries historically traversed an area to the east of the site, running approximately northwest to southeast between the location of the existing structures at 1100 Grundy Lane and 850 Elm Avenue. It appears that San Bruno Creek was dammed upstream of the site and infilled within the overall master plan limits between 1943 and 1946.

2.2 SURFACE CONDITIONS

Site topography generally slopes downward from the western corner of the site to the eastern corner of the site. The topography also slopes gradually downward from Grundy Lane towards Bayhill Drive. Site grades range from approximately Elevation 116 feet (Datum: NAVD88) along the western boundary to Elevation 105 feet at the northeastern corner of Phase 1 North and Elevation 99 at the southeastern corner of Phase 1 South.

2.3 GEOLOGY AND SEISMICITY

In our master plan report for the project (ENGEO, 2018), we described the regional and site-wide geology of the proposed YouTube campus. The discussion of relevant geologic units that pertain to Phase 1 is presented below and was enhanced with our site-specific exploration.

2.3.1 Regional Geology

The site is located on the eastern side of the San Francisco Peninsula, in the Coast Ranges physiographic province of California. The Coast Ranges comprise a system of northwest-trending, fault-bounded mountain ranges and intervening valleys that trend approximately parallel to the right-lateral transform boundary between the North American and Pacific Plates. The present physiography and geology of the Coast Ranges are the result of deformation and deposition along the tectonic boundary between the North American plate and the Pacific plate. Plate boundary fault movements are largely concentrated along the well-known fault zones, which in the Bay Area include the San Andreas, Hayward, and Calaveras faults, as well as other lesser-order faults. Bedrock in the Coast Ranges consists of igneous, metamorphic and sedimentary rocks that range in age from Jurassic to Pleistocene.

2.3.2 Site Geology

The area of Phase 1 is mapped as being underlain by dense sand from the Colma Formation. As part of this preliminary study, we also indicated that shallower artificial fill may be present at Phase 1 South and the eastern boundary of Phase 1 North.

2.3.2.1 Artificial Fill, Qaf

Portions of the overall site at the location of the former San Bruno Creek are underlain by artificial fill that was placed in the 1940s and 1950s. The mapped artificial fill (Qaf) follows the former Creek Channel. Fill material was likely derived from local sources and, based on our field exploration, generally comprises silty sand and sandy lean clay. Due to previous activities and site use, minor fill is likely present at various locations across the site.

2.3.2.2 Pleistocene Colma Formation, Qc

According to published geologic mapping covering the site by Bonilla (1998) and Brabb (1998), the site is underlain by Pleistocene Colma Formation (Qc). The Colma Formation is described as weakly consolidated, moderately well bedded, sandy clay and silty sand with well-rounded chert pebbles. Bedding structure within the vicinity is mapped as striking northwest and gently dipping 4 degrees towards the northeast (Figure 3). The Colma Formation is a late Pleistocene-age variable deposit of alluvium, sand dunes, and marine sediments that has been uplifted from sea level and tilted and folded to its present configuration. The age of the Colma Formation has been estimated at approximately 80,000 to 120,000 years before present (Caskey, et al. 2005).

2.3.3 Seismicity

Numerous small earthquakes occur every year in the San Francisco Bay Region, and larger earthquakes have been recorded and can be expected to occur in the future. Figure 4 shows the approximate locations of these faults and significant historic earthquakes recorded within the San Francisco Bay Region. Nearby active faults within 26 miles of the site and their estimated

maximum earthquake magnitudes based on the USGS fault database are provided in the following table. An active fault is defined by the State Mining and Geology Board as one that has had surface displacement within Holocene time (about the last 11,000 years) (Hart and Bryant, 1997).

TABLE 2.3.3-1: Active Faults Capable of Producing Significant Ground Shaking at the Site

FAULT NAME	DISTANCE FROM SITE (MILES)	DIRECTION FROM SITE	MAXIMUM MOMENT MAGNITUDE
Serra	0.25	West	Unknown
San Andreas	0.9	Southwest	8.0
San Gregorio Connected	6.6	Southwest	7.5
Monte Vista-Shannon	16	Southeast	6.5
Hayward-Rodgers Creek	17	Northeast	7.3
Calaveras	26	Northeast	7.0

As shown in Figure 5, the site is not located within a currently designated Alquist-Priolo Earthquake Fault Zone and no known surface expression of active faults is believed to exist within the site. Fault rupture through the site, therefore, is not anticipated.

The Serra fault is located approximately ½ mile west of the project site. The Serra fault, although not currently included on the Alquist-Priolo Earthquake Fault Zone map for the area, is considered to be an active fault that has experienced displacement within Holocene time (Jennings, 2010). The Serra fault forms the contact between the Colma Formation and Merced Formation and is a reverse fault that dips towards the southwest likely merging with the San Andreas fault at depth (Kennedy, 2002).

According to the Health and Safety Element of the San Bruno General Plan, the San Bruno fault is mapped approximately ¼ mile east of the project site. According to the USGS Open-File Report 98-354, “A recent study of geophysical, geomorphic, and geological data found no evidence supporting the existence of the hypothetical San Bruno fault as a mappable structure (USGS Open-File Report 97-429, 1997), and the fault has been deleted.”

The Uniform California Earthquake Rupture Forecast (UCERF3, 2013) evaluated the 30-year probability of a Moment Magnitude 6.7 or greater earthquake occurring on the known active fault systems in the Bay Area. The UCERF3 generated an overall probability of 72 percent for the San Francisco Region as a whole.

2.4 FIELD EXPLORATION

As part of our master plan study, we drilled five exploratory borings and advanced four Cone Penetration Tests (CPTs) within the Phase 1 site boundary to depths ranging between 15 and 52½ feet. We performed this portion of our field exploration between January 23 and February 1, 2017.

The Phase 1 field exploration included drilling six exploratory borings within the Phase 1 site boundaries to greater depths. We performed this field exploration between September 12 and September 19, 2018.

The locations of our explorations within Phase 1 are shown in Figure 2A.

2.4.1 Exploratory Borings

We observed the drilling of six exploratory borings at the locations shown on the Site Plan, Figure 2A. An engineer observed the drilling and logged the subsurface conditions at each location. We retained a drilling crew operating a truck-mounted drill rig to advance the borings using 4-inch- and 5-inch-diameter mud rotary methods. We advanced the borings to depths ranging from 100 to 101½ feet below existing grade. We permitted and backfilled the borings in accordance with the requirements of the San Mateo County Environmental Health Services Division.

We obtained bulk soil samples from drill cuttings and retrieved disturbed samples at various intervals in the borings using standard penetration tests with a 2-inch outside diameter (O.D.) split-spoon sampler. In addition, we obtained 2.5-inch-inside-diameter (I.D.) samples using a Modified California Sampler.

We obtained the standard penetration resistance blow counts by dropping a 140-pound hammer through a 30-inch free fall. We drove the 2-inch O.D. split-spoon sampler 18 inches and recorded the number of blows for each 6 inches of penetration. In addition, we obtained 2.5-inch I.D. samples using a Modified California Sampler driven into the soil with the 140-pound hammer previously described. Unless otherwise indicated, the blows per foot recorded on the boring log represent the accumulated number of blows to drive the last 1 foot of penetration; we have not converted the blow counts using any correction factors. When sampler driving was difficult, we recorded the penetration only as inches penetrated for 50 hammer blows.

We used the field logs to develop the exploration logs in Appendix A. The logs depict subsurface conditions at the exploration locations for the date of exploration; however, subsurface conditions may vary with time.

2.5 SUBSURFACE CONDITIONS

We encountered asphalt concrete (AC) and aggregate base (AB) in each of our explorations. The thickness of AC was approximately 2½ inches. The thickness of AB encountered ranged from approximately 2½ to 4 inches.

We encountered varying amounts of artificial fill across the site. The artificial fill encountered primarily consisted of loose to dense silty sand and soft to hard sandy lean clay. The artificial fill was likely composed of locally derived material from either alluvial deposits or the Colma Formation. We encountered approximately 4 to 8 feet of fill within Phase 1 South, likely associated with the construction of the terraced slopes.

We encountered the Colma Formation underlying the entire site. Within the Phase I boundary, the Colma Formation generally comprises dense to very dense sand with varying amounts of silt and clay. We believe these lenses of fine-grained material to be relatively discontinuous, as is characteristic of the deposits of the Colma Formation.

At one boring location within Phase 1 North and all of the recent explorations within Phase 1 South, we encountered stiff to very stiff clay deposits of medium to high plasticity at depths of 75 feet below ground surface and deeper.

We include our current exploration logs in Appendix A and previous exploration logs and CPT logs in Appendices C and D. The exploration logs contain the soil type, color, consistency, and

visual classification in general accordance with the Unified Soil Classification System. The logs graphically depict the subsurface conditions encountered at the time of the exploration.

2.6 GROUNDWATER CONDITIONS

Due to the use of the mud rotary drilling method, we were unable to measure groundwater conditions in our most recent borings. As part of our master plan study, we measured groundwater depth using pore pressure dissipation testing and installed monitoring wells using vibrating-wire piezometers.

Based on a compilation of groundwater data from our exploration and a review of existing geotechnical data, we believe groundwater across the site exists at a relatively stable elevation of approximately Elevation 25 to 30 feet (NAVD88). Based on site topography and direction of the historic San Bruno creek, it is likely that groundwater is gradually flowing from the west corner to the east corner of the site. Therefore, groundwater elevation may be slightly higher on the west side of the site. However, ground elevation is significantly higher on the west side so groundwater depth will be significantly deeper. For the purpose of our analyses and recommendations, we assumed a long-term groundwater level at Elevation 30 feet.

Fluctuations in the level of groundwater may occur due to variations in rainfall, irrigation practices, and other factors not evident at the time measurements were made.

2.7 LABORATORY TESTING

We performed laboratory tests on selected soil samples to evaluate their engineering properties. For this project, we performed laboratory testing as shown in the table below.

TABLE 2.7-1: Laboratory Testing

SOIL CHARACTERISTIC	TESTING METHOD	LOCATION OF RESULTS
Unconsolidated Undrained Triaxial	ASTM D2850	Appendix C
Consolidation – Incremental Loading	ASTM D2435	Appendix C
#200 Wash	ASTM D1140	Appendix C
Moisture Content and Unit Weight	ASTM D7263	Appendix A
Plasticity Index, Wet Method	ASTM D4318	Appendix C
Corrosivity	ASTM D1498, D4972, G57, D4327	Appendix C

The results of the laboratory testing performed as part of the master plan study are provided in Appendix E.

3.0 DISCUSSION AND CONCLUSIONS

The project site is feasible for the proposed development provided the recommendations contained in this report and future design-level recommendations are incorporated into the design plans.

Based upon our field exploration and review of readily available published maps and reports for the site, the main geotechnical concerns for the proposed site development include:

- Seismic hazards
- The need for shoring systems to protect the excavation walls, adjacent streets and improvements.
- Load-induced settlement.

These items and other geotechnical issues are discussed in the following sections of this report.

3.1 EXISTING FILL

As stated previously, based on our understanding of site history and development, the site is underlain by non-engineered fill up to 8 feet in thickness. The shallower fill appears to have been placed in order to grade the current site conditions.

Because no record exists regarding the placement of the fill, it should be considered non-engineered. Non-engineered fill can undergo excessive settlement, especially under new fill or building loads. Based on preliminary conversations with you and the design team, basements ranging from 45 to 55 feet in depth are planned below the proposed development. Therefore, the majority of the non-engineered fill will be removed during the excavation for the basements. If any buildings are constructed without basements, or the depth of basement does not extend below the bottom of the existing fill, the presence of the fill should be mitigated either by grading or through foundation design.

Fill extends laterally beyond the borders of the building sites. Considering the type of soil encountered in the fill layer as discussed in Section 2.5, without proper shoring techniques, the remaining portion of the fill outside of the building footprint could potentially collapse into the building excavation.

In the event the development plans change and the excavation depth is less than the thickness of the existing fill, we should be contacted to discuss alternatives for site preparation.

3.2 SEISMIC HAZARDS

Potential seismic hazards resulting from a nearby moderate to major earthquake can generally be classified as primary and secondary. The primary effect is ground rupture, also called surface faulting. The common secondary seismic hazards include ground shaking, soil liquefaction/cyclic softening and ground lurching. The following sections present a discussion of these hazards as they apply to the site. Based on topographic and lithologic data, the risk of regional subsidence or uplift, landslides, tsunamis, or seiches is considered low to negligible at the site.

3.2.1 Ground Rupture

Since there are no known active faults crossing the property and the site is not located within an Earthquake Fault Special Study Zone (Figure 5), ground rupture is unlikely at the subject property.

3.2.2 Ground Shaking

An earthquake of moderate to high magnitude generated within the San Francisco Bay region could cause considerable ground shaking at the site, similar to that which has occurred in the past. To mitigate the shaking effects, structures should be designed using sound engineering judgment and the current California Building Code (CBC) requirements, as a minimum. Seismic

design provisions of current building codes generally prescribe minimum lateral forces, applied statically to the structure, combined with the gravity forces of dead-and-live loads. The code-prescribed lateral forces are generally considered to be substantially smaller than the actual forces that would be associated with a major earthquake. Therefore, structures should be able to: (1) resist minor earthquakes without damage, (2) resist moderate earthquakes without structural damage but with some nonstructural damage, and (3) resist major earthquakes without collapse but with some structural as well as nonstructural damage. Conformance to the current building code does not constitute any kind of guarantee that significant structural damage would not occur in the event of a maximum magnitude earthquake; however, it is reasonable to expect that a well-designed and well-constructed structure will not collapse or cause loss of life in a major earthquake (SEAOC, 1996).

3.2.3 Liquefaction

Soil liquefaction results from loss of strength during cyclic loading, such as imposed by earthquakes. Soil most susceptible to liquefaction is clean, loose, saturated, uniformly graded fine-grained sand. Empirical evidence indicates that loose to medium dense gravel, silty sand, low-plasticity silt, and some low-plasticity clay is also potentially liquefiable.

As discussed in Section 2.6, groundwater exists at a relatively stable level near Elevation 30 feet (NAVD88). Relative to planned building elevations, groundwater would be approximately 85 feet below ground surface. At this depth, the soil contains high amounts of fines and is sufficiently dense such that we do not consider liquefaction probable. In addition, soil at this depth within the Colma Formation is generally considered too old to be susceptible to liquefaction.

3.2.4 Dynamic Densification Settlement

Densification of loose granular soil above the groundwater surface can cause settlement of the ground surface due to earthquake-induced vibrations. Because the excavation for the below-grade parking will extend below the existing fill above the water table and because of the relatively high density of the sand within the Colma formation, the risk of dynamic densification is negligible at the site.

3.2.5 Ground Lurching

Ground lurching is a result of the rolling motion imparted to the ground surface during energy released by an earthquake. Such rolling motion can cause ground cracks to form in weaker soil. The potential for the formation of these cracks is considered greater at contacts between deep alluvium and bedrock. Such an occurrence is possible at the site as in other locations in the Bay Area region, but based on the site location, the offset, if any, would be minor. We provide recommendations for foundation and pavement design in this report that are intended to reduce the potential for adverse impacts from lurch cracking.

3.2.6 Flooding

Based on site elevation and distance from water sources, flooding is not expected at the subject site; however, the Civil Engineer should review pertinent information relating to possible flood levels for the subject site based on final pad elevations and provide appropriate design measures for development of the project.

3.3 2016 CBC SEISMIC DESIGN PARAMETERS

Based on the subsurface conditions encountered and CPT shear wave velocity testing, we classified Phase I as Site Class C in accordance with the 2016 CBC. We provide the 2016 CBC seismic design parameters in Table 3.3-1 below, which includes design spectral response acceleration parameters based on the mapped Risk-Targeted Maximum Considered Earthquake (MCE_R) spectral response acceleration parameters.

TABLE 3.3-1: 2016 CBC Seismic Design Parameters, Latitude: 37.628972° **Longitude:** -122.424702°

PARAMETER	VALUE
Site Class	C
Mapped MCE_R Spectral Response Acceleration at Short Periods, S_S (g)	2.47
Mapped MCE_R Spectral Response Acceleration at 1-second Period, S_1 (g)	1.19
Site Coefficient, F_A	1.00
Site Coefficient, F_V	1.30
MCE_R Spectral Response Acceleration at Short Periods, S_{MS} (g)	2.47
MCE_R Spectral Response Acceleration at 1-second Period, S_{M1} (g)	1.54
Design Spectral Response Acceleration at Short Periods, S_{DS} (g)	1.65
Design Spectral Response Acceleration at 1-second Period, S_{D1} (g)	1.03
Mapped MCE Geometric Mean (MCE_G) Peak Ground Acceleration, PGA (g)	0.95
Site Coefficient, F_{PGA}	1.00
MCE_G Peak Ground Acceleration adjusted for Site Class effects, PGA_M (g)	0.95
Long-period transition-period, T_L	12 sec

We performed a preliminary comparison of the site-specific analysis with the mapped values above, and this comparison shows that the above mapped values are more reliable than the current state-of-the-practice ergodic site-specific seismic hazard analysis. In addition, we evaluated the possibility of performing non-ergodic seismic analysis, but the lack of ground motion records near the site make this evaluation less feasible.

3.4 EXCAVATION

As discussed previously, an excavation up to approximately 45 to 55 feet deep may be necessary for the construction of the proposed basements. During excavation of the basements, the sides of the excavation will need to be shored. Support of adjacent settlement-sensitive structures should be addressed in the design of temporary construction support. The primary consideration related to the selection of the shoring systems is distance of the excavation from improvements sensitive to movement that will remain after building construction.

3.5 SOIL CORROSION POTENTIAL

As part of this study, we obtained a representative soil sample and submitted it to a California State certified analytical lab for determination of redox potential, pH, resistivity, sulfate, and chloride. These tests provide an indication of the corrosion potential of the soil environment on buried concrete structures and metal pipes. The results are included in Appendix B and Appendix E and summarized in the table below.

TABLE 3.5-1: Corrosivity Test Results

SAMPLE LOCATION	DEPTH (feet)	REDOX (mV)	PH	RESISTIVITY (OHMS-CM)	CHLORIDE* (mg/kg)	SULFATE* (mg/kg)
1-B02	3.5	420	5.41	1,000	52	85
3-B2	55	290	7.32	6,100	N.D.	N.D.

* ASTM D4327

The 2016 CBC references the 2014 American Concrete Institute Manual, ACI 318-14, Chapter 19, Sections 19.3.1.1 for structural concrete requirements. Based on the test results and ACI criteria, the tested soil would classify as 'Not Applicable' for sulfate exposure; there is no requirement for cement type or water-cement ratio for this category; however, a minimum concrete compressive strength of 2,500 psi is specified by the building code. For this sulfate range, we recommend Type II cement and a concrete mix design for foundations and building slabs-on-grade that incorporates a maximum water-cement ratio of 0.50. It should be noted, however, that the structural engineering design requirements for concrete may result in more stringent concrete specifications.

Soil with a pH less than 6.0 is considered to be corrosive to buried metal piping and reinforced concrete structures. The sample at 1-B02 had a pH of 5.41 and may be considered corrosive to metal of reinforced concrete placed in the acidic environment.

Based on the resistivity measurements, the shallow sample at 1-B02 is considered "highly corrosive" and the deeper sample at 3-B2 is considered "moderately corrosive."

If it is desired to investigate this further, we recommend a corrosion consultant be retained to evaluate whether specific corrosion recommendations are advised for the project.

Note that ASTM Test Method D4327 was used in lieu of the ACI-designated sulfate test methods as it generally provides more reliable test results.

3.6 LOAD-INDUCED SETTLEMENT

Soil may settle in response to new loads induced by new fill, structures, or equipment. This settlement, if it occurs, may occur as elastic or consolidation settlement. Elastic settlement is a function of soil stiffness while consolidation settlement is highly dependent on the amount of water-filled voids within the soil. The rate of settlement is highly dependent on the permeability of the soil and the presence of water. Consequently, sandy soil will settle almost immediately, whereas clayey soil below the water table will settle much more slowly.

Based on our settlement analysis, we estimate a total load-induced settlement of 1½ inches. Differential settlement would likely be half the total settlement over 50 feet. Additional discussion on the performance of the foundation is presented below.

4.0 PRELIMINARY EARTHWORK RECOMMENDATIONS

The following preliminary recommendations are for initial land planning and preliminary estimating purposes. Final recommendations regarding site grading and foundation construction will be provided after design-level exploration has been performed.

4.1 DEMOLITION AND STRIPPING

Site development will commence with the removal of buried structures, including abandoned utilities. All debris should be removed from any location to be graded and from areas to receive fill or structures. The depth of removal of such material should be determined by our representative in the field at the time of grading.

The existing pavement section (asphalt concrete/concrete and underlying aggregate base) and all existing landscaping should be removed from areas to receive fill or structures, or those areas to serve for borrow.

4.2 EXISTING FILL REMOVAL

Most of the existing fill will be removed by the proposed basement excavations. We recommend removing existing fill to competent soil, as determined by our representative, in areas to receive new fill, pavement, and other ancillary improvements. As noted in Section 2.5, we expect existing fill at Phase I to range in thickness from 0 to 8 feet.

4.3 ACCEPTABLE FILL

Onsite soil material is suitable as fill material provided it is processed to remove concentrations of organic material, debris, and particles greater than 8 inches in maximum dimension. Imported fill material should meet the above requirements and have a plasticity index less than 25.

4.4 FILL PLACEMENT

For land planning and cost estimating purposes, the following compaction control requirements should be anticipated for general fill areas:

Test Procedures:	ASTM D-1557.
Required Moisture Content:	For material with a PI of less than 20, not less than 2 percentage points above optimum moisture content. For material with a PI of 20 or more, at least 4 percentage points above optimum moisture content.
Minimum Relative Compaction:	For material with a PI of less than 20, not less than 90 percent relative compaction. For material with a PI of 20 or more, between 87 and 92 percent relative compaction.

Relative compaction refers to the in-place dry density of soil expressed as a percentage of the maximum dry density of the same material.

5.0 PRELIMINARY FOUNDATION, BASEMENT, AND EXCAVATION RECOMMENDATIONS

The Phase I structures will be founded 45 to 55 feet below ground. The exploration logs within Phase I indicate that we encountered very dense silty or clayey sand in the borings at this depth.

We opine that the proposed structures can be supported on the following recommended foundation options:

1. Structural slab foundation
2. Spread footings with a slab-on-grade

5.1 SUBDRAINAGE RECOMMENDATIONS

The structures will have a finished basement floor at an approximate elevation of 61 feet NAVD 88 with design groundwater level at an elevation of 30 feet. Therefore, the basement floor does not need to be designed to resist hydrostatic uplift forces. In addition, the mat may be designed to be fully drained or, if deemed necessary, can be designed to be undrained and underlain by waterproofing. For spread footings with a slab-on-grade, we recommend that interior slabs-on-grade be underlain by a subdrain system to collect excess water from the basement and route it to the storm drainage system. The Civil Engineer should be consulted on the appropriate drainage connections.

The basement walls will act as retaining walls. Unless the full height of the garage basement walls are designed for hydrostatic pressures, these walls should be provided with drainage facilities. Wall drainage may be provided using a 4-inch-diameter perforated pipe embedded in Class-2 permeable material, or free-draining gravel surrounded by synthetic filter fabric. The width of the drain blanket should be at least 12 inches. The drain blanket should extend to about 1 foot below the finished grades. As an alternative, prefabricated synthetic wall drain panels can be used. The upper 1 foot of wall backfill should consist of clayey soils. Drainage should be collected by perforated pipes and directed to sump.

Temporary shoring will be required to facilitate construction of the three-level basements. The water level should be maintained at least 3 feet below the bottom of the deepest excavation during construction. The dewatering system implemented should be selected so as to have minimal impact on the groundwater level surrounding the proposed excavation. As the basement-level slabs will be founded approximately 30 feet above design groundwater level, dewatering may not be required.

6.0 FUTURE STUDIES

As previously discussed, a design-level geotechnical report should include specific recommendations regarding grading, foundation design, and drainage for the proposed development. The report should provide more detailed evaluations of the geotechnical issues discussed in this report and afford the opportunity to provide recommendations regarding techniques and procedures to be implemented during construction to mitigate potential geotechnical/geological hazards.

7.0 LIMITATIONS AND UNIFORMITY OF CONDITIONS

This report presents geotechnical recommendations for design of the improvements discussed in Section 1.2 for the YouTube campus project. If changes occur in the nature or design of the project, we should be allowed to review this report and provide additional recommendations. It is the responsibility of the owner to transmit the information and recommendations of this report to the appropriate organizations or people involved in design of the project, including but not limited to developers, owners, buyers, architects, engineers, and designers. The conclusions and

recommendations contained in this report are solely professional opinions and are valid for a period of no more than 2 years from the date of report issuance.

We strived to perform our professional services in accordance with generally accepted geotechnical engineering principles and practices currently employed in the area; no warranty is expressed or implied. There are risks of earth movement and property damages inherent in building on or with earth materials. We are unable to eliminate all risks; therefore, we are unable to guarantee or warrant the results of our services.

This report is based upon field and other conditions discovered at the time of report preparation. We developed this report with limited subsurface exploration data. We assumed that our subsurface exploration data are representative of the actual subsurface conditions across the site. Considering possible underground variability of soil, rock, stockpiled material, and groundwater, additional unexpected costs may be required to complete the project. We recommend that the owner establish a contingency fund to cover such costs. If unexpected conditions are encountered, ENGEO should be notified immediately to review these conditions and provide additional and/or modified recommendations, as necessary.

Our services did not include excavation sloping or shoring, soil volume change factors, flood potential, or a geohazard exploration. In addition, our geotechnical exploration did not include work to determine the existence of possible hazardous materials. If any hazardous materials are encountered during construction, the proper regulatory officials should be notified immediately.

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Actual field or other conditions will necessitate clarifications, adjustments, modifications or other changes to ENGEO's recommendations. Therefore, ENGEO must be engaged to prepare the necessary clarifications, adjustments, modifications or other changes before construction activities commence or further activity proceeds. If ENGEO's scope of services does not include onsite construction observation, or if other persons or entities are retained to provide such services, ENGEO cannot be held responsible for any or all claims arising from or resulting from the performance of such services by other persons or entities, and from any or all claims arising from or resulting from clarifications, adjustments, modifications, discrepancies or other changes necessary to reflect changed field or other conditions.

We determined the lines designating the interface between layers on the exploration logs using visual observations. The transitions between the materials may be abrupt or gradual. The exploration logs contain information concerning samples recovered, indications of the presence of various materials such as clay, sand, silt, rock, existing fill, etc., and observations of groundwater encountered. The field logs also contain our interpretation of the subsurface conditions between sample locations. Therefore, the logs contain both factual and interpretative information. Our recommendations are based on the contents of the final logs, which represent our interpretation of the field logs.

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FIGURES

FIGURE 1: Vicinity Map
FIGURE 2A: Geotechnical Exploration Site Plan with Current Aerial
FIGURE 2B: Geotechnical Exploration Site Plan with 1943 Historical Aerial
FIGURE 3: Regional Geologic Map
FIGURE 4: Regional Faulting and Seismicity
FIGURE 5: Regional Hazards Maps

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BASE MAP SOURCE: GOOGLE EARTH MAPPING SERVICE



IMAGE SOURCE: GOOGLE EARTH MAPPING SERVICE

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VICINITY MAP

YOUTUBE CAMPUS PHASE I

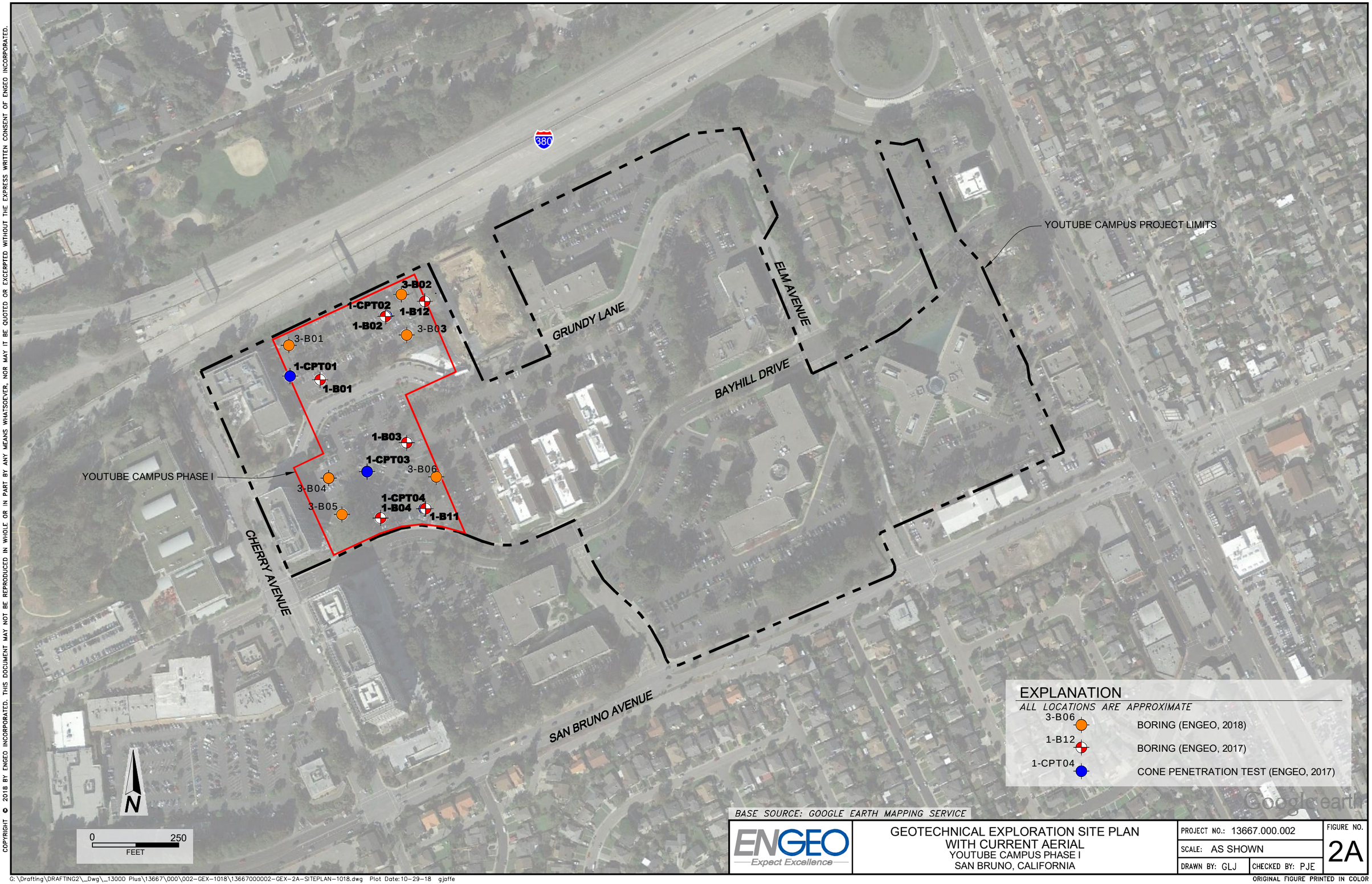
SAN BRUNO, CALIFORNIA

PROJECT NO.: 13667.000.002		FIGURE NO. 1
SCALE: AS SHOWN		
DRAWN BY: GLJ	CHECKED BY: PJE	

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ORIGINAL FIGURE PRINTED IN COLOR

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BASE SOURCE: GOOGLE EARTH MAPPING SERVICE

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GEOTECHNICAL EXPLORATION SITE PLAN WITH CURRENT AERIAL

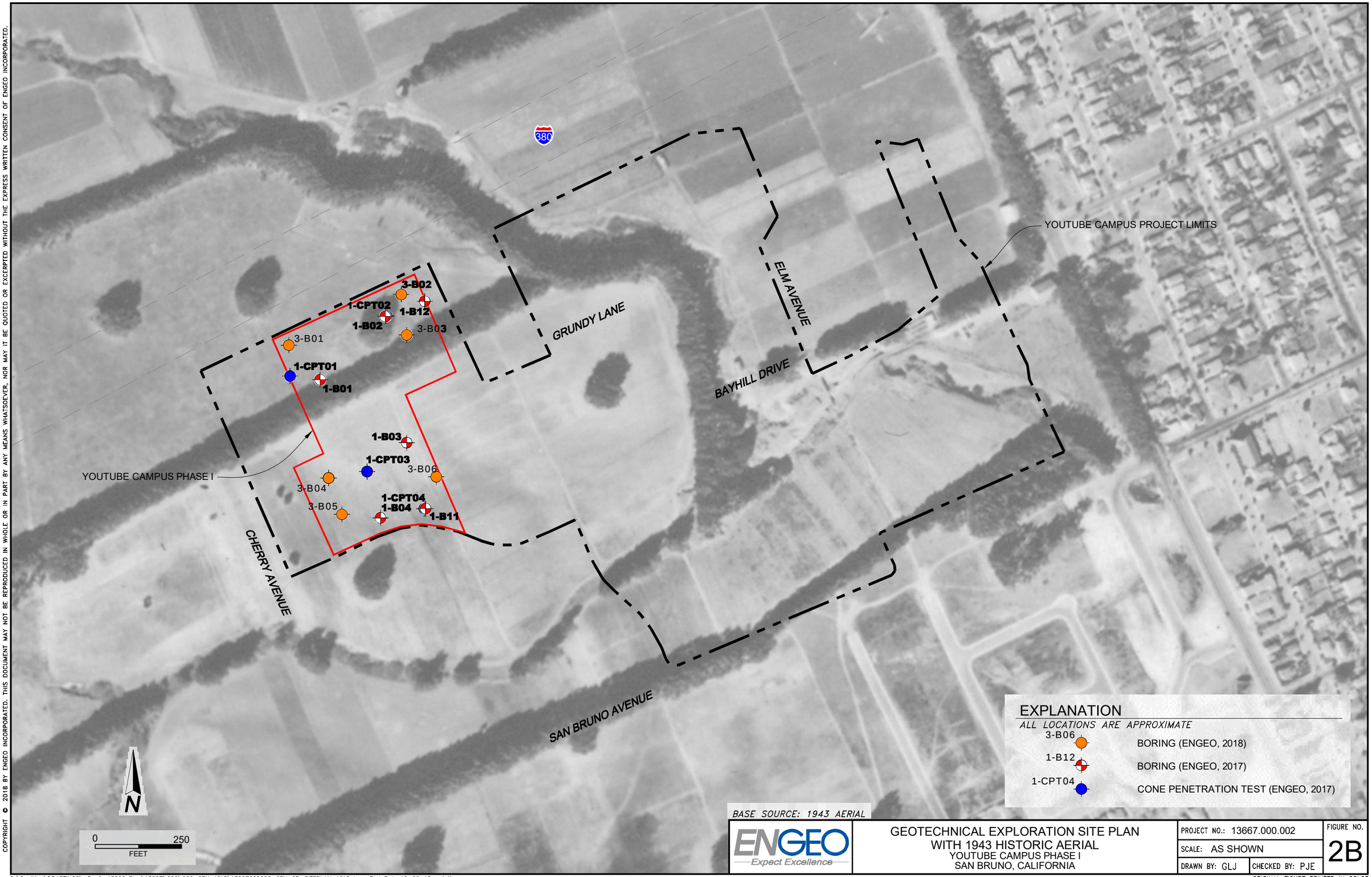
YOUTUBE CAMPUS PHASE I
SAN BRUNO, CALIFORNIA

PROJECT NO.: 13667.000.002		FIGURE NO. 2A
SCALE: AS SHOWN		
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EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

- 3-B06 — BORING (ENGEO, 2018)
- 1-B12 — BORING (ENGEO, 2017)
- 1-CPT04 — CONE PENETRATION TEST (ENGEO, 2017)

BASE SOURCE: 1943 AERIAL

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GEOTECHNICAL EXPLORATION SITE PLAN WITH 1943 HISTORIC AERIAL

YOUTUBE CAMPUS PHASE I
SAN BRUNO, CALIFORNIA

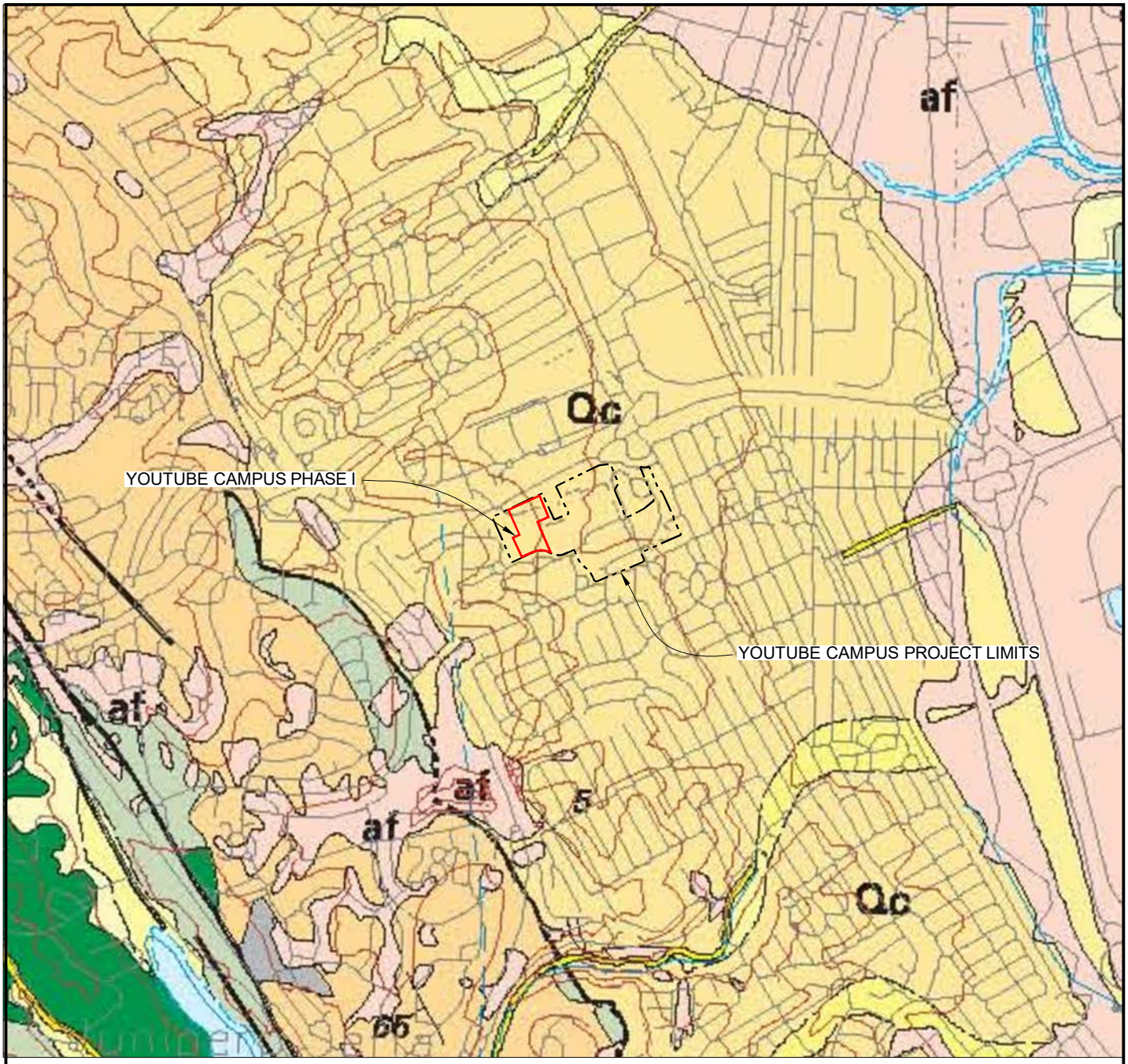
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SCALE:	AS SHOWN
DRAWN BY: GLJ	CHECKED BY: PJE

FIGURE NO. 2B

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N

0 2000
FEET

EXPLANATION

af	ARTIFICIAL FILL
Qcl	COLLUVIUM (HOLOCENE)
Qc	COLMA FORMATION

BASE MAP SOURCE: BRABB, GRAYMER, AND JONES, 1998

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REGIONAL GEOLOGIC MAP

YOUTUBE CAMPUS PHASE I

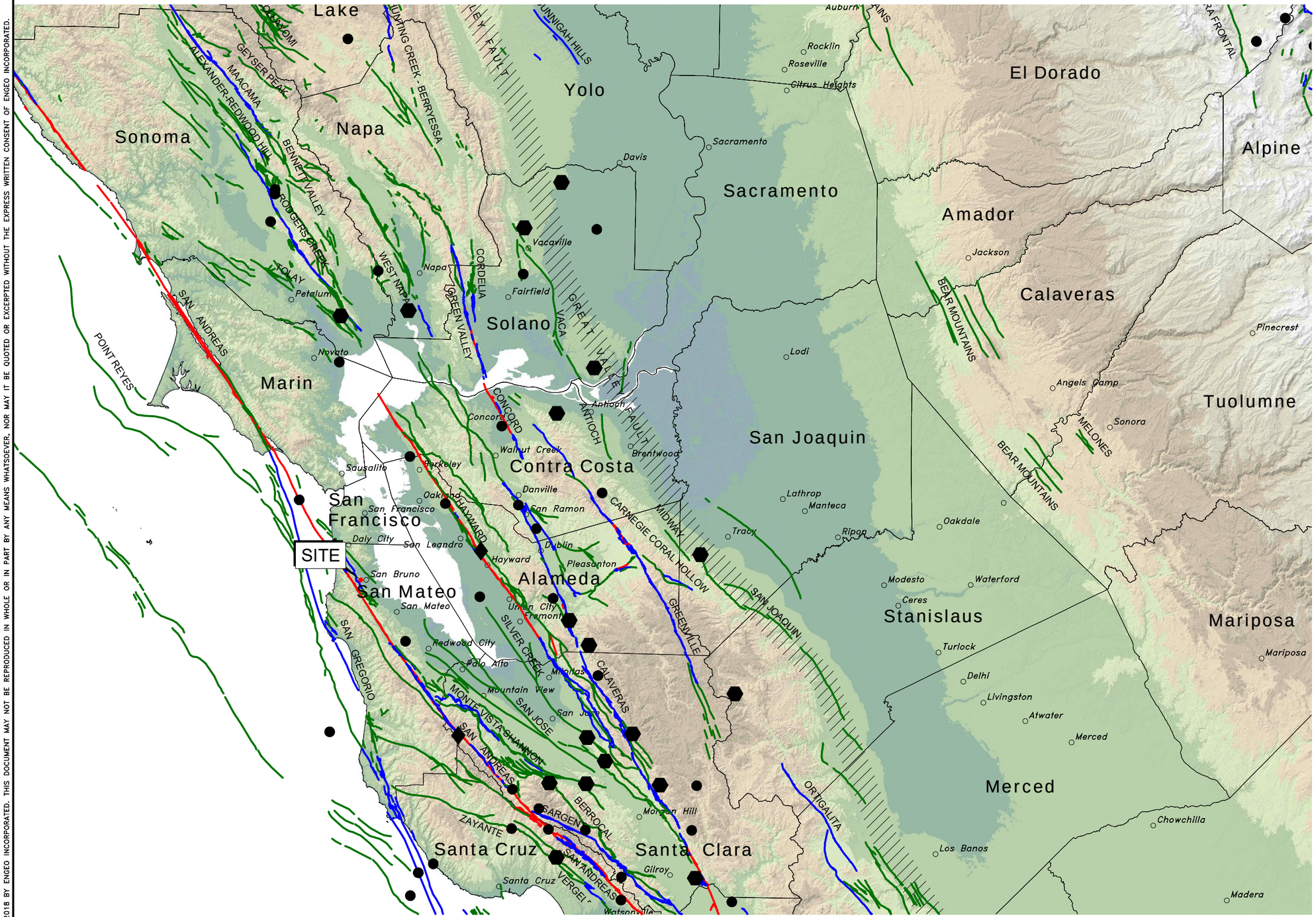
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PROJECT NO.: 13667.000.002		FIGURE NO. 3
SCALE: AS SHOWN		
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BASE MAP SOURCE:
COLOR HILLSHADE IMAGE BASED ON THE NATIONAL ELEVATION DATASET (NED) AT 30 METER RESOLUTION
U.S.G.S. QUATERNARY FAULT DATABASE, NOVEMBER, 2010
U.S.G.S. HISTORIC EARTHQUAKE DATABASE (1800–2000)

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REGIONAL FAULTING AND SEISMICITY

YOUTUBE CAMPUS PHASE I

SAN BRUNO, CALIFORNIA

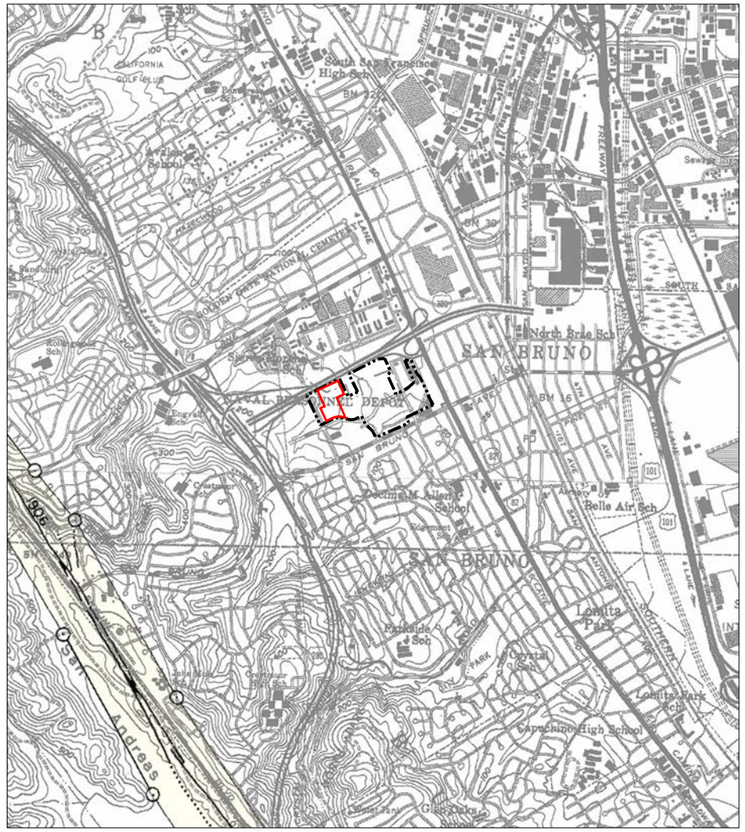
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FIGURE NO. 4

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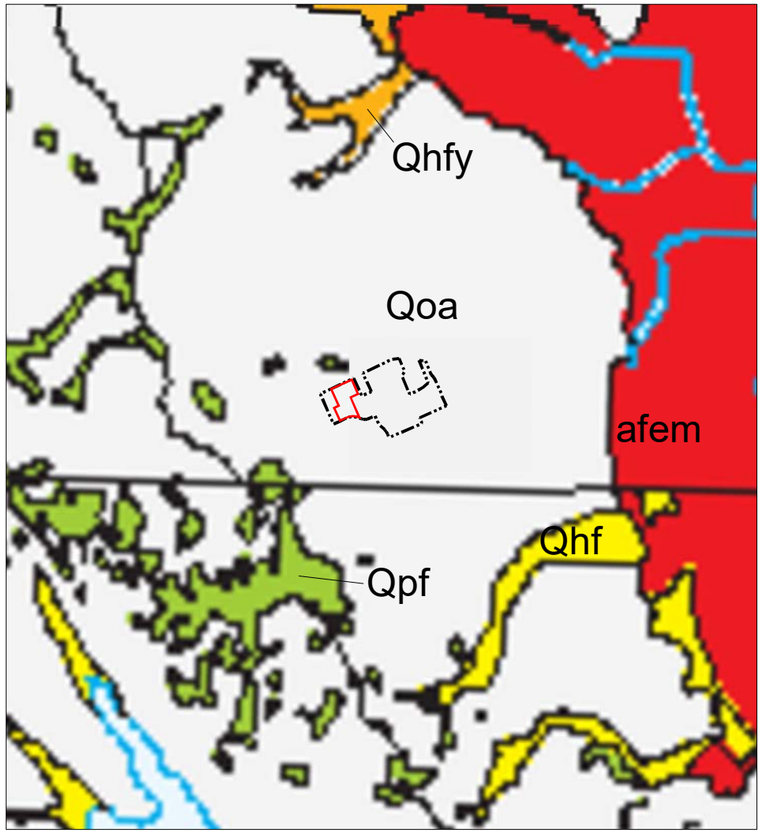


EXPLANATION

- 1906 C / ? — FAULTS CONSIDERED TO HAVE BEEN ACTIVE DURING HOLOCENE TIME AND TO HAVE A RELATIVELY HIGH POTENTIAL FOR SURFACE RUPTURE; SOLID LINE WHERE ACCURATELY LOCATED, LONG DASH WHERE APPROXIMATELY LOCATED, SHORT DASH WHERE INFERRED, DOTTED WHERE CONCEALED; QUERY (?) INDICATES ADDITIONAL UNCERTAINTY. EVIDENCE OF HISTORIC OFFSET INDICATED BY YEAR OF EARTHQUAKE-ASSOCIATED EVENT OR C FOR DISPLACEMENT CAUSED BY CREEP OR POSSIBLE CREEP
- EARTHQUAKE FAULT ZONE BOUNDARIES; DELINEATED AS STRAIGHT-LINE SEGMENTS THAT CONNECT ENCIRCLED TURNING POINTS SO AS TO DEFINE EARTHQUAKE FAULT ZONE SEGMENTS
- YOUTUBE CAMPUS PROJECT LIMITS
- YOUTUBE CAMPUS PHASE I

EARTHQUAKE FAULT ZONE MAP

BASE MAP SOURCE: CDMG, 1993



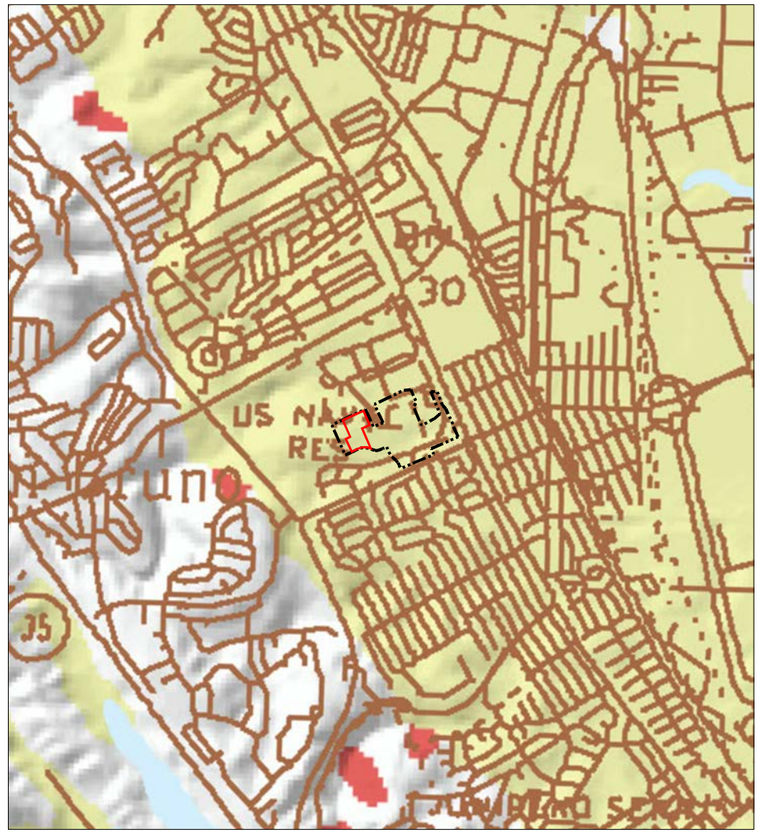
EXPLANATION

VERY HIGH	afem	ARTIFICIAL FILL
HIGH	Qhfy	ALLUVIAL FAN DEPOSITS (LATEST HOLOCENE)
MEDIUM	Qhf	ALLUVIAL FAN DEPOSITS (HOLOCENE)
LOW	Qpf	ALLUVIAL FAN DEPOSITS (PLIESTOCENE)
VERY LOW	Qoa	ALLUVIUM

- YOUTUBE CAMPUS PROJECT LIMITS
- YOUTUBE CAMPUS PHASE I

LIQUEFACTION SUSCEPTIBILITY MAP

BASE MAP SOURCE: WITTER, 2006



EXPLANATION

- MOSTLY LANDSLIDE
- MANY LANDSLIDES
- FEW LANDSLIDES
- FLAT LAND
- YOUTUBE CAMPUS PROJECT LIMITS
- YOUTUBE CAMPUS PHASE I

LANDSLIDE SUSCEPTIBILITY MAP

BASE MAP SOURCE: WENTWORTH, 1997

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REGIONAL HAZARD MAPS
YOUTUBE CAMPUS PHASE I
SAN BRUNO, CALIFORNIA

PROJECT NO.: 13667.000.002
SCALE: AS SHOWN
DRAWN BY: GLJ
CHECKED BY: PJE

FIGURE NO. 5

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APPENDIX A

BORING LOG KEY
EXPLORATION LOGS

KEY TO BORING LOGS

MAJOR TYPES			DESCRIPTION
COARSE-GRAINED SOILS MORE THAN HALF OF MAT'L LARGER THAN #200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE	CLEAN GRAVELS WITH LESS THAN 5% FINES	GW - Well graded gravels or gravel-sand mixtures GP - Poorly graded gravels or gravel-sand mixtures
		GRAVELS WITH OVER 12 % FINES	GM - Silty gravels, gravel-sand and silt mixtures GC - Clayey gravels, gravel-sand and clay mixtures
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE	CLEAN SANDS WITH LESS THAN 5% FINES	SW - Well graded sands, or gravelly sand mixtures SP - Poorly graded sands or gravelly sand mixtures
		SANDS WITH OVER 12 % FINES	SM - Silty sand, sand-silt mixtures SC - Clayey sand, sand-clay mixtures
FINE-GRAINED SOILS MORE THAN HALF OF MAT'L SMALLER THAN #200 SIEVE	SILTS AND CLAYS LIQUID LIMIT 50 % OR LESS		ML - Inorganic silt with low to medium plasticity CL - Inorganic clay with low to medium plasticity OL - Low plasticity organic silts and clays
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50 %		MH - Elastic silt with high plasticity CH - Fat clay with high plasticity OH - Highly plastic organic silts and clays
	HIGHLY ORGANIC SOILS		PT - Peat and other highly organic soils

For fine-grained soils with 15 to 29% retained on the #200 sieve, the words "with sand" or "with gravel" (whichever is predominant) are added to the group name.

For fine-grained soil with >30% retained on the #200 sieve, the words "sandy" or "gravelly" (whichever is predominant) are added to the group name.

GRAIN SIZES

U.S. STANDARD SERIES SIEVE SIZE				CLEAR SQUARE SIEVE OPENINGS				
200	40	10	4	3/4 "	3"	12"		
SILTS AND CLAYS	SAND			GRAVEL			COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE			

RELATIVE DENSITY

SANDS AND GRAVELS	BLOWS/FOOT (S.P.T.)
VERY LOOSE	0-4
LOOSE	4-10
MEDIUM DENSE	10-30
DENSE	30-50
VERY DENSE	OVER 50

CONSISTENCY

SILTS AND CLAYS	STRENGTH*
VERY SOFT	0-1/4
SOFT	1/4-1/2
MEDIUM STIFF	1/2-1
STIFF	1-2
VERY STIFF	2-4
HARD	OVER 4

SAMPLER SYMBOLS

- Modified California (3" O.D.) sampler
- California (2.5" O.D.) sampler
- S.P.T. - Split spoon sampler
- Shelby Tube
- Dames and Moore Piston
- Continuous Core
- Bag Samples
- Grab Samples
- NR No Recovery

MOISTURE CONDITION

DRY	Dusty, dry to touch
MOIST	Damp but no visible water
WET	Visible freewater

LINE TYPES

- ———— Solid - Layer Break
- – – – – – Dashed - Gradational or approximate layer break

GROUND-WATER SYMBOLS

- Groundwater level during drilling
- Stabilized groundwater level

(S.P.T.) Number of blows of 140 lb. hammer falling 30" to drive a 2-inch O.D. (1-3/8 inch I.D.) sampler

* Unconfined compressive strength in tons/sq. ft., asterisk on log means determined by pocket penetrometer

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LOG OF BORING 3-B1

ENGEO Expect Excellence

LATITUDE: 37.629567 LONGITUDE: -122.42535

Geotechnical Exploration
Youtube
San Bruno, California
13667.000.002

DATE DRILLED: 9/13/2018
HOLE DEPTH: 100 ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 116 ft.

LOGGED / REVIEWED BY: M. Parks / P. Espinosa
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
0	115		ASPHALT CONCRETE, 2-1/2 inches AGGREGATE BASE, 3 inches SILTY SAND (SM), pale brown, dense, moist, fine- to medium-grained sand, fine gravel										
5	110		Layer of brownish yellow, fine- to coarse-grained sand with fine gravel Becomes light yellowish brown, non-plastic, fine- to medium-grained sand, no staining			35							
10	105		Becomes very dense, layers of silty fine sand, silty fine to medium sand, scattered coarse-grained sand			64					7	108	
15	100												
20	95		Becomes interlayered SANDY CLAY (CL), light yellowish brown, stiff, moist, low plasticity, fine-grained sand, contains silt fines			55							
25													

LOG - GEOTECHNICAL W/ELEV. 13667000002 09-21-2018 BOREHOLE LOGS.GPJ ENGEO INC.GDT 10/29/18

LOG OF BORING 3-B1

ENGEO Expect Excellence

LATITUDE: 37.629567 LONGITUDE: -122.42535

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	90		SILTY SAND (SM), light yellowish brown, moist, coarse-grained sand										
			SANDY CLAY (CL), light yellowish brown mottled with reddish brown, moist, low plasticity, fine- to medium-grained sand										
			SILTY SAND (SM), light yellowish brown, very dense, moist, coarse-grained sand										
30	85		Grades to 1-inch interbedded layers of fine-grained sand, fine- to coarse-grained sand, scattered subangular gravel			60					16		
			SANDY LEAN CLAY (CL), light yellowish brown, stiff, moist, low plasticity, fine- to medium-grained sand										
35	80												
			CLAYEY SAND (SC), light yellowish brown, medium dense to dense, moist, gradational contact										
40			Reddish yellow Light yellowish brown, low plasticity, fine-grained sand, reddish oxidation staining, layers of clay and sand			50/4				32	14	112	
	75		SILTY SAND (SM), light yellowish brown, very dense, moist, non-plastic, fine- to medium-grained sand, layered										
			Reddish yellow silt in cuttings										
45			Reddish yellow clayey sand, fine-grained sand										
	70		Light yellowish brown sandy clay, fine-grained sand and silt										
50													

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LOG OF BORING 3-B1

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Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
	65		SILTY SAND (SM), light yellowish brown, very dense, moist, interbedded 1-inch layers of clayey fine-grained sand and silt layers, reddish oxidation staining			71							
55	60		Grades to darker stronger yellowish brown, lack of interbedding			50/6				46	18		
60	55		Grades to less fines			50/5							
65	50		Lense of reddish yellow clayey sand			50/4							
70	45		6-inch layer of strong brown to reddish yellow, 2-inch layer of medium-grained sand			50/5							
75													

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LOG OF BORING 3-B1

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Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
	40		SILTY SAND (SM), light yellowish brown, very dense, moist, lack of staining and layering			50/5					17		
80	35		Grades to less fines			50/4							
85	30												
90	25		1-foot layer of silty fine-grained sand Less fines, some oxidation staining			84							
95	20		FAT CLAY (CH), dark greenish gray, hard, moist, medium plasticity, some sandy clay seams, clay polish			53					38	81	4.5*
100			End of boring at approximately 100 feet. Groundwater not observed due to drilling method.										

LOG - GEOTECHNICAL W/ELEV. 13667000002 09-21-2018 BOREHOLE LOGS.GPJ ENGEO INC.GDT 10/29/18

LOG OF BORING 3-B2

Expect Excellence

LATITUDE: 37.630039 LONGITUDE: -122.424211

Geotechnical Exploration
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San Bruno, California
13667.000.002

DATE DRILLED: 9/14/2018
HOLE DEPTH: 101.5 ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 107 ft.

LOGGED / REVIEWED BY: M. Parks / P. Espinosa
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
			ASPHALT CONCRETE, 2-1/2 inches										
			AGGREGATE BASE, 4 inches										
	105		SANDY SILT (ML), pale brown, dense to very dense, moist, low plasticity, fine-grained sand, caliche stringers										
5			Caliche, pinholes, non plastic, some fine gravel			50							
	100												
			SILTY SAND (SM), light yellowish brown, medium dense, moist, fine-grained sand, gradational contact, high fines content										
10						13				47	17		
	95												
15													
	90												
			SANDY SILT (ML), light yellowish brown, medium dense, moist, fine-grained sand, gradational contact										
20			Reddish yellow oxidation staining			24				53	14		
	85												
			SILTY SAND (SM), light yellowish brown, dense, moist, fine-grained sand										
25													

LOG - GEOTECHNICAL W/ELEV. 1366700002 09-21-2018 BOREHOLE LOGS.GPJ ENGEO INC.GDT 10/29/18

LOG OF BORING 3-B2

LATITUDE: 37.630039 LONGITUDE: -122.424211

Geotechnical Exploration
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SURF ELEV (NAVD88): 107 ft.

LOGGED / REVIEWED BY: M. Parks / P. Espinosa
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
			SILTY SAND (SM), light yellowish brown, dense, moist, fine-grained sand										
	80		Reddish yellow Fine gravel observed										
30			Light yellowish brown mottled with reddish yellow, fine-grained sand, non plastic			32							
	75												
35													
	70		Layer of coarse-grained sand and fine gravel										
40			Scattered 1-inch fine gravel layers and 1-inch layers of fine- to medium-grained sand with red oxidation staining, zones of black and red oxidation staining			41					18		
	65												
45													
	60		Layer of coarse-grained sand										
50													

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LOG OF BORING 3-B2

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Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
			Light yellowish brown mottled with reddish yellow, very dense, less staining, no layers observed, less fines			58							
55	55		Fine- to medium-grained sand, reddish oxidation layer			55							
			CLAYEY SAND (SC), light yellowish brown, dense to very dense, moist, low plasticity, fine-grained sand										
60	50		Medium dense, red oxidation staining			19	30	14	16	44	20		
65	45		Dense to very dense, scattered fine subrounded gravel			50/3							
			SILTY SAND (SM), light yellowish brown, very dense, moist, fine- to medium-grained sand, non-plastic, scattered fine subrounded gravel, red oxidation staining										
70	40		Fine- to coarse-grained sand, red oxidation layer above clayey sand			56							
			CLAYEY SAND (SC), light yellowish brown, very dense, moist, low plasticity, fine- to medium-grained sand, high fines content, scattered fine gravel, black oxidation staining										
75	35												

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LOG OF BORING 3-B2

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			CLAYEY SAND (SC), reddish yellow, very dense, moist, fine-grained sand										
	30												
			SILTY SAND (SM), light yellowish brown, very dense, moist, fine- to medium-grained sand, scattered 1/2- to 3-inch layers of clayey sand										
80						77							
	25												
85			Fine-grained sand										
	20												
90			Fine- to coarse-grained sand, black oxidation staining			50/6					15		
	15		Scattered layers of clayey fine- to medium-grained sand										
			Scattered fine subrounded gravel										
95													
			Reddish yellow, fine- to medium-grained sand, clayey sand layer										
	10												
100			Fine gravel layer										

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HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits			Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
							Liquid Limit	Plastic Limit	Plasticity Index				
			SILTY SAND (SM), light yellowish brown, very dense, moist, fine- to medium-grained sand, thin silt laminations, black oxidation staining			50/4							
			End of boring at approximately 101½ feet. Groundwater not observed due to drilling method.										

LOG OF BORING 3-B3

ENGEO Expect Excellence

LATITUDE: 37.629693 LONGITUDE: -122.424173

Geotechnical Exploration
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San Bruno, California
13667.000.002

DATE DRILLED: 9/12/2018
HOLE DEPTH: 101.5 ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 107 ft.

LOGGED / REVIEWED BY: M. Parks / P. Espinosa
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
0	107		ASPHALT CONCRETE, 2-1/2 inches										
			AGGREGATE BASE, 3-inches										
	105		SANDY SILT (ML), yellowish brown, dense to hard, moist, fine-grained sand, non plastic, caliche, fine rounded gravel, red and black oxidation staining										
5			SANDY LEAN CLAY (CL), yellowish brown to grayish brown, stiff to very stiff, moist, low plasticity, fine-grained sand, scattered rounded fine gravel, red oxidation staining, grades to more clay			15							
	100												
10			More fine-grained sand, red oxidation staining			37							
	95		SILTY SAND (SM), light yellowish brown mottled with reddish yellow, dense, moist, fine- to coarse-grained sand, non plastic										
15													
	90		SANDY LEAN CLAY (CL), light brownish gray, stiff, moist, low plasticity, fine-grained sand										
20			SANDY SILT (ML), light brownish gray, hard to dense, moist, low plasticity, fine-grained sand, some clay, scattered coarse sand-size chert clasts, caliche			34							
	85												
25													

LOG OF BORING 3-B3

Expect Excellence

LATITUDE: 37.629693 LONGITUDE: -122.424173

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			SANDY SILT (ML), light brownish gray, hard to dense, moist, low plasticity, fine-grained sand, some clay, scattered coarse sand-size chert clasts, caliche										
	80												
			SILTY SAND (SM), pale brown, dense, moist, fine-grained sand, 2-inch layer of poorly-graded medium-grained sand, high fines content										
30						42							
	75		Scattered clay and gravel layers, coarse gravel in cuttings										
35													
			Rounded to subrounded gravels and rock fragments of chert, jasper, quartz										
	70		Sandy silt with gravel										
40			Clayey sand pocket										
	65												
			Light yellowish brown, lense yellowish brown sandy lean clay										
			Layer of coarse sand and fine gravel, rounded to subrounded										
45													
	60		Clayey sand lense										
50													

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LOG OF BORING 3-B3

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			SILTY SAND (SM), light yellowish brown, very dense, moist, fine-grained sand, high fines content, reddish oxidation staining, lenses of alternating clay and silt			89	20	19	1	39	16		
55	55		Fine- to medium-grained sand			74							
60	50		Dense, fine- to coarse-grained sand, scattered rounded to subrounded fine gravel			43							
65	45		Very dense, red oxidation staining throughout			50/4"							
	40		Fine rounded gravel, quartz clasts										
70			Fine- to medium-grained sand, less staining			80							
	35												
75													

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DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
			SILTY SAND (SM), light yellowish brown, very dense, fine- to medium-grained sand, little staining, occasional clay seam, scattered subrounded gravel			50/5"					15		
	30		Reddish yellow										
80			SANDY LEAN CLAY (CL), light yellowish brown, very stiff, moist, fine-grained sand, low to medium plasticity, some silt, red oxidation staining			26							
	25		CLAYEY SAND (SC), light yellowish brown, medium dense, low plasticity, fine- to medium-grained sand, red oxidation staining, zone of black manganese staining										
			SILTY SAND (SM), light yellowish brown mottled with reddish yellow, very dense, fine- to coarse-grained sand, oxidation staining, layers of sorted sand										
85						50/4"							
	20												
90			Scattered fine subrounded gravel, less staining			50/5"							
			Gravel in cuttings										
	15												
95			Gravel layers										
	10												
			Subrounded fine gravel										
100													

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HAMMER TYPE: 140 lb. Auto Trip

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							Liquid Limit	Plastic Limit	Plasticity Index				
			SILTY SAND (SM), light yellowish brown mottled with reddish yellow, very dense, moist, low plasticity, 1- to 2-inch layers of fine- to coarse-grained sand, scattered layers of clayey sand			44					22		
			End of boring at approximately 101½ feet. Groundwater not observed due to drilling method.										

LOG OF BORING 3-B4

Expect Excellence

LATITUDE: 37.62855 LONGITUDE: -122.424961

Geotechnical Exploration
Youtube
San Bruno, California
13667.000.002

DATE DRILLED: 9/18/2018
HOLE DEPTH: 100.5 ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 117 ft.

LOGGED / REVIEWED BY: T. Strack / P. Espinosa
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
0	117		ASPHALT CONCRETE, 2-1/2 inches AGGREGATE BASE, 2-1/2 inches SANDY LEAN CLAY (CL), dark olive brown, moist, fine-grained sand, fine gravel, contains asphalt [FILL]										
5	115		SILTY SAND (SM), dark yellowish brown, loose, moist, fine- to medium-grained sand [NATIVE]			8							
	110		Wood fragments in cuttings from 7 to 10 feet, possible tree roots										
10	107		CLAYEY SAND (SC), grayish brown, medium dense, moist			18							
15	105		Green coarse-grained sand										
	100		Brown										
20	97		Dark yellowish brown, moist to wet, fine- to medium-grained sand			24							
	95		SILTY SAND (SM), light yellowish brown, medium dense, moist										
25	92												

LOG - GEOTECHNICAL W/ELEV. 13667000002 09-21-2018 BOREHOLE LOGS.GPJ ENGEO INC.GDT 10/29/18

LOG OF BORING 3-B4

ENGEO Expect Excellence

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DATE DRILLED: 9/18/2018
HOLE DEPTH: 100.5 ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 117 ft.

LOGGED / REVIEWED BY: T. Strack / P. Espinosa
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
			SILTY SAND (SM), light yellowish brown, medium dense, moist Grades to more fines										
	90												
			Grades to more sand, fine- to coarse-grained sand										
30			Dark yellowish brown, dense, contains silt fines			49	23	20	3	22	18		
	85		Grades to more sand										
35													
	80												
40			Light olive brown, very dense, very fine-grained sand			73							
			Dark yellowish brown, strong brown oxidation, less fines										
	75												
45													
	70		Clayey sand in cuttings, more fines										
			Grades to less fines										
50													

LOG OF BORING 3-B4

LATITUDE: 37.62855 LONGITUDE: -122.424961

Geotechnical Exploration
Youtube
San Bruno, California
13667.000.002

DATE DRILLED: 9/18/2018
HOLE DEPTH: 100.5 ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 117 ft.

LOGGED / REVIEWED BY: T. Strack / P. Espinosa
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
			SILTY SAND (SM), light olive brown, very dense, moist, contains strong brown oxidation, fine- to medium-grained sand			72				17			
	65												
55			Light yellowish brown, some clay fines			96							
	60												
			Fine- to coarse-grained sand										
60													
	55		Grades to coarse sand										
			SANDY SILT (ML), light olive brown, very dense, moist, low plasticity, very fine-grained sand, trace clay fines										
65													
			SANDY LEAN CLAY (CL), light olive brown, hard, moist, contains silt			65				17	20		
	50		SILTY SAND (SM), olive, very dense, wet, fine-grained sand										
70						50/5"							
	45		Grades to more fines										
75													

LOG - GEOTECHNICAL W/ELEV. 13667000002 09-21-2018 BOREHOLE LOGS.GPJ ENGEO INC.GDT 10/29/18

LOG OF BORING 3-B4

ENGEO Expect Excellence

LATITUDE: 37.62855 LONGITUDE: -122.424961

Geotechnical Exploration
Youtube
San Bruno, California
13667.000.002

DATE DRILLED: 9/18/2018
HOLE DEPTH: 100.5 ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 117 ft.

LOGGED / REVIEWED BY: T. Strack / P. Espinosa
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
			SILTY SAND (SM), olive, very dense, wet, grades to less fines, fine- to coarse-grained sand										
			LEAN CLAY WITH SAND (CL), greenish black, hard, wet, medium plasticity, fine-grained sand										
	40												
80			Dark bluish gray, fine-grained sand			50/3"							
			SILTY SAND (SM), dark bluish gray, very dense, wet, fine-grained sand, some plastic fines										
	35												
85			LEAN CLAY (CL), dark bluish gray, hard, moist to wet, medium plasticity, fine-grained sand										
	30												
90						50/5"							
	25												
95			Grades to lean clay with sand, fine-grained sand										
	20												
			SILTY SAND (SM), dark yellowish brown, very dense, moist to wet										
100													

LOG OF BORING 3-B4

Expect Excellence

LATITUDE: 37.62855 LONGITUDE: -122.424961

Geotechnical Exploration
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San Bruno, California
13667.000.002

DATE DRILLED: 9/18/2018
HOLE DEPTH: 100.5 ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 117 ft.

LOGGED / REVIEWED BY: T. Strack / P. Espinosa
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
			POORLY GRADED SAND (SP), dark yellowish brown, very dense, moist to wet, few fines, fine- to medium-grained sand			50/5"							
			End of boring at approximately 100½ feet. Groundwater not observed due to drilling method.										

LOG OF BORING 3-B5

LATITUDE: 37.628237 LONGITUDE: -122.424805

Geotechnical Exploration
Youtube
San Bruno, California
13667.000.002

DATE DRILLED: 9/19/2018
HOLE DEPTH: 101 ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 113 ft.

LOGGED / REVIEWED BY: T. Strack / P. Espinosa
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
0	113		ASPHALT CONCRETE, 2-1/2 inches										
			AGGREGATE BASE, 2-1/2 inches										
			SILTY SAND (SM), olive brown, loose, moist, moderate fines, fine- to medium-grained sand [FILL]										
	110		Scattered fine gravel Very dark brown, high fines content										
5			Wood and gravel fragments from 4.5 feet to 8 feet			3							
	105		SANDY SILT (ML), dark yellowish brown, stiff to very stiff, dry to moist, moderate fine-grained sand, trace clay fines [NATIVE]										
10						18							
	100												
15			Yellowish brown, high fine-grained sand content			29							
	95												
20			SILTY SAND WITH GRAVEL (SM), yellowish brown, dense to very dense, moist, high fines content, fine- to medium-grained sand, fine to coarse gravel Strong brown, trace clay fines			60							
	90												
25													

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LOG OF BORING 3-B5

LATITUDE: 37.628237 LONGITUDE: -122.424805

Geotechnical Exploration
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San Bruno, California
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DATE DRILLED: 9/19/2018
HOLE DEPTH: 101 ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 113 ft.

LOGGED / REVIEWED BY: T. Strack / P. Espinosa
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
			SILTY SAND WITH GRAVEL (SM), yellowish brown, dense to very dense, moist, high fines content, fine- to medium-grained sand, fine to coarse gravel										
	85												
30			SANDY LEAN CLAY (CL), yellowish brown, very stiff to hard, moist, moderate fine-grained sand			51							
			CLAYEY SAND (SC), dark yellowish brown, very dense, moist, moderate fines, fine- to medium-grained sand strong brown oxidation Grades to less clay fines										
	80												
35													
	75		SILTY SAND (SM), dark yellowish brown, very dense, grades to less fines, fine- to coarse-grained sand										
40			CLAYEY SAND (SC), light yellowish brown, very dense, moist, strong brown oxidation, low fines content, fine- to medium-grained sand			50/5"							
	70		SANDY LEAN CLAY (CL), light yellowish brown, stiff to very stiff, moist										
45													
			SILTY SAND (SM), light yellowish brown, very dense, moist to wet, low fines, fine-grained sand										
	65					50/4"							
50													

LOG - GEOTECHNICAL W/ELEV. 13667000002 09-21-2018 BOREHOLE LOGS.GPJ ENGEO INC.GDT 10/29/18

LOG OF BORING 3-B5

ENGEO Expect Excellence

LATITUDE: 37.628237 LONGITUDE: -122.424805

Geotechnical Exploration
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13667.000.002

DATE DRILLED: 9/19/2018
HOLE DEPTH: 101 ft.
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SURF ELEV (NAVD88): 113 ft.

LOGGED / REVIEWED BY: T. Strack / P. Espinosa
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
			SILTY SAND (SM), light yellowish brown, very dense, moist to wet, low fines, fine-grained sand										
	60		LEAN CLAY (CL), light yellowish brown, stiff to very stiff, moist, medium plasticity, little fine-grained sand										
			POORLY GRADED SAND (SP), dark olive brown, very dense, wet, few fines, fine-grained sand, trace oxidation staining										
55						50/6"							
	55												
			SILTY SAND (SM), olive to light olive brown, very dense, moist to wet, moderate fines content, fine-grained sand										
60													
	50					50/6"							
65													
	45		Grades to more fines										
70			Very fine-grained sand, contains trace clay fines			74				31	24		
	40												
75													

LOG OF BORING 3-B5

LATITUDE: 37.628237 LONGITUDE: -122.424805

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DATE DRILLED: 9/19/2018
HOLE DEPTH: 101 ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 113 ft.

LOGGED / REVIEWED BY: T. Strack / P. Espinosa
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
			POORLY GRADED SAND (SP), olive to light olive, very dense, wet, few fines, fine-grained sand			50/5"							
	35		LEAN CLAY (CL), dark bluish gray, hard, moist, medium plasticity										
80			FAT CLAY (CH), dark bluish gray, hard, moist, high plasticity, trace fine-grained sand			54							
	30												
85													
	25												
90						50							
	20												
95			Fine- to coarse-grained sand lense										
	15		POORLY GRADED SAND (SP), very dark grayish green, very dense, moist, trace fines, fine-grained sand										
100													

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LOG OF BORING 3-B5

LATITUDE: 37.628237 LONGITUDE: -122.424805

Geotechnical Exploration
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DATE DRILLED: 9/19/2018
HOLE DEPTH: 101 ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 113 ft.

LOGGED / REVIEWED BY: T. Strack / P. Espinosa
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
			SILTY SAND (SM), dark olive brown, very dense, moist, low fines, fine- to medium-grained sand, mottled with black			50/3"							
			End of boring at approximately 101 feet. Groundwater not observed due to drilling method.										

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LOG OF BORING 3-B6

Expect Excellence

LATITUDE: 37.628512 LONGITUDE: -122.423851

Geotechnical Exploration
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San Bruno, California
13667.000.002

DATE DRILLED: 9/17/2018
HOLE DEPTH: 101.5 ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 101 ft.

LOGGED / REVIEWED BY: M. Parks / P. Espinosa
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
			ASPHALT CONCRETE, 2-1/2 inches										
			AGGREGATE BASE, 3-inches										
	100		SILTY SAND (SM), dark yellowish brown, medium dense, moist, fine- to medium-grained sand, angular gravel, contains sand pockets										
			SANDY CLAY (CL), yellowish brown, stiff, moist, medium plasticity, moderate fine-grained sand										
5			SILTY SAND (SM), light brownish gray mottled with yellowish brown, very dense, moist, fine- to medium-grained sand, non-plastic			63							
	95		Yellowish brown, some clay										
10			Medium dense, fine-grained sand, moderate fines content, non-plastic, pockets of reddish yellow and black sand, wood fragments			18					14		
	90		Clayey sand layer										
15			Dark brown with reddish oxidation, low plasticity fines			29							
	85		Yellowish brown with red and black oxidation staining, fine-grained sand, non-plastic, red										
			Fine gravel										
20			Interbedded layers of silty fine-grained sand and silty fine- to coarse-grained sand with fine gravel, layers of oxidation staining, scattered subrounded fine gravel			22					14		
	80		Clayey sand layer										
25													

LOG - GEOTECHNICAL W/ELEV. 13667000002 09-21-2018 BOREHOLE LOGS.GPJ ENGEO INC.GDT 10/29/18

LOG OF BORING 3-B6

Expect Excellence

LATITUDE: 37.628512 LONGITUDE: -122.423851

Geotechnical Exploration
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13667.000.002

DATE DRILLED: 9/17/2018
HOLE DEPTH: 101.5 ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 101 ft.

LOGGED / REVIEWED BY: M. Parks / P. Espinosa
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
			SILTY SAND (SM), yellowish brown, medium dense, moist										
	75		LEAN CLAY (CL), light yellowish brown, stiff, moist										
			SILTY SAND (SM), light yellowish brown, medium dense, moist, fine-grained sand										
			Fine gravel										
30			Layered, no staining										
	70					29				31	19		
35			Scattered layers of clayey fine-grained sand										
	65												
40			Dense, fine- to medium-grained sand, interbedded layers of non-plastic and low plasticity fines, some red oxidation staining			40							
	60												
45													
	55												
			POORLY GRADED SAND (SP), light yellowish brown, dense, moist, medium- to coarse-grained sand, scattered fine gravel, few clay fines										
50													

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LOG OF BORING 3-B6

Expect Excellence

LATITUDE: 37.628512 LONGITUDE: -122.423851

Geotechnical Exploration
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13667.000.002

DATE DRILLED: 9/17/2018
HOLE DEPTH: 101.5 ft.
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LOGGED / REVIEWED BY: M. Parks / P. Espinosa
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
	50		SANDY SILT (ML), light yellowish brown mottled with strong brown, very dense, moist, low plasticity, fine- to medium-grained sand, some clay fines			52							
55	45		SILTY SAND (SM), light yellowish brown mottled with strong brown, very dense, moist, low plasticity, fine- to medium-grained sand			58				15	15		
			Clay fines										
60	40		Grades to less fines			83							
65	35		Light yellowish brown mottled with strong brown, oxidation staining			65							
70			Grades to more fines										
	30		LEAN CLAY (CL), light gray mottled with strong brown, very stiff, moist, medium plasticity, few fine-grained sand, contains silt fines, oxidation staining			25	37	20	17		26		
			SILTY SAND (SM), olive brown, very dense, moist, fine- to medium-grained sand, scattered fine gravel			80							
75													

LOG - GEOTECHNICAL W/ELEV. 13667000002 09-21-2018 BOREHOLE LOGS.GPJ ENGEO INC.GDT 10/29/18

LOG OF BORING 3-B6

ENGEO Expect Excellence

LATITUDE: 37.628512 LONGITUDE: -122.423851

Geotechnical Exploration
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San Bruno, California
13667.000.002

DATE DRILLED: 9/17/2018
HOLE DEPTH: 101.5 ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 101 ft.

LOGGED / REVIEWED BY: M. Parks / P. Espinosa
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
	25		CLAYEY SAND (SC), olive brown, very dense, moist, high fines content										
			Grades to light gray, fine-grained sand, less fines										4.5*
			SILTY SAND (SM), light gray mottled with strong brown, very dense, moist, fine-grained sand							31			
80	20					87							
			SANDY LEAN CLAY (CL), bluish gray, stiff, moist, medium plasticity, moderate fine-grained sand										
85						25							
	15		LEAN CLAY (CL), bluish gray, hard, moist, medium plasticity, few fine-grained sand			68							4.5*
			SANDY LEAN CLAY (CL), bluish gray, very hard, moist, low plasticity, more fine-grained sand, contains silt fines										4.5*
90	10												
			FAT CLAY (CH), bluish gray, very stiff, moist, high plasticity, few fine-grained sand			44	59	23	36				4.5*
95	5												
			LEAN CLAY (CL), bluish gray, hard, moist, medium plasticity, few fine-grained sand, contains silt fines										
100													

LOG - GEOTECHNICAL W/ELEV. 13667000002 09-21-2018 BOREHOLE LOGS.GPJ ENGEO INC.GDT 10/29/18

LOG OF BORING 3-B6

LATITUDE: 37.628512 LONGITUDE: -122.423851

Geotechnical Exploration
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San Bruno, California
13667.000.002

DATE DRILLED: 9/17/2018
HOLE DEPTH: 101.5 ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 101 ft.

LOGGED / REVIEWED BY: M. Parks / P. Espinosa
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Unconfined Strength (tsf) *field approx
	0		LEAN CLAY (CL), bluish gray, hard, moist, medium plasticity, few fine-grained sand, contains silt fines			46							4.5*
			End of boring at approximately 101½ feet. Groundwater not observed due to drilling method.										

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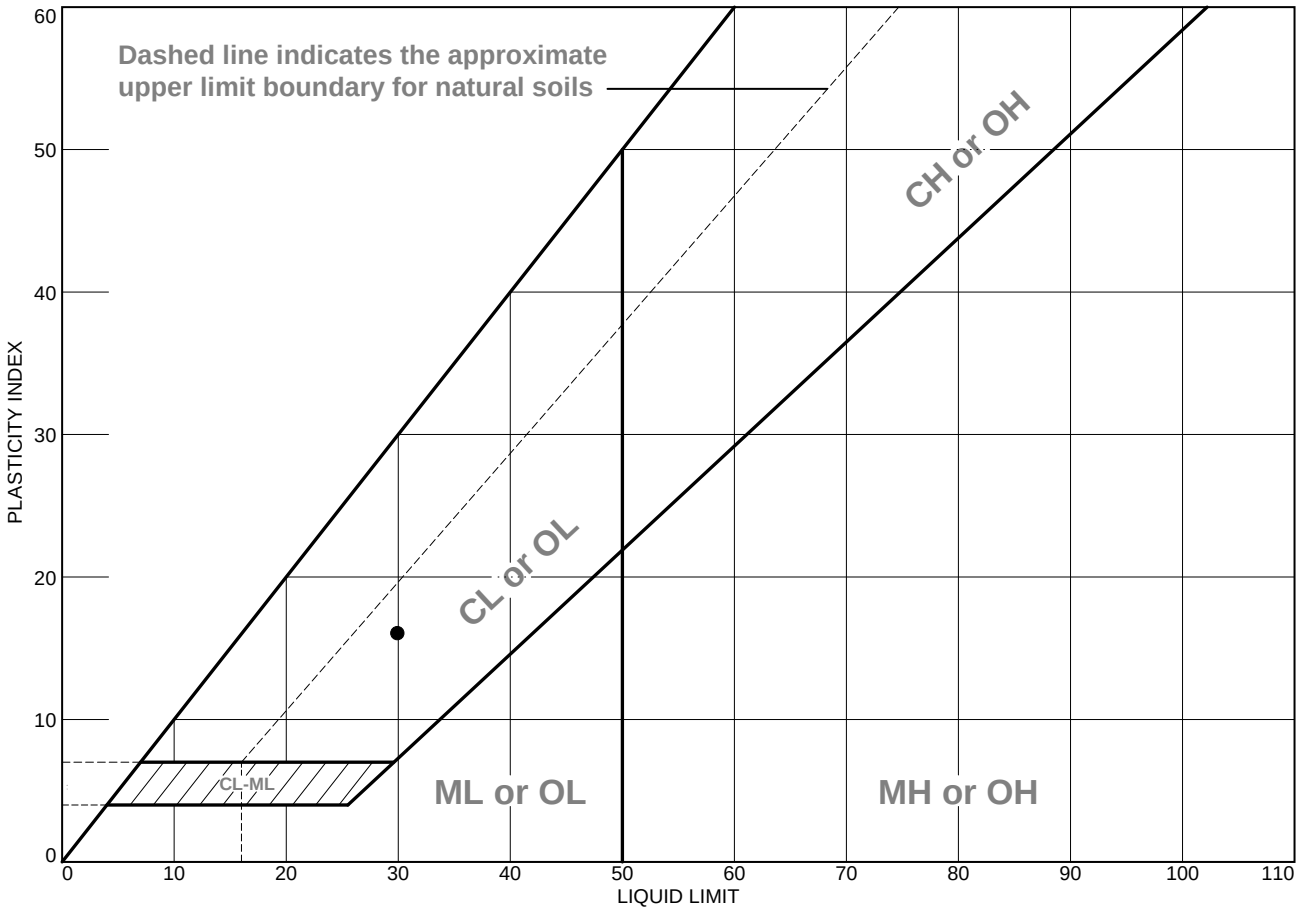


APPENDIX B

LABORATORY TEST DATA

Liquid and Plastic Limits Test Report
Particle Size Distribution Report
Unconsolidated Undrained Triaxial Test
Incremental Consolidation Report
Analytical Results of Soil Corrosion

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	See exploration logs	30	14	16		43.9	

Project No. 13667.000.002 **Client:** Google Incorporated

Project: YouTube Campus Phase 1

●**Depth:** 60.0-61.5 feet **Sample Number:** 3-B2 @ 60-61.5

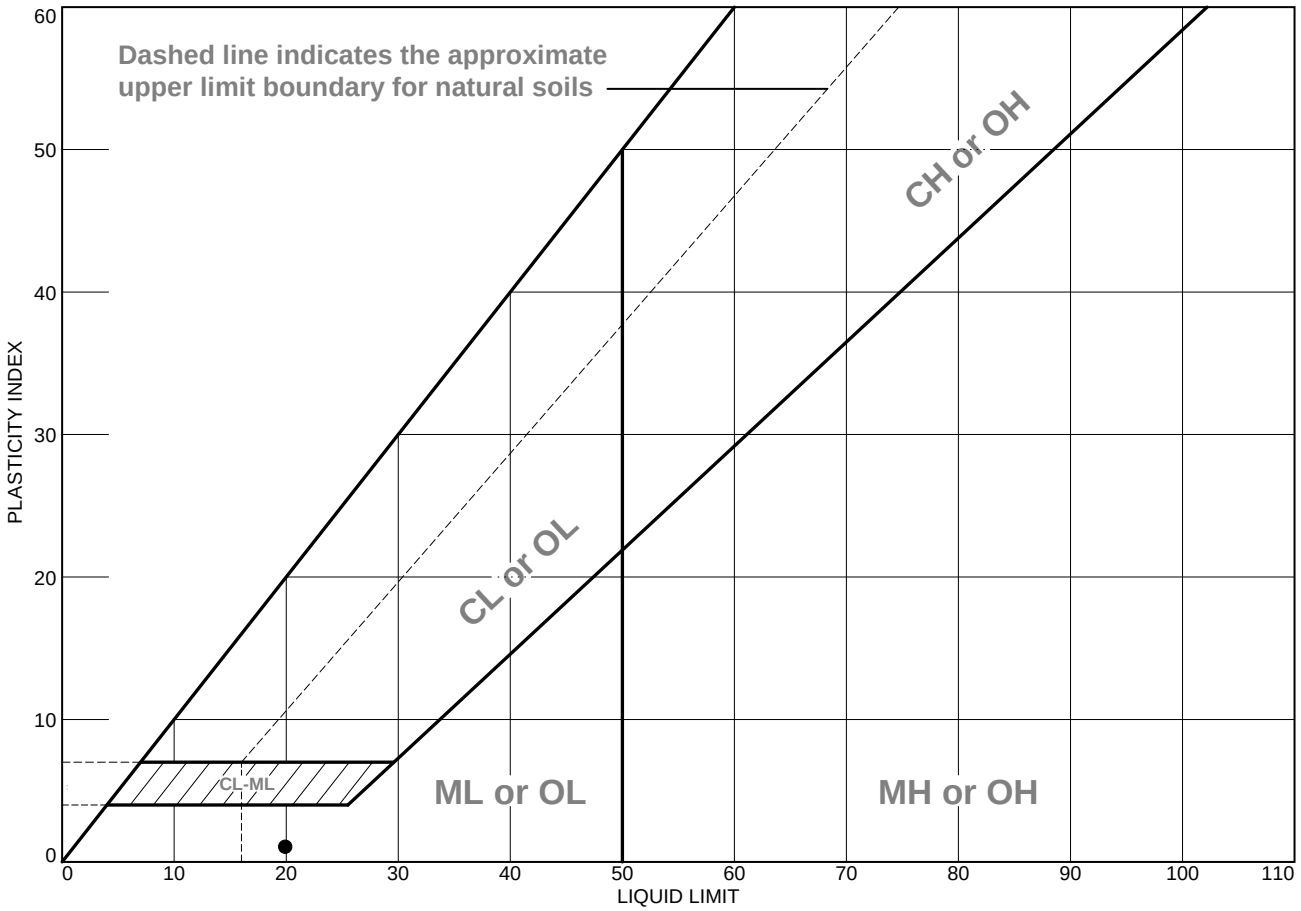
Remarks:

●PI: ASTM D4318, Wet method
GS: ASTM D1140, Method B

ENGEO INCORPORATED

Tested By: M. Bromfield **Checked By:** G. Criste

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	See exploration logs	20	19	1		38.6	

Project No. 13667.000.002 **Client:** Google Incorporated

Project: YouTube Campus Phase 1

●**Depth:** 50.0-51.5 feet **Sample Number:** 3-B3 @ 50-51.5

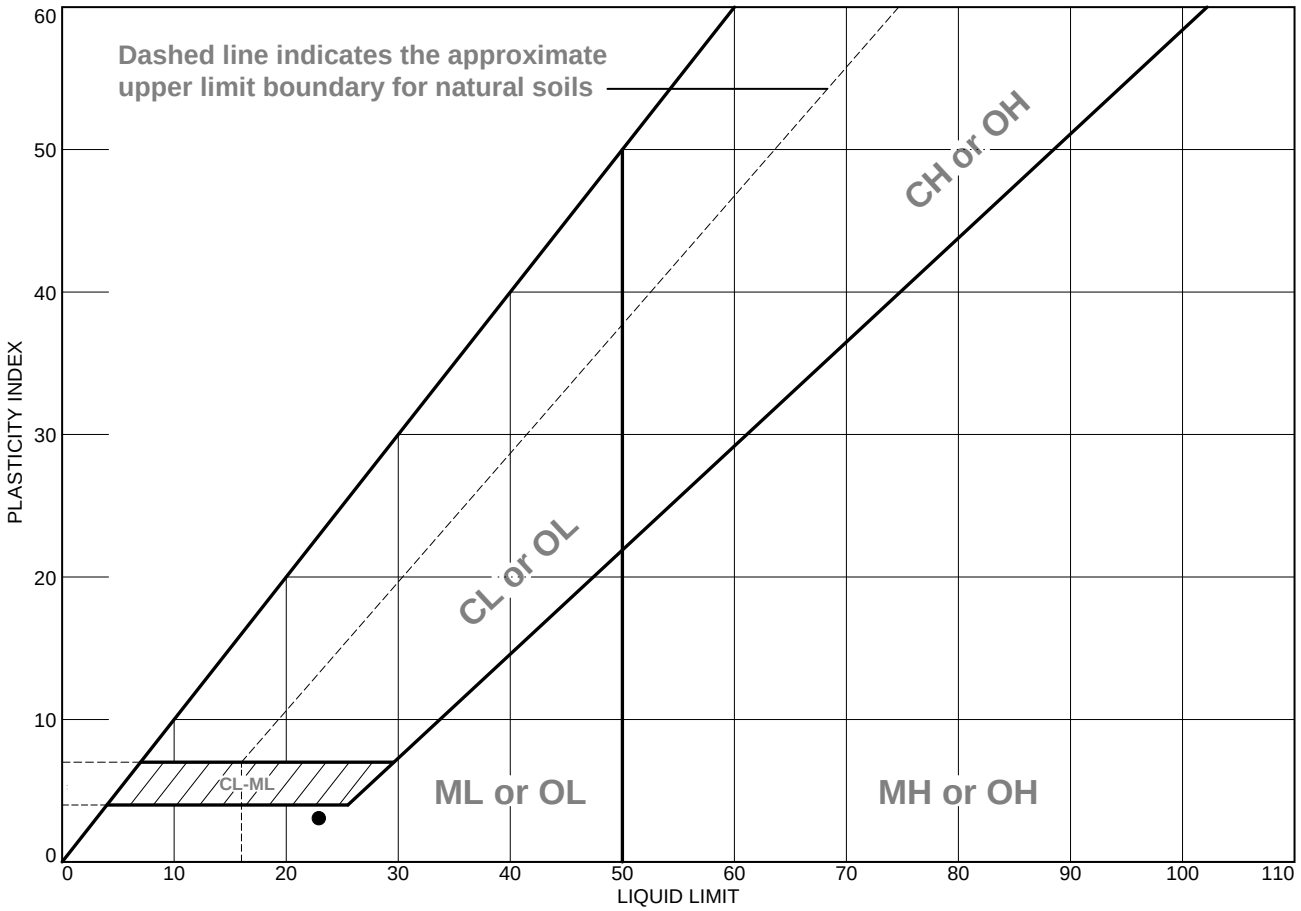
Remarks:

●PI: ASTM D4318, Wet method
GS: ASTM D1140, Method B

ENGEO INCORPORATED

Tested By: M. Bromfield **Checked By:** G. Criste

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	See exploration logs	23	20	3		21.7	

Project No. 13667.000.002 **Client:** Google Incorporated

Project: YouTube Campus Phase 1

●**Depth:** 30.0-31.5 feet **Sample Number:** 3-B4 @ 30-31.5

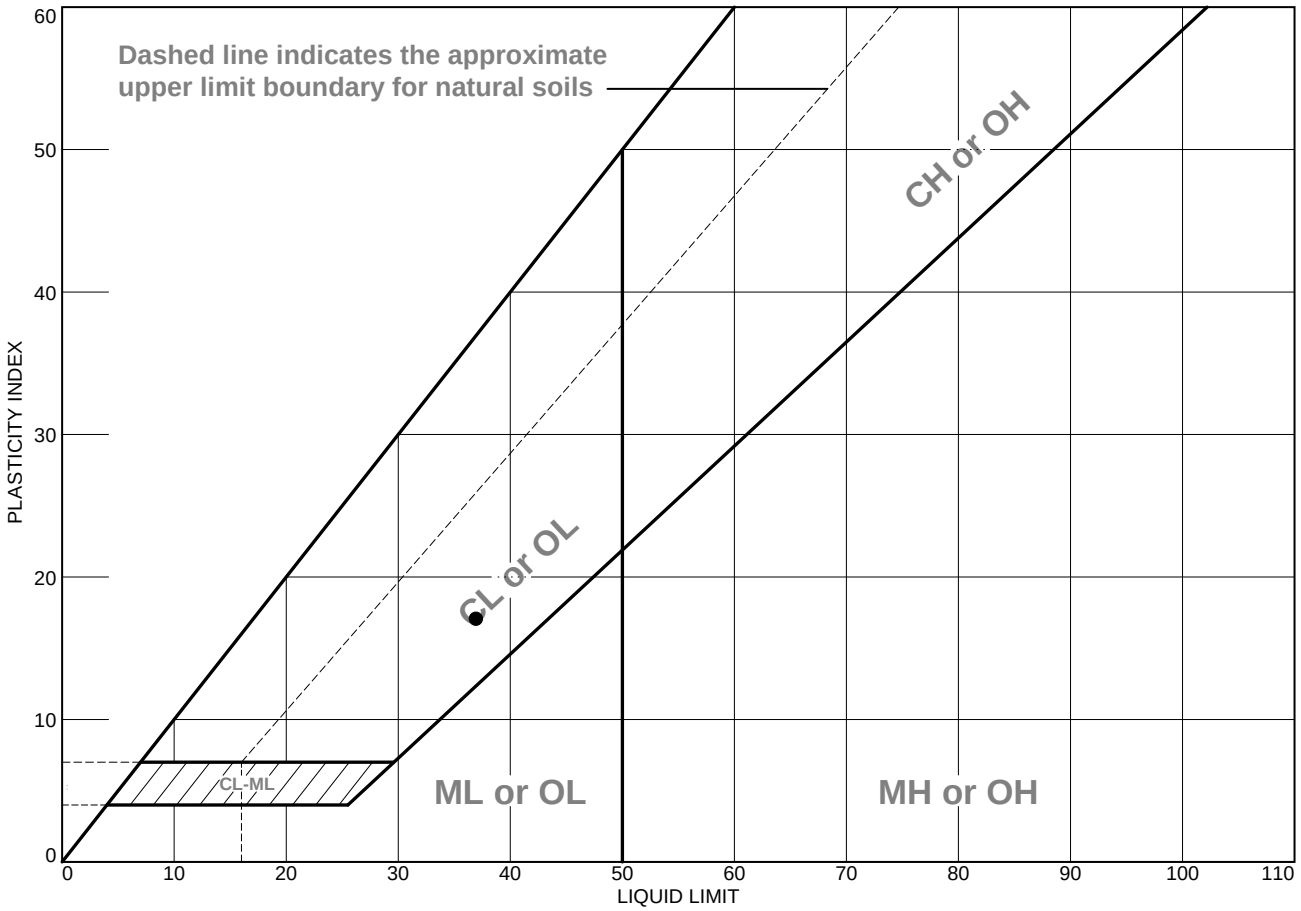
Remarks:

●PI: ASTM D4318, Wet method
GS: ASTM D1140, Method B

ENGEO INCORPORATED

Tested By: M. Quasem **Checked By:** G. Criste

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	See exploration logs	37	20	17			

Project No. 13667.000.002 **Client:** Google Incorporated

Project: YouTube Campus Phase 1

●**Depth:** 70.5-71.5 feet **Sample Number:** 3-B6 @ 70.5-71.5

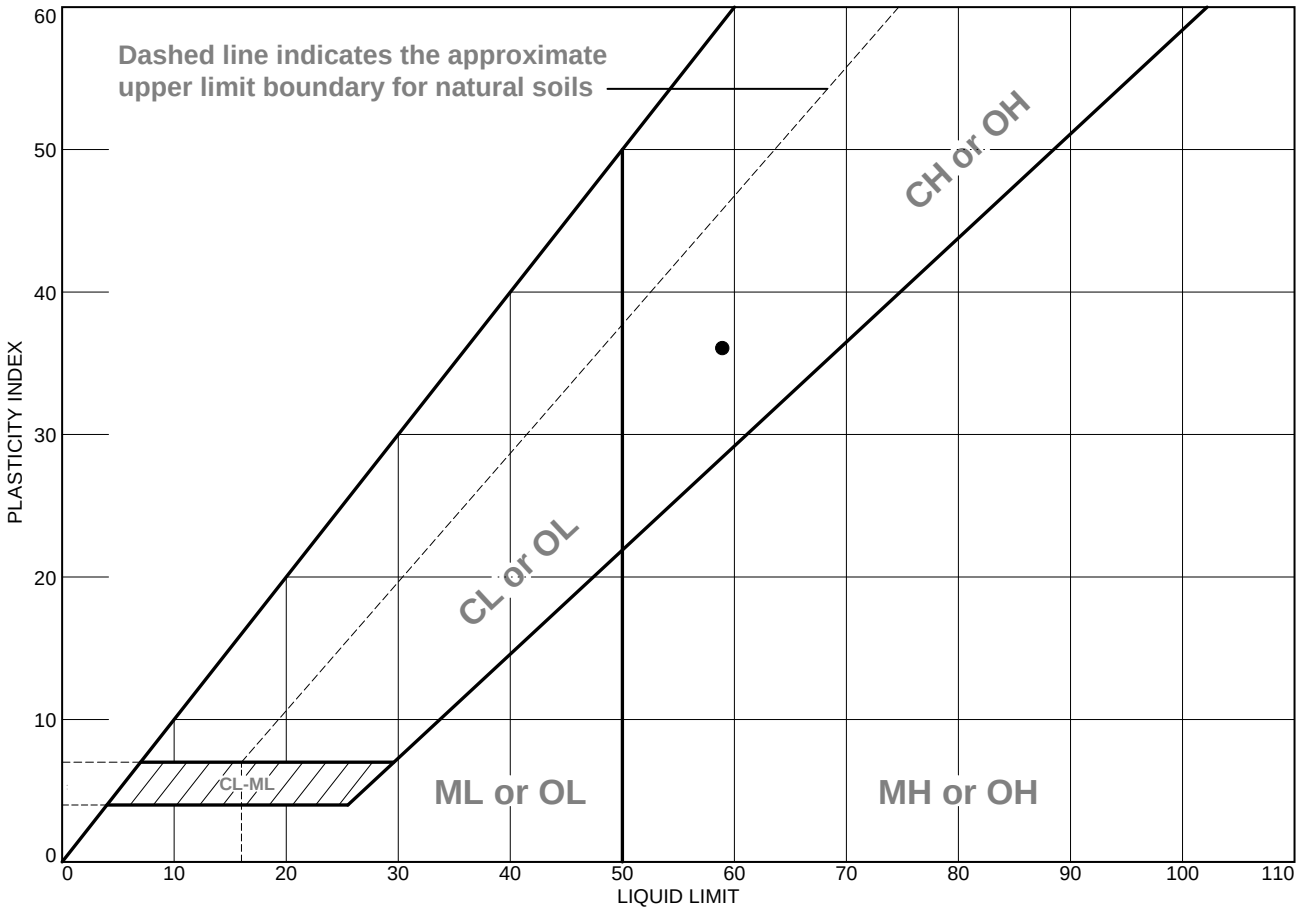
Remarks:

●ASTM D4318, Wet method

ENGEO INCORPORATED

Tested By: M. Quasem **Checked By:** G. Criste

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	See exploration logs	59	23	36			

Project No. 13667.000.002 **Client:** Google Incorporated

Project: YouTube Campus Phase 1

●**Depth:** 94.0 feet **Sample Number:** 3-B6 @ 94

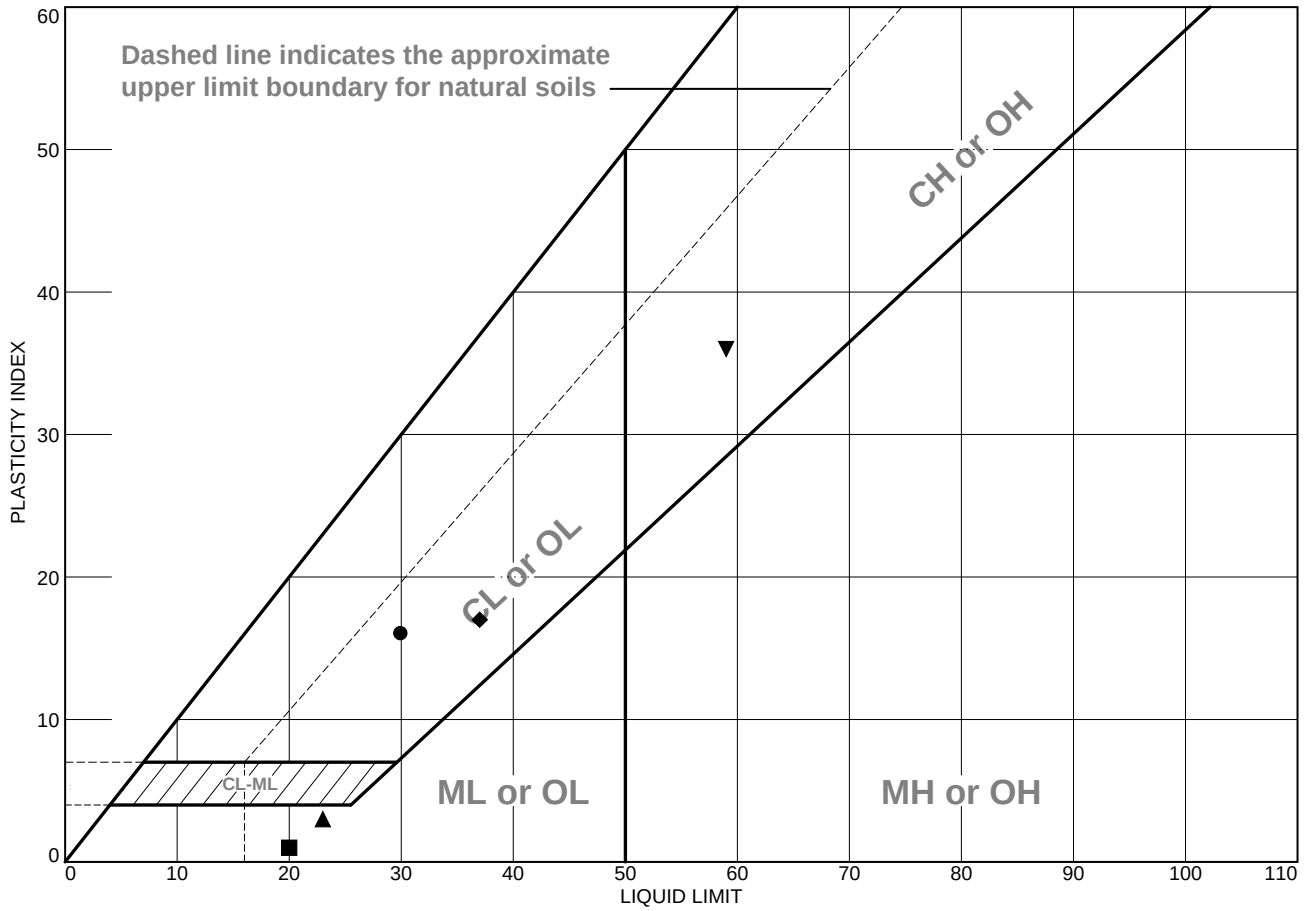
Remarks:

●ASTM D4318, Wet method

ENGEO INCORPORATED

Tested By: M. Quasem **Checked By:** G. Criste

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	See exploration logs	30	14	16		43.9	
■	See exploration logs	20	19	1		38.6	
▲	See exploration logs	23	20	3		21.7	
◆	See exploration logs	37	20	17			
▼	See exploration logs	59	23	36			

Project No. 13667.000.002 **Client:** Google Incorporated

Project: YouTube Campus Phase 1

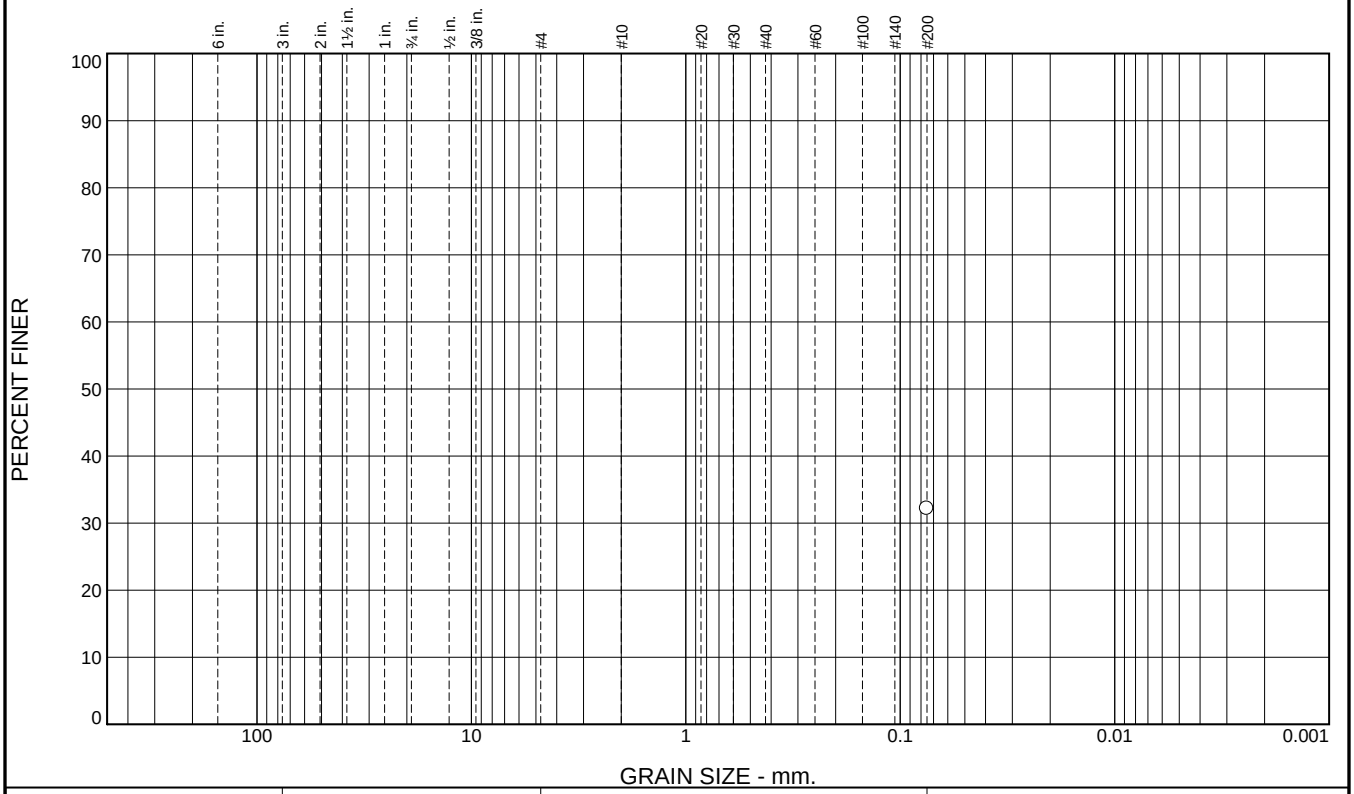
●**Depth:** 60.0-61.5 feet **Sample Number:** 3-B2 @ 60-61.5
■**Depth:** 50.0-51.5 feet **Sample Number:** 3-B3 @ 50-51.5
▲**Depth:** 30.0-31.5 feet **Sample Number:** 3-B4 @ 30-31.5
◆**Depth:** 70.5-71.5 feet **Sample Number:** 3-B6 @ 70.5-71.5
▼**Depth:** 94.0 feet **Sample Number:** 3-B6 @ 94

ENGEO INCORPORATED

Remarks:
●PI: ASTM D4318, Wet method
GS: ASTM D1140, Method B
■PI: ASTM D4318, Wet method
GS: ASTM D1140, Method B
▲PI: ASTM D4318, Wet method
GS: ASTM D1140, Method B
◆ASTM D4318, Wet method
▼ASTM D4318, Wet method

Tested By: ○ M. Bromfield □ M. Bromfield △ M. Quasem ◇ M. Quasem ▽ M. Quasem **Checked By:** G. Criste

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						32.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	32.2		

* (no specification provided)

Material Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140, Method B
Samples size: 514.0g; Soak time: 2hrs

Sample Number: 3-B1 @ 40.75 **Depth:** 40.75 feet

Date: 10/04/18

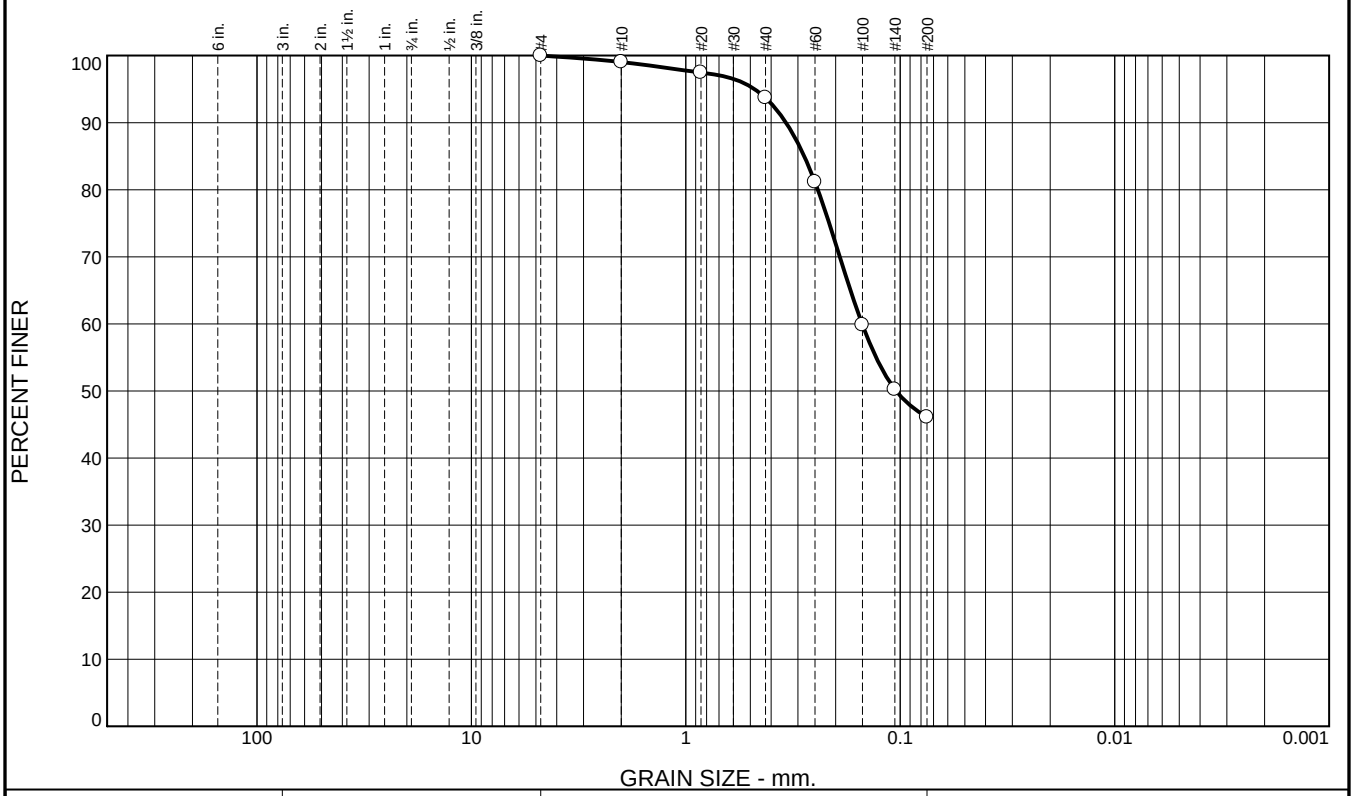
ENGEO INCORPORATED

Client: Google Incorporated
Project: YouTube Campus Phase 1

Project No: 13667.000.002

Tested By: M. Quasem **Checked By:** G. Criste

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.0	5.3	47.6	46.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.0		
#20	97.5		
#40	93.7		
#60	81.2		
#100	59.8		
#140	50.2		
#200	46.1		

* (no specification provided)

Material Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.3410 D_{85}= 0.2805 D_{60}= 0.1507
D_{50}= 0.1047 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D6913, Method B

Sample Number: 3-B1 @ 55-56 **Depth:** 55.0-56.0 feet

Date: 10/10/2018

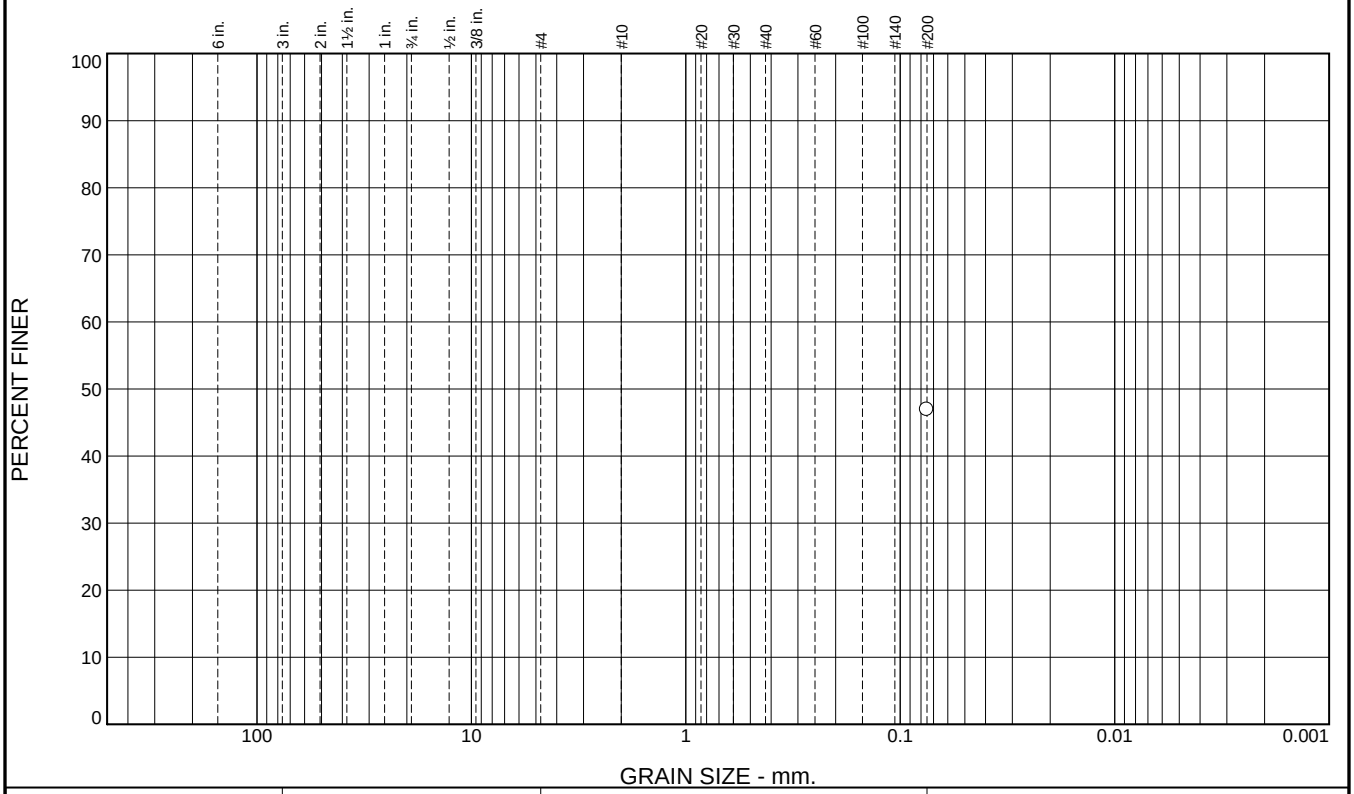
ENGEO INCORPORATED

Client: Google Incorporated
Project: YouTube Campus Phase 1

Project No: 13667.000.002

Tested By: M. Bromfield **Checked By:** M. Quasem

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						46.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	46.9		

* (no specification provided)

Material Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140, Method B
Samples size: 418.2g; Soak time: 2hrs

Sample Number: 3-B2 @ 10-11.5 **Depth:** 10.0-11.5 feet

Date: 10/04/18

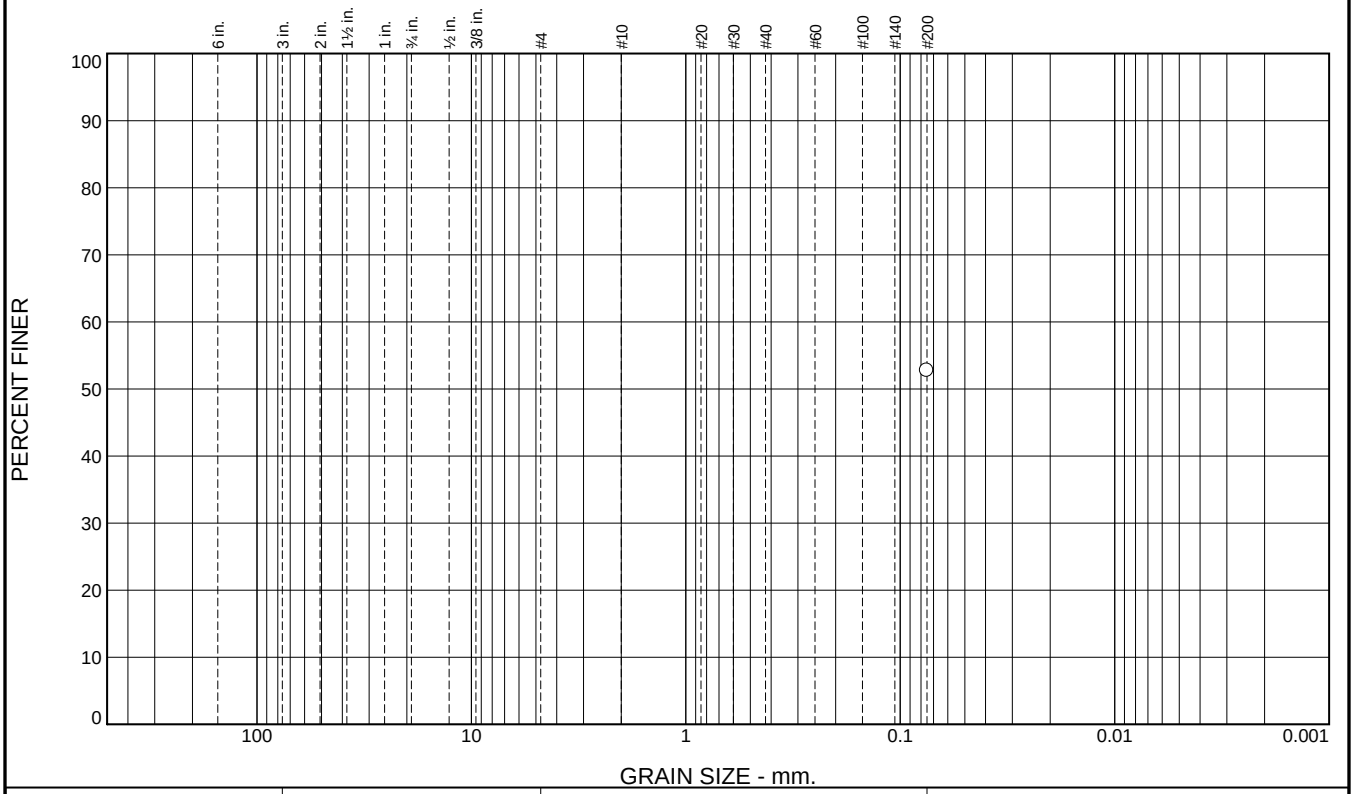
ENGEO INCORPORATED

Client: Google Incorporated
Project: YouTube Campus Phase 1

Project No: 13667.000.002

Tested By: M. Quasem **Checked By:** G. Criste

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						52.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	52.7		

* (no specification provided)

Material Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140, Method B
Sample size: 296.2g; Soak time: 2hrs

Sample Number: 3-B2 @ 20-21.5 **Depth:** 20.0-21.5 feet

Date: 10/04/18

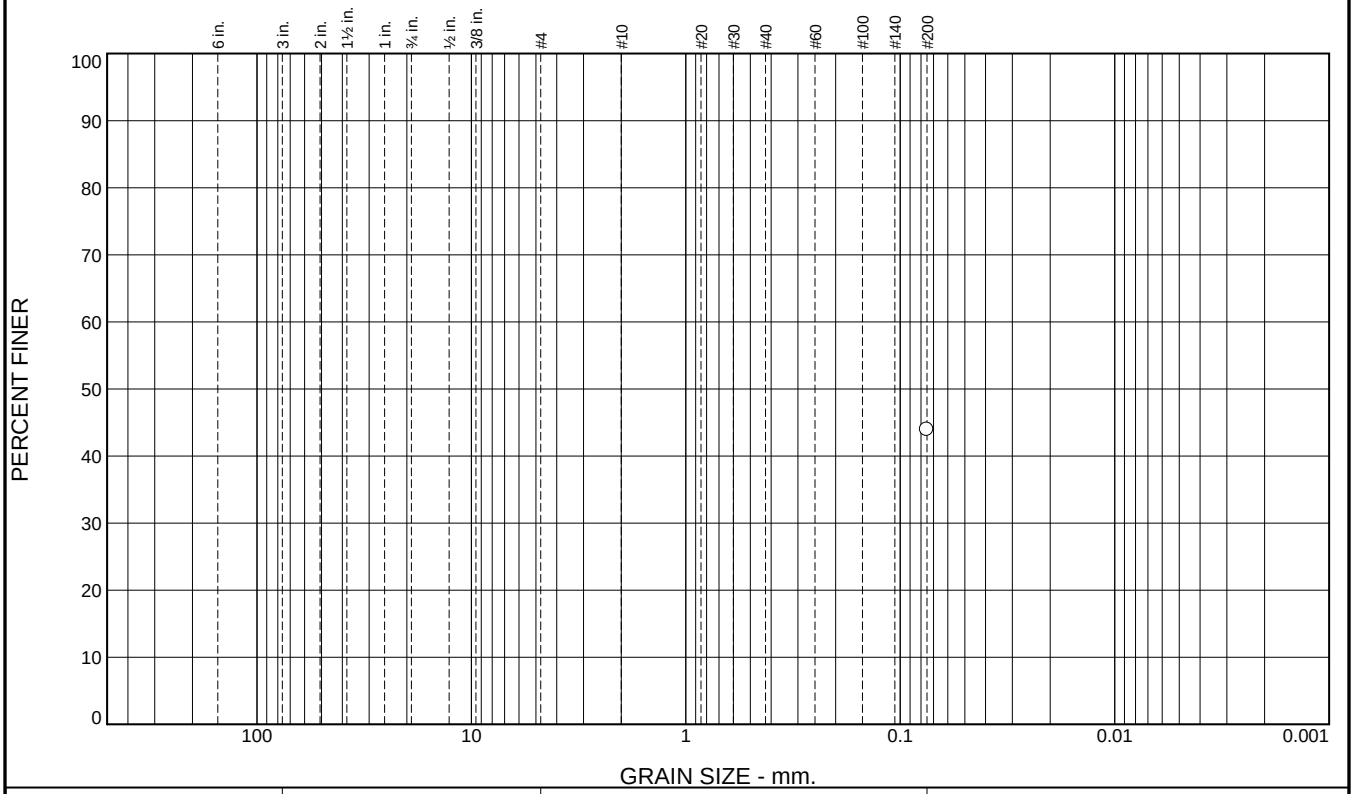
ENGEO INCORPORATED

Client: Google Incorporated
Project: YouTube Campus Phase 1

Project No: 13667.000.002

Tested By: M. Quasem **Checked By:** G. Criste

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						43.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	43.9		

* (no specification provided)

Material Description

See exploration logs

Atterberg Limits

PL= 14 LL= 30 PI= 16

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

GS: ASTM D1140, Method B
Sample size: 429.7g; Soak time: 2.5hrs
PI: ASTM D4318, Wet method

Sample Number: 3-B2 @ 60-61.5 **Depth:** 60.0-61.5 feet

Date: 10/04/18

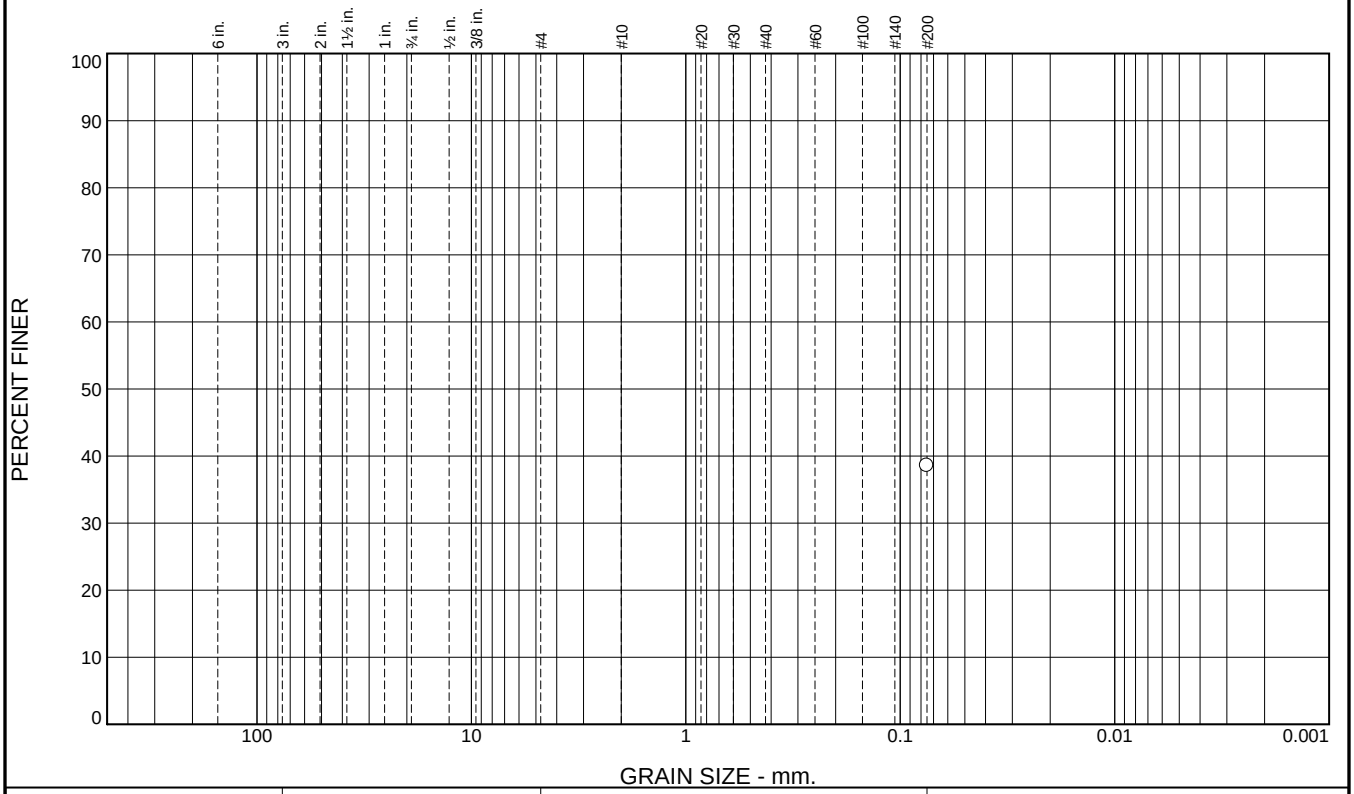
ENGEO INCORPORATED

Client: Google Incorporated
Project: YouTube Campus Phase 1

Project No: 13667.000.002

Tested By: M. Quasem **Checked By:** G. Criste

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						38.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	38.6		

* (no specification provided)

Material Description

See exploration logs

Atterberg Limits

PL= 19 LL= 20 PI= 1

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

GS: ASTM D1140, Method B
Sample size: 260.8g; Soak time 2.5hrs
PI: ASTM D4318, Wet method

Sample Number: 3-B3 @ 50-51.5 **Depth:** 50.0-51.5 feet

Date: 10/04/18

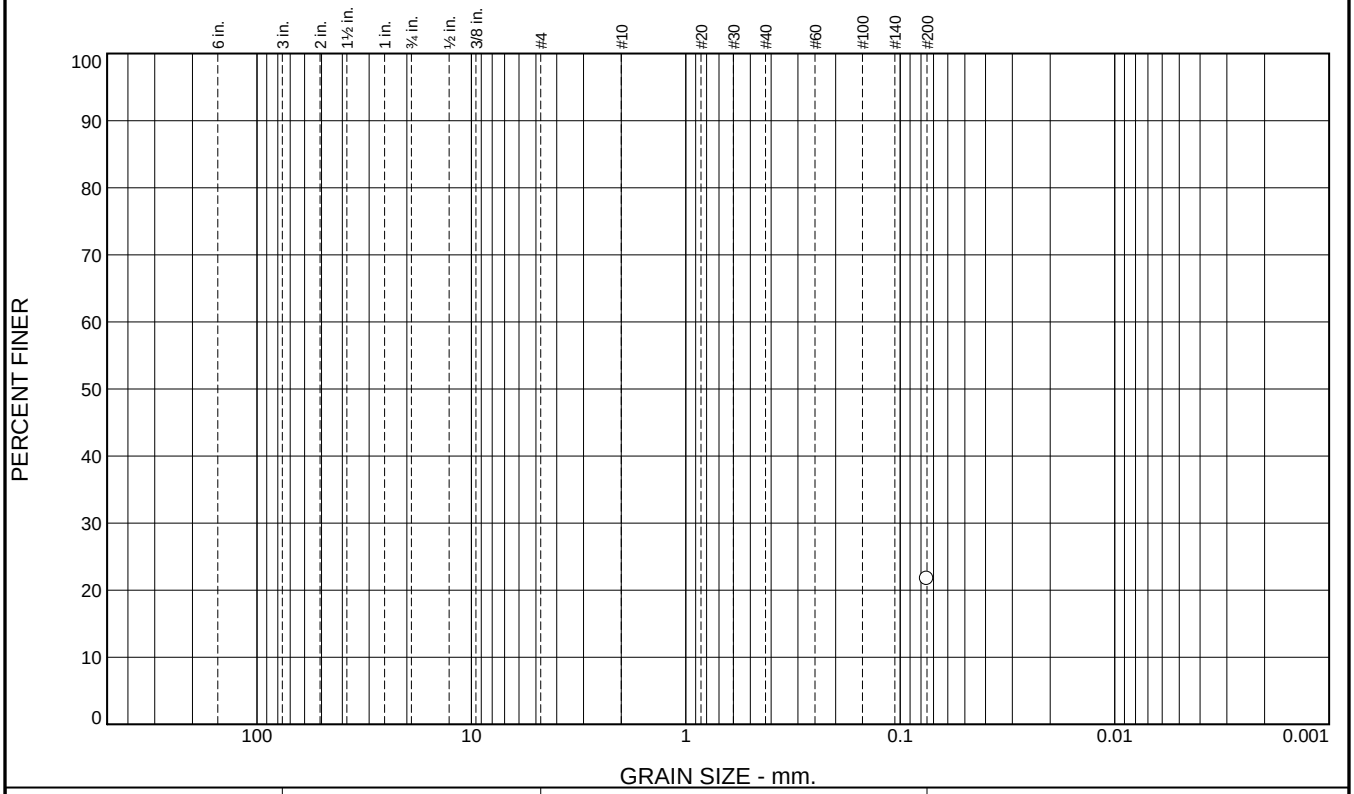
ENGEO INCORPORATED

Client: Google Incorporated
Project: YouTube Campus Phase 1

Project No: 13667.000.002

Tested By: M. Quasem **Checked By:** G. Criste

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						21.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	21.7		

* (no specification provided)

Material Description

See exploration logs

Atterberg Limits

PL= 20 LL= 23 PI= 3

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

GS: ASTM D1140, Method B
Sample size: 116.9g; Soak time: 2hrs
PI: ASTM D4318, Wet method

Sample Number: 3-B4 @ 30-31.5 **Depth:** 30.0-31.5 feet

Date: 10/04/18

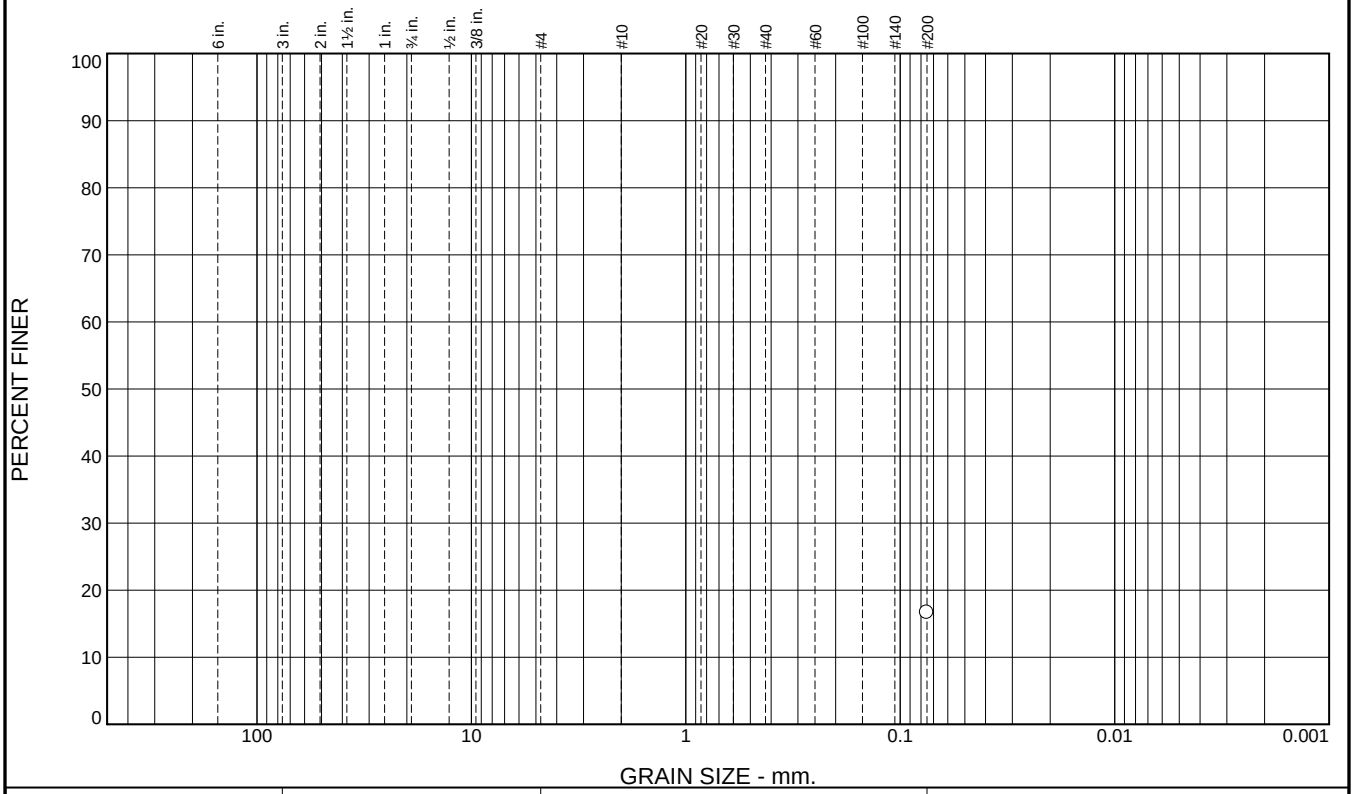
ENGEO INCORPORATED

Client: Google Incorporated
Project: YouTube Campus Phase 1

Project No: 13667.000.002

Tested By: M. Quasem **Checked By:** G. Criste

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						16.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	16.7		

* (no specification provided)

Material Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140, Method A
Sample size: 396.4g; Soak time: 1hr

Sample Number: 3-B4 @ 50-51.5 **Depth:** 50.0-51.5 feet

Date: 10/04/18

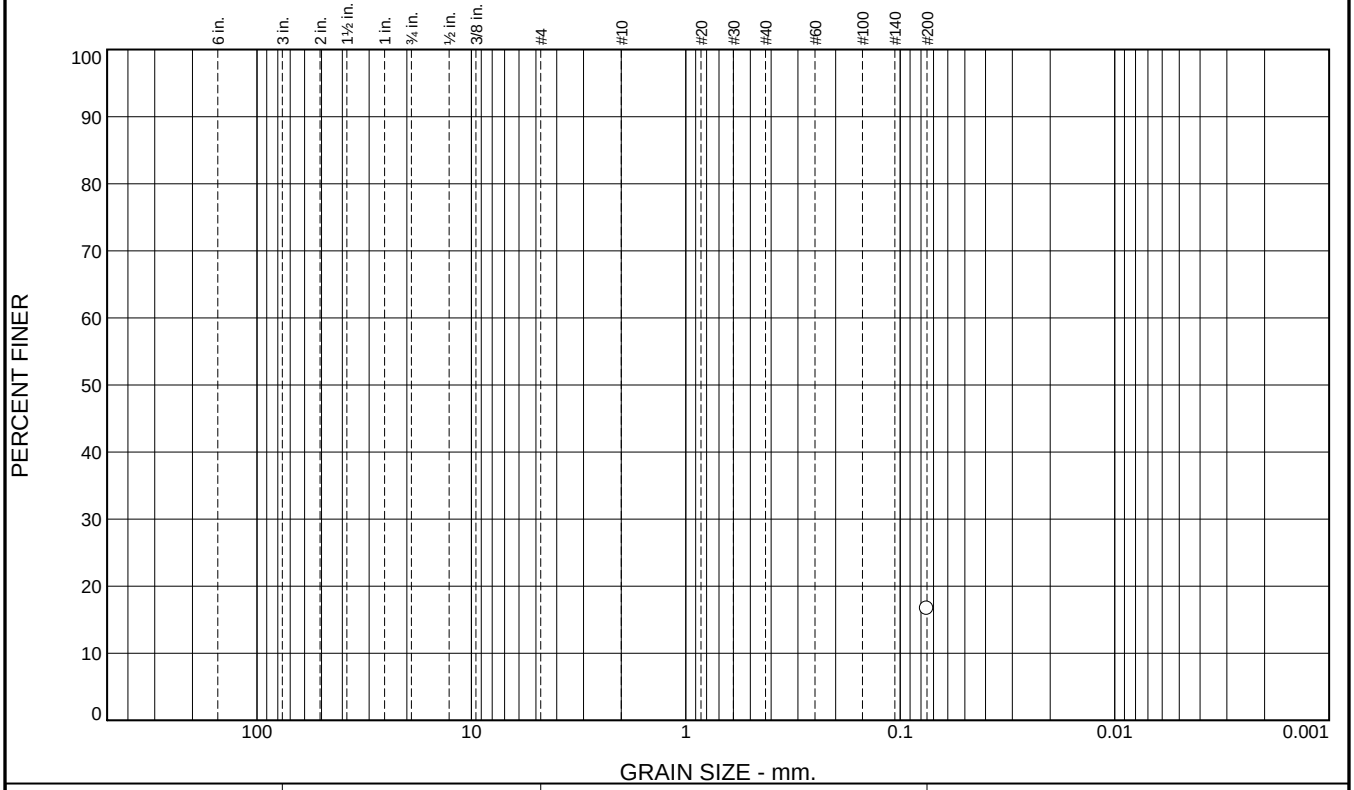
ENGEO INCORPORATED

Client: Google Incorporated
Project: YouTube Campus Phase 1

Project No: 13667.000.002

Tested By: M. Quasem **Checked By:** G. Criste

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						16.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	16.7		

* (no specification provided)

Material Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140, Method B
Sample size: 287.7g; Soak time: 2.5hrs

Sample Number: 3-B4 @ 65-66.5 **Depth:** 65-66.5 feet

Date: 10/04/18

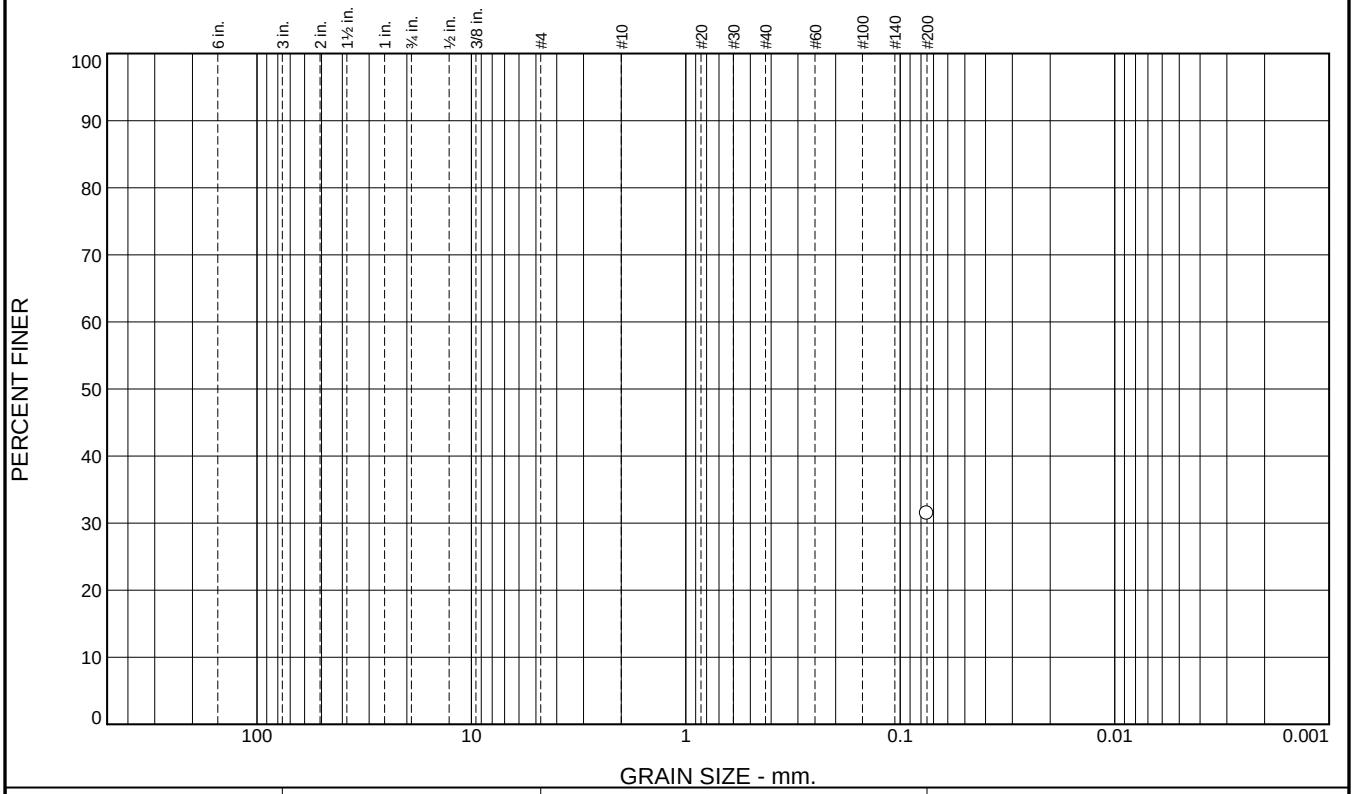
ENGEO INCORPORATED

Client: Google Incorporated
Project: YouTube Campus Phase 1

Project No: 13667.000.002

Tested By: M. Quasem **Checked By:** G. Criste

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						31.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	31.4		

* (no specification provided)

Material Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140, Method B
Sample size: 235.3g; Soak time: 3hrs

Sample Number: 3-B5 @ 70-71.5 **Depth:** 70.0-71.5 feet

Date: 10/04/18

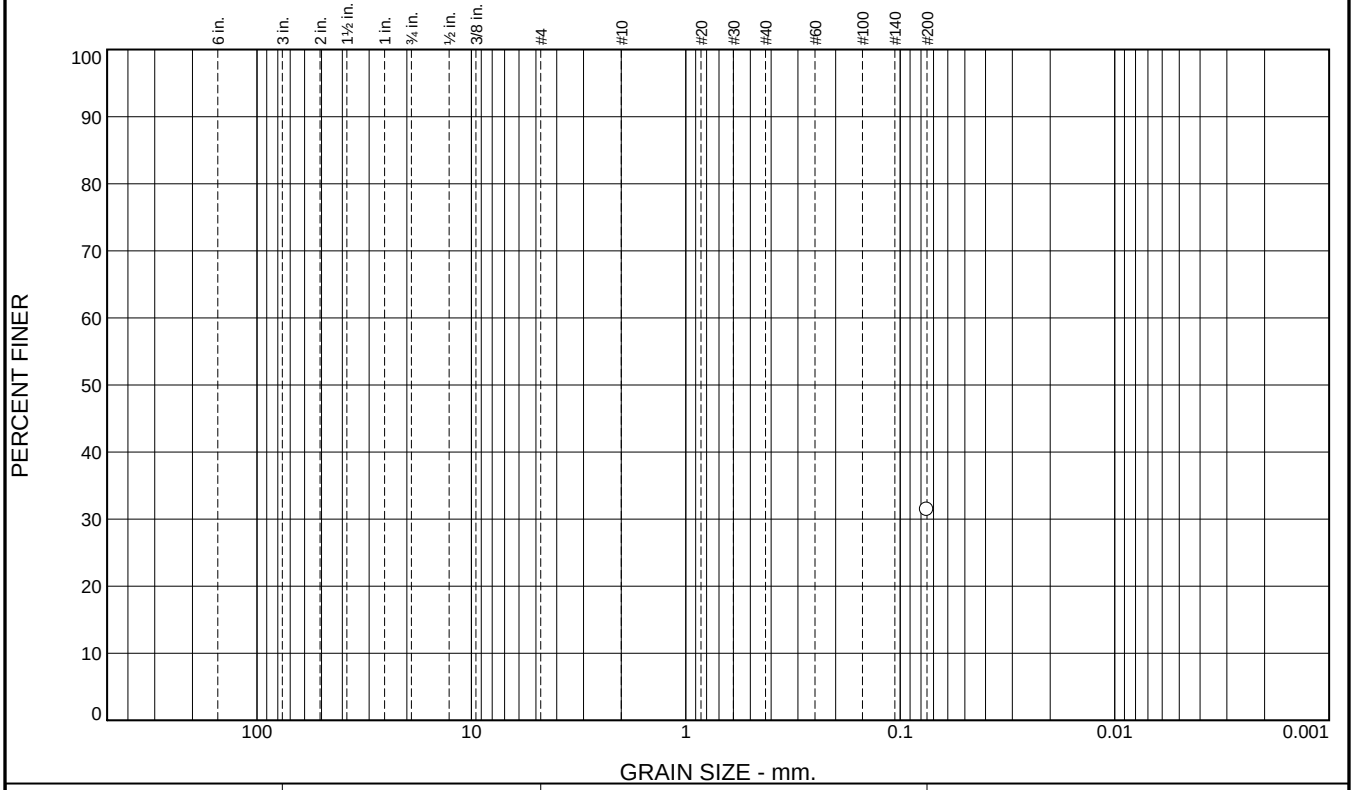
ENGEO INCORPORATED

Client: Google Incorporated
Project: YouTube Campus Phase 1

Project No: 13667.000.002

Tested By: M. Quasem **Checked By:** G. Criste

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						31.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	31.4		

* (no specification provided)

Material Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140, Method B
Sample size: 394.0g; Soak time: 3hrs

Sample Number: 3-B6 @ 30-31.5 **Depth:** 30.0-31.5 feet

Date: 10/04/18

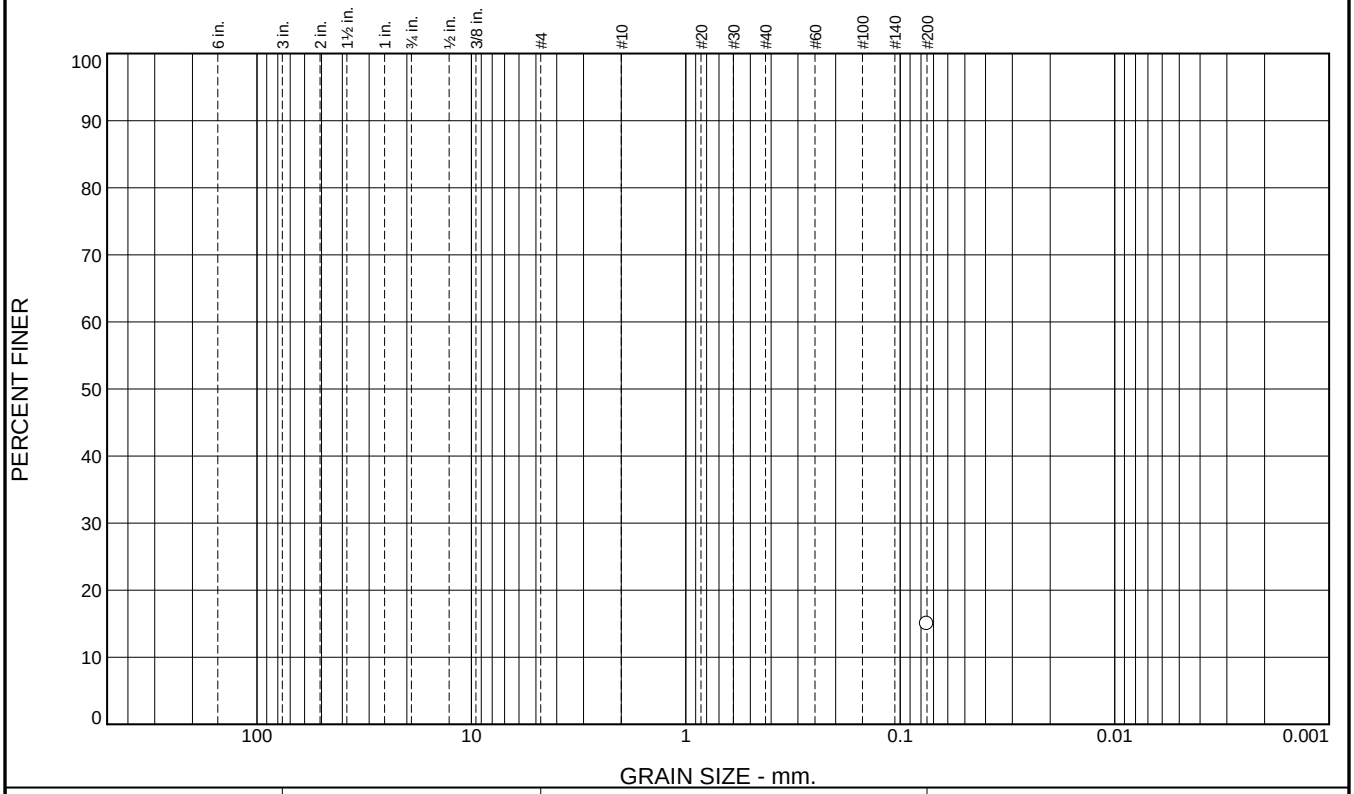
ENGEO INCORPORATED

Client: Google Incorporated
Project: YouTube Campus Phase 1

Project No: 13667.000.002

Tested By: M. Quasem **Checked By:** G. Criste

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						15.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	15.0		

* (no specification provided)

Material Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140, Method A
Sample size: 490.5g; Soak time: 2hrs

Sample Number: 3-B6 @ 55-56.5 **Depth:** 55.0-56.5 feet

Date: 10/04/18

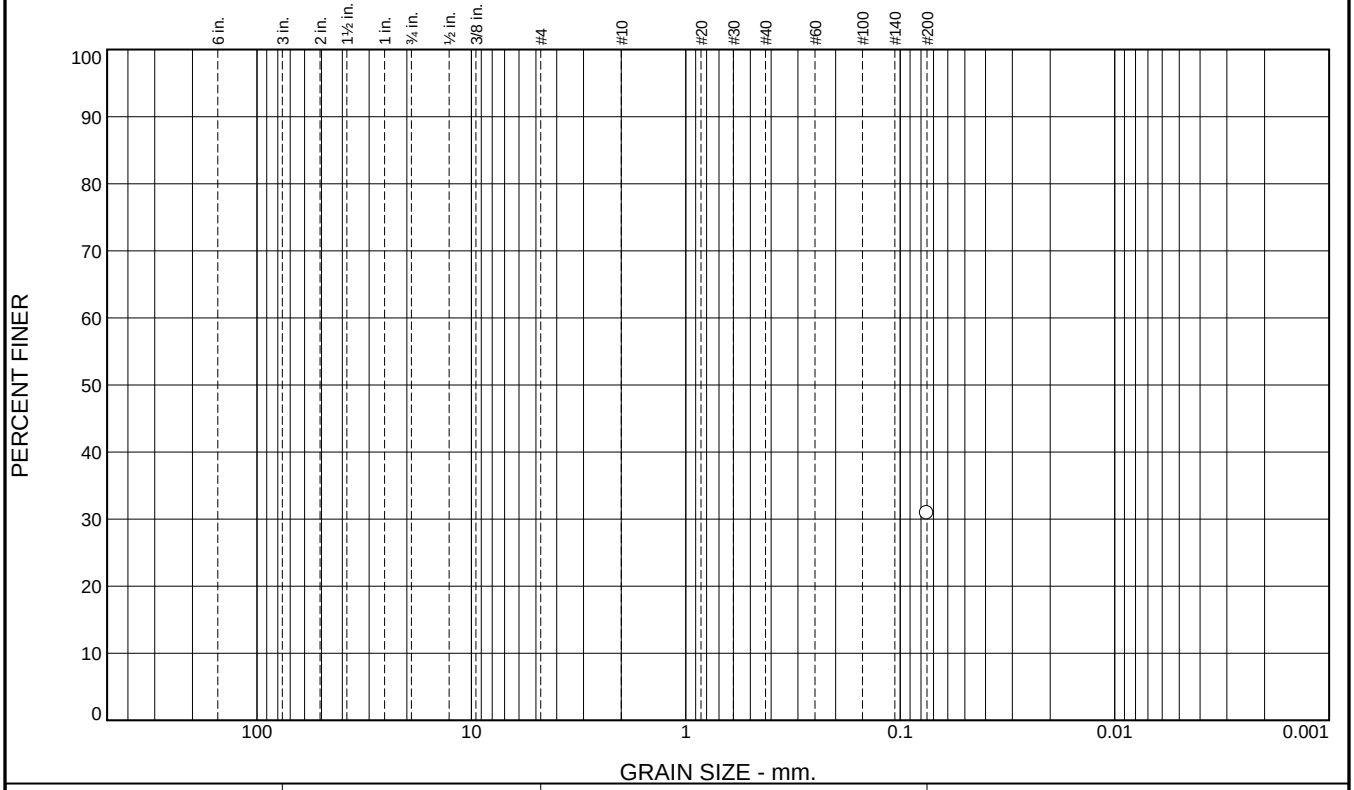
ENGEO INCORPORATED

Client: Google Incorporated
Project: YouTube Campus Phase 1

Project No: 13667.000.002

Tested By: M. Quasem **Checked By:** G. Criste

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						30.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	30.9		

* (no specification provided)

Material Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140, Method B
Sample size: 411.7g; Soak time: 3hrs

Sample Number: 3-B6 @ 79 **Depth:** 79.0 feet

Date: 10/04/18

ENGEO INCORPORATED

Client: Google Incorporated
Project: YouTube Campus Phase 1

Project No: 13667.000.002

Tested By: M. Quasem **Checked By:** G. Criste

EN GEO

Unconsolidated Undrained Triaxial Test (ASTM D2850)

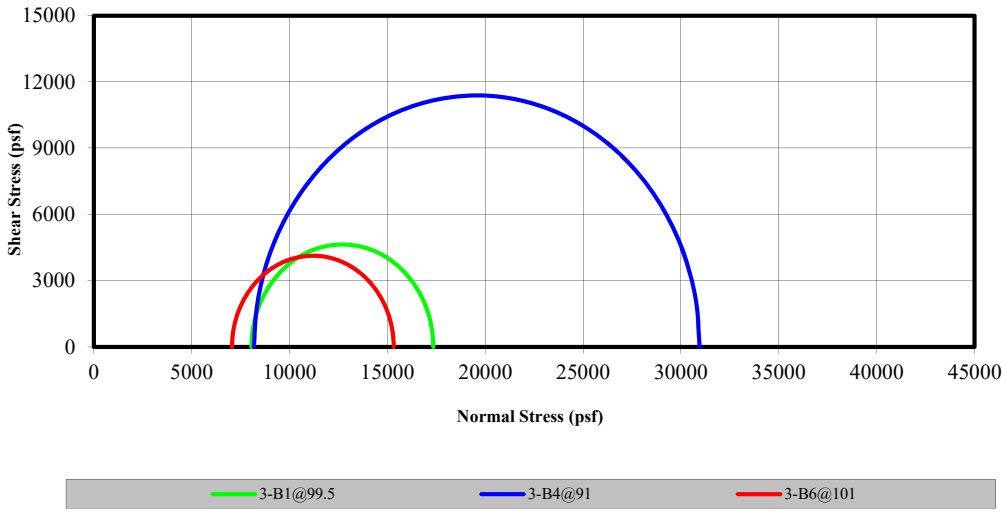
Date: 10/05/18

Checked by: G. Criste

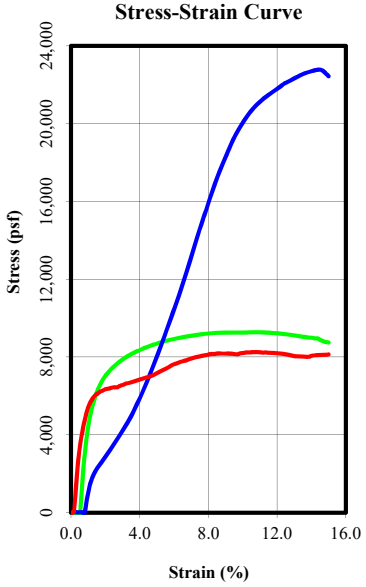
Date: 10/05/18

Tested by: M. Bromfield

Mohr Circles



Stress-Strain Curve

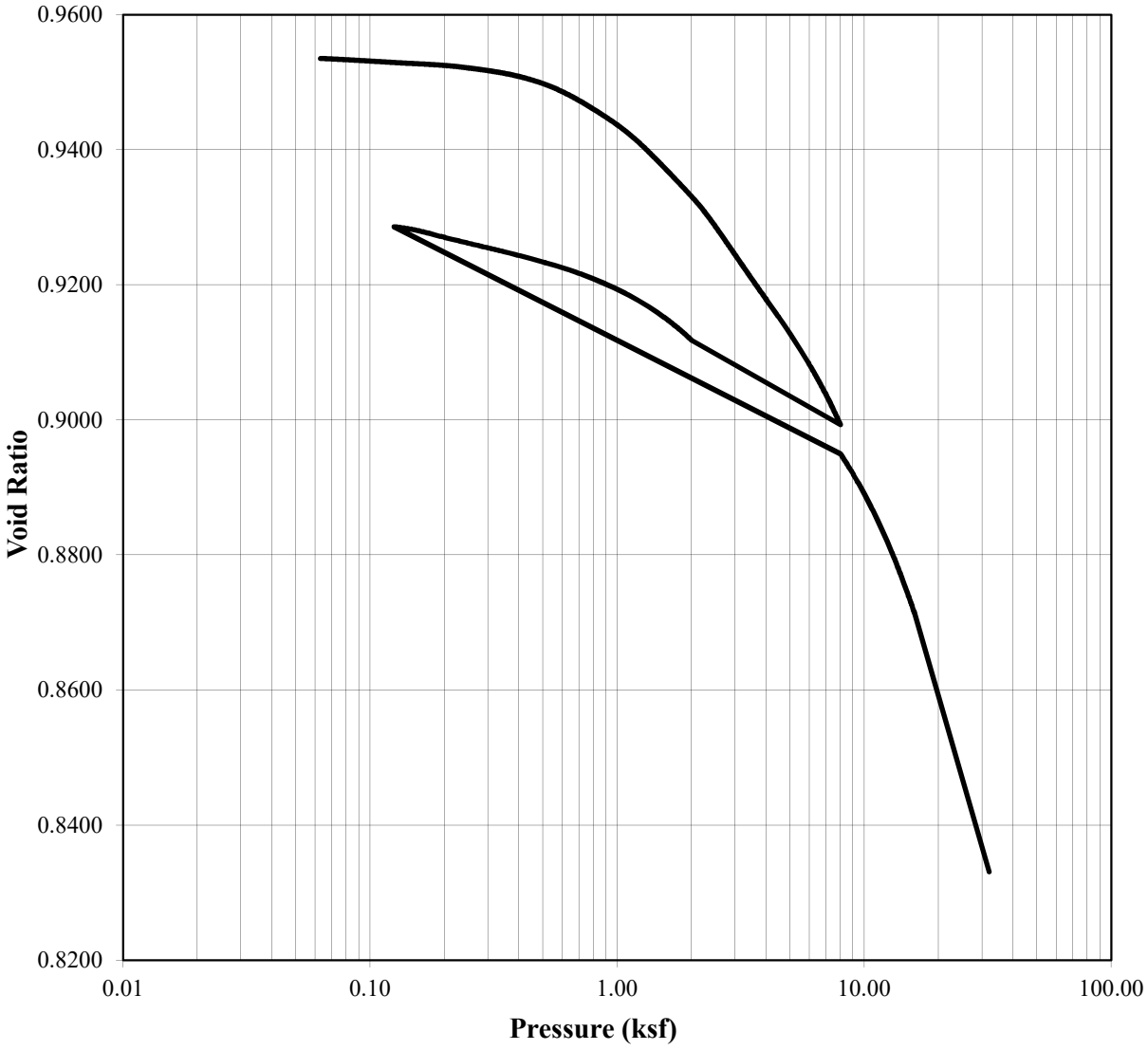


Before Test	Specimen 3-B1@99.5	3-B4@91	3-B6@101	
Water Content (%)	37.90	19.35	34.02	
Dry Density (pcf)	81.33	108.95	86.53	
Saturation (%)	97.13	98.91	98.87	
Void Ratio	1.03	0.52	0.91	
Diameter (in)	2.407	2.397	2.402	
Height (in)	5.888	5.253	6.027	
Liquid Limit	-	-	-	
Plastic Limit	-	-	-	
Specific Gravity	2.650	2.650	2.650	
Height-to-Diameter Ratio	2.446	2.191	2.509	
After Test	**3-B1@99.5**	**3-B4@91**	**3-B6@101**	
Water Content (%)	37.90	19.35	34.02	
Saturation (%)	97.13	98.91	98.87	
Strain Rate (in/min)	0.05	0.05	0.05	
Peak Deviator Stress (psf)	9287.7	22773.2	8265.1	
Axial Strain @ Failure (%)	10.768	14.563	10.868	
	Cell Pressure			
Cell (psf)	8049.6	8179.2	7056.0	
Back (psf)	n/a	n/a	n/a	
	Principle Stresses at Failure			
σ1 (psf)	17337.3	30952.4	15321.1	
σ3 (psf)	8049.6	8179.2	7056.0	

Mohr-Coulomb Parameters with a Non-zero Friction Angle (Ø≠0)			Cohesion at Failure with a Zero Friction Angle (Ø=0)			
Cohesion, c (psf)	0.0		4643.8	11386.6	4132.5	
Friction Angle Ø	0.00		n/a	n/a	n/a	

Project Information			
Project Name:	YouTube Campus Phase 1		
Project Number:	13667.000.002	Job Number:	13667.000.002
Location:	San Bruno, CA	Boring Number:	Multiple
Client:	Google Incorporated	Sample Number:	Multiple
Description:	See exploration logs		

Incremental Consolidation
ASTM D2435 - Method B

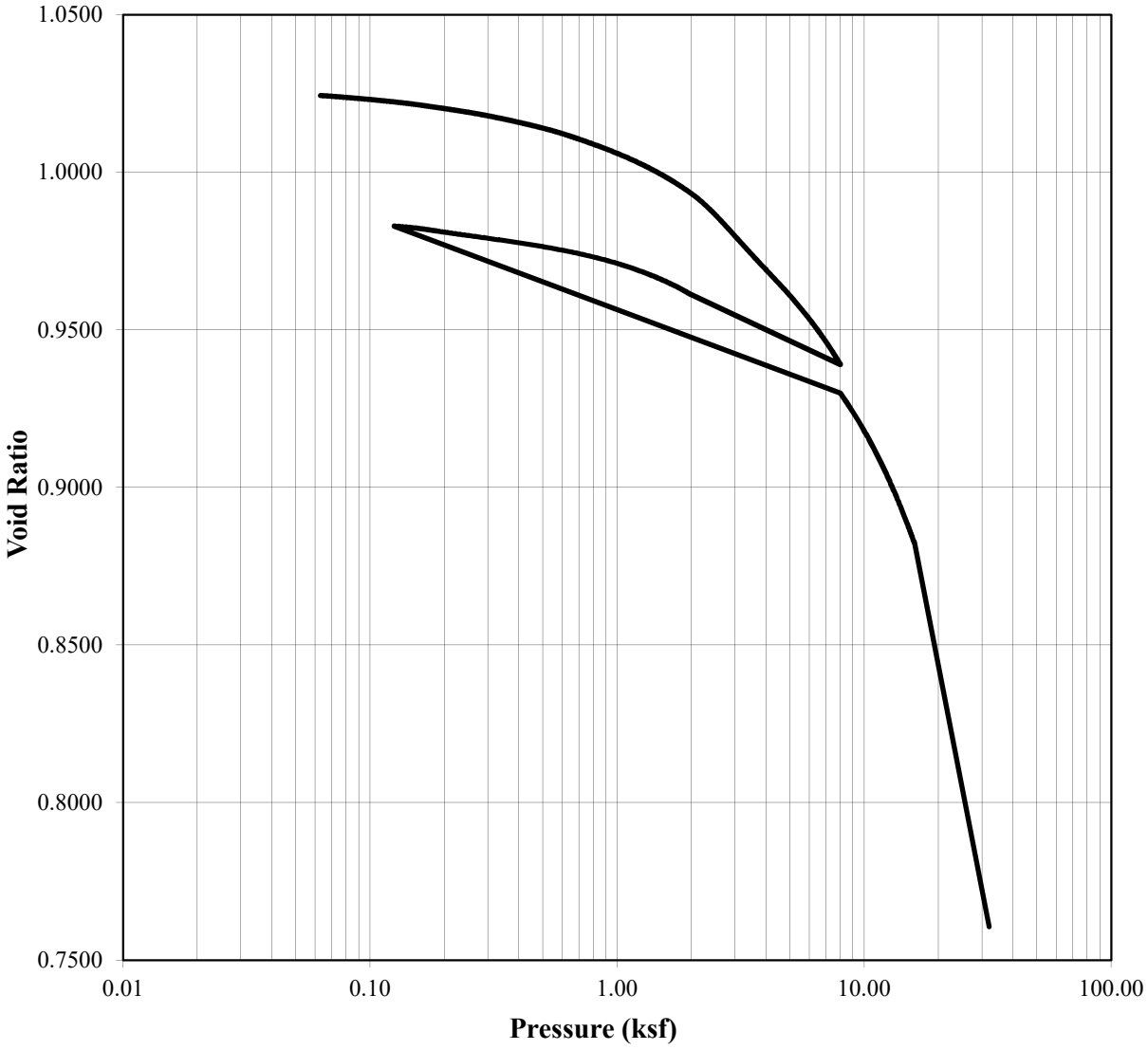


	Before	After	ASTM D4318 - Wet Method		Test Date: 10/12/2018
Moisture (%):	35.68	35.35	**Liquid Limit:**	n/a	
Dry Density (pcf):	82.09	84.13	**Plastic Limit:**	n/a	
Saturation (%):	95.93	99.99	**ASTM D854 - Measured**		
Void Ratio:	0.9503	0.8297	**Specific Gravity:**	2.574	
Soil Description:	See exploration logs		**Remarks:**		

Project Number:	13667.000.002	**Depth:**	80.5 feet
Sample Number:	3-B4@80.5	**Boring #:**	3-B4
Project Name:	YouTube Campus Phase 1		
Client:	Google Incorporated		
Location:	Sunnyvale, California		
Tested By: G. Criste	**Checked By:** K. Lecce		

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Incremental Consolidation
ASTM D2435 - Method B



	Before	After	ASTM D4318 - Wet Method		Test Date: 10/12/2018
Moisture (%):	29.48	26.80	**Liquid Limit:**	n/a	
Dry Density (pcf):	79.95	95.66	**Plastic Limit:**	n/a	
Saturation (%):	74.40	100.00	**ASTM D854 - Measured**		
Void Ratio:	1.0260	0.7602	**Specific Gravity:**	2.600	
Soil Description:	See exploration logs		**Remarks:** Interbedded fine sand layers		

Project Number:	13667.000.002	**Depth:**	94.0 feet
Sample Number:	3-B6@94	**Boring #:**	3-B6
Project Name:	YouTube Campus Phase 1		
Client:	Google Incorporated		
Location:	Sunnyvale, California		
Tested By: G. Criste	**Checked By:** K. Lecce		

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APPENDIX C

PREVIOUS EXPLORATION LOGS

KEY TO BORING LOGS

MAJOR TYPES			DESCRIPTION
COARSE-GRAINED SOILS MORE THAN HALF OF MAT'L LARGER THAN #200 SIEVE	GRAVELS MORE THAN HALF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE	CLEAN GRAVELS WITH LESS THAN 5% FINES	GW - Well graded gravels or gravel-sand mixtures GP - Poorly graded gravels or gravel-sand mixtures
		GRAVELS WITH OVER 12 % FINES	GM - Silty gravels, gravel-sand and silt mixtures GC - Clayey gravels, gravel-sand and clay mixtures
	SANDS MORE THAN HALF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE	CLEAN SANDS WITH LESS THAN 5% FINES	SW - Well graded sands, or gravelly sand mixtures SP - Poorly graded sands or gravelly sand mixtures
		SANDS WITH OVER 12 % FINES	SM - Silty sand, sand-silt mixtures SC - Clayey sand, sand-clay mixtures
FINE-GRAINED SOILS MORE THAN HALF OF MAT'L SMALLER THAN #200 SIEVE	SILTS AND CLAYS LIQUID LIMIT 50 % OR LESS		ML - Inorganic silt with low to medium plasticity CL - Inorganic clay with low to medium plasticity OL - Low plasticity organic silts and clays
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50 %		MH - Elastic silt with high plasticity CH - Fat clay with high plasticity OH - Highly plastic organic silts and clays
	HIGHLY ORGANIC SOILS		PT - Peat and other highly organic soils

For fine-grained soils with 15 to 29% retained on the #200 sieve, the words "with sand" or "with gravel" (whichever is predominant) are added to the group name.

For fine-grained soil with >30% retained on the #200 sieve, the words "sandy" or "gravelly" (whichever is predominant) are added to the group name.

GRAIN SIZES

U.S. STANDARD SERIES SIEVE SIZE				CLEAR SQUARE SIEVE OPENINGS				
200	40	10	4	3/4 "	3"	12"		
SILTS AND CLAYS	SAND			GRAVEL			COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE			

RELATIVE DENSITY

SANDS AND GRAVELS	BLOWS/FOOT (S.P.T.)
VERY LOOSE	0-4
LOOSE	4-10
MEDIUM DENSE	10-30
DENSE	30-50
VERY DENSE	OVER 50

CONSISTENCY

SILTS AND CLAYS	STRENGTH*
VERY SOFT	0-1/4
SOFT	1/4-1/2
MEDIUM STIFF	1/2-1
STIFF	1-2
VERY STIFF	2-4
HARD	OVER 4

SAMPLER SYMBOLS

- Modified California (3" O.D.) sampler
- California (2.5" O.D.) sampler
- S.P.T. - Split spoon sampler
- Shelby Tube
- Dames and Moore Piston
- Continuous Core
- Bag Samples
- Grab Samples
- NR No Recovery

MOISTURE CONDITION

DRY	Dusty, dry to touch
MOIST	Damp but no visible water
WET	Visible freewater

LINE TYPES

- ———— Solid - Layer Break
- – – – – – Dashed - Gradational or approximate layer break

GROUND-WATER SYMBOLS

- Groundwater level during drilling
- Stabilized groundwater level

(S.P.T.) Number of blows of 140 lb. hammer falling 30" to drive a 2-inch O.D. (1-3/8 inch I.D.) sampler

* Unconfined compressive strength in tons/sq. ft., asterisk on log means determined by pocket penetrometer

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LOG OF BORING 1-B01

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 1/25/2017
HOLE DEPTH: Approx. 50½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 114.17 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
0	114		CONCRETE Asphaltic concrete, 4.5"												
			AGGREGATE BASE (AB) 2"												
			SILTY SAND (SM), dark brown, organic odor, wood debris [FILL]												
			SILTY SAND (SM), yellowish brown, dense, moist, fine- to coarse-grained sand, contains trace angular fine gravel [FILL]			37									
	110														
5			SILTY SAND (SM), light grayish brown, dense, moist, fine- to medium-grained sand, iron oxide staining, contains clay, trace fine gravel [COLMA FORMATION]			39									
			Reddish brown, less fines												
	105														
10						68				17					
			Yellowish brown, very dense, fine-grained sand												
	100														
15			Light grayish brown, cemented			97/10"									
	95														
20			More silt			88									
	90														
25			SANDY LEAN CLAY (CL), light grayish brown, hard, moist												
						50/6"									
			POORLY GRADED SAND (SP), reddish brown, very dense, moist, fine- to medium-grained sand											>4.5*	PP
	85														
30															

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B01

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 1/25/2017
HOLE DEPTH: Approx. 50½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 114.17 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			SANDY LEAN CLAY (CL), light grayish brown, very stiff to hard, moist, fine-grained sand			52				63			2500*	>4.5*	PP+TV
35	80														
			Mottled with reddish brown			82/10"								>4.5*	PP
40	75		POORLY GRADED SAND WITH SILT (SP-SM), reddish brown, very dense, moist, fine-grained sand												
45	70														
			POORLY GRADED SAND (SP), reddish brown, very dense, moist, fine- to medium-grained sand			50/6"									
50	65		Boring terminated at a depth of 50 1/2 feet below ground surface. Depth to groundwater was not measured due to drilling method.												

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B02

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 1/26/2017
HOLE DEPTH: Approx. 52½ ft.
HOLE DIAMETER: 5.0 in.
SURF ELEV (NAVD88): 108.2 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			CONCRETE Asphaltic concrete, 4"												
			AGGREGATE BASE (AB) 5"												
			SANDY SILT (ML), light yellowish brown, hard, moist, fine-grained sand [COLMA FORMATION]			54									
	105														
5						50									
			More clay												
	100														
			SANDY LEAN CLAY (CL), brown mottled with light grayish brown, hard, moist, fine-grained sand, iron oxide staining												
10						34									
	95		SILTY SAND (SM), light grayish brown mottled with orange, dense to very dense, moist, manganese staining												
15						71									
	90														
20			Very dense, more fines, cemented, contains clay			75									
	85														
25			SANDY SILT (ML), light grayish brown mottled with orange, hard, moist, fine-grained sand			74					15	102		0.47	UC
	80														
			SILTY SAND (SM), light grayish brown, dense to very dense, moist, fine-grained sand, manganese staining, cemented												
30															

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B02

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 1/26/2017
HOLE DEPTH: Approx. 52½ ft.
HOLE DIAMETER: 5.0 in.
SURF ELEV (NAVD88): 108.2 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			SILTY SAND (SM), light grayish brown, dense to very dense, moist, fine-grained sand, manganese staining, cemented			49									
	75														
			WELL GRADED SAND WITH SILT AND GRAVEL (SW), reddish brown mottled with light grayish brown, very dense, moist, fine- to coarse-grained sand, fine to coarse gravel, subrounded to rounded gravel, pockets of silt			50/4"									
35															
	70														
40			Less gravel, some weathered rock fragments			85									
	65														
45															
	60														
50			SILTY CLAYEY SAND (SC-SM), light yellowish brown mottled with orange, medium dense to dense, fine-grained sand			31	23	19	4	45	16				
			Boring terminated at a depth of 52 1/2 feet below ground surface. Depth to groundwater was not measured due to drilling method.												

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B03

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 1/25/2017
HOLE DEPTH: Approx. 51½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 108.86 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			CONCRETE Asphaltic concrete, 1.5"												
			AGGREGATE BASE (AB) 5"												
			SILTY SAND (SM), reddish brown, loose, moist, fine- to medium-grained sand [FILL]												
	105														
5			Light gray mottled with reddish brown SANDY SILT (ML), dark brown, medium stiff, moist, fine-grained sand, organic odor, roots [FILL]			5									
			More sand, trace fine gravel SANDY LEAN CLAY (CL), reddish brown, medium stiff to stiff, moist, iron oxide staining [HOLOCENE ALLUVIUM]			14									
	100														
10			SILTY SAND (SM), light grayish brown, very dense, fine-grained sand, contains trace coarse-grained sand and fine gravel, cemented [COLMA FORMATION]			56									
	95														
15			Dense			41				34					
	90														
20			Very dense			51									
	85														
25			Less fines			50/5"									
	80														
30															

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B03

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 1/25/2017
HOLE DEPTH: Approx. 51½ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 108.86 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			POORLY GRADED SAND (SP), yellowish brown, very dense, moist, fine- to medium-grained sand, some fine gravel and coarse-grained sand, cemented			94/11"									
35	75														
40	70		SILTY SAND (SM), light grayish brown, very dense, moist, fine- to medium-grained sand, some fine gravel and coarse-grained sand			87/11.5"				25					
45	65														
50	60		Less gravel and coarse-grained sand			58									
			Boring terminated at a depth of 51 1/2 feet below ground surface. Depth to groundwater was not measured due to drilling method.												

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B04

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 1/26/2017
HOLE DEPTH: Approx. 51 ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 105.1 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			CONCRETE Asphaltic concrete, 2.5"												
			AGGREGATE BASE (AB) 4"												
			SILTY SAND (SM), light yellowish brown mottled with reddish brown, medium dense, moist, fine- to medium-grained sand, some coarse-grained sand, trace fine gravel [FILL]			20									
5	100		SANDY SILT (ML), dark brown, medium stiff to stiff, moist, fine-grained sand, organic odor, contains trace organics [HOLOCENE ALLUVIUM]			24									
10	95		SILTY SAND (SM), yellowish brown mottled with reddish brown, dense to very dense, moist, fine-grained sand, manganese staining [COLMA FORMATION]			40				45					
15	90		Light grayish brown, very dense, cemented			97/11"									
20	85		Light grayish brown mottled with reddish brown			98/11"									
25	80		More coarse-grained sand, rounded to subrounded fine gravel, more fines, iron oxide staining			50/5.5"									
30															

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B04

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 1/26/2017
HOLE DEPTH: Approx. 51 ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 105.1 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			SILTY SAND (SM), light grayish brown mottled with reddish brown, very dense, moist, fine-grained sand, some coarse-grained sand and fine gravel, cemented			50/6"				18					
35	70					50/4"									
40	65					50/6"									
45	60														
50	55		Reddish brown, fine- to medium-grained sand			50/6"									
			Boring terminated at a depth of 51 feet below ground surface. Depth to groundwater was not measured due to drilling method.												

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B11

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 2/1/2017
HOLE DEPTH: Approx. 50¾ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 99.96 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
0			CONCRETE Asphaltic concrete, 2"												
			AGGREGATE BASE (AB) 4"												
			SILTY SAND (SM), light yellowish brown mottled with reddish brown, dry, fine- to coarse-grained sand, contains trace fine gravel [FILL]												
5	95		SANDY SILT (ML), dark brown, dry, fine-grained sand [COLMA FORMATION]												
			Light brown, more fines												
10	90		SILTY SAND (SM), yellowish brown, very dense, moist, fine-grained sand, cemented, some pockets of cemented silt			50/6"									
15	85														
20	80		Light grayish brown, manganese staining			68									
			SANDY SILT (ML), light grayish brown mottled with reddish yellow, very stiff to hard, moist, fine-grained sand												
25	75					35				64	17				
			SILTY SAND (SM), light grayish brown mottled with reddish yellow, very dense, moist, fine-grained sand												
30	70														

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B11

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 2/1/2017
HOLE DEPTH: Approx. 50¾ ft.
HOLE DIAMETER: 4.0 in.
SURF ELEV (NAVD88): 99.96 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Pitcher Drilling
DRILLING METHOD: Mud Rotary
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
			SILTY SAND (SM), light grayish brown mottled with reddish yellow, very dense, moist, fine-grained sand			69									
35	65		More medium-grained sand, less fines			92/11"									
40	60					50/5.5"									
45	55		More fines			90/10"									
50	50		Less fines			50/4"									
			Boring terminated at a depth of 50 3/4 feet below ground surface. Depth to groundwater was not measured due to drilling method.												

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B12

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 4/12/2017
HOLE DEPTH: Approx. 100½ ft.
HOLE DIAMETER: 8.0 in.
SURF ELEV (NAVD88): 105.54 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Britton Exploration
DRILLING METHOD: Hollow Stem Auger
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
0	105		Asphaltic concrete, 3"												
			AGGREGATE BASE (AB) 5"												
			SILTY SAND WITH GRAVEL (SM), brown, dry, fine- to coarse-grained sand, subrounded fine to coarse gravel, contains clay [FILL]												
5	100		SILTY SAND (SM), reddish yellow, moist, fine-grained sand, contains clay [COLMA FORMATION]												
10	95														
			SANDY LEAN CLAY (CL), yellowish brown, hard, moist, iron oxide and manganese staining												
15	90					40									
			SILTY SAND (SM), yellowish brown, dense, moist, fine-grained sand, iron oxide staining												
20	85														
25	80														
30															

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B12

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 4/12/2017
HOLE DEPTH: Approx. 100½ ft.
HOLE DIAMETER: 8.0 in.
SURF ELEV (NAVD88): 105.54 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Britton Exploration
DRILLING METHOD: Hollow Stem Auger
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
0	75		SILTY SAND (SM), light grayish brown, dense, moist, fine-grained sand, iron oxide staining			44									
35	70														
40	65		medium dense, more fines			20									
45	60														
50	55		dense, less fines			49									
55	50														
60															

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B12

ENGEO INCORPORATED

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 4/12/2017
HOLE DEPTH: Approx. 100½ ft.
HOLE DIAMETER: 8.0 in.
SURF ELEV (NAVD88): 105.54 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Britton Exploration
DRILLING METHOD: Hollow Stem Auger
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
	45		SILTY SAND (SM), light grayish brown, very dense, moist, fine-grained sand, iron oxide staining			62									
65	40														
70	35														
75	30														
80	25		less fines, trace coarse-grained sand			83									
85	20														
90															

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17

LOG OF BORING 1-B12

Prelim. Geotechnical Exploration
YouTube Campus
San Bruno, California
13367.000.000

DATE DRILLED: 4/12/2017
HOLE DEPTH: Approx. 100½ ft.
HOLE DIAMETER: 8.0 in.
SURF ELEV (NAVD88): 105.54 ft.

LOGGED / REVIEWED BY: N. Serra / PE
DRILLING CONTRACTOR: Britton Exploration
DRILLING METHOD: Hollow Stem Auger
HAMMER TYPE: 140 lb. Auto Trip

Depth in Feet	Elevation in Feet	Sample Type	DESCRIPTION	Log Symbol	Water Level	Blow Count/Foot	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	Fines Content (% passing #200 sieve)	Moisture Content (% dry weight)	Dry Unit Weight (pcf)	Shear Strength (psf) *field approximation	Unconfined Strength (tsf) *field approximation	Strength Test Type
	15		SILTY SAND (SM), light grayish brown, very dense, moist, fine-grained sand, iron oxide staining												
95	10														
100						50/6"									
			Boring terminated at a depth of 100 1/2 feet below ground surface. Groundwater was not encountered at the time of drilling.												

SHEAR AND UNCONF STRENGTH W/ ELEV 1-B01 THRU 1-B11_UPDATE.GPJ ENGEO INC.GDT 6/5/17



APPENDIX D

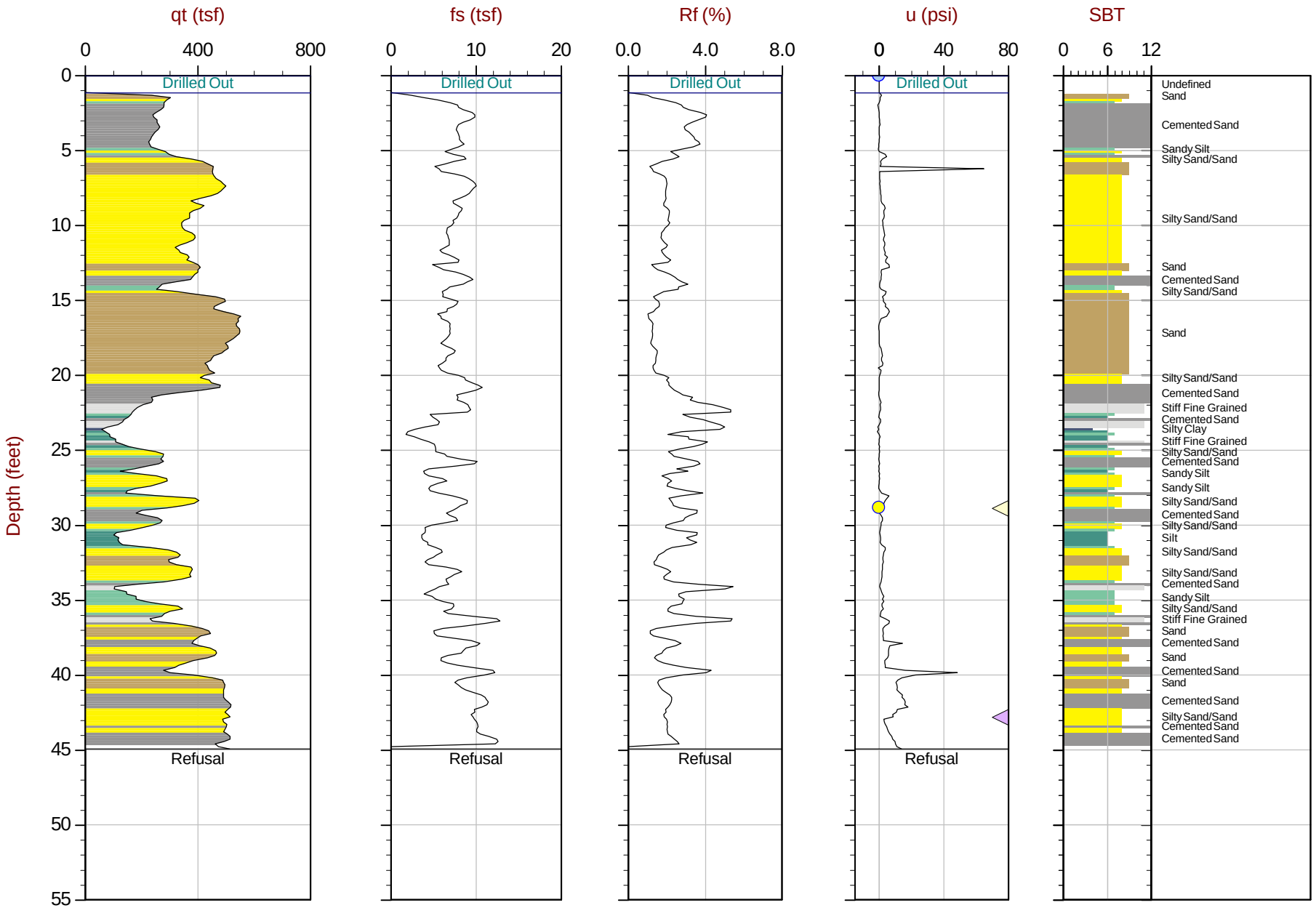
PREVIOUS CONE PENETRATION LOGS

CALIFORNIA PUSH TECHNOLOGIES INCORPORATED

ENGEO Inc.

Job No: 17-56008
Date: 01:23:17 12:01
Site: You Tube Campus, San Bruno, CA

Sounding: 1-CPT01
Cone: 448:T1500F15U500



Max Depth: 13.700 m / 44.95 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point
Overplot Item:

File: 17-56008_CP01.COR
Unit Wt: SBT Zones

SBT: Robertson and Campanella, 1986
Coords: UTM 10N N: 4164855m E: 550710m
Page No: 1 of 1

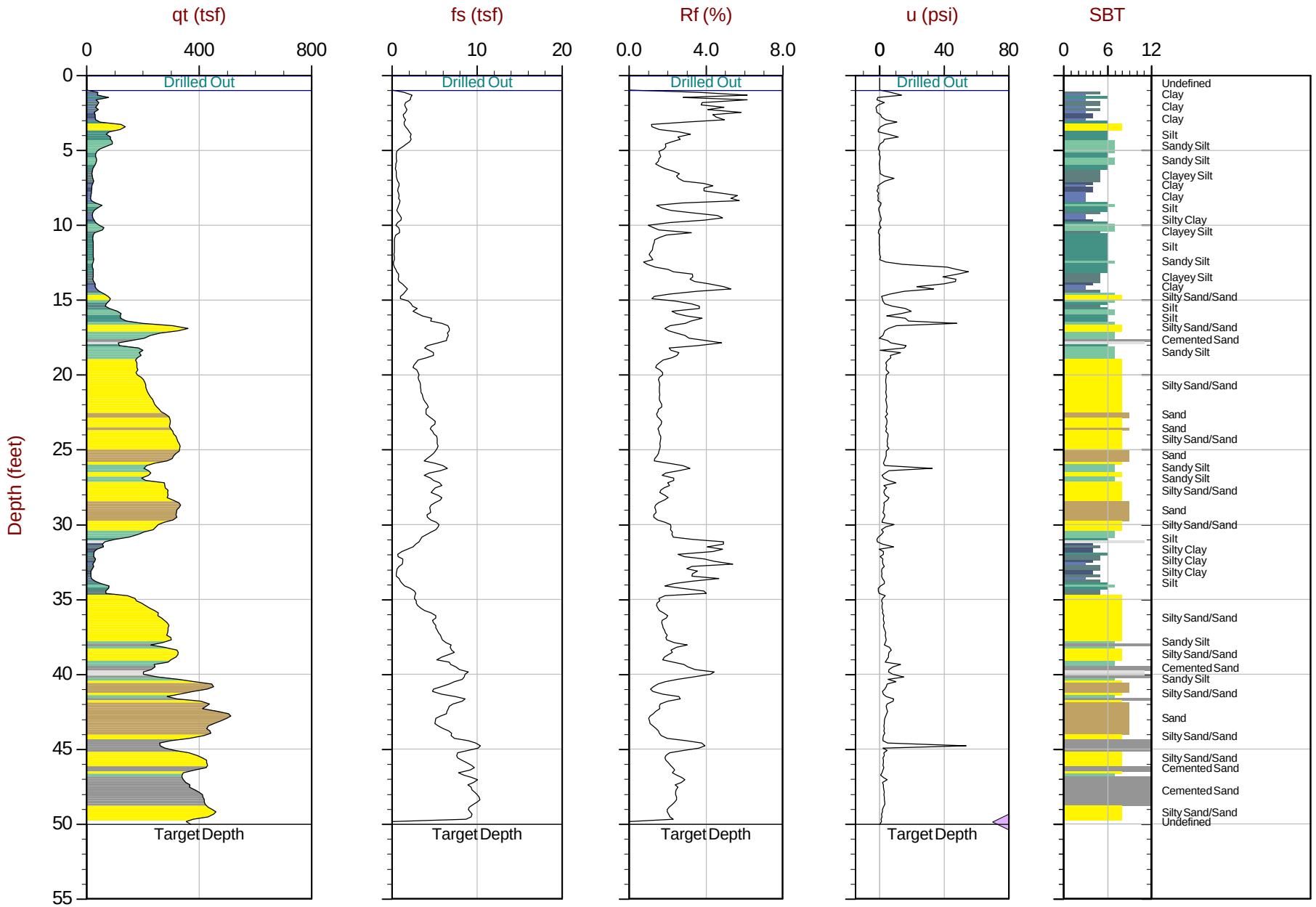
Assumed Ueq
Ueq
Dissipation, equilibrium achieved
Dissipation, equilibrium not achieved
Hydrostatic Line

CALIFORNIA PUSH TECHNOLOGIES INCORPORATED

ENGEO Inc.

Job No: 17-56008
Date: 01:24:17 08:03
Site: You Tube Campus, San Bruno, CA

Sounding: 1-CPT03
Cone: 448:T1500F15U500



Max Depth: 15.250 m / 50.03 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point
Overplot Item:

File: 17-56008_CP03.COR
Unit Wt: SBT Zones

SBT: Robertson and Campanella, 1986
Coords: UTM 10N N: 4164766m E: 550781m
Page No: 1 of 1

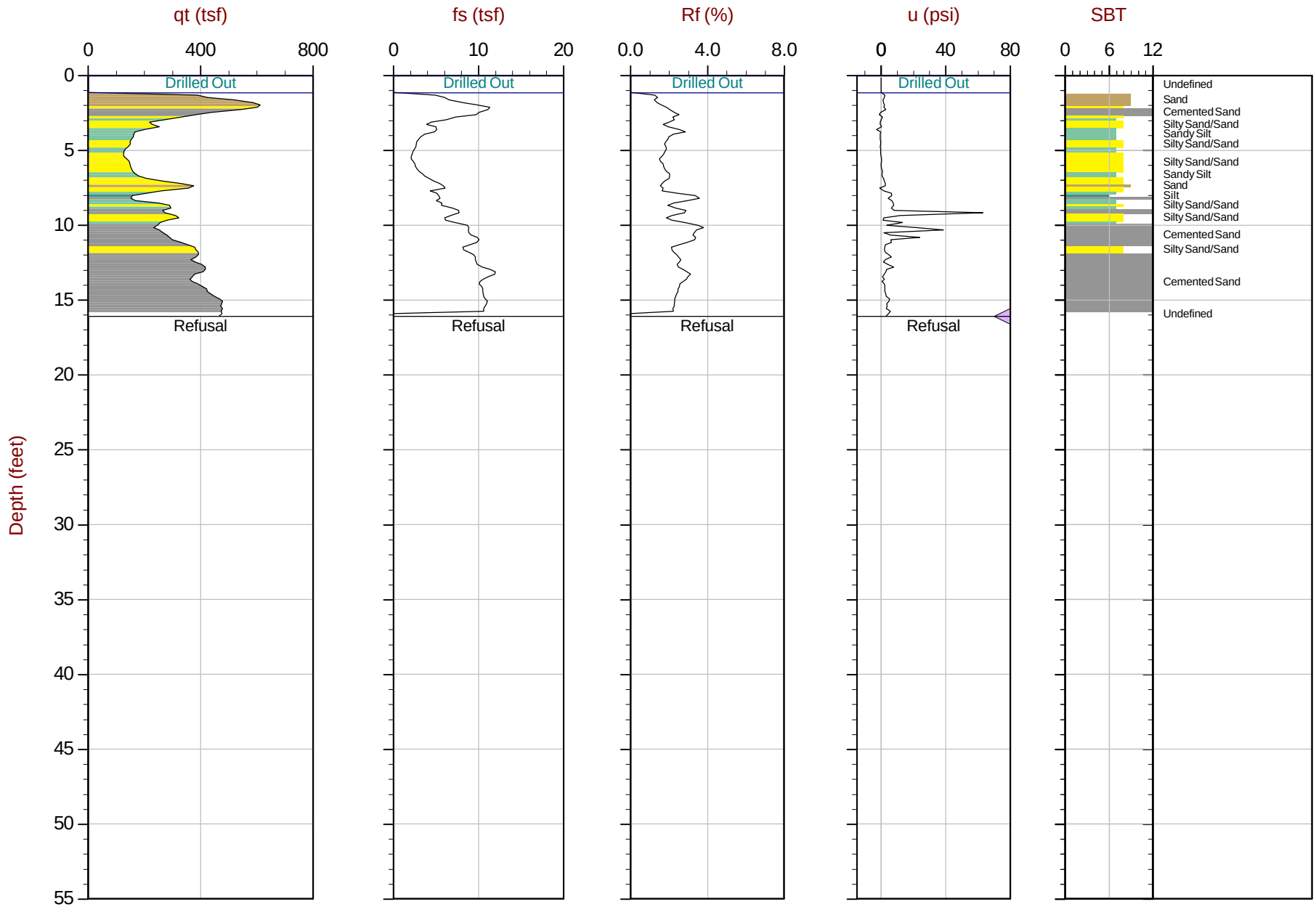
Assumed Ueq
Ueq
Dissipation, equilibrium achieved
Dissipation, equilibrium not achieved
Hydrostatic Line

CALIFORNIA PUSH TECHNOLOGIES INCORPORATED

ENGEO Inc.

Job No: 17-56008
Date: 01:24:17 09:10
Site: You Tube Campus, San Bruno, CA

Sounding: 1-CPT04
Cone: 448:T1500F15U500



Max Depth: 4.900 m / 16.08 ft
Depth Inc: 0.050 m / 0.164 ft
Avg Int: Every Point
Overplot Item:

File: 17-56008_CP04.COR
Unit Wt: SBT Zones

SBT: Robertson and Campanella, 1986
Coords: UTM 10N N: 4164733m E: 550832m
Page No: 1 of 1

Assumed Ueq
Ueq
Dissipation, equilibrium achieved
Dissipation, equilibrium not achieved
Hydrostatic Line

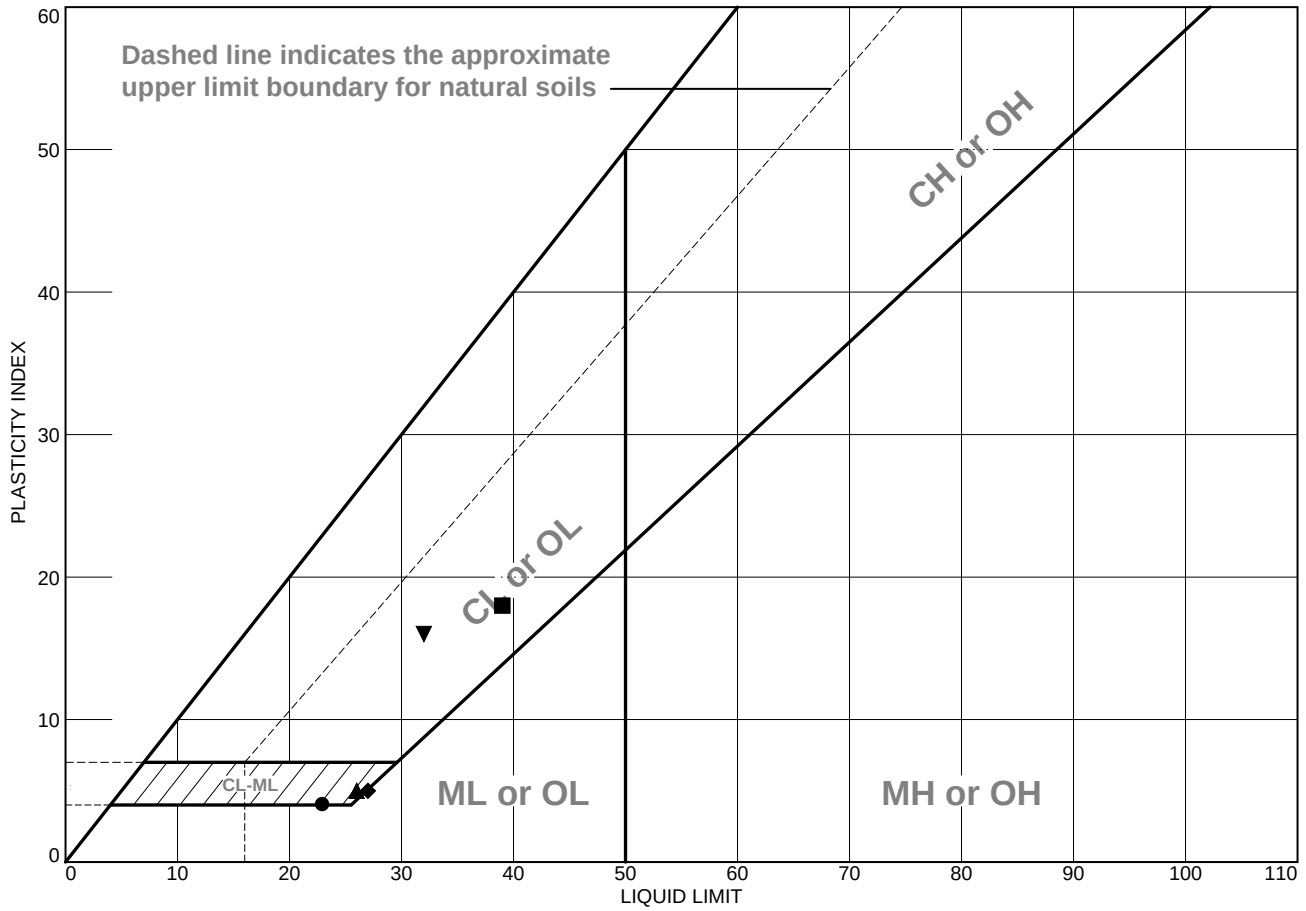


APPENDIX E

PREVIOUS LABORATORY TEST DATA

Liquid and Plastic Limits Test Report
Particle Size Distribution Report
Unconfined Compression Test
Incremental Consolidation Report
Analytical Results of Soil Corrosion

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	See exploration logs	23	19	4		44.5	
■	See exploration logs	39	21	18		68.6	
▲	See exploration logs	26	21	5		47.2	
◆	See exploration logs	27	22	5			
▼	See exploration logs	32	16	16			

Project No. 13667.000.000 **Client:** Google Incorporated

Project: Google Master Planning Services - Geotechnical Engineering

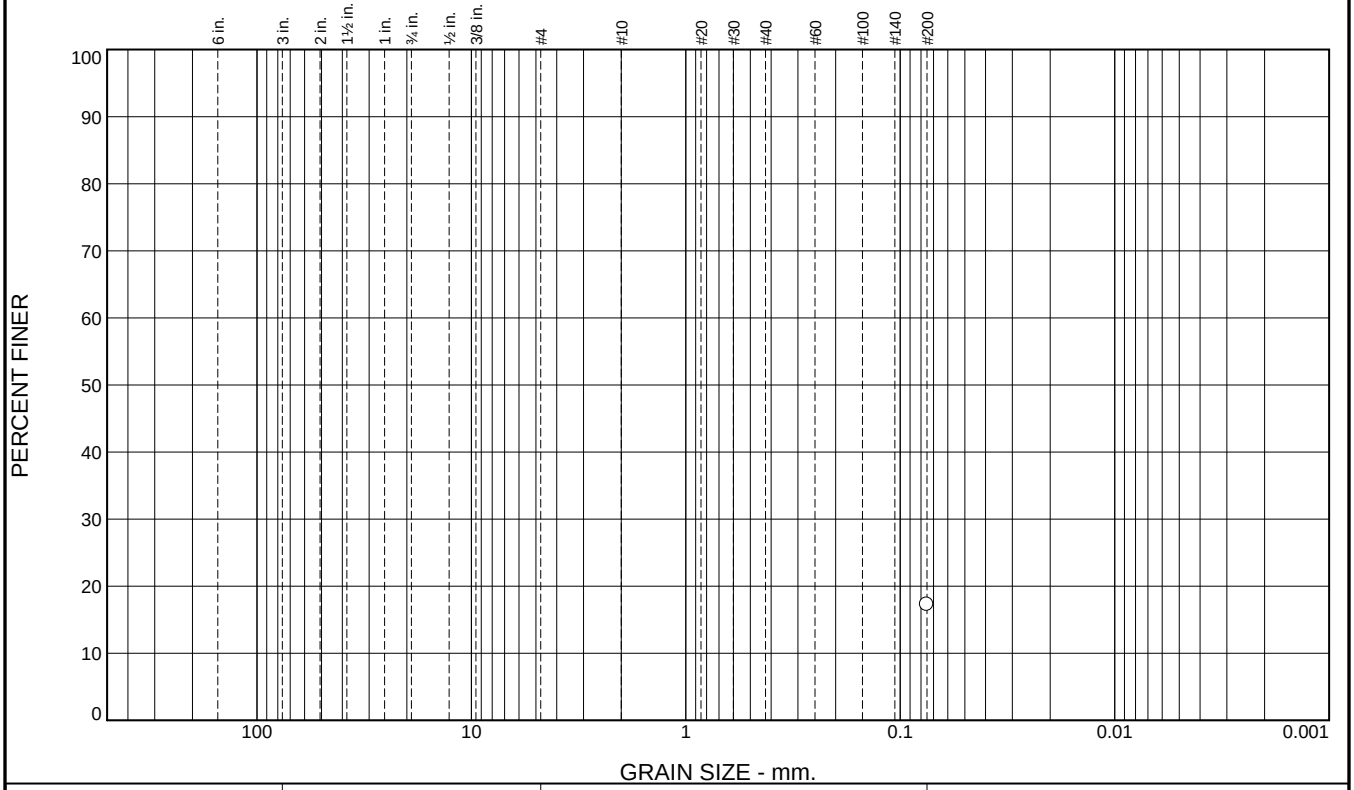
●**Depth:** 51.5 feet **Sample Number:** 1-B02 @ 51.5
■**Depth:** 25.5 feet **Sample Number:** 1-B05 @ 25.5
▲**Depth:** 30.5 feet **Sample Number:** 1-B05 @ 30.5
◆**Depth:** 40.8-41.2 feet **Sample Number:** 1-B06 @ 40.8
▼**Depth:** 15.5-16.0 feet **Sample Number:** 1-B07 @ 15.5

ENGEO INCORPORATED

Remarks:
●PI: ASTM D4318, Wet method
Grain Size: ASTM D1140
■PI: ASTM D4318, Wet method
Grain Size: ASTM D1140
▲PI: ASTM D4318, Wet method
Grain Size: ASTM D1140
◆ASTM D4318, Wet method
▼ASTM D4318, Wet method

Tested By: M. Quasem **Checked By:** T. Borde

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						17.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	17.3		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Grain Size: ASTM D1140

Sample Number: 1-B01 @ 10.5 **Depth:** 10.5 feet

Date: 2.15.17

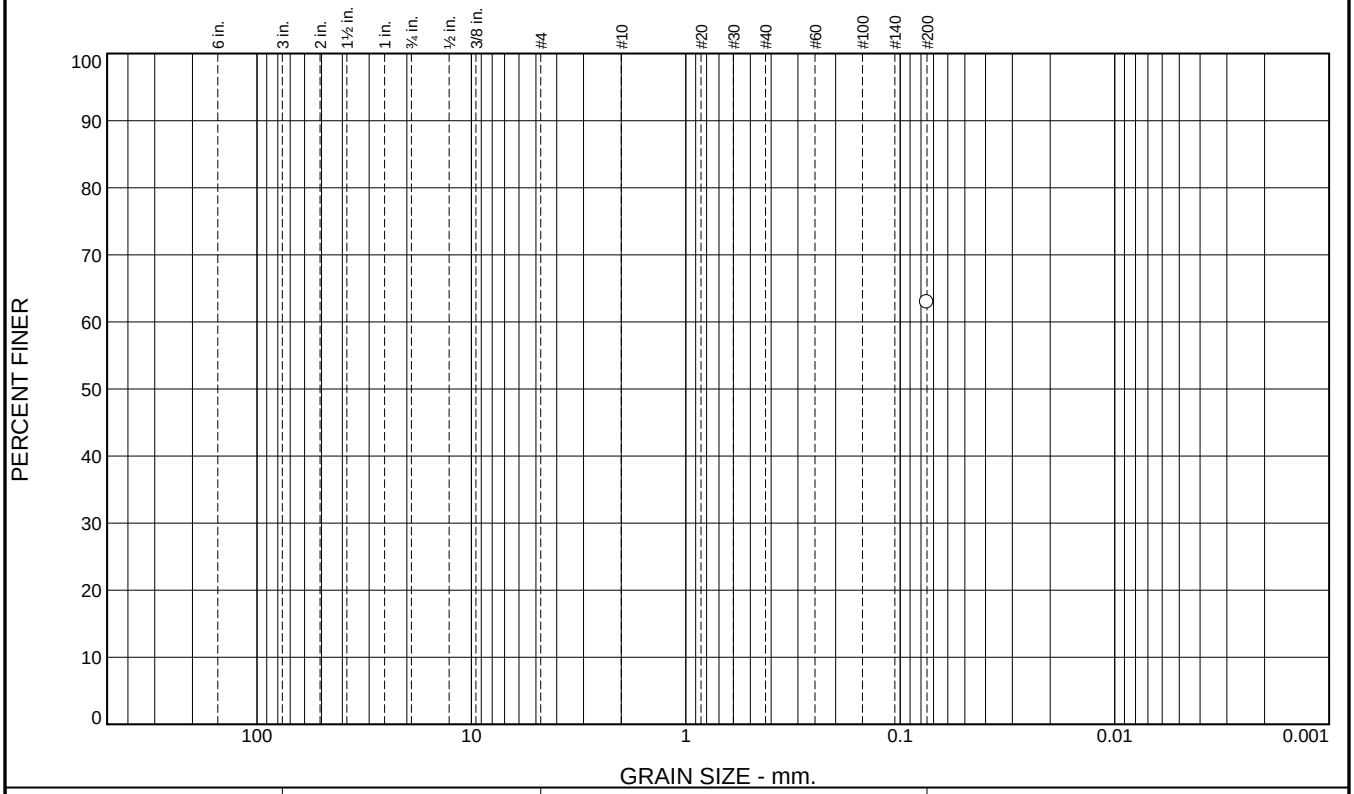
ENGEO INCORPORATED

Client: Google Incorporated
Project: Google Master Planning Services - Geotechnical Engineering

Project No: 13667.000.000

Tested By: M. Quasem **Checked By:** T. Borde

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						62.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	62.9		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

ASTM D1140

Sample Number: 1-B01 @ 33 **Depth:** 33.0-33.5 feet

Date: 2/16/17

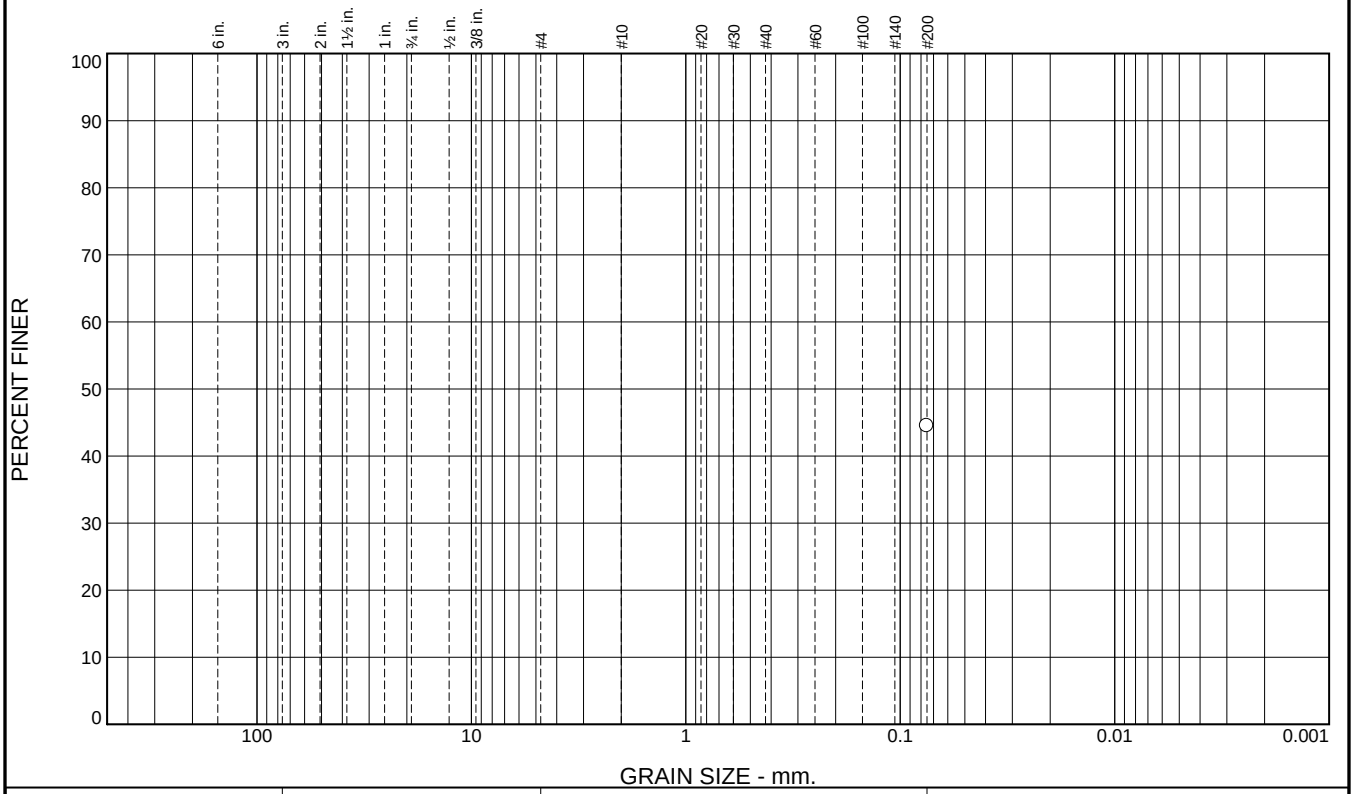
ENGEO INCORPORATED

Client: Google Incorporated
Project: Google Master Planning Services - Geotechnical Engineering

Project No: 13667.000.000

Tested By: T. Borde **Checked By:** M. Quasem

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						44.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	44.5		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL= 19 LL= 23 PI= 4

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Grain Size: ASTM D1140
PI: ASTM D4318, Wet Method

Sample Number: 1-B02 @ 51.5 **Depth:** 51.5 feet

Date: 2.15.17

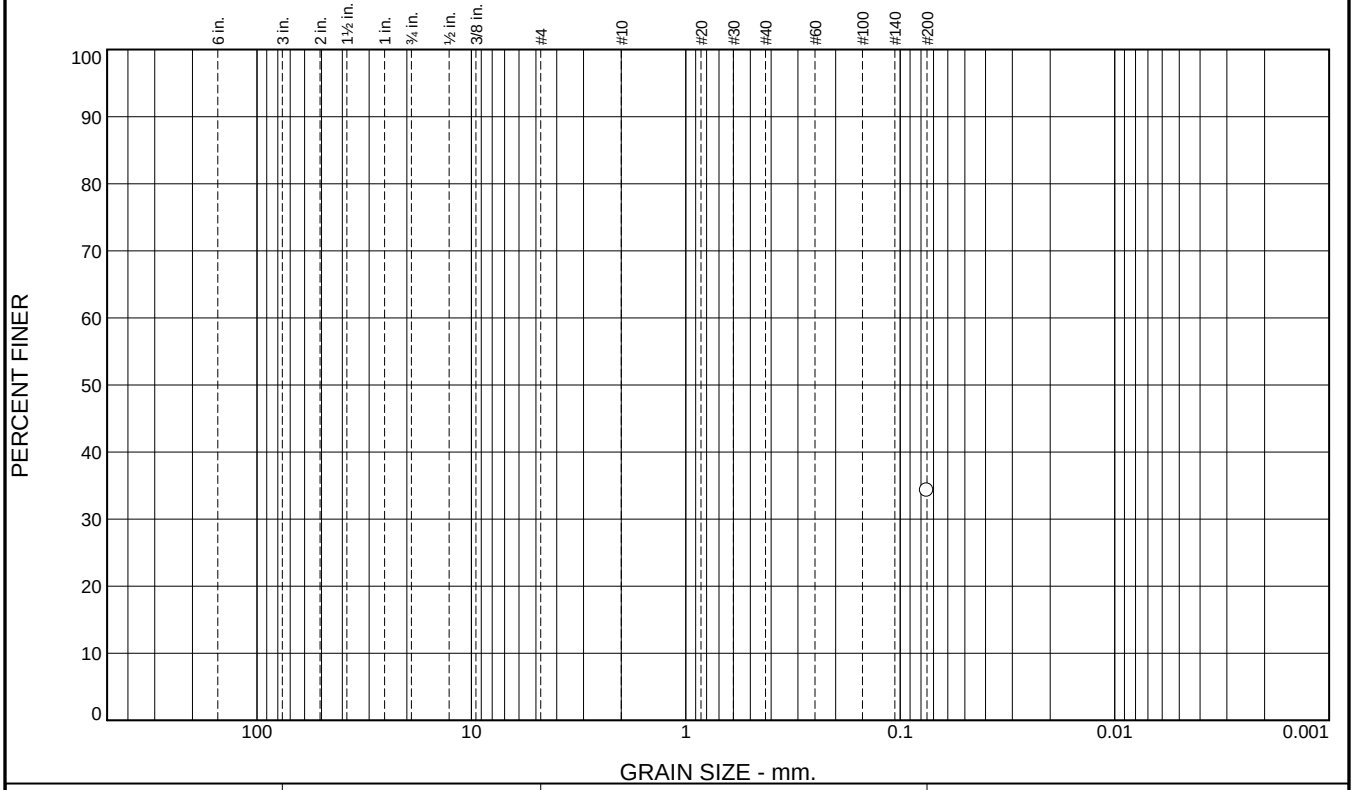
ENGEO INCORPORATED

Client: Google Incorporated
Project: Google Master Planning Services - Geotechnical Engineering

Project No: 13667.000.000

Tested By: M. Quasem **Checked By:** T. Borde

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						34.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	34.3		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Grain Size: ASTM D1140

Sample Number: 1-B03 @ 15.5 **Depth:** 15.5 feet

Date: 2.15.17

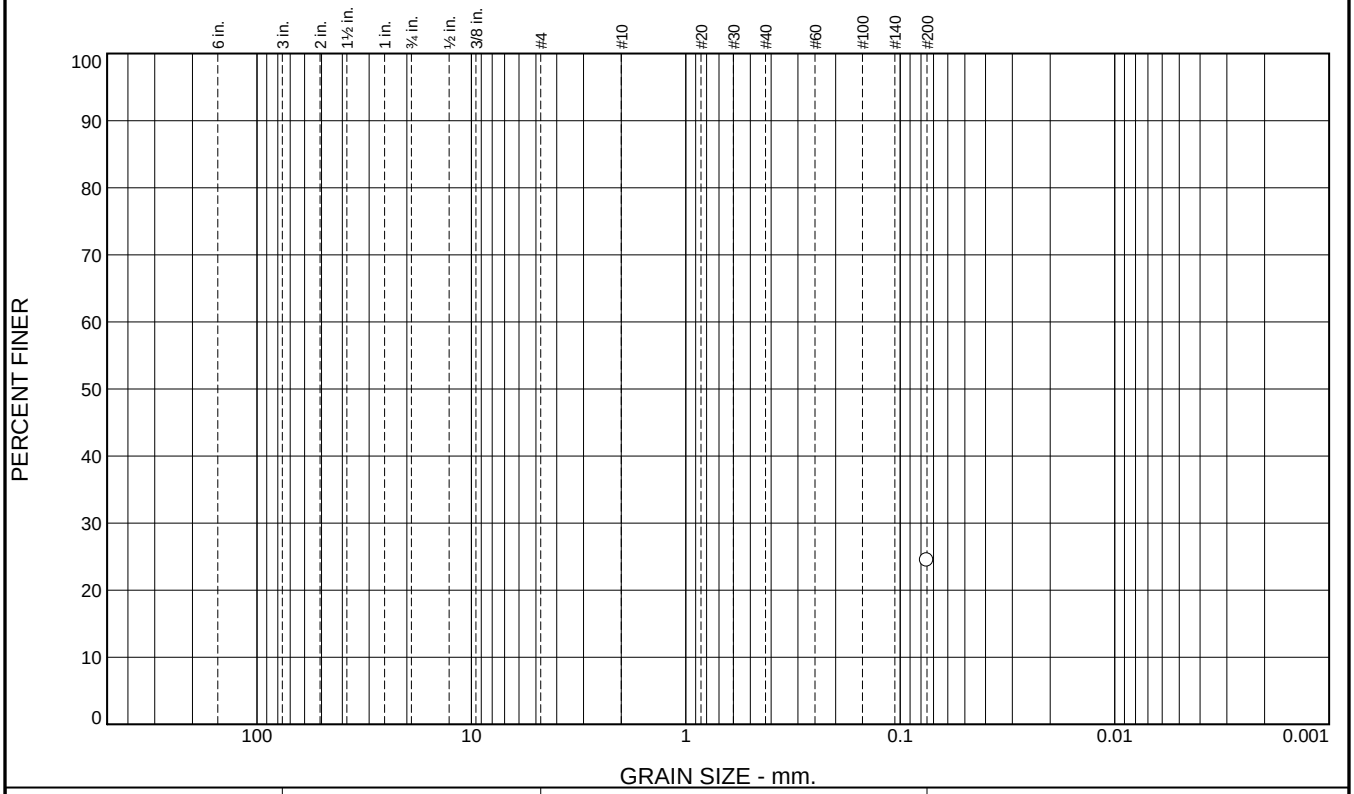
ENGEO INCORPORATED

Client: Google Incorporated
Project: Google Master Planning Services - Geotechnical Engineering

Project No: 13667.000.000

Tested By: M. Quasem **Checked By:** T. Borde

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						24.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	24.5		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Grain Size: ASTM D1140

Sample Number: 1-B03 @ 40.5 **Depth:** 40.5 feet

Date: 2.15.17

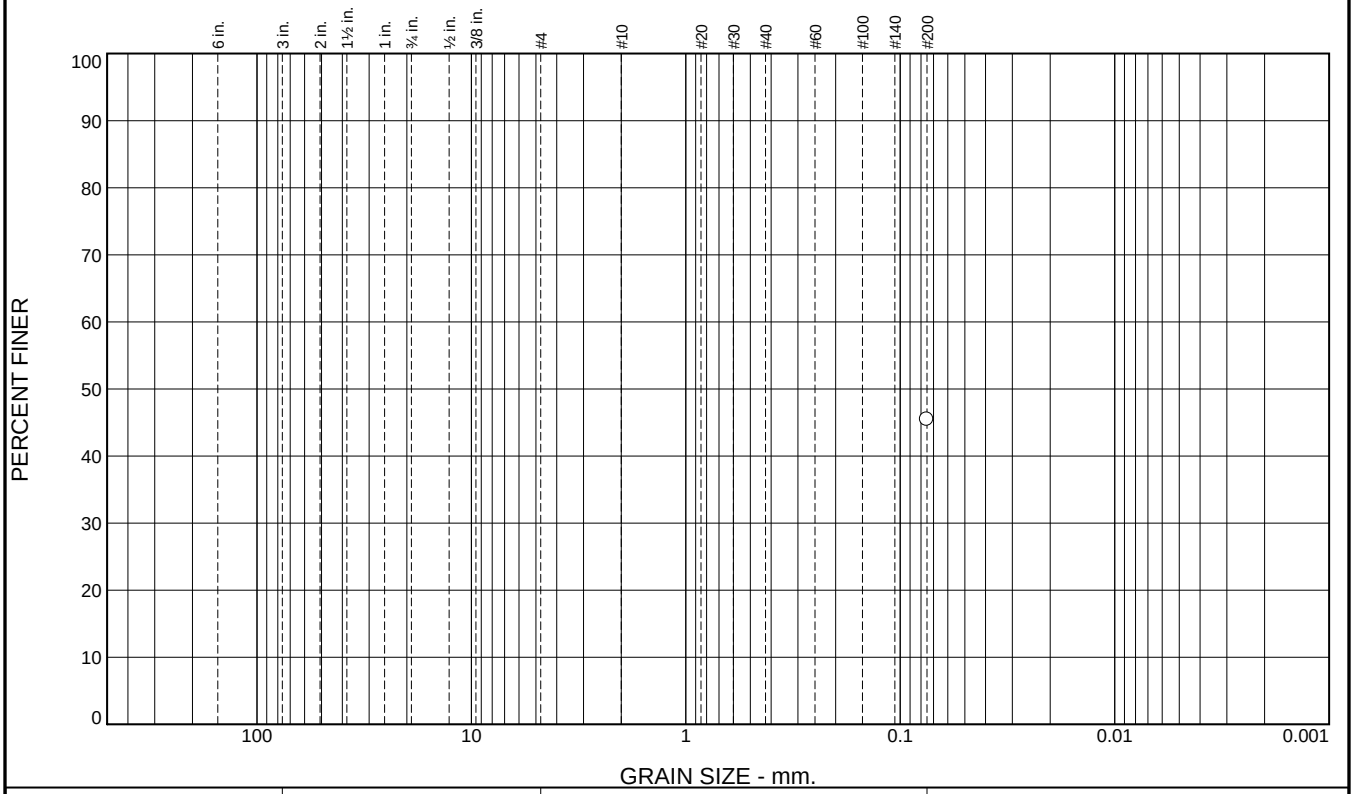
ENGEO INCORPORATED

Client: Google Incorporated
Project: Google Master Planning Services - Geotechnical Engineering

Project No: 13667.000.000

Tested By: M. Quasem **Checked By:** T. Borde

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						45.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	45.4		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Grain Size: ASTM D1140

Sample Number: 1-B04 @ 10.5 **Depth:** 10.5 feet

Date: 2.15.17

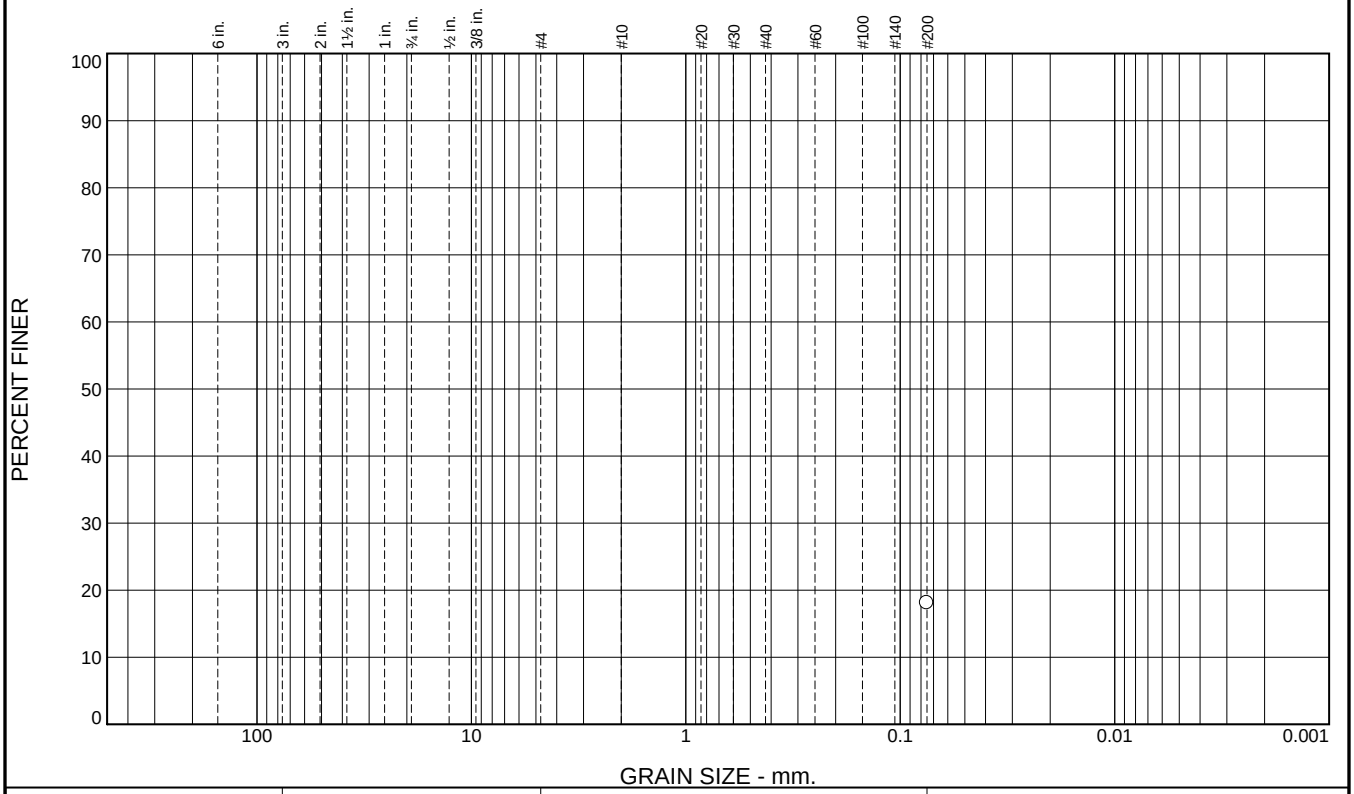
ENGEO INCORPORATED

Client: Google Incorporated
Project: Google Master Planning Services - Geotechnical Engineering

Project No: 13667.000.000

Tested By: M. Quasem **Checked By:** T. Borde

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						18.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	18.1		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Grain Size: ASTM D1140

Sample Number: 1-B04 @ 30.5 **Depth:** 30.5 feet

Date: 2.15.17

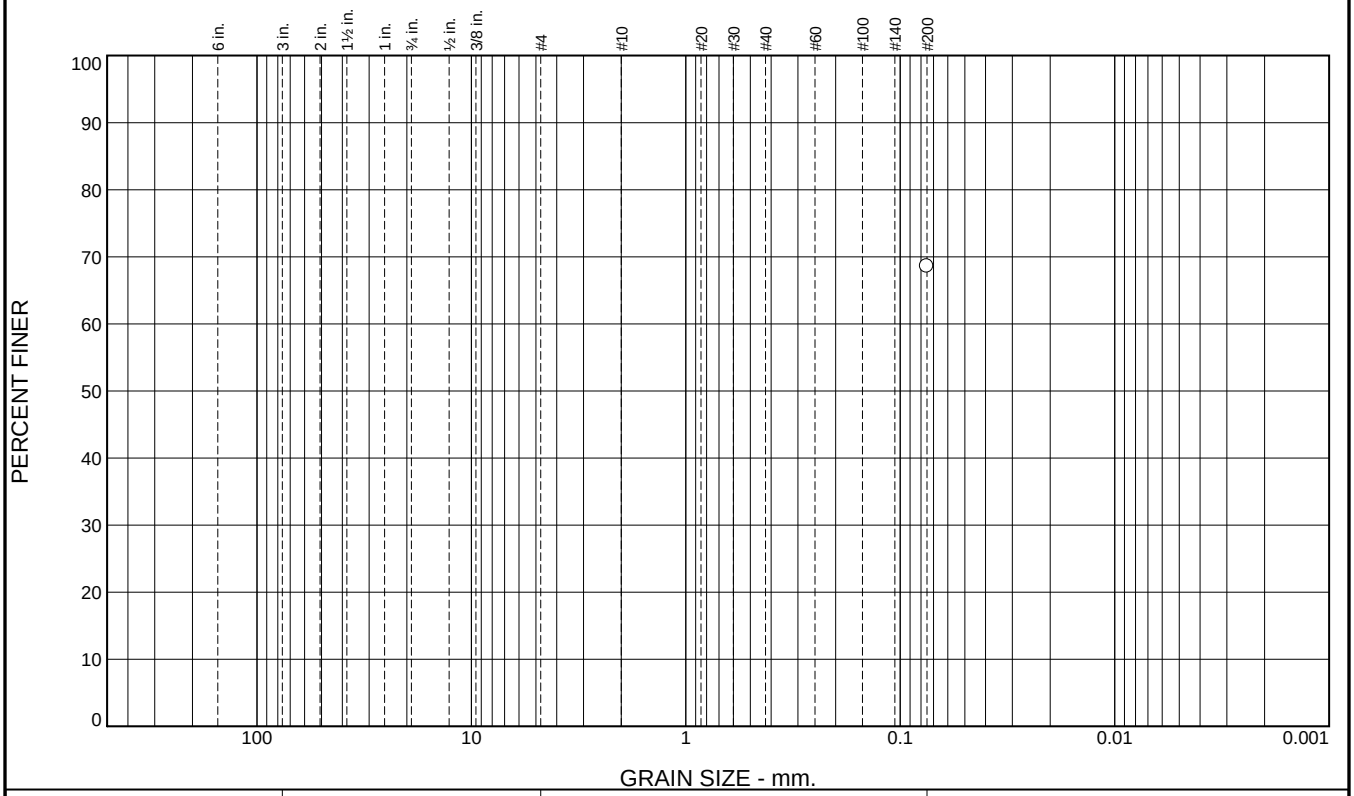
ENGEO INCORPORATED

Client: Google Incorporated
Project: Google Master Planning Services - Geotechnical Engineering

Project No: 13667.000.000

Tested By: M. Quasem **Checked By:** T. Borde

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						68.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	68.6		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL= 21 LL= 39 PI= 18

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Grain Size: ASTM D1140
PI: ASTM D4318, Wet Method

Sample Number: 1-B05 @ 25.5 **Depth:** 25.5 feet

Date: 2.15.17

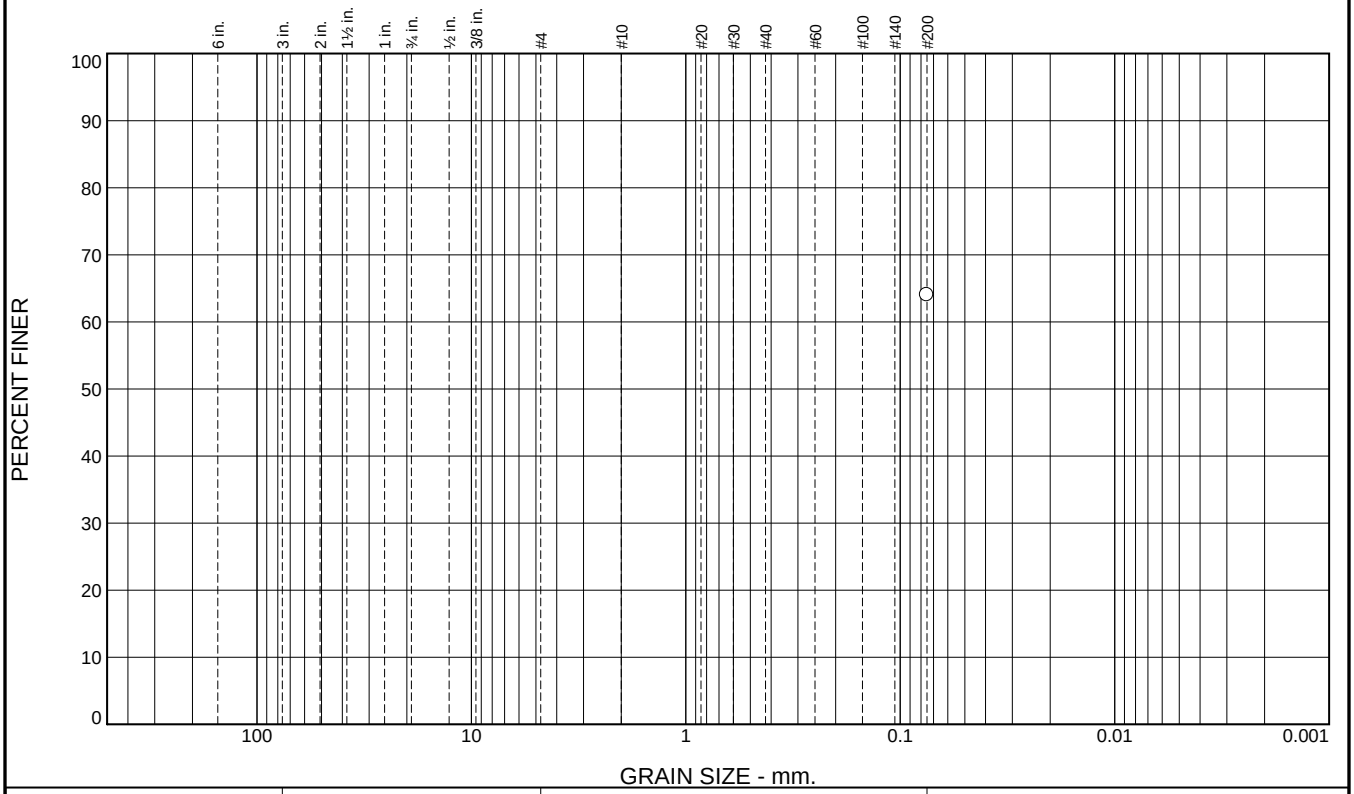
ENGEO INCORPORATED

Client: Google Incorporated
Project: Google Master Planning Services - Geotechnical Engineering

Project No: 13667.000.000

Tested By: M. Quasem **Checked By:** T. Borde

Particle Size Distribution Report



% +75mm	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
						64.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#200	64.0		

* (no specification provided)

Soil Description

See exploration logs

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= D_{85}= D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Grain Size: ASTM D1140

Sample Number: 1-B11 @ 25.5 **Depth:** 25.5 feet

Date: 2.15.17

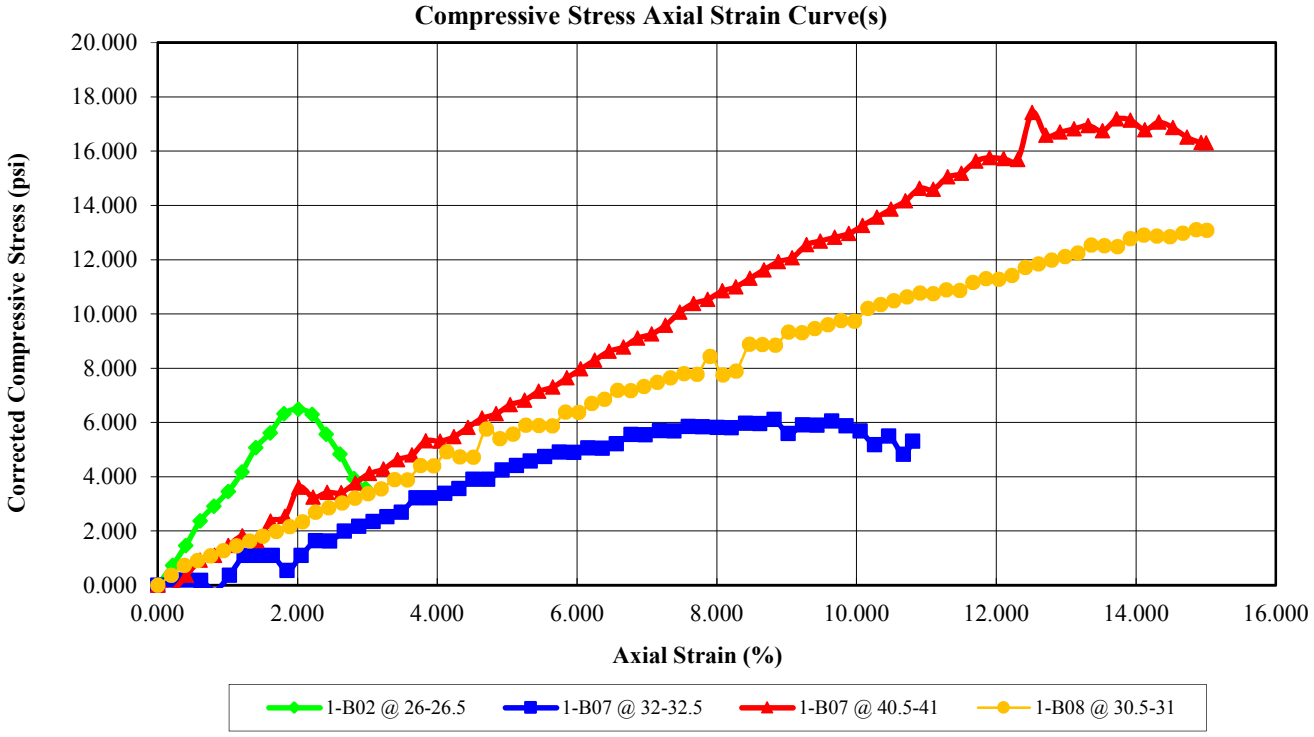
ENGEO INCORPORATED

Client: Google Incorporated
Project: Google Master Planning Services - Geotechnical Engineering

Project No: 13667.000.000

Tested By: M. Quasem **Checked By:** T. Borde

UNCONFINED COMPRESSION TEST REPORT
(ASTM D2166)



	SPECIMEN			
BEFORE TEST	**1-B02@26-26.5**	**1-B07@32-32.5**	**1-B07@40.5-41**	**1-B08@30.5-31**
Moisture Content (%)	14.9	25.1	20.3	25.4
Dry Density (pcf)	102.1	102.9	108.9	100.0
Saturation (%)	63.51	100.00	100.00	100.00
Void Ratio	0.62	0.61	0.52	0.65
Diameter (in)	2.389	2.375	2.386	2.394
Height (in)	5.030	4.916	4.998	5.361
Height-To-Diameter Ratio	2.105	2.070	2.095	2.239
TEST DATA				
Unconfined Compressive Strength (psf)	934.261	879.608	2508.660	1886.098
Undrained Shear Strength (psf)	467.131	439.804	1254.330	943.049
Strain Rate (in./min.)	0.05	0.05	0.05	0.05
Specific Gravity (Assumed)	2.650	2.650	2.650	2.650
Strain at Failure (%)	2.01	8.82	12.51	14.86

Test Remarks

SPECIMEN	DESCRIPTION
1-B02@26-26.5	See exploration logs
1-B07@32-32.5	See exploration logs
1-B07@40.5-41	See exploration logs
1-B08@30.5-31	See exploration logs

PROJECT NAME: Google Master Planning Services - Geotechnical Engineering
PROJECT NO: 13667.000.000
CLIENT: Google Incorporated
LOCATION: Mountain View, CA
PHASE NO: 001

Test Date: 02/14/17
Tested By: T. Borde
Reviewed By: M. Quasem

ENGEO — Expect Excellence

California State Certified Laboratory No. 2153

CERCO analytical
1100 Willow Pass Court, Suite A
Concord, CA 94520-1006
925 462 2771 Fax. 925 462 2775
www.cercoanalytical.com

Client: ENGEO Incorporated
Client's Project No.: 13667.000.000
Client's Project Name: You Tube Campus
Date Sampled: 17-Feb-17
Date Received: 17-Feb-17
Matrix: Soil
Authorization: Signed Chain of Custody

Date of Report: 23-Feb-2017

Job/Sample No.	Sample I.D.	Redox (mV)	pH	Conductivity (umhos/cm)*	Resistivity (100% Saturation) (ohms-cm)	Sulfide (mg/kg)*	Chloride (mg/kg)*	Sulfate (mg/kg)*
1702137-001	1-BO5 @ 15.5'	470	7.37	-	5,200	-	N.D.	28
1702137-002	1-BO7 @ 30.5'	460	8.46	-	1,900	-	N.D.	22
1702137-003	1-BO2 @ 2.5'	420	5.41	-	1,000	-	52	85

Method:	ASTM D1498	ASTM D4972	ASTM D1125M	ASTM G57	ASTM D4658M	ASTM D4327	ASTM D4327
Reporting Limit:	-	-	10	-	50	15	15
Date Analyzed:	22-Feb-2017	22-Feb-2017	-	21-Feb-2017	-	22-Feb-2017	22-Feb-2017

Cheryl McMillen
Laboratory Director

* Results Reported on "As Received" Basis
N.D. - None Detected

Quality Control Summary - All laboratory quality control parameters were found to be within established limits



ENGEO
Expect Excellence

Appendix 3.0-3

Phase I Environmental Site Assessment

PHASE I ENVIRONMENTAL SITE ASSESSMENT

900 AND 1000 CHERRY AVENUE

SAN BRUNO, CALIFORNIA

August 11, 2015

Prepared for:

Google Inc.
1600 Amphitheatre Parkway
Mountain View, CA 94043

Prepared by:

IRIS ENVIRONMENTAL
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CERTIFICATION

This environmental review of the property located 900 and 1000 Cherry Ave in San Bruno, California was conducted by Iris Environmental on behalf of Google Inc. The review conducted by Iris Environmental meets or exceeds the requirements for a Phase I Environmental Site Assessment (ESA) specified in the ASTM International (ASTM) Standard E 1527-13, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.

Qualifications for the environmental professionals involved in this review, Robert Balas, Karen Smith, and Daniela Hamann-Nazaroff of Iris Environmental, are included in Appendix A.

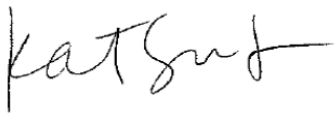
We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental professional as defined in §312.10 of 40 CFR 312. We have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. We have developed and performed all the appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.



8/11/15

Robert Balas
Principal

Date



8/11/15

Karen T. Smith
Senior Manager

Date



8/11/15

Daniela Hamann-Nazaroff
Senior Scientist

Date

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LIMITATIONS

This report has been prepared exclusively for use by Google Inc., its successors and assignees and may not be relied upon by any other person or entity without the express written permission of Iris Environmental. The conclusions presented in this report represent Iris Environmental's professional judgment based on the information available to us during the course of this assignment and on conditions that existed at the time of the assessment. We have made no independent verification of the information provided to Iris Environmental. While Iris Environmental has no reason to doubt the accuracy of any of the information provided, this report is accurate and complete only to the extent that information provided to Iris Environmental was itself accurate and complete.

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I. INTRODUCTION

Iris Environmental was retained by Google Inc. (Google) to conduct a Phase I Environmental Site Assessment (ESA) of 900 and 1000 Cherry Avenue in San Bruno, California (the Site). The purpose of the Phase I ESA was to identify Recognized Environmental Conditions (RECs), as defined in the ASTM International Standard E 1527-13, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (ASTM Standard).

This report presents the results of our investigation. It is based on the following:

- A visit to the Site by Ms. Daniela Hamann-Nazaroff of Iris Environmental on July 6, 2015. Ms. Hamann-Nazaroff walked both interior and exterior areas of the Site. Photographs taken during the visit to the Site are included in Appendix B.
- Interview during the Site visit with Mr. Abraham Mills of facility maintenance and security.
- Observation of adjoining properties from the Site boundaries.
- A search of regulatory agency databases for the Site, adjoining properties, and vicinity conducted by Environmental Data Resources (EDR) and reported to Iris Environmental on July 1, 2015. A copy of the EDR report is presented as Appendix C.
- A review of the United States Geological Survey (USGS) 7.5-minute topographical map for South San Francisco (dated 1995), historical topographic maps of the same quadrangle dated 1950, 1956 (photo-revised 1968, 1973, and 1980), and 1993; and 15-minute topographical maps for San Mateo (dated 1899 and1947). Copies of the topographic maps are provided in Appendix D.
- A review of historical aerial photographs dated 1943, 1946, 1956, 1968, 1974, 1982, 1993, 1998, 2005, 2006, 2009, 2010, and 2012 provided by EDR. Copies of the aerial photographs are provided in Appendix D.
- A review of the City Directory Abstract provided by EDR. A copy is included in Appendix D.
- A review of documents pertaining to the Site on file at the San Mateo County Environmental Health Department (SMCEHD) and the Bay Area Air Quality Management District (BAAQMD).
- A review of the Regional Water Quality Control Board (RWQCB) online Geotracker database and Department of Toxic Substances Control (DTSC) online Envirostor database for documents on file for the Site, adjoining properties, and vicinity.
- Iris Environmental requested historical fire insurance maps of the Site and adjoining properties from EDR, which reported that fire insurance maps are not available (see Appendix D).

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Iris Environmental also requested documents from the San Bruno Fire Department (SBFD), DTSC, the RWQCB, and the United States Environmental Protection Agency (EPA). The SBFD reported CUPA files were on record associated with the cell towers, which were also provided by the SMCEHD, so no review of SBFD was necessary. DTSC and RWQCB reported no documents for the Site or adjoining properties were available. Response from the USEPA is pending.

No environmental or drinking water samples were collected as part of Iris Environmental's Phase I ESA activities.

II. FINDINGS AND CONCLUSIONS

Iris Environmental has performed a Phase I Environmental Site Assessment (ESA) in conformance with the scope and limitations of ASTM Practice E 1527-13 of the property located at 900 and 1000 Cherry Ave in San Bruno, California. There were no exceptions to, or deletions from, this practice.

A. Recognized Environmental Conditions

ASTM Standard E 1527-13 defines a REC as (emphasis in original to indicate formally defined terms): "the presence or likely presence of any *hazardous substances* or *petroleum products* in, on, or at a *property*: (*1*) due to release to the environment; (*2*) under conditions indicative of a *release* to the *environment*; or (*3*) under conditions that pose a *material threat* of a future *release* to the *environment*. *De minimis conditions* are not *recognized environmental conditions.*"

In addition, ASTM Standard E 1527-13 defines a controlled recognized environmental condition (CREC; a type of REC) as (emphasis in original to indicate formally defined terms): "a *recognized environmental condition* resulting from a past *release* of *hazardous substances* or *petroleum products* that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with *hazardous substances* or *petroleum products* allowed to remain in place subject to the implementation of required controls (for example, *property* use restrictions, *activity and use limitations*, *institutional controls*, or *engineering controls*).[1] A condition considered by the *environmental professional* to be a *controlled recognized environmental condition* shall be listed in the findings section of the *Phase I Environmental Site Assessment report*, and as a *recognized environmental condition* in the conclusions section of the *Phase I Environmental Site Assessment report*."[2]

This Phase I ESA has identified no RECs in connection with the Site.

[1] For example, a leaking underground storage tank that has been cleaned up to a commercial use standard, but does not meet unrestricted residential cleanup criteria, would be considered a controlled recognized environmental condition. The "control" is represented by the restriction that the property-use remains commercial.
[2] A condition identified as a *controlled recognized environmental condition* does not imply that the *environmental professional* has evaluated or confirmed the adequacy, implementation, or continued effectiveness of the required control that has been, or is intended to be, implemented.

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B. Historical Recognized Environmental Conditions

ASTM Standard E 1527-13 defines a historical recognized environmental condition (HREC, which is not a REC) as: "a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls). Before calling the past release a historical recognized environmental condition, the environmental professional must determine whether the past release is a recognized environmental condition at the time the Phase I Environmental Site Assessment is conducted (for example, if there has been a change in the regulatory criteria). If the EP considers the past release to be a recognized environmental condition at the time the Phase I ESA is conducted, the condition shall be included in the conclusions section of the report as a recognized environmental condition."

This Phase I ESA identified no HRECs in connection with the Site.

C. De Minimis Conditions

ASTM Standard E 1527-13 defines a de minimis condition as (emphasis in original to indicate formally defined terms): "a condition that generally does not present a threat to human health or the *environment* and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be *de minimis conditions* are not *recognized environmental conditions* nor *controlled recognized environmental conditions*."

This Phase I ESA has revealed no de minimis conditions in connection with the Site.

In addition, the following asset management and potential areas of concern, which are not considered RECs, are noted:

- Between the mid-1950s to the late 1970s the Site is identified as part of the Naval Personnel Depot. During this time, the Site was characterized by dirt roads, vacant land and a portion of three commercial-type buildings that were likely barracks. Based on available data, the Naval Personnel Depot was used for planning and engineering purposes and did not include industrial or manufacturing activities, and therefore is unlikely to be of potential concern.
- Cellular equipment including lead and sulfuric acid batteries associated with AT&T, Sprint, and T-Mobile are on the roof of 900 Cherry Avenue. Easements on the property may require access to the roof of the Site for maintenance.
- One 200-gallon diesel emergency generator is located in the parking area northeast of 900 Cherry Avenue. No significant staining was noted beneath the emergency generators or the AST. Before use, the generators will likely need to be permitted with the BAAQMD.

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III. DESCRIPTION OF THE SITE AND ITS OPERATIONS

A. Site Description

1. Physical Description and Setting

The Site is located at 900 and 1000 Cherry Avenue in San Bruno, San Mateo County, California, as shown on Figure 1, and is identified by the following:

Address	Assessor Parcel Number (APN)	Acres	Tenant
900 Cherry Avenue	020-015-020	4.0	YouTube
1000 Cherry Avenue	020-011-230	4.152	Vacant. Under renovation.

The Site consists of two office buildings: 900 Cherry Avenue is a six-story office building and 1000 Cherry Avenue is a three-story office building with one subgrade basement. Other features include the surrounding paved and landscaped areas. One emergency generator and one trash compactor (not actively used) were noted in the parking area. Two pad-mounted transformers operated and maintained by PG & E were noted on-Site and appeared to be in good condition. Grundy Lane, which is not part of the Site, is located between the two on-Site buildings. The approximate layout of the Site at the time of Iris Environmental's Site visit is indicated in Figure 2.

The Site is currently owned by CREA San Bruno LLC. The Site is located in a mixed commercial and residential area.

Pacific Gas & Electric (PG&E) provides electricity and natural gas to the Site. Water and sanitary sewer service is reportedly provided by the City of San Bruno.

2. General Site Conditions

At the time of Iris Environmental's Site visit, 900 Cherry Avenue was occupied by YouTube and 1000 Cherry was under renovation with the intent for YouTube to occupy upon completion of building improvements.

Buildings and surrounding areas appeared in good condition. At 900 Cherry Avenue, all interior areas were clean, well maintained, and in good condition. Access to floors four and six were not permitted due to sensitive material development on those floors. Mr. Mills reported those floors to be office space in the same layout as floors two, three, and five. The interior of 1000 Cherry Avenue had been completed removed. However, general housekeeping for a construction Site was good. The exterior pavement was in good conditional as well with minimal cracks and potholes.

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No areas of oil or other staining of concrete, asphalt, or soils were noted at the Site. There was no visible evidence that significant spills or leaks had occurred. No evidence of stressed vegetation was noted during the Site visit.

The detection of noise and odors is dependent on the weather conditions and ongoing operations. At the time of the Site visit, Iris Environmental did not note strong odors or excessive noise at the Site.

3. Geological Setting

Based on a review of the 1997 USGS topographic map, ground elevation at the Site is approximately 125 feet above mean sea level. The majority of the Site is flat with a slight downward slope to the east -northeast.

The Site is located in the Coastal Range geomorphic province and is situated along the west margin of the San Francisco Bay. Bedrock in the vicinity of the Site consists of highly consolidated and tectonically deformed sedimentary, volcanic, and metamorphic rocks of the Jurassic to Cretaceous age known as the Franciscan Assemblage. Modern alluvial estuarine deposits overlie the bedrock formation (Partner 2015). Based on the USGS Preliminary Geologic Map for the Site, the Site is identified within the Colma Formation (Qc) and characterized by sandy clan and silty sand (USGS 1998).

4. Hydrogeological Setting

The nearest natural body of surface water is San Bruno Creek, an intermittent stream located approximately 0.6 miles west of the Site. The San Francisco Bay is located about 2.1 miles to the east of the Site.

Storm water collection drains were observed on the building and in the parking areas. Storm water at the Site reportedly drains to the storm water system at Cherry Avenue and Grundy Avenue.

The EDR Report (EDR 2014a) indicates that the Site is not within the 100-year or 500-year flood zone area.

Site specific groundwater data was not encountered in this review. A previous Phase I ESA, found prior reports reported depth to groundwater for the Site between 15 and 20 feet below ground surface (bgs) (Partner 2015).

B. Adjoining Properties Description

1. Physical Description

Surrounding land uses include:

- North – Interstate 380 beyond which is Commodore Park.

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- South – Bayhill Drive, beyond which is 850 Cherry Avenue which is occupied by Walmart Corporate Office.
- East – 1250 Bayhill Drive an office building complex with multiple tenants and surrounding landscaped and parking area.
- West – 901 Cherry Avenue occupied by YouTube.

Based on observations made from the Site and public right of ways, these properties appear to be in good condition with well-maintained landscaped areas. Based on the current uses of the adjoining properties, and observations made at the time of the Site reconnaissance, Iris considers that adjoining property uses are not of potential concern. Historically, the United States Naval Personnel Depot occupied a portion of the Site and the area to the northeast. Based on available data, the land was used for planning and engineering purposes and did not include industrial or manufacturing activities, and therefore this adjoining property is unlikely to be of potential concern (Partner 2015).

C. Site History

Iris Environmental reviewed historical aerial photographs, historical topographic maps, and historical city directories to develop an understanding of historical uses of the Site and surrounding areas. A request for historical fire insurance maps was submitted, but none were available for review (see Appendix D).

Key milestones in the history of the Site and adjacent properties are listed in Table 1 of this Phase I ESA report.

Based on a review of topographic maps and aerial photos, the Site appears to be undeveloped or used for agricultural purposes from the earliest record in 1943. By 1946, the Site and surrounding area appear to be undergoing development as the Naval Personnel Depot, which was evident in the Site vicinity between the mid-1950s to the late 1970s. During this time, the Site was characterized by dirt roads, vacant land and a portion of three commercial-type buildings in the northeast corner. The previous Phase I report identifies these buildings as barracks. Interstate 380, which defines the Site's northern border, was constructed around 1973. The two on-Site buildings were constructed in 1978 and the remainder of the Site was paved. The Site layout appears largely unchanged through today.

The surrounding area appears largely undeveloped in the early 20th century. In the 1950s the development increased along Highway 101 to the east of the Site. The Naval Personnel Depot encompassing the Site and the area to the northeast was also established around this time. Development continued to increase in the surrounding area through the end of the 20th century. By 1993 the surrounding area was fully developed. No significant changes were noted between the 1990s and today.

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D. Description of Operations

1. Current Operations

900 Cherry Avenue

The six-story office building on 900 Cherry Avenue is occupied by YouTube. According to Mr. Mills, YouTube has occupied this facility for less than one year. The interior was renovated in 2013. The predominant Site use is typical office use. The building features offices, conference rooms, a video production room, restrooms, storage closets, a cafeteria and kitchen on the ground floor, and break rooms (a.k.a. micro kitchens) on all floors. Access to floors four and six were not permitted due to sensitive material development on those floors. Mr. Mills reported those floors to be office space in the same layout as floors two, three, and five. Mechanical equipment such as boiler room, fan room, and elevator room were located on the roof. Additionally, cellular telephone equipment owned and maintained by AT&T, Sprint, and T-Mobile is located on the roof.

1000 Cherry Avenue

The three-story office building at 1000 Cherry Avenue is currently undergoing interior renovations and subsurface improvements. The interior had been completely gutted at the time of the Site visit. The building has a basement which was also gutted and open subsurface trenches for sewer line renovations were noted. Two hydraulic elevator units and the main electrical room are located in the basement of the building. Upon completion of the renovation, the building is planned to have office space, a recording studio, and a gym.

The majority of the space surrounding the buildings is paved or landscaped. A portion of the parking area associated with 1000 Cherry Avenue was dedicated for staging and storage of construction related equipment and vehicles. A backup generator and an unused trash compactor were observed in the paved parking space of 900 Cherry Avenue.

2. Past Operations

According to a previous Phase I report, the on-Site buildings were constructed in 1978 (Partner 2015). Since the construction of the on-Site buildings, the predominant use of the Site has been office-space. According to the Site contact, Mr. Mills, the most notable previous tenant was The GAP, who occupied 900 Cherry Avenue (and based on historic records 1000 Cherry Avenue) from at least 1980 to 2003. Mr. Mills reported that GAP used the space for office and administration, but based on the EDR report, The GAP also appeared to have an associated printing facility ("The GAP Print Shop") which in 2006 generated some photo processing waste. Records on file at the BAAQMD suggest printing activities occurred between around 1996 and 2000. A Phase I prepared by Partner in 2015 reported that a previous 1998 ESNR report (not available for review) noted The GAP had minor printing operations in 1000 Cherry Avenue. Partner reports that no environmental impacts were noted related to the printing operations.

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In addition, smaller companies have subleased various offices in the buildings. Previous tenants listed in the City Directory for 900 and 1000 Cherry Avenue include: a realtor, an electrical company, an airline, a health management group, law firms, consultants, insurance companies, contractors, and a cloud software service (EDR 2015c).

Prior to the construction of the on-Site buildings, the Site was part of the United States Naval Personnel Depot which was situated to the northeast. Based on available data, the Naval Personnel Depot was used for planning and engineering purposes and did not include industrial or manufacturing activities, and therefore is unlikely to be of potential concern.

E. Polychlorinated Biphenyls (PCBs) and Asbestos

1. PCBs

Mr. Mills was not aware of any PCB-containing equipment on-Site. Two pad-mounted electrical transformers, owned and operated by PG&E, were located on-Site and appeared in good condition. No evidence of leaks or stains was noted. Two hydraulic elevators are in service at 1000 Cherry Avenue. No evidence of leaks or spills was visible in the elevator maintenance rooms. The elevators at 900 Cherry are traction elevators with a penthouse machine room and do not use fluids potentially containing PCBs.

According to the EDR report, The GAP is listed on the HAZNET database in 1995 for disposal of 1.39 tons of PCB-containing material. The materials were disposed off-Site for treatment and incineration. No other information is provided regarding the PCB-containing material (EDR 2015a).

2. Asbestos

No previous asbestos surveys were provided to Iris Environmental. A Phase I from 2015 by Partner reviewed a limited asbestos survey conducted at both 900 and 1000 Cherry Avenue in 1998 by ENSR. According to their summary, eight samples of suspect asbestos-containing materials (ACM) from floor tiles, mastic, wallboard, ceiling tiles, and insulation were analyzed. Asbestos was not detected in any of the samples collected by ENSR. Roofing materials were not sampled. ENSR reported that the roofs of both buildings were replaced in 1996 by Ertech which provided documentation that ACM were not installed during the re-roofing of the buildings. Building materials were observed to be in good condition. Based on the available asbestos sampling data, it appears that asbestos is not an environmental concern for the Site. Based on the age of the buildings (1978), it is possible that additional suspect ACM might be located in concealed areas such as within walls or above ceilings. However, according to Mr. Mills, 900 Cherry Avenue was completely gutted and all interior finishes and equipment (aside from the overhead traction elevators) were replaced in 2013: therefore the potential presence of ACM is even less likely in this building.

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F. Hazardous Materials Use and Storage

1. Hazardous Materials Use

During Iris Environmental's Site reconnaissance, minimal hazardous materials were observed on-Site and consisted mainly of small quantities of cleaning products, paints, and general maintenance materials, as discussed below.

Hazardous materials such as sulfuric and lead-acid batteries associated with the cell towers of AT&T, Sprint, and T-Mobile located on the roof of 900 Cherry Avenue are also present on-Site. A National Fire Protection Association (NFPA) placard for hazardous materials on the door of the cellular equipment showed a "3" for health hazard, "0" for flammability hazard, a "2" for instability hazard and that the material reacts violently or explosively with water. Inspection within the cellular equipment was not permitted. However, inspection reports on file with the SMCEHD did not note any violations in their inspections.

2. Underground Storage Tanks (USTs)

No indication of current or historic USTs was found during this review.

3. Aboveground Storage Tanks

One diesel emergency generator with an associated diesel above ground storage tank (AST) is located in a locked enclosure in the parking area of 900 Cherry Avenue. The emergency generator contains approximately 200 gallons of diesel fuel. No leaks or staining were noted during Site reconnaissance.

4. Drums and Small Containers

Current Drum and Small Container Use

Small amounts of hazardous materials were observed in use or stored on-Site. The majority of the hazardous materials were standard cleaning and maintenance supplies including one-gallon bottles of bleach, disinfectants, cleaners, peroxide glass cleaners, and soaps. Additionally two rusted containers (approximately 5 gallons) of flammable liquids were noted alongside the dumpster enclosure. These rusted containers were also noted in a previous Phase I written in April 2015 and should be disposed of properly as hazardous materials.

Historic Drum and Small Container Use

No records of historic drums or small container use were encountered in this review.

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G. Nonhazardous and Hazardous Waste

1. Nonhazardous Waste

Nonhazardous waste currently generated on-Site includes general office wastes and food waste which are collected in dumpsters on-Site and hauled off-Site by the City of San Bruno. A trash compactor, which was no longer in active service (and covered in pine needles), was noted in a gated enclosure in the parking lot of 900 Cherry Avenue. According to Mr. Mills, the compactor is not used and an active trash compactor is present at the 901 Cherry Avenue office (also occupied by YouTube) across the street.

A subgrade grease interceptor is present outside the kitchen of 900 Cherry Avenue. The grease interceptor is serviced weekly by a third party.

2. Hazardous Waste

Current Hazardous Waste Generation

According to Mr. Mills hazardous waste is not currently generated at the Site.

Historic Hazardous Waste Generation

According to the EDR report, The GAP is listed on the HAZNET database for generation of hazardous wastes in 1995, 1996, and 2006. The first listing is for the generation of 1.39 tons of PCB-containing waste in 1995. Additional information was not encountered regarding the origin of the PCB-containing waste. The second listing is for the Gap Print Shop in 1995 and 1996 and is associated with hazardous wastes associated with photo processing including photochemicals and in 2006 included disposal of surplus organics and waste oil (EDR 2015a).

H. Air Emissions

A permit associated with the emergency diesel generator at 900 Cherry Avenue is on file at the BAAQMD. The permit allows 0.01 tons/year of nitrogen oxides to be emitted associated with fuel combustion. Records are also on file at the BAAQMD for 1000 Cherry Avenue associated with GAP Inc. Printing Services Department. Records show the facility applied to register their printing presses in 1996 and the facility ceased operation in 2000.

I. Wastewater

1. Industrial and Sanitary Wastewater

Industrial wastewater is not generated on-Site. Sanitary wastewater is discharged to the City of San Bruno sanitary sewer.

No record of historic industrial wastewater generation was found during this assessment.

2. Storm Water

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Storm water at the Site reportedly drains to the storm water system on Grundy Lane and Cherry Avenue. No indications of potential storm water contamination sources were observed at the Site during the Site visit.

It is not known whether storm water quality has been impacted in the past. No documentation pertaining to storm water issues was contained within City or County files. Mr. Mills was not aware of any spills, leaks or fires with the potential to impact storm water that had occurred at the Site in the past.

J. Previous Environmental Reports

The following environmental document pertaining to the subject Site was provided by Google. Information from this document is included where relevant in the report.

Partner. 2015. *Phase I Environmental Site Assessment Report, Bayhill Office Buildings, 900 and 1000 Cherry Avenue, San Bruno, San Mateo County, California 94066*. April 14.

K. On-Site Soil, Soil Vapor, and Groundwater Contamination

No potential sources of soil, soil vapor and / or groundwater contamination at the Site were found during this investigation.

Potential source areas in the Site vicinity include a former dry cleaning facility, which is listed in the EDR report at 851 Cherry Avenue approximately 0.014 miles southwest of the Site in the Bayhill Shopping Center. Records of a dry cleaning facility in the EDR report date from 1987 to 2012 and include Holiday Cleaners and Bayhill Plaza Cleaners at 4 Bayhill Shopping Center. Review of current tenants in the Bayhill Shopping Center available online indicate that a dry cleaner is not currently a tenant in the center. Holiday Cleaners is listed on the Emissions Inventory database in the EDR report for emissions of total organic carbon gases between 1987 and 2011. Holiday Cleaners is also listed as a small quantity generator of hazardous waste in 1988 with no violations found. These listings indicate that it is likely that dry cleaning operations were historically conducted in this facility. No spills, releases, or environmental impacts have been noted associated with the dry cleaners. Given that no records of releases were found and the slight crossgradient location of the former dry cleaner, this facility is unlikely to have impacted subsurface conditions at the Site.

L. Records Review

1. EDR Report

Iris Environmental reviewed a report prepared by EDR that summarizes the results of a search of federal and state regulatory agency databases. The EDR report is included in Appendix C. The database search was conducted to evaluate whether the Site or any nearby properties are under investigation for potential environmental issues or have been identified as conducting operations that could potentially impact the environment. The EDR report includes searches of databases of

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sites with engineering controls and institutional controls. The findings of the EDR search are summarized below.

EDR conducted its search of environmental databases on July 2, 2015. Because the environmental databases themselves are sometimes not updated by the specific regulatory agencies for periods of up to 1 year (depending on the database), the database search conducted herein will not necessarily list a facility or site for which an environmental investigation/listing has been initiated subsequent to the last update. The dates of database updates are provided in Appendix C.

EDR conducted searches of the following federal databases, and all search radii were selected in accordance with ASTM standards:

- USEPA National Priorities List (NPL) for Uncontrolled Hazardous Waste Sites – 1-mile radius;
- USEPA Delisted NPL – ½-mile radius;
- USEPA Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) and CERCLIS-No Further Remedial Action Planned (CERCLIS-NFRAP) – ½-mile radius;
- Corrective Action Site List (CORRACTS) of Resource Conservation and Recovery Act (RCRA) hazardous waste treatment, storage, and disposal (TSD) facilities subject to corrective action under RCRA – 1-mile radius;
- Resource Conservation and Recovery Act Information System (RCRIS) database of TSD facilities not subject to corrective action and hazardous waste generators – ½-mile radius (TSD) and property and adjoining properties (generators);
- Engineering Controls Sites List (US ENG CONTROLS) – property only;
- Sites with Institutional Controls (US INST CONTROL) – property only; and
- Emergency Response Notification System (ERNS) – property only.

EDR also conducted searches of the following State of California and tribal databases:

- RESPONSE database – 1-mile-radius;
- ENVIROSTOR database – 1-mile-radius;
- California Solid Waste Inventory System (SWIS) – ½-mile radius;
- Spills, Leaks, Investigation and Clean Up (SLIC) cost recovery listing – ½-mile radius;
- Leaking Underground Storage Tanks (LUST) Information System – ½-mile radius;
- Underground Storage Tank (UST) Registrations Database – property and adjoining properties;
- Site Mitigation and Brownfield Re-use Program Facility Sites with Deed Restrictions and Hazardous Waste Management Program Facility Sites with Deed / Land Use Restrictions (DEED) database – property only;

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- Underground Storage Tanks on Indian Land (Indian UST) database – property and adjoining properties; and
- Leaking Underground Storage Tanks on Indian Land (Indian LUST) database – ½-mile radius.

Databases searched by EDR that record information on deed restrictions, engineering controls and institutional controls (DEED, US ENG CONTROL, US INST CONTROL) did not show any listings for the Site.

The Site tenants are listed on the following databases:

Tenant	Database	Description
AT&T Mobility	FINDS	Site is listed on the State Master information system.
AT&T Mobility	San Mateo Co. BI	Stores less than 219 gallons (or 1,999 pounds or 879 ft^3) of hazardous material, as discussed further in Section F.1.
The Gap Print Shop	HAZNET	Generated photochemical/photoprocessing wastes in 1995 and 1996 and off-specification, aged or surplus organics, organic solids, and waste oil or mixed oil in 2006.
The Gap	HAZNET	Generated up to 1.3874 tons of PCB-containing material in 1995, and up to 0.2 tons of organics in 2006 as discussed further in Section E.1 and F.1.

The following adjacent property was noted in the EDR report:

Address	Tenant	Database	Description
850 Cherry Avenue	US Postal Service	SWEEPS UST	Database lists a 5,929-gallon UST containing diesel fuel.
		CA FID UST	Historical UST listing.
		HIST UST	Historical 6,000-gallon UST containing diesel fuel is listed. UST was installed in 1981.
		San Mateo Co. BI	Listed as storing motor vehicle fuels or waste only and as having a UST

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			– General.

The US Postal Service property at 850 Cherry Avenue was redeveloped with a commercial office building between 1998 and 2005. No violations, leaks, or releases were noted associated with these listings. Based on this information, this property is unlikely to impact subsurface conditions at the Site.

Several facilities in the vicinity of the Site were identified within the ASTM-specified search radii as summarized below:

CERCLIS-NFRAP

One facility is listed within 0.5 miles of the Site. This facility is located cross- to downgradient of the Site and it is unlikely to impact subsurface conditions at the Site.

RCRA-CORRACTS

One facility is listed within 1 mile of the Site. This facility is located cross- to downgradient of the Site and it is unlikely to impact subsurface conditions at the Site.

RCRA-SQG

Two facilities are listed within 0.25 miles of the Site. No violations were found at either facilities and they are both located cross- to downgradient of the Site. Therefore, these facilities are unlikely to impact subsurface conditions at the Site.

RESPONSE

One facility is listed within 1 mile of the Site. This facility is also listed on the Envirostor and LUST databases. This facility was certified in 1983 indicating that cleanup is complete. The facility is also located downgradient of the Site and is unlikely to impact subsurface conditions at the Site.

ENVIROSTOR

Eight facilities are listed within 1 mile of the Site. Four of the facilities (The Crossing, GGNRA National Cemetery, Camp Tanforan, and Dupont) have all received regulatory closure or have been certified indicating that cleanup is complete. The four remaining facilities are located cross- or downgradient of the Site. Given the regulatory status and/or location of these facilities, these facilities are unlikely to impact subsurface conditions at the Site.

LUST

Sixteen unique facilities (six duplicates) are listed within 0.5 miles of the Site. All but five of these facilities are listed as having received regulatory closure or are eligible for closure, and therefore are unlikely to impact subsurface conditions at the Site.

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The remaining five facilities are located cross- or downgradient of the Site and are unlikely to impact subsurface conditions at the Site.

SLIC

Two facilities are listed within 0.5 miles of the Site. One of these facilities has received regulatory closure, and both of these facilities are located downgradient of the Site. Therefore, these facilities are unlikely to impact subsurface conditions at the Site.

VCP

One facility is listed within 0.5 miles of the Site. The facility has been certified indicating that cleanup is complete and is also located downgradient of the Site. Therefore, this facility is unlikely to impact subsurface conditions at the Site.

Orphan Sites

No "orphan" sites are identified in the Regulatory Database Search Report.

Summary

Iris Environmental considers that, due to the regulatory status and location of the facilities identified by EDR, they do not appear to have the potential to significantly impact subsurface conditions at the Site.

2. Environmental Liens and Activity and Use Limitations

Iris Environmental reviewed the report titled *The EDR Environmental Lien and AUL Search Report 900 and 1000 Cherry Avenue, San Bruno, California* prepared by EDR (EDR 2015b) for evidence of environmental liens and Activity and Use Limitations (AULs) at the Site. AULs are defined in the ASTM Standard as legal or physical restrictions or limitations on the use of, or access to, a site or facility: (1) to reduce or eliminate potential exposure to hazardous substances or petroleum products in the soil or groundwater on the property, or (2) to prevent activities that could interfere with the effectiveness of a response action, in order to ensure maintenance of a condition of no significant risk to public health or the environment.

No environmental liens or AULs were noted by EDR.

M. Interviews with Local Government Officials

Iris Environmental requested documents from the following agencies:

Agency	Date of Request	Files Reviewed
DTSC – Berkeley	7/2/2015	No records available.
Santa Mateo County Environmental Health Department (SMCEHD)	7/2/2015	Files reviewed and referenced throughout the report.

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BAAQMD	7/2/2015	Files reviewed and referenced throughout the report.
San Bruno Fire Department (SBFD)	7/2/2015	CUPA files available for 900 Cherry Ave related to cellular equipment are on file at the SBFD. These records were also provided by the SMCEHD and, therefore, at the judgment of an environmental professional, SBFD files were not reviewed.
RWQCB	7/2/2015	No records available.
USEPA Region IX	7/2/2015	Awaiting response.

N. Information Provided by the User

In compliance with ASTM E 1527-13, a user/client questionnaire was submitted to Jay Bechtel Google Project Executive. The information provided in the questionnaire is summarized here and a copy of the questionnaire is provided in Appendix F.

Mr. Bechtel is not aware of any environmental cleanup liens against the Site and has no specialized knowledge of the Site. He is not aware of any land use restrictions at the Site. He is not aware of past uses of the Site.

O. Data Gaps

Standard ASTM E1527-13 defines a data gap as, "a lack of or inability to obtain information required by this practice despite *good faith* efforts by the *environmental professional* to gather the information" (emphasis in original to indicate formally defined terms). Significant data gaps are identified as those that affected our ability to identify RECs. No significant data gaps were identified during this ESA.

Access to floors four and six in the 900 Cherry Avenue building were not permitted due to sensitive material development on those floors. Mr. Mills reported those floors to be office space in the same layout as floors two, three, and five and based on his communication with us, this is not considered a significant data gap.

P. References

Environmental Data Resources (EDR). 2015a. *EDR Radius Map Report with Geocheck, 900 and 1000 Cherry Avenue, San Bruno, California 94066.* July 2.

EDR. 2015b. *The EDR City Directory Abstract, 900 and 1000 Cherry Avenue, San Bruno, California 94066.* July 2.

EDR. 2015c. *The EDR Historical Topographic Map Report, 900 and 1000 Cherry Avenue, San Bruno, California 94066.* July 2.

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EDR. 2015d. *The EDR Aerial Photo Decade Package, 900 and 1000 Cherry Avenue, San Bruno, California 94066*. July 2.

EDR. 2015f. *The EDR Environmental Lien Search Report, 900 and 1000 Cherry Avenue, San Bruno, California 94066*. July 2.

Partner. 2015. *Phase I Environmental Site Assessment Report, Bayhill Office Buildings, 900 and 1000 Cherry Avenue, San Bruno, San Mateo County, California 94066*. April 14.

United States Geological Survey (USGS). 1998. *Preliminary Geologic Map of the San Francisco South 7.5' Quadrangle and Part of the Hunters Point 7.5' Quadrangle, San Francisco Bay Area, California*.

IV. DEVIATIONS FROM THE ASTM STANDARD

There were no deletions or deviations from ASTM Practice E 1527-13 in conducting this Phase I Environmental Site Assessment.

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Tables

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Table 1 – Summary of Historical Records

Date	Source	Finding
1899	Topographic Map	Site and surrounding area are undeveloped.
1943	Aerial Photograph	The Site and surrounding area appear undeveloped or used for agricultural purposes.
1946	Aerial Photograph	The Site appears undeveloped but cleared and possibly used as a dirt road. Long buildings associated with the Naval Personnel Depot are visible to the north and east of the Site. Additionally, a residential development appears southwest of the Site.
1950	Topographic Map	The Site appears undeveloped. Development has increased immediately adjacent to the Site to the northeast (appears to be Naval Personnel Depot) and south (appears to be residential).
1956	Topographic Map	The Site appears undeveloped by structures but appears to have unpaved roads and is identified as part of the Naval Personnel Depot. Development has increased to the north, west, and south of the Site.
1956	Aerial Photograph	No significant change to the Site from previous photograph except that the dirt roads that transect the Site are more defined and some vegetation is visible on-Site. Development in the surrounding area has increased.
1968	Aerial Photo	No significant change to the Site from previous photograph. Many of the buildings associated with the Naval Personnel Depot have been removed.
1968	Topographic Map	No significant changes from previous map.
1973	Topographic Map	The Site remains vacant and the unpaved roads are no longer identified on the Site. The buildings associated with the Naval Personnel Depot to the northeast of the Site are no longer visible. Interstate 380, Cherry Ave, and Bayhill Road are all visible defining the north, west, and southern boarders of the Site. Development in the surrounding area has increased.
1974	Aerial Photograph	No significant change from previous photograph to the Site. Interstate 380, Cherry Ave, and Bayhill Road are all visible defining the north, west, and southern boarders of the Site. Development in the surrounding area has increased.
1980	Topographic Map	The building at 900 Cherry Ave is visible. Grundy Lane, which transects the Site is present. Development in the surrounding area has increased.
1982	Aerial	The two buildings are visible on-Site. The Site appears in its current

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	Photograph	configuration. Development in the surrounding area has increased except for directly west of the Site.
1993	Aerial Photograph	No significant change from previous photograph.
1993	Topographic Map	The Site and surrounding area to the north, west and south are noted as developed. The Naval Personnel Depot is still identified to the northeast of the Site.
1995	Topographic Map	No significant changes from previous map.
1998	Aerial Photograph	The building appears directly west of the Site. No other significant changes from previous photograph. The Site and surrounding area appear in their current configuration.
2005	Aerial Photograph	No changes from previous photograph.
2006	Aerial Photograph	No changes from previous photograph.
2009	Aerial Photograph	No changes from previous photograph.
2010	Aerial Photograph	No changes from previous photograph.
2012	Aerial Photograph	No changes from previous photograph

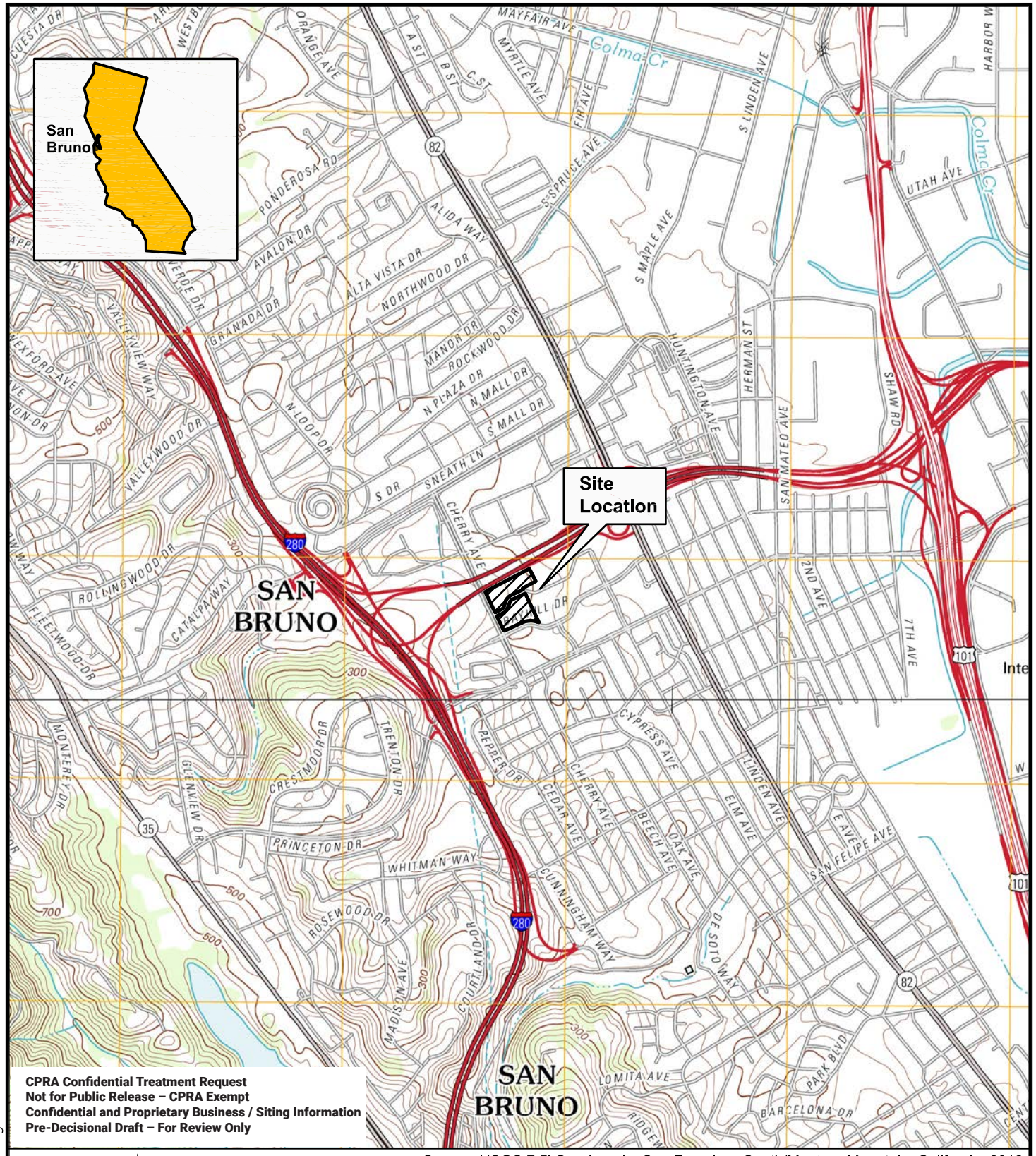
Notes:

1) While historical records were not available for the property at 5 year intervals (the suggested frequency in the ASTM Standard), we do not consider this data gap to be significant to the identification of RECs at the Site, as sufficient information was available to develop an understanding of past property uses.

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Source: USGS 7.5' Quadrangle, San Francisco South/Montara Mountain, California, 2012

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0 2000

SCALE IN FEET

IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Site Location Map
900 and 1000 Cherry Avenue
San Bruno, California

Figure
1

Drafter: EC | Date: 07/10/15 | Contract Number: 15-1258A

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Basemap: Google Earth February 23, 2014

LEGEND:

Approximate property boundary

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SCALE IN FEET

IRIS ENVIRONMENTAL
1438 Webster Street, Suite 302
Oakland, California 94612
Ph. (510) 834-4747 Fax: (510) 834-4199

Site Layout
900 and 1000 Cherry Avenue
San Bruno, California

Figure
2

Drafter: EC | Date: 07/10/15 | Contract Number: 15-1258A

I:\CAD\15\15-1258-AVSan Bruno site layout.dwg

Appendix A

Qualifications of Environmental Professionals

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ROBERT B. BALAS

EDUCATION

1993 M.Eng.S., Environmental Engineering, University of California at Berkeley

1982 A.B., Physics, Dartmouth College, Hanover, NH

EXPERIENCE

Robert Balas, Principal of the Air Sciences Group, is the Principal in charge of all environmental fate and transport modeling and all air monitoring programs. Mr. Balas has been with Iris Environmental for 15 years, and has over 20 years of environmental consulting experience with a focus on indoor and outdoor air monitoring, subsurface modeling, emissions estimation, regulatory compliance, and emission control techniques. Mr. Balas has been instrumental in incorporating site-specific and engineering control elements into the existing fate and transport models, and has used his expertise in the vapor intrusion pathway to assist clients in identifying engineering modifications to impacted buildings as a means of mitigating potential indoor air exposures.

- Mr. Balas is currently assisting an owner with multiple properties located on a California Superfund site in Mountain View, California. The principal constituents of concern at the site are chlorinated solvents in the groundwater. Our support has involved ongoing indoor and outdoor air sampling to determine the exposure concentrations resulting from the constituents of concern. Based on the data collected during the indoor air sampling program, we have been working with the tenant to identify the likely fate and transport pathway or pathways responsible for any elevated exposure levels of concern through advanced modeling using the Johnson and Ettinger model. Based on this analysis we will determine what mitigation measures can or need to be taken to reduce exposure to potential chemicals of concern, and calculate any associated costs. Currently, we are following the status of USEPA Region IX's reevaluation of all chlorinated solvent sites, specifically related to the examination of the indoor air vapor transport pathway and the reevaluation of the carcinogenic potency of trichloroethylene (TCE).

- Mr. Balas is currently assisting a large tenant located on chlorinated solvent plume in Newport Beach, California. The principal constituents of concern at the site are chlorinated solvents in the groundwater. Our support has involved subsurface soil gas sampling coupled with an ongoing indoor air sampling to determine the exposure concentrations resulting from the constituents of concern. Based on the data collected during the sampling program, we have been working with Regional Water Quality Control Board (RWQCB) and the Department of Toxic Substances Control to identify building of concern and likely indoor air exposure pathways. Based on this analysis we developed a detailed mitigation approach to reduce exposure to potential chemicals of concern, and are currently implementing this approach with RWQCB oversight.

- Mr. Balas has performed a Proposition 65 fate and transport evaluation for a solar technology company to evaluate whether a new novel proprietary technology would be in compliance

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with California Proposition 65. The work consisted of developing a conceptual site model to understand how workers and the general public could be exposed to chemicals associated with the solar panels, conducting the modeling to estimate the potential exposures that could result from the normal manufacturing processes and the use of the solar panels, and comparing the exposures to the no significant risk levels developed by the State of California. Mr. Balas was specifically hired for his expertise in fate and transport analysis assessment and his ability to effectively communicate complex modeling issues to broad international audiences with divergent commercial interests and technical opinions.

- Mr. Balas worked for a manufacturer of water filtration devices to help them understand whether their products are introducing chemical contaminants into consumer water and if so, to determine whether the product is in compliance with California's Proposition 65. He was involved in developing an appropriate testing protocol, estimating the concentration of chemicals of potential concern, and evaluating the health significance of compounds detected in the drinking water, and providing recommendations as to the need to provide consumer warnings and/or reformulate water filtration products to minimize risks to public health.

- Ms. Balas provided litigation support for a large industrial client under investigation by the Attorney General's Office for illegal release of asbestos. He was involved evaluating the emissions rate of asbestos and the air modeling to estimate the concentration asbestos that neighboring community might have been exposed. This work involved deriving reasonable estimates of the mass of asbestos that could have been released, identifying those surrounding populations that could have been present during the alleged release, and quantifying the extent of exposure that could have occurred.

- Mr. Balas completed an air modeling human health risk assessment for a former petroleum storage and dispensing facility located near the Port of San Francisco, California. The site had undergone site closure as an industrial facility but now was being proposed for commercial and residential use. Elevated levels of petroleum-related compounds and methane present in the soil and groundwater posed a potential issue for both residential and commercial redevelopment. Furthermore, local community groups were concerned regarding the proximity of significant industrial ambient air pollution sources, including a local concrete batch plant. Iris Environmental was retained to complete a human health risk assessment to determine whether on-site residual levels of petroleum constituents and off-site sources of air toxics would adversely impact human health under the planned development activities. Mr. Balas used the methane-modified Johnson and Ettinger model to estimate impacts resulting from subsurface contamination and the SCREEN3 dispersion model to determine on-site impacts associated with off-site sources. By incorporating site-specific development plans for a basement garage below the residential portion of the development, and using the direction of prevailing wind to reduce the impact of some off-site sources, Mr. Balas was able to show that the planned redevelopment could go forward with *de minimus* risk. The risk assessment was approved by both the Redevelopment Agency and the Department of Public Health without any comments, and redevelopment of the industrial property is moving forward on schedule.

- Mr. Balas has performed CO hotspots and criteria pollutant analysis for residential developments in Fairfield, California. The Bay Area Air Quality Management District's

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screening-level analysis was employed to estimate CO concentrations in the vicinity of 15 roadway intersections, under three project scenarios. Results of the screening procedure indicated that the proposed project would not produce a significant impact at any of the 15 roadway intersections, and therefore no detailed CO dispersion analysis was necessary. The URBEMIS model was used to evaluate criteria pollutant emissions from the proposed development.

- Mr. Balas has developed human health risk assessment in support of an Environmental Impact Report required for a proposed redevelopment in San Francisco. The proposed development included the construction of a multi-use building occupied by retail space at street level and by residents on upper floors. The purpose of the risk assessment was to determine whether the residual chemicals at the Site could adversely impact human health during development and proposed future land use. As exposure to these chemicals could potentially occur both during Site development and future land use, the health risks associated with the construction phase and future land use were both evaluated.

- Mr. Balas has provided Environmental Impact Report assistance for the Los Angeles Airport proposed expansion, including reviewing emissions estimation methods, air dispersion modeling, and plume rise calculations. This review included using USEPA approved methods outlined in *AP-42: Compilation of Air Pollutant Emission Factors* and the Gaussian plume dispersion model Industrial Source Complex Short Term 3 (ISCST3). Meteorological data was reviewed for appropriate application and proposed plume rise calculations for aircraft were modified to more accurately reflect jet motion on take-off and landing.

- Mr. Balas is managing the fate and transport modeling components of the Mission Bay Development project in San Francisco, California. He developed an innovative approach to estimate the impacts associated with dust emissions. This approach used on-site ambient air data combined with ISCST3 dispersion modeling to predict potential off-site impacts. He also modified the Johnson and Ettinger indoor air model to account for the enhanced flux of subsurface volatile organic compounds associated with elevated levels of methane. This modified model was then used to estimate potential exposure concentrations in a proposed building. A subsurface vapor mitigation measure was then proposed, and he demonstrated that the expected pressure drop below the building resulting from this measure would be sufficient to protect the occupants of the building. Both of these analyses were integral in getting the Regional Water Quality Control Board and the Department of Public Health to accept the proposed mitigation measure with no remediation required.

- Mr. Balas is currently assisting a large biotechnology research company increase the size of their campus through the development of additional park and commercial space. The principal constituent of concern at the site is naturally occurring asbestos (NOA). Our support has involved meeting the requirements of the California Air Resources Board *Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying and Surface Mining Operations*, developing air monitoring plans to ensure no off-site impacts, and direct negotiations with the local air district. As a part of the development of air monitoring plans, efforts have included the development of the appropriate asbestos screening level based on potential Proposition 65 exposures and long-term human health exposures. Currently, we are

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following the status of USEPA Region IX's re-evaluation of asbestos exposure risk, specifically related to short-term exposures of NOA.

- Mr. Balas has assisted in the development of a residential property located in the Sierra foothills. The principal constituent of concern at the site is naturally occurring asbestos (NOA). Our support has involved development of a dust mitigation plan, direct negotiations with the local air district, and on-going air sampling to determine potential exposure concentrations resulting from the NOA. Efforts have included the development of the appropriate asbestos screening level based on potential Proposition 65 exposures and long-term human health exposures. Based on the data collected during the sampling program, we have been working with the air district to speed the entitlement process forward. Based on our analysis, we developed control measures for site development in conjunction with the air district.

- At the request of a national development firm and environmental counsel, Mr. Balas has overseen a number of mold remediation projects, including conducting investigations to successfully identify the source of water damage, directing remediation efforts to repair water damage, modeling to determine where hidden molds might be present, and air monitoring to ensure that remedial efforts were successful. Mr. Balas has recently completed post-remediation air monitoring in an condominium complex in Emeryville, California to show the successful removal of water damaged drywall. A moisture meter was used throughout the apartment to ensure that there were no areas with elevated levels of moisture that might result in future mold issues. A study of the apartment ventilation system was also conducted to ensure that it was operating properly and there were no possible sources of mold remaining.

- Mr. Balas has overseen the environmental issues associated with the Third Street light rail development in San Francisco. He reviewed an asbestos air sampling program developed by Dr. Wayne Berman as part of a comprehensive dust mitigation program during site development. During the course of the project, Mr. Balas worked with Dr. Berman to develop the appropriate asbestos cancer slope factor, including adjustments for variable fiber length.

- Mr. Balas completed an air modeling human health risk assessment for a former landfill located near Union City, California. The landfill had undergone closure but was being proposed for commercial use (a sporting complex). Elevated levels of metals, chlorinated compounds, and methane present in the soil and groundwater posed a potential issue for commercial redevelopment. Furthermore, the local community and City Council were concerned regarding the potential for the airborne dispersion of dust and gases during development activities and subsurface migration of gases after development was completed. Iris Environmental was retained to complete a human health risk assessment to determine whether on-site residual levels of landfill constituents would adversely impact human health under the planned development activities and planned post-development use. The SCREEN3 dispersion model was used to determine potential on- and off-site impacts associated with redevelopment of the landfill. Mr. Balas developed a methane-modified Johnson and Ettinger model to estimate impacts resulting from subsurface contamination migrating on- and off-site after the completion of development activities. The completed risk assessment

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showed that the planned development could go forward with de minimus risk assuming the inclusion of standard landfill mitigation measures. The completed risk assessment was reviewed by the City Council and their consultants, and no substantive changes were required.

- Mr. Balas has overseen and developed innovative air modeling approaches for a number of former manufactured gas plant sites, located in California. While elevated levels of carcinogenic polycyclic aromatic hydrocarbons (PAHs) typically drive the cleanup, isolated pockets of volatile organic compounds (VOCs) left after the removal of PAHs, can sometimes cause a problem for proposed residential uses. In particular, use of the standard Johnson and Ettinger Model to analyze residential indoor air exposure will often result in extremely low cleanup goals. By decoupling the subsurface transport portion of the model from the indoor dispersion portion, Mr. Balas was able to incorporate the relevant processes of biodegradation and downward flux, to more accurately model the impacts associated with residual VOCs, and obtain a more realistic cleanup goal.

- Mr. Balas has provided leadership for the development an Environmental Management System (EMS) at an international manufacturing concern. He has reviewed the policies, procedures, programs, and organizational structure, both formal and informal, used to manage environmental affairs across all three key media (air, water, and waste). He focused on maintaining environmental compliance during changes in operations or regulatory requirements. He conducted a series of interviews and plant visits to assess the status of environmental practices and procedures. Based on these environmental audits, an Environmental Management System (EMS) was designed both to assist in improving environmental compliance and to help in meeting the challenges posed by Change. The EMS consists of four interconnecting environmental management tools that assist in achieving environmental compliance during both Change and daily operations. Component tools of the EMS include the following: environmental procedures for all environmental activities, including a detailed description of personnel responsibilities; databases for proper information management; training programs to ensure all personnel are familiar with proper environmental procedures; and an internal audit system to provide an ongoing self-assessment of progress towards environmental compliance.

- Mr. Balas has also improved the existing methods to determine an appropriate cleanup level associated with protection of groundwater for a shipyard in San Diego, California. To the standard default approach in the EPA-approved Soil Screening Guidance and the Central Valley RWQCB Designated Level Methodology; Mr. Balas added the impact of biodegradation on the downward flux of VOCs in soil to the groundwater table. The addition of this element allowed for a much more realistic estimate of potential impacts, and removed from consideration source areas that would have otherwise required remediation.

- Mr. Balas provided technical and project management leadership for a state-of-the-art hazardous waste treatment, storage, and disposal facility. He conducted a complete environmental regulatory permit audit, identifying areas of concern. He has provided strategic guidance on achieving complete regulatory compliance including guidance on meeting local air district, Title V, AB 2588, and Proposition 65 requirements. He completed all aspects of work needed to meet permit conditions including: air modeling work for the

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annual risk assessment; an ambient air monitoring program; calculation of criteria and toxic pollutant emissions due to volatilization, erosion, and vehicle traffic; and all required reports and recordkeeping requirements.

- Mr. Balas provided air modeling and subsurface fate and transport expertise for the redevelopment of the former Pacific Refinery in Hercules, California that is undergoing dismantling and redevelopment into a 220-acre residential community. He appeared as an expert witness before Bay Area Air Quality Management District Hearing Board to present innovative approach to achieve variance from Regulation 8, Rule 40. The Board ultimately granted the variance.

- Mr. Balas directed the emissions estimation and air modeling work necessary to determine the off-site impacts from a refinery explosion. Meteorological data from six different weather stations were integrated to get a complete picture of the local wind patterns. Video footage was also used to pinpoint off-site impacts. Plume-rise algorithms were modified to account for the burning of hydrocarbon slops in the bottom of a holding tank.

- Mr. Balas provided senior technical and project management for multiple subsurface transport studies. Projects included characterization of subsurface flux of chlorinated solvents, heavy metals, and petroleum hydrocarbons into both commercial and residential indoor environments. He used both analytical and computer model approaches to estimate contaminant transport in groundwater to indoor air. He has prepared and presented technical strategies and findings before local, state, and federal agencies.

- Conducted numerous indoor and outdoor air modeling analysis for Proposition 65 analyses associated with emissions from a wide variety of industrial facilities and consumer products including glass bottling facilities, battery manufacturing plants, chromium plating facilities, electrical circuit board manufacturing plants, waste-to-energy plants, metal parts manufacturing plants, dry cleaning facilities, glues, and printer cartridges.

- Mr. Balas prepared the emissions inventory and dispersion modeling analysis to support a facility-wide permit application. He modeled multi-source dispersion of air emissions and estimated increases in ambient air concentration of specific pollutants to determine scope of potentially impacted area. The results of the dispersion modeling analysis were compared with health-based standards.

- Mr. Balas planned program flow for a regulatory environmental management system (EMS). Decisions on calculation methods, database access considerations, and logic flow were made. Based on the program flow, the complexity of the program, and the speed of execution, a programming platform was selected. The EMS integrated air emissions estimation, air dispersion modeling, exposure assessment, multipathway risk assessment, and compliance report generation. Dialog boxes were designed and implemented to facilitate user interface with the software.

- Mr. Balas used a groundwater flow and contaminant transport model to estimate groundwater impacts from a chlorinated organic compound spill. To accurately depict the downwards

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flow of chlorinated organic compounds, a source apportionment model was developed. A sensitivity analysis was used to determine the maximum off-site exposure concentration.

- Mr. Balas provided technical leadership on the development of a fate and transport model of contaminant flow in the Los Angeles storm water system, to determine the potential for exceedances of the MTBE odor threshold due to releases from petrochemical facilities. An analytical model was used to calculate the water velocity distribution in the storm drain

- Mr. Balas modeled a petroleum spill from soil to surface water and estimated the downward flux to groundwater. He calculated the extent of dispersion of these chemicals in groundwater as they flowed into a nearby river and determined the potential health risk to residents due to exposure in nearby surface waters.

- Mr. Balas oversaw estimation of emissions from a styrene-butadiene rubber facility and estimation of off-site impacts using ISC3. He produced a report criticizing opposing experts' approach and presenting a correct approach.

- Mr. Balas estimated emissions from numerous petroleum refineries, selected appropriate meteorological data, and analyzed dispersion modeling results by comparing to air quality guidelines.

- Mr. Balas refined screening emissions modeling of fugitive volatile and semi-volatile organic chemicals from contaminated ground water and soil for health risk assessments and remediation plans.

- Mr. Balas conducted a water vapor dispersion modeling analysis for a paper mill to determine fog generation potential from the wastewater operations. He also considered complex wind and emission generation issues.

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KAREN T. SMITH

EDUCATION

1992 B.A., Environmental Sciences, University of Virginia

EXPERIENCE

Ms. Smith is a Senior Manager at Iris Environmental with over fourteen years of experience in environmental consulting with emphasis on due diligence and redevelopment of contaminated properties and human health risk assessment. She has conducted and managed numerous Phase I Environmental Site Assessments and compliance audits for properties throughout the U.S. and Canada. Ms. Smith has calculated cancer risks and noncancer hazard indices as well as risk-based cleanup levels for multi-pathway exposure to chemicals in various media at Superfund sites and other facilities. Ms. Smith has substantial experience conducting research in support of litigation and in database development and management. The following projects are representative of Ms. Smith's experience:

- Conducted Phase I Environmental Site Assessments and compliance audits for numerous commercial and industrial facilities located in the U.S. and Canada including manufacturers of epoxy counter tops, plywood, plastic bottles, plastic cutlery, candles, paint brushes, windows, woven wire products, automobile parts, packaging machinery, and lightning surge protection equipment; marine repair facilities and terminals; a fuel supply company; medical facilities; hotels; a bakery; a commercial/industrial facility with over 30 tenants; a commercial garbage collection company; self-storage facilities; shopping centers; a billboard company; and undeveloped lots and vacant buildings.

- Managed the updating of Phase I Environmental Site Assessments for 17 sites located throughout the U.S. Coordinated with the client, the target company, and staff from four offices; conducted assessments at six of the sites; and wrote and reviewed updated reports.

- Researched history and status of underground storage tanks at a 260-acre site. Reviewed documents and conducted searches at regulatory agencies. Prepared report documenting research and findings.

- Researched the historical uses, investigations, and remedial activities conducted at eighteen individual parcels located on a Superfund site. Histories were used in fact sheets prepared to provide information to employees of the current site tenant.

- Prepared storm water pollution prevention and monitoring plans for multiple facilities of a plastics manufacturer located in Northern and Southern California.

- Assisted a new owner of 25 gasoline stations with the transfer of ownership of underground storage tank, air, and other permits and hazardous materials business plans.

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Contacted county agencies and air quality management districts to determine requirements for ownership transfers and prepared documents for submittal to the county agencies.

- Assisted in the preparation of a RCRA Part B Permit Application for a hazardous waste transfer facility in Southern California.

- Calculated cancer risks and noncancer hazard indices for populations exposed to chemicals present in the soil, sediment, surface water, and ground water at a Superfund site. Conducted a multi-pathway evaluation of risks including ingestion of fish and produce.

- Calculated site-specific cleanup levels protective of human health and the environment for six former underground storage tank sites. Evaluated multi-pathway exposure to petroleum products in soil, ground water, and surface water. Site-specific cleanup levels were used to develop risk management plans that were submitted to the San Francisco Regional Water Quality Control Board.

- Calculated site-specific cleanup levels protective of human health for a 245-acre site. Calculated cleanup levels using site-specific data and assumptions for exposure to petroleum products, VOCs, and SVOCs via inhalation.

- Calculated risk-based cleanup levels for VOCs in ground water and inorganics in soil at a former printed circuit board and electronics assembly facility.

- Conducted a Preliminary Endangerment Assessment including report production following DTSC guidelines for a former manufacturing facility. Exposure to a petroleum-based thinner via inhalation of soil vapors and direct contact with soil was evaluated.

- Conducted screening health risk assessments to determine risks associated with a natural petroleum seep near a residential development, and to determine risks associated with petroleum hydrocarbon-containing soil at a former warehouse/distribution center.

- Calculated acceptable soil cleanup levels for residential exposure to metals at a former circuit manufacturing site.

- Researched national and international standards and guidelines for methylmercury by conducting a literature search and contacting various national and international agencies.

- Researched state and federal regulatory requirements for chemical ingredients of several furniture protection/polish products. Summarized the status of chemicals under state and federal regulations including RCRA, EPCRA, the Clean Water Act, TSCA, and Proposition 65.

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- Developed databases of existing soil and groundwater data for several sites, including one contaminated with petroleum products and one contaminated with a variety of organic and inorganic chemicals. Compared existing data to health-based soil clean-up levels and selected constituents of concern for further evaluations.

- Provided litigation support for a major utility company in southern California suing its insurance company for costs incurred for investigations, evaluations, and remedial activities at former manufactured gas sites. Reviewed historical documents to identify the materials used and activities that occurred at the sites that may have resulted in site contamination, evaluated current site investigation results, and determined the fate and transport of the site contaminants in surface and subsurface soils and groundwater.

- Investigated several incidents at a local municipal water supplier in which 1,2-dichloroethane was detected in finished water at concentrations above state and federal MCLs. Conducted literature searches, visited water treatment plants, interviewed plant managers and sample collectors. Prepared a report on investigation findings.

- Conducted an analysis of the potential hazards posed by No. 2 Fuel Oil contained in underground storage tanks.

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DANIELA D. HAMANN-NAZAROFF

EDUCATION

2012 M.S., Environmental Engineering, Stanford University

2010 B.S., Environmental Science, UCLA

EXPERIENCE

Ms. Hamann-Nazaroff is a Senior Scientist at Iris Environmental. She has worked at Iris Environmental since 2013 after graduating from Stanford University. Her experience includes fate and transport modeling, vapor intrusion analysis, risk characterization, and air quality monitoring. The following projects are representative of Ms. Hamann-Nazaroff's experience:

- Ms. Hamann-Nazaroff has conducted many Phase I Sites Assessment investigations for the redevelopment and property sales of a variety of sites including former agricultural sites, former manufacturing facilities, commercial buildings and warehouses, and light industrial parcels in the San Francisco Bay Area and around California.

- Ms. Hamann-Nazaroff has helped manage several Phase II investigations in support of due diligence procedures including development of sampling analysis plans and organizing field sampling logistics. She has been involved in analysis and interpretation of site-specific data and has drafted the sampling and analysis reports.

- Ms. Hamann-Nazaroff has investigated the indoor air quality of numerous commercial spaces in the San Francisco Bay Area. She has developed an Indoor Air Sampling and Analysis Plans (SAP), collected indoor air and ambient air samples at these facilities and examined the results in order to determine whether vapor intrusion was occurring at levels which could result in adverse health effects for the facilities occupants.

- Ms. Hamann-Nazaroff has performed screening level human health risk evaluations. She has used historic data to calculated site-specific risk-based screening levels. She has performed subsurface fate and transport modeling to evaluate whether vapor intrusion from the subsurface into the overlying buildings was occurring at significant levels with respect to the long-term health of building occupants at both industrial and commercial facilities.

- Ms. Hamann-Nazaroff has provided environmental oversight at various construction sites in San Francisco Bay Area. She helped screen and sample potentially contaminated soils. Additionally she has monitored and mitigated exposure to volatile organic compounds in the breathing zone, and implemented best management practices to reduce dust generation associated with construction work. Monitoring was conducted to prevent impact to on- and off-site populations.

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Appendix B

Site Photographs (07-06-15)

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Photo #1: Exterior of 900 Cherry Ave



Photo #2: Exterior Parking Area

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Photo #3: Emergency generator with diesel AST



Photo #4: Rusted containers of flammable liquids next to the dumpster enclosure

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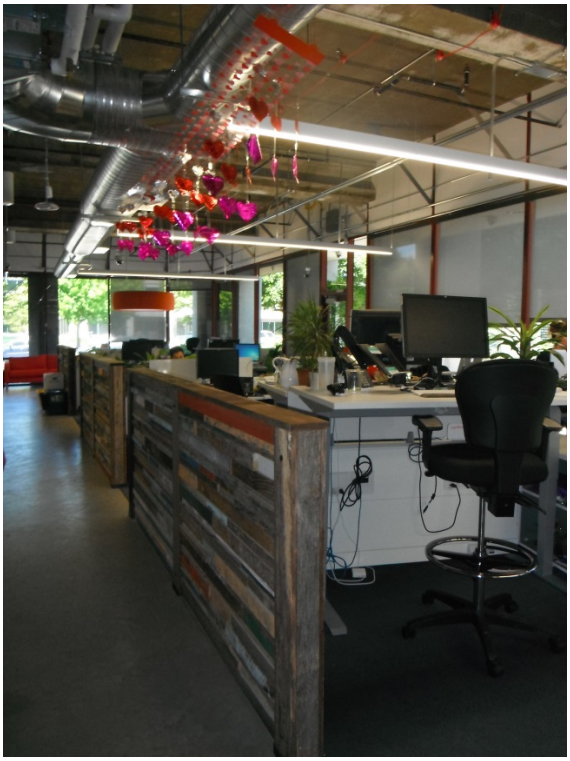


Photo #5: Interior office space of 900 Cherry Ave



Photo #6: Floor drain in the kitchen of 900 Cherry Ave

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Photo #7: Janitorial closet of 900 Cherry Ave



Photo #8: Cellular equipment enclosure on roof of 900 Cherry Ave

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Photo #9: Exterior of 1000 Cherry Ave



Photo #10: Interior renovations of 1000 Cherry Ave

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Appendix C

EDR Report of Site and Vicinity

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900 and 1000 Cherry Avenue
900 Cherry Avenue
San Bruno, CA 94066

Inquiry Number: 4342931.2s
July 02, 2015

The EDR Radius Map™ Report with GeoCheck®

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EDR® Environmental Data Resources Inc

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

900 CHERRY AVENUE
SAN BRUNO, CA 94066

COORDINATES

Latitude (North):	37.6287000 - 37° 37' 43.32''
Longitude (West):	122.4254000 - 122° 25' 31.44''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	550703.1
UTM Y (Meters):	4164570.2

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	37122-F4 SAN FRANCISCO SOUTH, CA
Most Recent Revision:	1999
South Map:	37122-E4 MONTARA MOUNTAIN, CA
Most Recent Revision:	1999

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20120520
Source:	USDA

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MAPPED SITES SUMMARY

Target Property Address:
900 CHERRY AVENUE
SAN BRUNO, CA 94066

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	AT&T MOBILITY - I-28	900 CHERRY AVE	FINDS		TP
A2	THE GAP	900 CHERRY AVE.	HAZNET		TP
A3	AT&T MOBILITY - I-28	900 CHERRY	San Mateo Co. BI		TP
A4	THE GAP PRINT SHOP	1000 CHERRY AVE	HAZNET		TP
5		851 CHERRY AVE	EDR US Hist Cleaners	Same	74, 0.014, South
B6	U S POSTAL SERVICE	850 CHERRY AVE	CA FID UST, SWEEPS UST	Same	374, 0.071, SSE
B7	U.S.P.S. WESTERN REG	850 CHERRY AVE	HIST UST	Same	374, 0.071, SSE
B8	U S POSTAL SERVICE	850 CHERRY	San Mateo Co. BI	Same	374, 0.071, SSE
B9	HOLIDAY CLEANERS	4 BAYHILL SHOPPING C	San Mateo Co. BI, EMI	Same	379, 0.072, South
B10	HOLIDAY CLEANERS OF	4 BAYHILL SHOPPING C	RCRA-SQG, DRYCLEANERS, San Mateo Co. BI	Same	379, 0.072, South
B11	CVS/PHARMACY #9807	10 BAYHILL SHOPPING	San Mateo Co. BI	Same	392, 0.074, South
B12	LONGS DRUG STORE #84	10 BAYHILL	San Mateo Co. BI	Same	392, 0.074, South
B13	REPLANET LLC	22 BAYHILL SHOPPING	SWRCY	Same	429, 0.081, South
14	EMLAB P & K	1150 BAYHILL	San Mateo Co. BI	Same	607, 0.115, East
15	KAISER BAYHILL MEDIC	801 TRAEGER	RCRA NonGen / NLR, FINDS	Same	646, 0.122, ESE
C16		101 PICCADILLY PL	EDR US Hist Auto Stat	Same	733, 0.139, NW
D17	UNITED STATES NAVY	900 COMMODORE DR	CA FID UST	Same	763, 0.145, NNE
D18	WESTERN DIVISION	900 COMMODORE DR	HIST UST	Same	763, 0.145, NNE
D19	UNITED STATES NAVY	900 COMMODORE DR	SWEEPS UST	Same	763, 0.145, NNE
D20	RESERVE CENTER	900 COMMODORE DR	HIST UST	Same	763, 0.145, NNE
D21	THE CROSSING	900 COMMODORE	LUST, VCP, San Mateo Co. BI, ENVIROSTOR	Same	763, 0.145, NNE
D22	U S NAVY SITE SAN BR	900 E COMMODORE DR	RCRA-SQG, FINDS, HAZNET	Same	763, 0.145, NNE
D23	NAVAL FAC ENGINEERIN	900 COMMODORE DRIVE	CERC-NFRAP	Same	763, 0.145, NNE
D24	WESTERN DIVISION, NA	900 COMMODORE DR	HIST UST	Same	763, 0.145, NNE
C25		123 PICCADILLY PL	EDR US Hist Cleaners	Same	771, 0.146, NW
26	BAYHILL OFFICE CENTE	950 ELM AVENUE	HIST CORTESE, LUST, San Mateo Co. BI	Same	1013, 0.192, ENE
27	G V TRUCKING & MATER	1000 SAN BRUNO	San Mateo Co. BI	Same	1055, 0.200, ESE
28	ARCHSTONE APARTMENTS	1051 NATIONAL	San Mateo Co. BI	Same	1243, 0.235, NNE
29	DAVITA	1178 CHERRY	San Mateo Co. BI	Same	1309, 0.248, NNW
E30	BAYHILL 7 FACILITY	999-1001 BAYHILL DRI	LUST, SLIC	Same	1508, 0.286, ENE
31	GOLDEN GATE NATIONAL	1300 SNEATH LN	RCRA-SQG, FINDS, HIST CORTESE, LUST, San Mateo Co....	Same	1665, 0.315, NNW
E32	BOB & KEVINS SERVICE	900 EL CAMINO REAL	HIST CORTESE	Same	1752, 0.332, ENE
E33	EUROPEAN CAR SERVICE	900 EL CAMINO REAL	HIST CORTESE, LUST, SWEEPS UST	Same	1752, 0.332, ENE
F34	92759	801 EL CAMINO REAL	LUST, HIST UST, San Mateo Co. BI	Same	1941, 0.368, East
F35	CHEVRON 9-2759	801 EL CAMINO REAL	LUST	Same	1941, 0.368, East
F36	CHEVRON	801 EL CAMINO REAL	HIST CORTESE	Same	1941, 0.368, East
F37	TEXACO	800 EL CAMINO REAL	HIST CORTESE	Same	1991, 0.377, East
F38	SERVICE STATION	800 EL CAMINO REAL	LUST, SWEEPS UST, Notify 65, San Mateo Co. BI	Same	1991, 0.377, East
F39	EXXON/TEXACO	800 EL CAMINO REAL	LUST	Same	1991, 0.377, East

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MAPPED SITES SUMMARY

Target Property Address:
900 CHERRY AVENUE
SAN BRUNO, CA 94066

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
F40	SAN BRUNO SHELL	798 EL CAMINO REAL	LUST, UST, HIST UST, San Mateo Co. BI	Same	2033, 0.385, East
F41	SHELL OIL CO	798 EL CAMINO	RCRA-SQG, FINDS, HIST CORTESE, LUST	Same	2033, 0.385, East
G42	MILLS PARK CLEANERS	709 CAMINO PLAZA	LUST, SLIC, San Mateo Co. BI, EMI	Same	2045, 0.387, East
G43	MELODY TOYOTA	750 EL CAMINO REAL	HIST CORTESE, LUST, HIST UST, HAZNET	Same	2180, 0.413, East
G44	GOOTNICK PROPERTY	732 EL CAMINO REAL	HIST CORTESE, LUST	Same	2251, 0.426, East
H45	MIDAS MUFFLER	700 EL CAMINO REAL	LUST, San Mateo Co. BI	Same	2392, 0.453, ESE
H46	MIDAS MUFFLER	700 EL CAMINO REAL	LUST	Same	2392, 0.453, ESE
I47	SEARS AUTOMOTIVE CEN	1178 EL CAMINO REAL	LUST, HIST UST, San Mateo Co. BI	Same	2393, 0.453, NNE
I48	SEARS, #1478	1178 EL CAMINO REAL	HIST CORTESE, LUST, EMI	Same	2393, 0.453, NNE
J49	WINSTON TIRE #100	504 W SAN BRUNO AVE	LUST	Same	2409, 0.456, East
J50	WINSTON TIRE #100	504 WEST SAN BRUNO A	LUST	Same	2409, 0.456, East
I51	SHELL STATION	1199 EL CAMINO REAL	LUST, HIST UST, San Mateo Co. BI	Same	2441, 0.462, NNE
52	SAN BRUNO FORD II	625 EL CAMINO REAL	LUST	Same	2572, 0.487, ESE
53	GGNRA NAT'L CEMETERY		ENVIROSTOR	Same	3214, 0.609, NW
54	FLAT RATE RENT A CAR	830 HUNTINGTON	HIST CORTESE, Notify 65	Same	3346, 0.634, ENE
55	CAMP TANFORAN		ENVIROSTOR	Same	3497, 0.662, NNE
56	CYCLE SHACK,INC	1104 SAN MATEO	HIST CORTESE, LUST, CA FID UST, HIST UST, SWEEPS...	Same	4461, 0.845, NE
57	POETSCH AND PETERSON	325 SOUTH MAPLE AVEN	ENVIROSTOR	Same	4601, 0.871, NNE
58	AUTOHAUS SAN BRUNO	675 EAST SAN BRUNO	LUST, Notify 65, San Mateo Co. BI	Same	4851, 0.919, East
59	PHASE II CORP	1229 MONTGOMERY	RCRA-SQG, CA FID UST, SLIC, HIST UST, SWEEPS UST,...	Same	4857, 0.920, NE
K60	E.I. DUPONT DE NEMOU	160 SOUTH LINDEN AVE	HIST Cal-Sites	Same	5222, 0.989, NNE
K61	AUTOMOTIVE SERVICE C	160 S. LINDEN AVE.	CERCLIS, CORRACTS, RCRA NonGen / NLR	Same	5222, 0.989, NNE
K62	DUPONT	160 LINDEN	NPDES, HIST CORTESE, LUST, RESPONSE, ENVIROSTOR	Same	5222, 0.989, NNE
K63	WEST COAST AUTOMOTIV	160 S LINDEN AVE	ENVIROSTOR	Same	5222, 0.989, NNE

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TARGET PROPERTY SEARCH RESULTS

The target property was identified in the following records. For more information on this property see page 8 of the attached EDR Radius Map report:

Site	Database(s)	EPA ID
AT&T MOBILITY - I-28 900 CHERRY AVE SAN BRUNO, CA 94066	FINDS Registry ID:: 110055790096	N/A
THE GAP 900 CHERRY AVE. SAN BRUNO, CA 94066	HAZNET GEPAID: CAC001047432	N/A
AT&T MOBILITY - I-28 900 CHERRY SAN BRUNO, CA 94066	San Mateo Co. BI Facility Id: FA0029460 Facility Id: FA0045044 Facility Id: FA0045291	N/A
THE GAP PRINT SHOP 1000 CHERRY AVE SAN BRUNO, CA 94066	HAZNET GEPAID: CAL000125586	N/A

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---------- National Priority List Deletions

Federal CERCLIS list

CERCLIS ---------- Comprehensive Environmental Response, Compensation, and Liability Information System

FEDERAL FACILITY..... Federal Facility Site Information listing

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG..... RCRA - Large Quantity Generators
RCRA-CESQG..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS..... Engineering Controls Sites List
US INST CONTROL..... Sites with Institutional Controls
LUCIS..... Land Use Control Information System

Federal ERNS list

ERNS..... Emergency Response Notification System

State and tribal landfill and/or solid waste disposal site lists

SWF/LF..... Solid Waste Information System

State and tribal leaking storage tank lists

INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

UST..... Active UST Facilities
AST..... Aboveground Petroleum Storage Tank Facilities
INDIAN UST..... Underground Storage Tanks on Indian Land
FEMA UST..... Underground Storage Tank Listing

State and tribal voluntary cleanup sites

INDIAN VCP..... Voluntary Cleanup Priority Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations
ODI..... Open Dump Inventory
HAULERS..... Registered Waste Tire Haulers Listing
INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands
WMUDS/SWAT..... Waste Management Unit Database

Local Lists of Hazardous waste / Contaminated Sites

US CDL..... Clandestine Drug Labs

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SCH	School Property Evaluation Program
Toxic Pits	Toxic Pits Cleanup Act Sites
CDL	Clandestine Drug Labs
US HIST CDL	National Clandestine Laboratory Register

Local Land Records

LIENS 2	CERCLA Lien Information
LIENS	Environmental Liens Listing
DEED	Deed Restriction Listing

Records of Emergency Release Reports

HMIRS	Hazardous Materials Information Reporting System
CHMIRS	California Hazardous Material Incident Report System
LDS	Land Disposal Sites Listing
MCS	Military Cleanup Sites Listing
SPILLS 90	SPILLS 90 data from FirstSearch

Other Ascertainable Records

DOT OPS	Incident and Accident Data
DOD	Department of Defense Sites
FUDS	Formerly Used Defense Sites
CONSENT	Superfund (CERCLA) Consent Decrees
ROD	Records Of Decision
UMTRA	Uranium Mill Tailings Sites
US MINES	Mines Master Index File
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
SSTS	Section 7 Tracking Systems
ICIS	Integrated Compliance Information System
PADS	PCB Activity Database System
MLTS	Material Licensing Tracking System
RADINFO	Radiation Information Database
RAATS	RCRA Administrative Action Tracking System
RMP	Risk Management Plans
CA BOND EXP. PLAN	Bond Expenditure Plan
NPDES	NPDES Permits Listing
UIC	UIC Listing
Cortese	"Cortese" Hazardous Waste & Substances Sites List
CUPA Listings	CUPA Resources List
WIP	Well Investigation Program Case List
ENF	Enforcement Action Listing
EMI	Emissions Inventory Data
INDIAN RESERV	Indian Reservations
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
WDS	Waste Discharge System
Financial Assurance	Financial Assurance Information Listing
PROC	Certified Processors Database
HWT	Registered Hazardous Waste Transporter Database
HWP	EnviroStor Permitted Facilities Listing

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MWMP ---------- Medical Waste Management Program Listing
LEAD SMELTERS ---------- Lead Smelter Sites
US AIRS ---------- Aerometric Information Retrieval System Facility Subsystem
EPA WATCH LIST ---------- EPA WATCH LIST
US FIN ASSUR ---------- Financial Assurance Information
COAL ASH EPA ---------- Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER ---------- PCB Transformer Registration Database
COAL ASH DOE ---------- Steam-Electric Plant Operation Data
2020 COR ACTION ---------- 2020 Corrective Action Program List
PRP ---------- Potentially Responsible Parties

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP ---------- EDR Proprietary Manufactured Gas Plants

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LUST ---------- Recovered Government Archive Leaking Underground Storage Tank
RGA LF ---------- Recovered Government Archive Solid Waste Facilities List

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

Federal CERCLIS NFRAP site List

CERC-NFRAP: Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

A review of the CERC-NFRAP list, as provided by EDR, and dated 10/25/2013 has revealed that there is 1 CERC-NFRAP site within approximately 0.5 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
NAVAL FAC ENGINEERIN	900 COMMODORE DRIVE	1/8 - 1/4 (0.145 mi.) NNE	D23	37

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Federal RCRA CORRACTS facilities list

CORRACTS: CORRACTS is a list of handlers with RCRA Corrective Action Activity. This report shows which nationally-defined corrective action core events have occurred for every handler that has had corrective action activity.

A review of the CORRACTS list, as provided by EDR, and dated 03/10/2015 has revealed that there is 1 CORRACTS site within approximately 1 mile of the target property.

Site	Address	Dist / Dir	Map ID	Page
AUTOMOTIVE SERVICE C	***160 S. LINDEN AVE.***	***1/2 - 1 (0.989 mi.) NNE***	***K61***	***162***

Federal RCRA generators list

RCRA-SQG: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

A review of the RCRA-SQG list, as provided by EDR, and dated 03/10/2015 has revealed that there are 2 RCRA-SQG sites within approximately 0.25 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
HOLIDAY CLEANERS OF	***4 BAYHILL SHOPPING C***	***0 - 1/8 (0.072 mi.) S***	***B10***	***19***
U S NAVY SITE SAN BR	***900 E COMMODORE DR***	***1/8 - 1/4 (0.145 mi.) NNE***	***D22***	***34***

State- and tribal - equivalent NPL

RESPONSE: Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

A review of the RESPONSE list, as provided by EDR, and dated 05/04/2015 has revealed that there is 1 RESPONSE site within approximately 1 mile of the target property.

Site	Address	Dist / Dir	Map ID	Page
DUPONT	***160 LINDEN***	***1/2 - 1 (0.989 mi.) NNE***	***K62***	***166***
Status: Certified Facility Id: 41280049				

State- and tribal - equivalent CERCLIS

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 05/04/2015 has revealed that there are 8 ENVIROSTOR sites within approximately 1 mile of the target property.

Site	Address	Dist / Dir	Map ID	Page
THE CROSSING Status: Certified Facility Id: 41940001	***900 COMMODORE***	***1/8 - 1/4 (0.145 mi.) NNE***	***D21***	***26***
GGNRA NAT'L CEMETERY Status: No Further Action Facility Id: 80000395		1/2 - 1 (0.609 mi.) NW	53	140
CAMP TANFORAN Status: No Further Action Facility Id: 80000381		1/2 - 1 (0.662 mi.) NNE	55	141
CYCLE SHACK,INC Status: Inactive - Needs Evaluation Facility Id: 71002485	***1104 SAN MATEO***	***1/2 - 1 (0.845 mi.) NE***	***56***	***142***
POETSCH AND PETERSON Status: Refer: RWQCB Facility Id: 41310004	325 SOUTH MAPLE AVEN	1/2 - 1 (0.871 mi.) NNE	57	146
PHASE II CORP Status: Inactive - Needs Evaluation Facility Id: 71002470	***1229 MONTGOMERY***	***1/2 - 1 (0.920 mi.) NE***	***59***	***149***
DUPONT Status: Certified Facility Id: 41280049	***160 LINDEN***	***1/2 - 1 (0.989 mi.) NNE***	***K62***	***166***
WEST COAST AUTOMOTIV Status: Inactive - Needs Evaluation Facility Id: 80001622	160 S LINDEN AVE	1/2 - 1 (0.989 mi.) NNE	K63	181

State and tribal leaking storage tank lists

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the State Water Resources Control Board Leaking Underground Storage Tank Information System.

A review of the LUST list, as provided by EDR, and dated 03/13/2015 has revealed that there are 22

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LUST sites within approximately 0.5 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
THE CROSSING	***900 COMMODORE***	***1/8 - 1/4 (0.145 mi.) NNE***	***D21***	***26***
Status: Completed - Case Closed Facility Status: Case Closed Facility Id: 880059 Facility Status: 9- Case Closed Global Id: T0608122176 Global ID: T0608122176 date9: 2/25/2004				
BAYHILL OFFICE CENTE	***950 ELM AVENUE***	***1/8 - 1/4 (0.192 mi.) ENE***	***26***	***39***
Status: Completed - Case Closed Facility Id: 889042 Facility Status: 9- Case Closed Global Id: T0608174310 Global ID: T0608174310				
BAYHILL 7 FACILITY	***999-1001 BAYHILL DRI***	***1/4 - 1/2 (0.286 mi.) ENE***	***E30***	***41***
Facility Id: 889060 Facility Status: 9- Case Closed Global ID: SL0608164408				
GOLDEN GATE NATIONAL	***1300 SNEATH LN***	***1/4 - 1/2 (0.315 mi.) NNW***	***31***	***42***
Status: Completed - Case Closed Facility Status: Preliminary site assessment underway Facility Id: 880047 Facility Status: 9- Case Closed Global Id: T0608101074 Global ID: T0608101074				
EUROPEAN CAR SERVICE	***900 EL CAMINO REAL***	***1/4 - 1/2 (0.332 mi.) ENE***	***E33***	***46***
Status: Completed - Case Closed Facility Status: Case Closed Facility Id: 880021 Facility Status: 9- Case Closed Global Id: T0608100202 Global ID: T0608100202 date9: 10/17/2002				
92759	***801 EL CAMINO REAL***	***1/4 - 1/2 (0.368 mi.) E***	***F34***	***49***
Status: Open - Verification Monitoring Facility Id: 880006 Facility Status: 5R- Remediation Plan Global Id: T0608100147 Global ID: T0608100147				
CHEVRON 9-2759	801 EL CAMINO REAL	1/4 - 1/2 (0.368 mi.) E	F35	60
Facility Status: Post remedial action monitoring				
SERVICE STATION	***800 EL CAMINO REAL***	***1/4 - 1/2 (0.377 mi.) E***	***F38***	***61***
Status: Completed - Case Closed Facility Id: 880013 Facility Status: 9- Case Closed Global Id: T0608100537 Global ID: T0608100537				
EXXON/TEXACO	800 EL CAMINO REAL	1/4 - 1/2 (0.377 mi.) E	F39	73
Facility Status: Pollution Characterization				
SAN BRUNO SHELL	***798 EL CAMINO REAL***	***1/4 - 1/2 (0.385 mi.) E***	***F40***	***73***
Status: Completed - Case Closed Facility Id: 880015 Facility Status: 9- Case Closed Global Id: T0608100491 Global ID: T0608100491				

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Site	Address	Dist / Dir	Map ID	Page
SHELL OIL CO	***798 EL CAMINO***	***1/4 - 1/2 (0.385 mi.) E***	***F41***	***84***
Facility Status: Pollution Characterization				
MILLS PARK CLEANERS	***709 CAMINO PLAZA***	***1/4 - 1/2 (0.387 mi.) E***	***G42***	***86***
Facility Id: 889061				
Facility Status: 3B- Preliminary Assessment Underway				
Global ID: TI0000001468				
MELODY TOYOTA	***750 EL CAMINO REAL***	***1/4 - 1/2 (0.413 mi.) E***	***G43***	***94***
Status: Open - Eligible for Closure				
Facility Status: Post remedial action monitoring				
Facility Id: 880039				
Facility Status: 5C- Pollution Characterization				
Global Id: T0608100890				
Global ID: T0608100890				
GOOTNICK PROPERTY	***732 EL CAMINO REAL***	***1/4 - 1/2 (0.426 mi.) E***	***G44***	***103***
Status: Completed - Case Closed				
Facility Status: Preliminary site assessment underway				
Facility Id: 880041				
Facility Status: 9- Case Closed				
Global Id: T0608100807				
Global ID: T0608100807				
MIDAS MUFFLER	***700 EL CAMINO REAL***	***1/4 - 1/2 (0.453 mi.) ESE***	***H45***	***110***
Facility Status: Case Closed				
date9: 5/13/1998				
MIDAS MUFFLER	700 EL CAMINO REAL	1/4 - 1/2 (0.453 mi.) ESE	H46	111
Status: Completed - Case Closed				
Facility Id: 880035				
Facility Status: 9- Case Closed				
Global Id: T0608100836				
Global ID: T0608100836				
SEARS AUTOMOTIVE CEN	***1178 EL CAMINO REAL***	***1/4 - 1/2 (0.453 mi.) NNE***	***I47***	***112***
Status: Open - Site Assessment				
Facility Id: 880008				
Facility Status: 5C- Pollution Characterization				
Global Id: T0608100452				
Global ID: T0608100452				
SEARS, #1478	***1178 EL CAMINO REAL***	***1/4 - 1/2 (0.453 mi.) NNE***	***I48***	***122***
Facility Status: Pollution Characterization				
WINSTON TIRE #100	504 W SAN BRUNO AVE	1/4 - 1/2 (0.456 mi.) E	J49	125
Facility Id: 880058				
Facility Status: 9- Case Closed				
Global ID: T0608111410				
WINSTON TIRE #100	504 WEST SAN BRUNO A	1/4 - 1/2 (0.456 mi.) E	J50	125
Status: Completed - Case Closed				
Global Id: T0608111410				
SHELL STATION	***1199 EL CAMINO REAL***	***1/4 - 1/2 (0.462 mi.) NNE***	***I51***	***129***
Status: Open - Remediation				
Facility Id: 880057				
Facility Status: 5C- Pollution Characterization				
Global Id: T0608182194				
Global ID: T0608182194				
SAN BRUNO FORD II	625 EL CAMINO REAL	1/4 - 1/2 (0.487 mi.) ESE	52	138
Status: Completed - Case Closed				
Facility Status: Case Closed				
Facility Id: 880032				
Facility Status: 9- Case Closed				
Global Id: T0608100766				
Global ID: T0608100766				
date9: 8/21/1995				

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SLIC: SLIC Region comes from the California Regional Water Quality Control Board.

A review of the SLIC list, as provided by EDR, and dated 03/13/2015 has revealed that there are 2 SLIC sites within approximately 0.5 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
BAYHILL 7 FACILITY Global Id: SL0608164408 Facility Status: Completed - Case Closed	***999-1001 BAYHILL DRI***	***1/4 - 1/2 (0.286 mi.) ENE***	***E30***	***41***
MILLS PARK CLEANERS Global Id: T10000001468 Facility Status: Open - Site Assessment	***709 CAMINO PLAZA***	***1/4 - 1/2 (0.387 mi.) E***	***G42***	***86***

State and tribal voluntary cleanup sites

VCP: Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

A review of the VCP list, as provided by EDR, and dated 05/04/2015 has revealed that there is 1 VCP site within approximately 0.5 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
THE CROSSING Status: Certified Facility Id: 41940001	***900 COMMODORE***	***1/8 - 1/4 (0.145 mi.) NNE***	***D21***	***26***

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Landfill / Solid Waste Disposal Sites

SWRCY: A listing of recycling facilities in California.

A review of the SWRCY list, as provided by EDR, and dated 03/16/2015 has revealed that there is 1 SWRCY site within approximately 0.5 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
REPLANET LLC Cert Id: RC222706.001	22 BAYHILL SHOPPING	0 - 1/8 (0.081 mi.) S	B13	21

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Local Lists of Hazardous waste / Contaminated Sites

HIST Cal-Sites: Formerly known as ASPIS, this database contains both known and potential hazardous substance sites. The source is the California Department of Toxic Substance Control. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

A review of the HIST Cal-Sites list, as provided by EDR, and dated 08/08/2005 has revealed that there is 1 HIST Cal-Sites site within approximately 1 mile of the target property.

Site	Address	Dist / Dir	Map ID	Page
E.I. DUPONT DE NEMOU	160 SOUTH LINDEN AVE	1/2 - 1 (0.989 mi.) NNE	K60	159

Local Lists of Registered Storage Tanks

CA FID UST: The Facility Inventory Database contains active and inactive underground storage tank locations. The source is the State Water Resource Control Board.

A review of the CA FID UST list, as provided by EDR, and dated 10/31/1994 has revealed that there are 2 CA FID UST sites within approximately 0.25 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
U S POSTAL SERVICE Facility Id: 41001686 Status: A	***850 CHERRY AVE***	***0 - 1/8 (0.071 mi.) SSE***	***B6***	***11***
UNITED STATES NAVY Facility Id: 41001088 Status: A	900 COMMODORE DR	1/8 - 1/4 (0.145 mi.) NNE	D17	24

HIST UST: Historical UST Registered Database.

A review of the HIST UST list, as provided by EDR, and dated 10/15/1990 has revealed that there are 4 HIST UST sites within approximately 0.25 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
U.S.P.S. WESTERN REG Facility Id: 00000063870	850 CHERRY AVE	0 - 1/8 (0.071 mi.) SSE	B7	12
WESTERN DIVISION Facility Id: 00000058550	900 COMMODORE DR	1/8 - 1/4 (0.145 mi.) NNE	D18	24
RESERVE CENTER Facility Id: 00000058549	900 COMMODORE DR	1/8 - 1/4 (0.145 mi.) NNE	D20	25
WESTERN DIVISION, NA Facility Id: 00000050292	900 COMMODORE DR	1/8 - 1/4 (0.145 mi.) NNE	D24	38

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SWEEPS UST: Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

A review of the SWEEPS UST list, as provided by EDR, and dated 06/01/1994 has revealed that there are 2 SWEEPS UST sites within approximately 0.25 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
U S POSTAL SERVICE	***850 CHERRY AVE***	***0 - 1/8 (0.071 mi.) SSE***	***B6***	***11***
Status: A Tank Status: A Comp Number: 880041				
UNITED STATES NAVY	900 COMMODORE DR	1/8 - 1/4 (0.145 mi.) NNE	D19	25
Comp Number: 880048				

Other Ascertainable Records

RCRA NonGen / NLR: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 03/10/2015 has revealed that there is 1 RCRA NonGen / NLR site within approximately 0.25 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
KAISER BAYHILL MEDIC	***801 TRAEGER***	***0 - 1/8 (0.122 mi.) ESE***	***15***	***22***

HIST CORTESE: The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

A review of the HIST CORTESE list, as provided by EDR, and dated 04/01/2001 has revealed that there are 10 HIST CORTESE sites within approximately 0.5 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
BAYHILL OFFICE CENTE	***950 ELM AVENUE***	***1/8 - 1/4 (0.192 mi.) ENE***	***26***	***39***
Reg Id: 41-1161				
GOLDEN GATE NATIONAL	***1300 SNEATH LN***	***1/4 - 1/2 (0.315 mi.) NNW***	***31***	***42***
Reg Id: 41-1175				
BOB & KEVINS SERVICE	900 EL CAMINO REAL	1/4 - 1/2 (0.332 mi.) ENE	E32	46
Reg Id: 41-0840				
EUROPEAN CAR SERVICE	***900 EL CAMINO REAL***	***1/4 - 1/2 (0.332 mi.) ENE***	***E33***	***46***
Reg Id: 41-0212 Reg Id: 41-0966				
CHEVRON	801 EL CAMINO REAL	1/4 - 1/2 (0.368 mi.) E	F36	60
Reg Id: 41-0155				

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Site	Address	Dist / Dir	Map ID	Page
TEXACO Reg Id: 41-0563	800 EL CAMINO REAL	1/4 - 1/2 (0.377 mi.) E	F37	61
SHELL OIL CO Reg Id: 41-0515	***798 EL CAMINO***	***1/4 - 1/2 (0.385 mi.) E***	***F41***	***84***
MELODY TOYOTA Reg Id: 41-0971	***750 EL CAMINO REAL***	***1/4 - 1/2 (0.413 mi.) E***	***G43***	***94***
GOOTNICK PROPERTY Reg Id: 41-0862	***732 EL CAMINO REAL***	***1/4 - 1/2 (0.426 mi.) E***	***G44***	***103***
SEARS, #1478 Reg Id: 41-0476	***1178 EL CAMINO REAL***	***1/4 - 1/2 (0.453 mi.) NNE***	***I48***	***122***

Notify 65: Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

A review of the Notify 65 list, as provided by EDR, and dated 10/21/1993 has revealed that there are 3 Notify 65 sites within approximately 1 mile of the target property.

Site	Address	Dist / Dir	Map ID	Page
SERVICE STATION	***800 EL CAMINO REAL***	***1/4 - 1/2 (0.377 mi.) E***	***F38***	***61***
FLAT RATE RENT A CAR	***830 HUNTINGTON***	***1/2 - 1 (0.634 mi.) ENE***	***54***	***141***
AUTOHAUS SAN BRUNO	***675 EAST SAN BRUNO***	***1/2 - 1 (0.919 mi.) E***	***58***	***147***

DRYCLEANERS: A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaners' agents; linen supply; coin-operated laundries and cleaning; drycleaning plants except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

A review of the DRYCLEANERS list, as provided by EDR, and dated 02/18/2015 has revealed that there is 1 DRYCLEANERS site within approximately 0.25 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
HOLIDAY CLEANERS OF EPA Id: CAL000182966	***4 BAYHILL SHOPPING C***	***0 - 1/8 (0.072 mi.) S***	***B10***	***19***

Hazardous Materials Business Plan, Hazardous Waste Generator, Underground Storage tanks

A review of the San Mateo Co. BI list, as provided by EDR, and dated 04/13/2015 has revealed that there are 11 San Mateo Co. BI sites within approximately 0.25 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
U S POSTAL SERVICE Facility Id: FA0018242 Facility Id: FA0042612	850 CHERRY	0 - 1/8 (0.071 mi.) SSE	B8	12

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Site	Address	Dist / Dir	Map ID	Page
HOLIDAY CLEANERS Facility Id: FA0013721	***4 BAYHILL SHOPPING C***	***0 - 1/8 (0.072 mi.) S***	***B9***	***13***
HOLIDAY CLEANERS OF Facility Id: FA0034958	***4 BAYHILL SHOPPING C***	***0 - 1/8 (0.072 mi.) S***	***B10***	***19***
CVS/PHARMACY #9807 Facility Id: FA0039517	10 BAYHILL SHOPPING	0 - 1/8 (0.074 mi.) S	B11	21
LONGS DRUG STORE #84 Facility Id: FA0002711	10 BAYHILL	0 - 1/8 (0.074 mi.) S	B12	21
EMLAB P & K Facility Id: FA0052062	1150 BAYHILL	0 - 1/8 (0.115 mi.) E	14	22
THE CROSSING Facility Id: FA0018249 Facility Id: FA0028744 Facility Id: FA0045331	***900 COMMODORE***	***1/8 - 1/4 (0.145 mi.) NNE***	***D21***	***26***
BAYHILL OFFICE CENTE Facility Id: FA0051210	***950 ELM AVENUE***	***1/8 - 1/4 (0.192 mi.) ENE***	***26***	***39***
G V TRUCKING & MATER Facility Id: FA0024014	1000 SAN BRUNO	1/8 - 1/4 (0.200 mi.) ESE	27	40
ARCHSTONE APARTMENTS Facility Id: FA0052134	1051 NATIONAL	1/8 - 1/4 (0.235 mi.) NNE	28	41
DAVITA Facility Id: FA0052136	1178 CHERRY	1/8 - 1/4 (0.248 mi.) NNW	29	41

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR US Hist Auto Stat: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR US Hist Auto Stat list, as provided by EDR, has revealed that there is 1 EDR US Hist Auto Stat site within approximately 0.25 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
Not reported	101 PICCADILLY PL	1/8 - 1/4 (0.139 mi.) NW	C16	24

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EDR US Hist Cleaners: EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

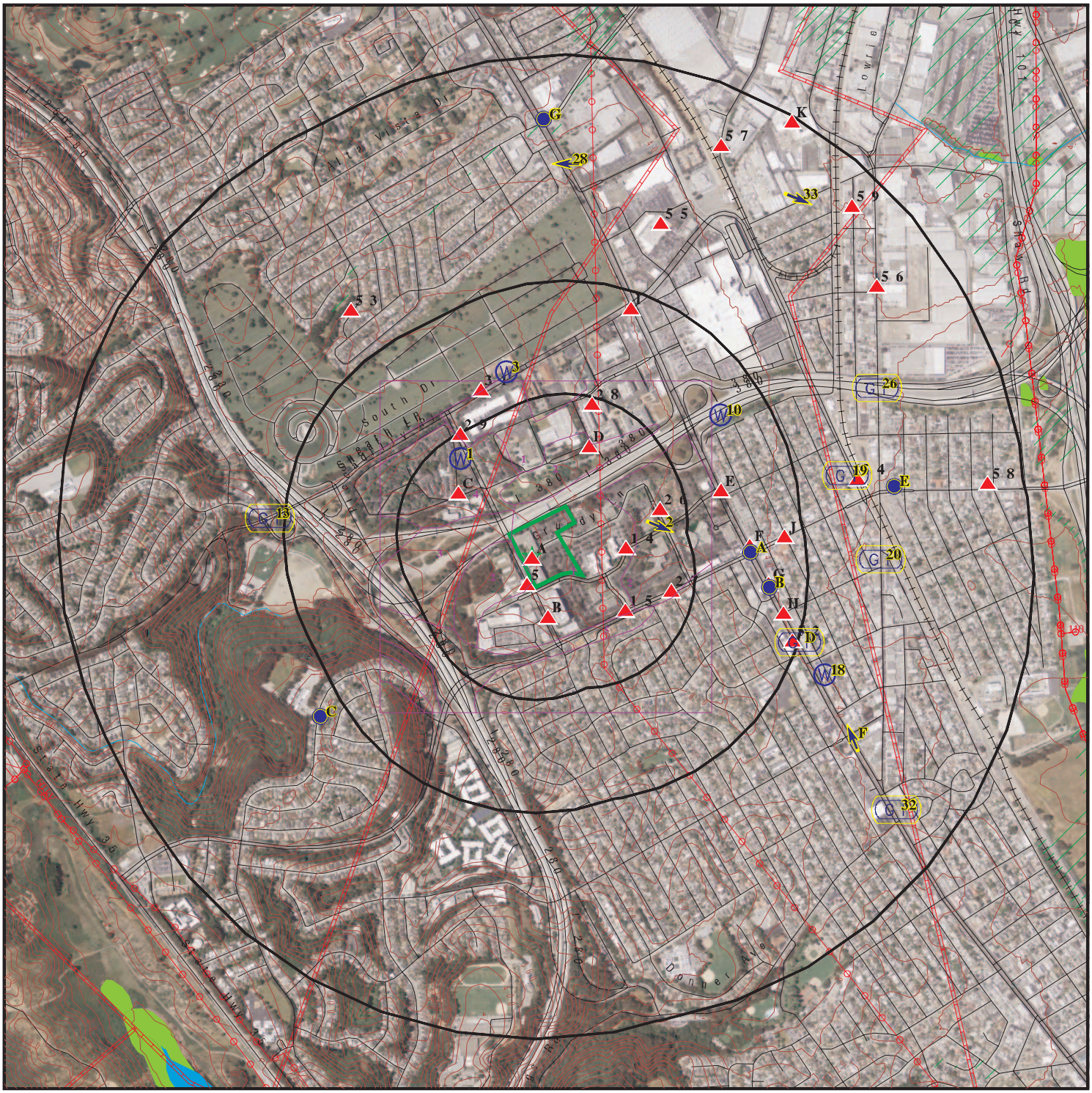
A review of the EDR US Hist Cleaners list, as provided by EDR, has revealed that there are 2 EDR US Hist Cleaners sites within approximately 0.25 miles of the target property.

Site	Address	Dist / Dir	Map ID	Page
Not reported	851 CHERRY AVE	0 - 1/8 (0.014 mi.) S	5	11
Not reported	123 PICCADILLY PL	1/8 - 1/4 (0.146 mi.) NW	C25	39

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There were no unmapped sites in this report.

OVERVIEW MAP - 4342931.2S



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This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	900 and 1000 Cherry Avenue	CLIENT:	Iris Environmental
ADDRESS:	900 Cherry Avenue San Bruno CA 94066	CONTACT:	Karen Smith
		INQUIRY #:	4342931.2s
LAT/LONG:	37.6287 / 122.4254	DATE:	July 02, 2015 8:01 am

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DETAIL MAP - 4342931.2S



- Target Property
- Toxic Sites
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Pipelines
- 100-year flood zone
- 500-year flood zone
- Areas of Concern

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This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	900 and 1000 Cherry Avenue	CLIENT:	Iris Environmental
ADDRESS:	900 Cherry Avenue San Bruno CA 94066	CONTACT:	Karen Smith
		INQUIRY #:	4342931.2s
LAT/LONG:	37.6287 / 122.4254	DATE:	July 02, 2015 8:01 am

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
CERCLIS	0.500		0	0	0	NR	NR	0
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP	0.500		0	1	0	NR	NR	1
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	1	NR	1
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		1	1	NR	NR	NR	2
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
LUCIS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	1	NR	1
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		0	1	0	7	NR	8
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		0	2	20	NR	NR	22

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
SLIC	0.500		0	0	2	NR	NR	2
INDIAN LUST	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
FEMA UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	1	0	NR	NR	1
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
SWRCY	0.500		1	0	0	NR	NR	1
HAULERS	TP		NR	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL	TP		NR	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	1	NR	1
SCH	0.250		0	0	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
US HIST CDL	TP		NR	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
CA FID UST	0.250		1	1	NR	NR	NR	2
HIST UST	0.250		1	3	NR	NR	NR	4
SWEEPS UST	0.250		1	1	NR	NR	NR	2
Local Land Records								
LIENS 2	TP		NR	NR	NR	NR	NR	0
LIENS	TP		NR	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
CHMIRS	TP		NR	NR	NR	NR	NR	0
LDS	TP		NR	NR	NR	NR	NR	0

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Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
MCS	TP		NR	NR	NR	NR	NR	0
SPILLS 90	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		1	0	NR	NR	NR	1
DOT OPS	TP		NR	NR	NR	NR	NR	0
DOD	1.000		0	0	0	0	NR	0
FUDS	1.000		0	0	0	0	NR	0
CONSENT	1.000		0	0	0	0	NR	0
ROD	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
FINDS	TP	1	NR	NR	NR	NR	NR	1
RAATS	TP		NR	NR	NR	NR	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
Cortese	0.500		0	0	0	NR	NR	0
HIST CORTESE	0.500		0	1	9	NR	NR	10
CUPA Listings	0.250		0	0	NR	NR	NR	0
Notify 65	1.000		0	0	1	2	NR	3
DRYCLEANERS	0.250		1	0	NR	NR	NR	1
WIP	0.250		0	0	NR	NR	NR	0
ENF	TP		NR	NR	NR	NR	NR	0
San Mateo Co. BI	0.250	1	6	5	NR	NR	NR	12
HAZNET	TP	2	NR	NR	NR	NR	NR	2
EMI	TP		NR	NR	NR	NR	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
WDS	TP		NR	NR	NR	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
HWT	0.250		0	0	NR	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR US Hist Auto Stat	0.250		0	1	NR	NR	NR	1
EDR US Hist Cleaners	0.250		1	1	NR	NR	NR	2
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LUST	TP		NR	NR	NR	NR	NR	0
RGA LF	TP		NR	NR	NR	NR	NR	0
- Totals --		4	14	19	32	12	0	81

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

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Map ID / Direction / Distance / Distance (ft.)	Site	Database(s)	EDR ID Number / EPA ID Number
A1	**AT&T MOBILITY - I-280 - I-380 (12749)**	**FINDS**	**1016428677**
Target	**900 CHERRY AVE**		**N/A**
Property	**SAN BRUNO, CA 94066**		

Site 1 of 4 in cluster A

FINDS:

Registry ID: 110055790096

Environmental Interest/Information System
STATE MASTER

A2	**THE GAP**	**HAZNET**	**S112863003**
Target	**900 CHERRY AVE.**		**N/A**
Property	**SAN BRUNO, CA 94066**		

Site 2 of 4 in cluster A

HAZNET:

envid:	S112863003
Year:	1995
GEPAID:	CAC001047432
Contact:	THE GAP
Telephone:	0000000000
Mailing Name:	Not reported
Mailing Address:	900 CHERRY AVE.
Mailing City,St,Zip:	SAN BRUNO, CA 940660000
Gen County:	Not reported
TSD EPA ID:	NYN200000044
TSD County:	Not reported
Waste Category:	Not reported
Disposal Method:	Recycler
Tons:	.0000
Facility County:	San Mateo

envid:	S112863003
Year:	1995
GEPAID:	CAC001047432
Contact:	THE GAP
Telephone:	0000000000
Mailing Name:	Not reported
Mailing Address:	900 CHERRY AVE.
Mailing City,St,Zip:	SAN BRUNO, CA 940660000
Gen County:	Not reported
TSD EPA ID:	NYN200000044
TSD County:	Not reported
Waste Category:	Polychlorinated biphenyls and material containing PCBs
Disposal Method:	Treatment, Incineration
Tons:	1.3874
Facility County:	San Mateo

A3 **AT&T MOBILITY - I-280 - I-380 (12749)** **San Mateo Co. BI** **S102803886**
Target **900 CHERRY** **N/A**
Property **SAN BRUNO, CA 94066**

Site 3 of 4 in cluster A

San Mateo Co. BI:

Region:	SAN MATEO
Facility ID:	FA0029460
Prog Element Code:	STORES HAZ MAT <219GAL,1,999LB, 879FT3
Record Id:	PR0050151
Description:	STORES HAZ MAT <219GAL,1,999LB, 879CF
Region:	SAN MATEO
Facility ID:	FA0045044
Prog Element Code:	STORES HAZ MAT <219GAL,1,999LB, 879FT3
Record Id:	PR0057576
Description:	STORES HAZ MAT <219GAL,1,999LB, 879CF
Region:	SAN MATEO
Facility ID:	FA0045291
Prog Element Code:	STORES HAZ MAT <219GAL,1,999LB, 879FT3
Record Id:	PR0058700
Description:	STORES HAZ MAT <219GAL,1,999LB, 879CF

A4 **THE GAP PRINT SHOP** **HAZNET** **S113070949**
Target **1000 CHERRY AVE** **N/A**
Property **SAN BRUNO, CA 94066**

Site 4 of 4 in cluster A

HAZNET:

envid:	S113070949
Year:	2006
GEPAID:	CAL000125586
Contact:	MILE SKOGSTROM/SUP
Telephone:	4157374625
Mailing Name:	Not reported
Mailing Address:	900 CHERRY AVE
Mailing City,St,Zip:	SAN BRUNO, CA 940663010
Gen County:	Not reported
TSD EPA ID:	CAT080014079
TSD County:	Not reported
Waste Category:	Off-specification, aged or surplus organics
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.17
Facility County:	San Mateo
envid:	S113070949
Year:	2006
GEPAID:	CAL000125586
Contact:	MILE SKOGSTROM/SUP
Telephone:	4157374625
Mailing Name:	Not reported
Mailing Address:	900 CHERRY AVE
Mailing City,St,Zip:	SAN BRUNO, CA 940663010
Gen County:	Not reported
TSD EPA ID:	CAD008302903
TSD County:	Not reported

THE GAP PRINT SHOP (Continued) **S113070949**

Waste Category:	Off-specification, aged or surplus organics
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0
Facility County:	San Mateo

envid:	S113070949
Year:	2006
GEPAID:	CAL000125586
Contact:	MILE SKOGSTROM/SUP
Telephone:	4157374625
Mailing Name:	Not reported
Mailing Address:	900 CHERRY AVE
Mailing City,St,Zip:	SAN BRUNO, CA 940663010
Gen County:	Not reported
TSD EPA ID:	CAD008302903
TSD County:	Not reported
Waste Category:	Waste oil and mixed oil
Disposal Method:	Fuel Blending Prior To Energy Recovery At Another Site
Tons:	0.04
Facility County:	San Mateo

envid:	S113070949
Year:	2006
GEPAID:	CAL000125586
Contact:	MILE SKOGSTROM/SUP
Telephone:	4157374625
Mailing Name:	Not reported
Mailing Address:	900 CHERRY AVE
Mailing City,St,Zip:	SAN BRUNO, CA 940663010
Gen County:	Not reported
TSD EPA ID:	CAT080014079
TSD County:	Not reported
Waste Category:	Other organic solids
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.02
Facility County:	San Mateo

envid:	S113070949
Year:	2006
GEPAID:	CAL000125586
Contact:	MILE SKOGSTROM/SUP
Telephone:	4157374625
Mailing Name:	Not reported
Mailing Address:	900 CHERRY AVE
Mailing City,St,Zip:	SAN BRUNO, CA 940663010
Gen County:	Not reported
TSD EPA ID:	CAD008302903
TSD County:	Not reported
Waste Category:	Off-specification, aged or surplus organics
Disposal Method:	Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons:	0.2
Facility County:	San Mateo

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THE GAP PRINT SHOP (Continued) **S113070949**

Click this hyperlink while viewing on your computer to access
3 additional CA_HAZNET: record(s) in the EDR Site Report.

---

5 **EDR US Hist Cleaners** **1015101275**
South **851 CHERRY AVE** **N/A**
< 1/8 **SAN BRUNO, CA 94066**
0.014 mi.
74 ft.

EDR Historical Cleaners:

Name:	HOLIDAY CLEANERS
Year:	2008
Address:	851 CHERRY AVE
Name:	HOLIDAY CLEANERS OF AMERICA
Year:	2010
Address:	851 CHERRY AVE
Name:	BAYHILL PLAZA CLEANERS
Year:	2011
Address:	851 CHERRY AVE
Name:	BAYHILL PLAZA CLEANERS
Year:	2012
Address:	851 CHERRY AVE

B6 **U S POSTAL SERVICE** **CA FID UST** **S101593874**
SSE **850 CHERRY AVE** **SWEEPS UST** **N/A**
< 1/8 **SAN BRUNO, CA 94099**
0.071 mi.
374 ft. **Site 1 of 8 in cluster B**

CA FID UST:

Facility ID:	41001686
Regulated By:	UTNKA
Regulated ID:	Not reported
Cortese Code:	Not reported
SIC Code:	Not reported
Facility Phone:	Not reported
Mail To:	Not reported
Mailing Address:	850 CHERRY AVE
Mailing Address 2:	Not reported
Mailing City,St,Zip:	SAN BRUNO 940990130
Contact:	Not reported
Contact Phone:	Not reported
DUNs Number:	Not reported
NPDES Number:	Not reported
EPA ID:	Not reported
Comments:	Not reported
Status:	Active

SWEEPS UST:

Status:	Active
Comp Number:	880041
Number:	7
Board Of Equalization:	Not reported

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U S POSTAL SERVICE (Continued) **S101593874**

Referral Date:	05-21-94
Action Date:	05-21-94
Created Date:	10-13-88
Owner Tank Id:	1
SWRCB Tank Id:	41-000-880041-000001
Tank Status:	A
Capacity:	5929
Active Date:	04-11-94
Tank Use:	PETROLEUM
STG:	P
Content:	DIESEL
Number Of Tanks:	1

B7 **U.S.P.S. WESTERN REGIONAL HEAD** **HIST UST** **U001595011**
SSE **850 CHERRY AVE** **N/A**
< 1/8 **SAN BRUNO, CA 94099**
0.071 mi.
374 ft. **Site 2 of 8 in cluster B**

HIST UST:

Region:	STATE
Facility ID:	00000063870
Facility Type:	Other
Other Type:	POSTAL SERVICE
Contact Name:	JOHN BELL
Telephone:	4158769267
Owner Name:	U.S. POSTAL SERVICE
Owner Address:	850 CHERRY AVENUE
Owner City,St,Zip:	SAN BRUNO, CA 940990532
Total Tanks:	0001
Tank Num:	001
Container Num:	#CAX219147
Year Installed:	1981
Tank Capacity:	00006000
Tank Used for:	PRODUCT
Type of Fuel:	DIESEL
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor

B8 **U S POSTAL SERVICE** **San Mateo Co. BI** **S106981558**
SSE **850 CHERRY** **N/A**
< 1/8 **SAN BRUNO, CA 94066**
0.071 mi.
374 ft. **Site 3 of 8 in cluster B**

San Mateo Co. BI:

Region:	SAN MATEO
Facility ID:	FA0018242
Prog Element Code:	STORES MV FUELS OR WASTE ONLY
Record Id:	PR0026084
Description:	STORES MV FUELS OR WASTE ONLY
Region:	SAN MATEO
Facility ID:	FA0018242
Prog Element Code:	UNDERGROUND TANK - GENERAL

U S POSTAL SERVICE (Continued) **S106981558**

Record Id: PR0022959
Description: UNDERGROUND TANK - GENERAL

Region: SAN MATEO
Facility ID: FA0042612
Prog Element Code: STORES MV FUELS OR WASTE ONLY
Record Id: PR0057164
Description: STORES MV FUELS OR WASTE ONLY

B9 **HOLIDAY CLEANERS** **San Mateo Co. BI** **1006507375**
South **4 BAYHILL SHOPPING CTR** **EMI** **N/A**
< 1/8 **SAN BRUNO, CA 94066**
0.072 mi.
379 ft. **Site 4 of 8 in cluster B**

San Mateo Co. BI:
Region: SAN MATEO
Facility ID: FA0013721
Prog Element Code: GENERATES <27 GAL/YEAR
Record Id: PR0024456
Description: GENERATES <27 GAL/YEAR

Region: SAN MATEO
Facility ID: FA0013721
Prog Element Code: STORES HAZ MAT <219GAL,1,999LB, 879FT3
Record Id: PR0024455
Description: STORES HAZ MAT <219GAL,1,999LB, 879CF

EMI:
Year: 1987
County Code: 41
Air Basin: SF
Facility ID: 3493
Air District Name: BA
SIC Code: 7216
Air District Name: BAY AREA AQMD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 1
Reactive Organic Gases Tons/Yr: 0
Carbon Monoxide Emissions Tons/Yr: 0
NOX - Oxides of Nitrogen Tons/Yr: 0
SOX - Oxides of Sulphur Tons/Yr: 0
Particulate Matter Tons/Yr: 0
Part. Matter 10 Micrometers & Smllr Tons/Yr: 0

Year: 1990
County Code: 41
Air Basin: SF
Facility ID: 7808
Air District Name: BA
SIC Code: 7216
Air District Name: BAY AREA AQMD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 0
Reactive Organic Gases Tons/Yr: 0

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HOLIDAY CLEANERS (Continued) **1006507375**

Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	1995
County Code:	41
Air Basin:	SF
Facility ID:	7808
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	1996
County Code:	41
Air Basin:	SF
Facility ID:	7808
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	1997
County Code:	41
Air Basin:	SF
Facility ID:	7808
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

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HOLIDAY CLEANERS (Continued) **1006507375**

Year:	1998
County Code:	41
Air Basin:	SF
Facility ID:	7808
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	1999
County Code:	41
Air Basin:	SF
Facility ID:	7808
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2000
County Code:	41
Air Basin:	SF
Facility ID:	7808
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2001
County Code:	41
Air Basin:	SF
Facility ID:	7808
Air District Name:	BA
SIC Code:	7216

HOLIDAY CLEANERS (Continued) **1006507375**

Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2002
County Code:	41
Air Basin:	SF
Facility ID:	7808
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2003
County Code:	41
Air Basin:	SF
Facility ID:	7808
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2004
County Code:	41
Air Basin:	SF
Facility ID:	7808
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.293
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0

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HOLIDAY CLEANERS (Continued) **1006507375**

NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0
Year:	2005
County Code:	41
Air Basin:	SF
Facility ID:	7808
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0
Year:	2006
County Code:	41
Air Basin:	SF
Facility ID:	7808
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	.293
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0
Year:	2008
County Code:	41
Air Basin:	SF
Facility ID:	7808
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	.613
Reactive Organic Gases Tons/Yr:	.128
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0
Year:	2009

HOLIDAY CLEANERS (Continued) **1006507375**

County Code:	41
Air Basin:	SF
Facility ID:	7808
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.29299999999999998
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2010
County Code:	41
Air Basin:	SF
Facility ID:	7808
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.61299999999999999
Reactive Organic Gases Tons/Yr:	0.33268979999999998
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2011
County Code:	41
Air Basin:	SF
Facility ID:	7808
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.293
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

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B10 South < 1/8 0.072 mi. 379 ft. **HOLIDAY CLEANERS OF AMERICA**
4 BAYHILL SHOPPING CENTER
SAN BRUNO, CA 94066
Site 5 of 8 in cluster B

RCRA-SQG / DRYCLEANERS / San Mateo Co. BI
EDR ID Number: 1000247936
EPA ID Number: CAD982371221

RCRA-SQG:

Date form received by agency:	04/20/1988
Facility name:	HOLIDAY CLEANERS OF AMERICA
Facility address:	4 BAYHILL SHOPPING CENTER SAN BRUNO, CA 94066
EPA ID:	CAD982371221
Mailing address:	BAYHILL SHOPPING CENTER SAN BRUNO, CA 94066
Contact:	ENVIRONMENTAL MANAGER
Contact address:	4 BAYHILL SHOPPING CENTER SAN BRUNO, CA 94066
Contact country:	US
Contact telephone:	(415) 871-7289
Contact email:	Not reported
EPA Region:	09
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

Owner/operator name:	NOT REQUIRED
Owner/operator address:	NOT REQUIRED NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	(415) 555-1212
Legal status:	Private
Owner/Operator Type:	Operator
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Owner/operator name:	HERSH CORPORATION
Owner/operator address:	NOT REQUIRED NOT REQUIRED, ME 99999
Owner/operator country:	Not reported
Owner/operator telephone:	(415) 555-1212
Legal status:	Private
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No
Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No

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HOLIDAY CLEANERS OF AMERICA (Continued) **1000247936**

Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

DRYCLEANERS:

EPA Id:	CAL000182966
NAICS Code:	81232
NAICS Description:	Drycleaning and Laundry Services (except Coin-Operated)
SIC Code:	7211
SIC Description:	Power Laundries, Family and Commercial
Create Date:	05/31/2000
Facility Active:	No
Inactive Date:	06/30/2007
Facility Addr2:	Not reported
Owner Name:	KWANG S YI
Owner Address:	#4 BAYHILL SHOPPING CENTER
Owner Address 2:	Not reported
Owner Telephone:	6508717280
Contact Name:	KWANG YI - OWNER
Contact Address:	4 BAYHILL SHOPPING CENTER
Contact Address 2:	Not reported
Contact Telephone:	6508717280
Mailing Name:	Not reported
Mailing Address 1:	#4 BAYHILL SHOPPING CENTER
Mailing Address 2:	Not reported
Mailing City:	SAN BRUNO
Mailing State:	CA
Mailing Zip:	940660000
Owner Fax:	Not reported
Region Code:	Not reported

San Mateo Co. BI:

Region:	SAN MATEO
Facility ID:	FA0034958
Prog Element Code:	GENERATES <27 GAL/YEAR
Record Id:	PR0052943
Description:	GENERATES <27 GAL/YEAR

Region:	SAN MATEO
Facility ID:	FA0034958
Prog Element Code:	STORES HAZ MAT <219GAL,1,999LB, 879FT3
Record Id:	PR0052942
Description:	STORES HAZ MAT <219GAL,1,999LB, 879CF

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Map ID / Direction / Distance / Distance (ft.)	Site	Database(s)	EDR ID Number / EPA ID Number
B11	**CVS/PHARMACY #9807**	**San Mateo Co. BI**	**S111084259**
South	**10 BAYHILL SHOPPING CENTER**		**N/A**
< 1/8	**SAN BRUNO, CA 94066**		
0.074 mi.			
392 ft.	**Site 6 of 8 in cluster B**		

San Mateo Co. BI:

Region:	SAN MATEO
Facility ID:	FA0039517
Prog Element Code:	2231
Record Id:	PR0060575
Description:	GEN EXTREMELY HAZARDOUS WASTE - RCRA
Region:	SAN MATEO
Facility ID:	FA0039517
Prog Element Code:	STORES MV FUELS OR WASTE ONLY
Record Id:	PR0066937
Description:	STORES MV FUELS OR WASTE ONLY

B12	**LONGS DRUG STORE #84**	**San Mateo Co. BI**	**S103619519**
South	**10 BAYHILL**		**N/A**
< 1/8	**SAN BRUNO, CA 94066**		
0.074 mi.			
392 ft.	**Site 7 of 8 in cluster B**		

San Mateo Co. BI:

Region:	SAN MATEO
Facility ID:	FA0002711
Prog Element Code:	COND EXEMPT - SPECIAL WASTES
Record Id:	PR0030837
Description:	COND EXEMPT - SPECIAL WASTES
Region:	SAN MATEO
Facility ID:	FA0002711
Prog Element Code:	GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id:	PR0028448
Description:	GENERATES & RECYCLES WASTE OIL/SOLVENT
Region:	SAN MATEO
Facility ID:	FA0002711
Prog Element Code:	STORES HAZ MAT <219GAL,1,999LB, 879FT3
Record Id:	PR0028449
Description:	STORES HAZ MAT <219GAL,1,999LB, 879CF

B13	**REPLANET LLC**	**SWRCY**	**S108418469**
South	**22 BAYHILL SHOPPING CTR**		**N/A**
< 1/8	**SAN BRUNO, CA 94066**		
0.081 mi.			
429 ft.	**Site 8 of 8 in cluster B**		

SWRCY:

Reg Id:	222706
Cert Id:	RC222706.001
Mailing Address:	800 N Haven Ave Suite 120
Mailing City:	Ontario
Mailing State:	CA
Mailing Zip Code:	91764
Website:	http://www.replanetusa.com

REPLANET LLC (Continued) **S108418469**

Email:	jennifer.june@replanet.com
Phone Number:	(877) 737-5263
Grand Father:	N
Rural:	N
Operation Begin Date:	01/01/2015
Aluminium:	Y
Glass:	Y
Plastic:	Y
Bimetal:	Y
Agency:	N/A
Monday Hours Of Operation:	10:00 am - 4:30 pm; Closed 1:00 pm - 1:30 pm
Tuesday Hours Of Operation:	10:00 am - 4:30 pm; Closed 1:00 pm - 1:30 pm
Wednesday Hours Of Operation:	CLOSED
Thursday Hours Of Operation:	CLOSED
Friday Hours Of Operation:	10:00 am - 4:30 pm; Closed 1:00 pm - 1:30 pm
Saturday Hours Of Operation:	9:00 am - 3:30 pm; Closed 1:00 pm - 1:30 pm
Sunday Hours Of Operation:	9:00 am - 3:30 pm; Closed 1:00 pm - 1:30 pm
Organization ID:	151891
Organization Name:	rePLANET LLC

14
East
< 1/8
0.115 mi.
607 ft.

EMLAB P & K **San Mateo Co. BI** **S112191831**
1150 BAYHILL **N/A**
SAN BRUNO, CA 94066

San Mateo Co. BI:

Region:	SAN MATEO
Facility ID:	FA0052062
Prog Element Code:	GEN <1 TONS HAZ WASTE/YR
Record Id:	PR0072178
Description:	GEN <1 TONS HAZ WASTE/YR

15
ESE
< 1/8
0.122 mi.
646 ft.

KAISER BAYHILL MEDICAL OFFICES **RCRA NonGen / NLR** **1000819847**
801 TRAEGER **FINDS** **CAD983658600**
SAN BRUNO, CA 94066

RCRA NonGen / NLR:

Date form received by agency:	02/04/1998
Facility name:	KAISER BAYHILL MEDICAL OFFICES
Facility address:	801 TRAEGER SAN BRUNO, CA 94066
EPA ID:	CAD983658600
Contact:	ROBERTO KHALIL
Contact address:	1200 EL CAMINO REAL SOUTH SAN FRANCISCO, CA 940803299
Contact country:	US
Contact telephone:	(415) 742-3016
Contact email:	Not reported
EPA Region:	09
Classification:	Non-Generator
Description:	Handler: Non-Generators do not presently generate hazardous waste

KAISER BAYHILL MEDICAL OFFICES (Continued) **1000819847**

Owner/Operator Summary:
- Owner/operator name: KAISER FOUNDATION HOSPITALS
- Owner/operator address: P O BOX 12916
  OAKLAND, CA 94604
- Owner/operator country: Not reported
- Owner/operator telephone: (510) 987-1000
- Legal status: Private
- Owner/Operator Type: Owner
- Owner/Op start date: Not reported
- Owner/Op end date: Not reported

Handler Activities Summary:
- U.S. importer of hazardous waste: No
- Mixed waste (haz. and radioactive): No
- Recycler of hazardous waste: No
- Transporter of hazardous waste: No
- Treater, storer or disposer of HW: No
- Underground injection activity: No
- On-site burner exemption: No
- Furnace exemption: No
- Used oil fuel burner: No
- Used oil processor: No
- User oil refiner: No
- Used oil fuel marketer to burner: No
- Used oil Specification marketer: No
- Used oil transfer facility: No
- Used oil transporter: No

Historical Generators:
- Date form received by agency: 01/28/1993
- Site name: KAISER BAYHILL MEDICAL OFFICES
- Classification: Small Quantity Generator

- Violation Status: No violations found

FINDS:

- Registry ID: 110002892031

Environmental Interest/Information System

California Hazardous Waste Tracking System - Datamart (HWTS-DATAMART) provides California with information on hazardous waste shipments for generators, transporters, and treatment, storage, and disposal facilities.

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

Map ID / Direction / Distance / Distance (ft.)	Site	Database(s)	EDR ID Number / EPA ID Number
C16		**EDR US Hist Auto Stat**	**1015124679**
NW	**101 PICCADILLY PL**		**N/A**
1/8-1/4	**SAN BRUNO, CA 94066**		
0.139 mi.			
733 ft.	**Site 1 of 2 in cluster C**		

EDR Historical Auto Stations:

Name:	JET CAR SERVICE
Year:	2007
Address:	101 PICCADILLY PL
Name:	JET CAR SERVICE
Year:	2008
Address:	101 PICCADILLY PL

D17	**UNITED STATES NAVY**	**CA FID UST**	**S101593851**
NNE	**900 COMMODORE DR**		**N/A**
1/8-1/4	**SAN BRUNO, CA 94066**		
0.145 mi.			
763 ft.	**Site 1 of 8 in cluster D**		

CA FID UST:

Facility ID:	41001088
Regulated By:	UTNKA
Regulated ID:	Not reported
Cortese Code:	Not reported
SIC Code:	Not reported
Facility Phone:	Not reported
Mail To:	Not reported
Mailing Address:	900 COMMODORE DR
Mailing Address 2:	Not reported
Mailing City,St,Zip:	SAN BRUNO 94066
Contact:	Not reported
Contact Phone:	Not reported
DUNs Number:	Not reported
NPDES Number:	Not reported
EPA ID:	Not reported
Comments:	Not reported
Status:	Active

D18	**WESTERN DIVISION**	**HIST UST**	**U001594666**
NNE	**900 COMMODORE DR**		**N/A**
1/8-1/4	**SAN BRUNO, CA 94066**		
0.145 mi.			
763 ft.	**Site 2 of 8 in cluster D**		

HIST UST:

Region:	STATE
Facility ID:	00000058550
Facility Type:	Other
Other Type:	U.S. NAVY
Contact Name:	Not reported
Telephone:	4158777000
Owner Name:	UNITED STATES NAVY
Owner Address:	900 COMMODORE DRIVE
Owner City,St,Zip:	SAN BRUNO, CA 94066
Total Tanks:	0002

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WESTERN DIVISION (Continued) **U001594666**

Tank Num:	001
Container Num:	1
Year Installed:	1972
Tank Capacity:	00007500
Tank Used for:	PRODUCT
Type of Fuel:	UNLEADED
Container Construction Thickness:	Not reported
Leak Detection:	Stock Inventor

Tank Num:	002
Container Num:	2
Year Installed:	Not reported
Tank Capacity:	00000000
Tank Used for:	PRODUCT
Type of Fuel:	06
Container Construction Thickness:	Not reported
Leak Detection:	None

D19 **UNITED STATES NAVY** **SWEEPS UST** **S106933428**
NNE **900 COMMODORE DR** **N/A**
1/8-1/4 **S SAN FRANCISCO, CA 94066**
0.145 mi.
763 ft. **Site 3 of 8 in cluster D**

SWEEPS UST:

Status:	Not reported
Comp Number:	880048
Number:	Not reported
Board Of Equalization:	Not reported
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	41-000-880048-000001
Tank Status:	Not reported
Capacity:	7500
Active Date:	Not reported
Tank Use:	M.V. FUEL
STG:	PRODUCT
Content:	REG UNLEADED
Number Of Tanks:	1

D20 **RESERVE CENTER** **HIST UST** **U001594643**
NNE **900 COMMODORE DR** **N/A**
1/8-1/4 **SAN BRUNO, CA 94066**
0.145 mi.
763 ft. **Site 4 of 8 in cluster D**

HIST UST:

Region:	STATE
Facility ID:	00000058549
Facility Type:	Other
Other Type:	U.S. NAVY
Contact Name:	Not reported
Telephone:	4155837545
Owner Name:	UNITED STATES NAVY

RESERVE CENTER (Continued) **U001594643**

Owner Address:	900 COMMODORE DRIVE
Owner City,St,Zip:	SAN BRUNO, CA 94066
Total Tanks:	0001
Tank Num:	001
Container Num:	1
Year Installed:	1975
Tank Capacity:	00000000
Tank Used for:	WASTE
Type of Fuel:	WASTE OIL
Container Construction Thickness:	Not reported
Leak Detection:	None

D21 **THE CROSSING** **LUST** **S106117990**
NNE **900 COMMODORE** **VCP** **N/A**
1/8-1/4 **SAN BRUNO, CA 94066** **San Mateo Co. BI**
0.145 mi. **ENVIROSTOR**
763 ft. **Site 5 of 8 in cluster D**

LUST:

Region:	STATE
Global Id:	T0608122176
Latitude:	37.6324164508618
Longitude:	-122.421770095825
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	02/25/2004
Lead Agency:	SAN MATEO COUNTY LOP
Case Worker:	JM
Local Agency:	SAN MATEO COUNTY LOP
RB Case Number:	Not reported
LOC Case Number:	880059
File Location:	Local Agency Warehouse
Potential Media Affect:	Other Groundwater (uses other than drinking water)
Potential Contaminants of Concern:	Heating Oil / Fuel Oil
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0608122176
Contact Type:	Regional Board Caseworker
Contact Name:	UUU
Organization Name:	SAN FRANCISCO BAY RWQCB (REGION 2)
Address:	1515 CLAY ST SUITE 1400
City:	OAKLAND
Email:	Not reported
Phone Number:	Not reported
Global Id:	T0608122176
Contact Type:	Local Agency Caseworker
Contact Name:	JACOB MADDEN
Organization Name:	SAN MATEO COUNTY LOP
Address:	2000 ALAMEDA DE LAS PULGAS
City:	SAN MATEO
Email:	jmadden@smcgov.org
Phone Number:	6503726298

THE CROSSING (Continued) **S106117990**

Status History:

Global Id:	T0608122176
Status:	Completed - Case Closed
Status Date:	02/25/2004
Global Id:	T0608122176
Status:	Open - Case Begin Date
Status Date:	09/11/2003
Global Id:	T0608122176
Status:	Open - Remediation
Status Date:	10/13/2003
Global Id:	T0608122176
Status:	Open - Site Assessment
Status Date:	09/11/2003

Regulatory Activities:

Global Id:	T0608122176
Action Type:	REMEDIATION
Date:	09/11/2003
Action:	Excavation
Global Id:	T0608122176
Action Type:	Other
Date:	09/11/2003
Action:	Leak Discovery
Global Id:	T0608122176
Action Type:	ENFORCEMENT
Date:	10/27/2003
Action:	Notice of Responsibility - #1
Global Id:	T0608122176
Action Type:	ENFORCEMENT
Date:	11/12/2003
Action:	Staff Letter - #20031112
Global Id:	T0608122176
Action Type:	ENFORCEMENT
Date:	10/14/2003
Action:	Staff Letter - #20031014
Global Id:	T0608122176
Action Type:	ENFORCEMENT
Date:	02/25/2004
Action:	Closure/No Further Action Letter - #20040225
Global Id:	T0608122176
Action Type:	ENFORCEMENT
Date:	09/19/2003
Action:	Staff Letter - #20030919B
Global Id:	T0608122176
Action Type:	ENFORCEMENT
Date:	09/19/2003

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THE CROSSING (Continued) **S106117990**

Action: Staff Letter - #20030919

Global Id: T0608122176
Action Type: RESPONSE
Date: 09/18/2003
Action: Tank Removal Report / UST Sampling Report

Global Id: T0608122176
Action Type: Other
Date: 09/16/2003
Action: Leak Reported

Global Id: T0608122176
Action Type: RESPONSE
Date: 10/09/2003
Action: Soil and Water Investigation Workplan

Global Id: T0608122176
Action Type: RESPONSE
Date: 10/31/2003
Action: Tank Removal Report / UST Sampling Report

Global Id: T0608122176
Action Type: RESPONSE
Date: 12/17/2003
Action: CAP/RAP - Final Remediation / Design Plan

Global Id: T0608122176
Action Type: RESPONSE
Date: 10/14/2003
Action: Final Remedial Action Report / Corrective Action Report

Global Id: T0608122176
Action Type: RESPONSE
Date: 01/09/2004
Action: Final Remedial Action Report / Corrective Action Report

LUST REG 2:
Region: 2
Facility Id: Not reported
Facility Status: Case Closed
Case Number: 880059
How Discovered: OM
Leak Cause: Unknown
Leak Source: Unknown
Date Leak Confirmed: Not reported
Oversight Program: LUST
Prelim. Site Assesment Wokplan Submitted: Not reported
Preliminary Site Assesment Began: Not reported
Pollution Characterization Began: 9/11/2003
Pollution Remediation Plan Submitted: Not reported
Date Remediation Action Underway: 10/13/2003
Date Post Remedial Action Monitoring Began: Not reported

SAN MATEO CO. LUST:

THE CROSSING (Continued) **S106117990**

Region:	SAN MATEO
Facility ID:	880059
Facility Status:	9- Case Closed
Global ID:	T0608122176
APN Number:	020013160
Case Type:	SAN MATEO CO. LUST
EDR Link ID:	SAN MATEO CO. LUST

VCP:

Facility ID:	41940001
Site Type:	Voluntary Cleanup
Site Type Detail:	Voluntary Cleanup
Site Mgmt. Req.:	NONE SPECIFIED
Acres:	20
National Priorities List:	NO
Cleanup Oversight Agencies:	SMBRP
Lead Agency:	SMBRP
Lead Agency Description:	DTSC - Site Cleanup Program
Project Manager:	Denise Tsuji
Supervisor:	Denise Tsuji
Division Branch:	Cleanup Berkeley
Site Code:	201418
Assembly:	22
Senate:	13
Special Programs Code:	Voluntary Cleanup Program
Status:	Certified
Status Date:	09/27/2002
Restricted Use:	NO
Funding:	Responsible Party
Lat/Long:	37.63296 / -122.4156
APN:	020-010-580, 020-103-060
Past Use:	OFFICE BUILDING
Potential COC:	30004, 30013, 30207
Confirmed COC:	30207,30004,30013
Potential Description:	SOIL
Alias Name:	THE CROSSINGS - SAN BRUNO
Alias Type:	Alternate Name
Alias Name:	020-010-580
Alias Type:	APN
Alias Name:	020-103-060
Alias Type:	APN
Alias Name:	110033619038
Alias Type:	EPA (FRS #)
Alias Name:	201418
Alias Type:	Project Code (Site Code)
Alias Name:	41940001
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Fact Sheets
Completed Date:	06/15/2002
Comments:	Issued fact sheet for the public comment on the draft Removal Action Plan.
Completed Area Name:	PROJECT WIDE

THE CROSSING (Continued) **S106117990**

Completed Sub Area Name: Not reported
Completed Document Type: Public Notice
Completed Date: 06/15/2002
Comments: Published in the San Bruno Herald announcing the availability of the draft Removal Action Workplan.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Health & Safety Plan
Completed Date: 07/26/2002
Comments: Deemed adequate for proposed field activities.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Community Profile
Completed Date: 05/20/2002
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 05/24/2002
Comments: Verified shallow soil concentrations at the former Building A-205 area (Public Works Garage), near Building A-207 (Warehouse), and other areas not previously sampled that may have agricultural chemical residues resulting from historic agricultural uses at the property.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Other Report
Completed Date: 07/25/2002
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Phase 1
Completed Date: 01/03/2001
Comments: Completed while under no formal agency oversight.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 12/04/2001
Comments: Completed while under no formal agency oversight.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Completion Report
Completed Date: 09/27/2002
Comments: Approximately 2,950 cubic yards of pesticide-affected soil and 13 cubic yards of lead-affected soil was removed between July 30, 2002 and August 27, 2002. Confirmation soil samples indicated that the cleanup goals were reached.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported

THE CROSSING (Continued) **S106117990**

Completed Document Type: Removal Action Workplan
Completed Date: 07/18/2002
Comments: Approved RAW to remove soil contaminated with chlordane, dieldrin, and lead at concentrations above cleanup goals.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: CEQA - Initial Study/ Neg. Declaration
Completed Date: 07/18/2002
Comments: Negative Declaration: the project could have no significant impacts on the environment.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Certification
Completed Date: 09/27/2002
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Voluntary Cleanup Agreement
Completed Date: 02/14/2002
Comments: Signed VCA with Martin/Regis San Bruno Associates to remove contaminated soil.

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

San Mateo Co. BI:
Region: SAN MATEO
Facility ID: FA0018249
Prog Element Code: GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id: PR0024462
Description: GENERATES & RECYCLES WASTE OIL/SOLVENT

Region: SAN MATEO
Facility ID: FA0018249
Prog Element Code: STORES HAZ MAT <219GAL,1,999LB, 879FT3
Record Id: PR0024463
Description: STORES HAZ MAT <219GAL,1,999LB, 879CF

Region: SAN MATEO
Facility ID: FA0018249
Prog Element Code: UNDERGROUND TANK - GENERAL
Record Id: PR0022963
Description: UNDERGROUND TANK - GENERAL

Region: SAN MATEO
Facility ID: FA0028744
Prog Element Code: UNDERGROUND TANK - GENERAL

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THE CROSSING (Continued) **S106117990**

Record Id: PR0048236
Description: UNDERGROUND TANK - GENERAL

Region: SAN MATEO
Facility ID: FA0045331
Prog Element Code: GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id: PR0058960
Description: GENERATES & RECYCLES WASTE OIL/SOLVENT

Region: SAN MATEO
Facility ID: FA0045331
Prog Element Code: STORES HAZ MAT <219GAL,1,999LB, 879FT3
Record Id: PR0058959
Description: STORES HAZ MAT <219GAL,1,999LB, 879CF

ENVIROSTOR:
Facility ID: 41940001
Status: Certified
Status Date: 09/27/2002
Site Code: 201418
Site Type: Voluntary Cleanup
Site Type Detailed: Voluntary Cleanup
Acres: 20
NPL: NO
Regulatory Agencies: SMBRP
Lead Agency: SMBRP
Program Manager: Denise Tsuji
Supervisor: Denise Tsuji
Division Branch: Cleanup Berkeley
Assembly: 22
Senate: 13
Special Program: Voluntary Cleanup Program
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: Responsible Party
Latitude: 37.63296
Longitude: -122.4156
APN: 020-010-580, 020-103-060
Past Use: OFFICE BUILDING
Potential COC: Chlordane Lead Dieldrin
Confirmed COC: Dieldrin Chlordane Lead
Potential Description: SOIL
Alias Name: THE CROSSINGS - SAN BRUNO
Alias Type: Alternate Name
Alias Name: 020-010-580
Alias Type: APN
Alias Name: 020-103-060
Alias Type: APN
Alias Name: 110033619038
Alias Type: EPA (FRS #)
Alias Name: 201418
Alias Type: Project Code (Site Code)
Alias Name: 41940001
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE

THE CROSSING (Continued) **S106117990**

Completed Sub Area Name: Not reported
Completed Document Type: Fact Sheets
Completed Date: 06/15/2002
Comments: Issued fact sheet for the public comment on the draft Removal Action Plan.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Public Notice
Completed Date: 06/15/2002
Comments: Published in the San Bruno Herald announcing the availability of the draft Removal Action Workplan.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Health & Safety Plan
Completed Date: 07/26/2002
Comments: Deemed adequate for proposed field activities.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Community Profile
Completed Date: 05/20/2002
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 05/24/2002
Comments: Verified shallow soil concentrations at the former Building A-205 area (Public Works Garage), near Building A-207 (Warehouse), and other areas not previously sampled that may have agricultural chemical residues resulting from historic agricultural uses at the property.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Other Report
Completed Date: 07/25/2002
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Phase 1
Completed Date: 01/03/2001
Comments: Completed while under no formal agency oversight.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Characterization Report
Completed Date: 12/04/2001
Comments: Completed while under no formal agency oversight.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Completion Report
Completed Date: 09/27/2002

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THE CROSSING (Continued) **S106117990**

Comments: Approximately 2,950 cubic yards of pesticide-affected soil and 13 cubic yards of lead-affected soil was removed between July 30, 2002 and August 27, 2002. Confirmation soil samples indicated that the cleanup goals were reached.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Removal Action Workplan
Completed Date: 07/18/2002
Comments: Approved RAW to remove soil contaminated with chlordane, dieldrin, and lead at concentrations above cleanup goals.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: CEQA - Initial Study/ Neg. Declaration
Completed Date: 07/18/2002
Comments: Negative Declaration: the project could have no significant impacts on the environment.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Certification
Completed Date: 09/27/2002
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Voluntary Cleanup Agreement
Completed Date: 02/14/2002
Comments: Signed VCA with Martin/Regis San Bruno Associates to remove contaminated soil.

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

D22 **U S NAVY SITE SAN BRUNO** **RCRA-SQG** **1006804892**
NNE **900 E COMMODORE DR** **FINDS** **CAR000114595**
1/8-1/4 **SAN BRUNO, CA 94066** **HAZNET**
0.145 mi.
763 ft. **Site 6 of 8 in cluster D**

RCRA-SQG:
Date form received by agency: 04/11/2002
Facility name: U S NAVY SITE SAN BRUNO
Facility address: 900 E COMMODORE DR
SAN BRUNO, CA 94066
EPA ID: CAR000114595
Mailing address: 2685 BAY RD
REDWOOD CITY, CA 94063
Contact: DAVID CROPPER
Contact address: 2685 BAY RD

U S NAVY SITE SAN BRUNO (Continued) **1006804892**

REDWOOD CITY, CA 94063
Contact country: US
Contact telephone: (650) 569-4989
Contact email: Not reported
EPA Region: 09
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:
Owner/operator name: MARTIN REGIS SAN BRUNO ASSOC
Owner/operator address: 2685 BAY RD
REDWOOD CITY, CA 94063
Owner/operator country: Not reported
Owner/operator telephone: (650) 569-4989
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: D008
. Waste name: LEAD

Historical Generators:
Date form received by agency: 04/11/2002
Site name: U S NAVY SITE SAN BRUNO
Classification: Small Quantity Generator

Violation Status: No violations found

FINDS:

Registry ID: 110013311647

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource

U S NAVY SITE SAN BRUNO (Continued) **1006804892**

Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HAZNET:

envid:	1006804892
Year:	2007
GEPAID:	CAR000114595
Contact:	David Cropper
Telephone:	6505694989
Mailing Name:	Not reported
Mailing Address:	100 BUSH STREET 26TH FLOOR
Mailing City,St,Zip:	SAN FRANCISCO, CA 941040000
Gen County:	Not reported
TSD EPA ID:	CAT000646117
TSD County:	Not reported
Waste Category:	Contaminated soil from site clean-up
Disposal Method:	Disposal, Land Fill
Tons:	15.17
Facility County:	San Mateo

envid:	1006804892
Year:	2003
GEPAID:	CAR000114595
Contact:	David Cropper
Telephone:	6505694989
Mailing Name:	Not reported
Mailing Address:	100 BUSH STREET 26TH FLOOR
Mailing City,St,Zip:	SAN FRANCISCO, CA 941040000
Gen County:	Not reported
TSD EPA ID:	CAD009466392
TSD County:	Not reported
Waste Category:	Other empty containers 30 gallons or more
Disposal Method:	Recycler
Tons:	0.65
Facility County:	San Mateo

envid:	1006804892
Year:	2002
GEPAID:	CAR000114595
Contact:	David Cropper
Telephone:	6505694989
Mailing Name:	Not reported
Mailing Address:	100 BUSH STREET 26TH FLOOR
Mailing City,St,Zip:	SAN FRANCISCO, CA 941040000
Gen County:	Not reported
TSD EPA ID:	CAT000646117
TSD County:	Not reported
Waste Category:	Contaminated soil from site clean-up
Disposal Method:	Disposal, Land Fill
Tons:	2594.13
Facility County:	San Mateo

envid: 1006804892

U S NAVY SITE SAN BRUNO (Continued) **1006804892**

Year:	2002
GEPAID:	CAR000114595
Contact:	David Cropper
Telephone:	6505694989
Mailing Name:	Not reported
Mailing Address:	100 BUSH STREET 26TH FLOOR
Mailing City,St,Zip:	SAN FRANCISCO, CA 941040000
Gen County:	Not reported
TSD EPA ID:	CAT000646117
TSD County:	Not reported
Waste Category:	Contaminated soil from site clean-up
Disposal Method:	Not reported
Tons:	Not reported
Facility County:	San Mateo

envid:	1006804892
Year:	2002
GEPAID:	CAR000114595
Contact:	David Cropper
Telephone:	6505694989
Mailing Name:	Not reported
Mailing Address:	100 BUSH STREET 26TH FLOOR
Mailing City,St,Zip:	SAN FRANCISCO, CA 941040000
Gen County:	Not reported
TSD EPA ID:	CAT000646117
TSD County:	Not reported
Waste Category:	Polychlorinated biphenyls and material containing PCBs
Disposal Method:	Disposal, Land Fill
Tons:	1.92
Facility County:	San Mateo

Click this hyperlink while viewing on your computer to access
5 additional CA_HAZNET: record(s) in the EDR Site Report.

D23 **NAVAL FAC ENGINEERING COMMAND WEST DIV** **CERC-NFRAP** **1002850071**
NNE **900 COMMODORE DRIVE** **CA3170024696**
1/8-1/4 **SAN BRUNO, CA 94066**
0.145 mi.
763 ft. **Site 7 of 8 in cluster D**

CERC-NFRAP:

Site ID:	0902747
Federal Facility:	Federal Facility
NPL Status:	Not on the NPL
Non NPL Status:	NFRAP-Site does not qualify for the NPL based on existing information

CERCLIS-NFRAP Site Contact Details:

Contact Sequence ID:	13286114.00000
Person ID:	13003854.00000
Contact Sequence ID:	13291709.00000
Person ID:	13003858.00000
Contact Sequence ID:	13297567.00000
Person ID:	13004003.00000

NAVAL FAC ENGINEERING COMMAND WEST DIV (Continued) **1002850071**

CERCLIS-NFRAP Site Alias Name(s):
Alias Name: FORMER ENGFLDACT WEST SAN BRUNO
Alias Address: 900 COMMODORE DRIVE
SAN BRUNO, CA 90822

CERCLIS-NFRAP Assessment History:
Action: PRELIMINARY ASSESSMENT
Date Started: / /
Date Completed: 01/06/92
Priority Level: NFRAP-Site does not qualify for the NPL based on existing information

Action: ARCHIVE SITE
Date Started: / /
Date Completed: 01/06/92
Priority Level: Not reported

Action: DISCOVERY
Date Started: / /
Date Completed: 08/15/90
Priority Level: Not reported

D24 **WESTERN DIVISION, NAVAL FACILI** **HIST UST** **U001594667**
NNE **900 COMMODORE DR** **N/A**
1/8-1/4 **SAN BRUNO, CA 94066**
0.145 mi.
763 ft. **Site 8 of 8 in cluster D**

HIST UST:
Region: STATE
Facility ID: 00000050292
Facility Type: Other
Other Type: U.S. NAVY
Contact Name: Not reported
Telephone: 4158777000
Owner Name: UNITED STATES NAVY
Owner Address: 900 COMMODORE DRIVE
Owner City,St,Zip: SAN BRUNO, CA 94066
Total Tanks: 0002

Tank Num: 001
Container Num: 1
Year Installed: 1972
Tank Capacity: 00007500
Tank Used for: PRODUCT
Type of Fuel: UNLEADED
Container Construction Thickness: Not reported
Leak Detection: Stock Inventor

Tank Num: 002
Container Num: 2
Year Installed: Not reported
Tank Capacity: 00000000
Tank Used for: WASTE
Type of Fuel: 06
Container Construction Thickness: Not reported
Leak Detection: None

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C25
NW
1/8-1/4
0.146 mi.
771 ft.
Site 2 of 2 in cluster C

123 PICCADILLY PL
SAN BRUNO, CA 94066

EDR US Hist Cleaners | **1014983583** | **N/A**

EDR Historical Cleaners:
Name: WILSONS CARPET UPHOLSTERY CLEANING
Year: 1999
Address: 123 PICCADILLY PL

26
ENE
1/8-1/4
0.192 mi.
1013 ft.

BAYHILL OFFICE CENTER
950 ELM AVENUE
SAN BRUNO, CA 94066

HIST CORTESE | **S104494344**
LUST | **N/A**
San Mateo Co. BI

HIST CORTESE:
Region: CORTESE
Facility County Code: 41
Reg By: LTNKA
Reg Id: 41-1161

LUST:
Region: STATE
Global Id: T0608174310
Latitude: 37.6297824455672
Longitude: -122.42050409317
Case Type: LUST Cleanup Site
Status: Completed - Case Closed
Status Date: 06/12/1997
Lead Agency: SAN MATEO COUNTY LOP
Case Worker: JM
Local Agency: SAN MATEO COUNTY LOP
RB Case Number: Not reported
LOC Case Number: 889042
File Location: Local Agency
Potential Media Affect: Soil
Potential Contaminants of Concern: Waste Oil / Motor / Hydraulic / Lubricating
Site History: Not reported

Click here to access the California GeoTracker records for this facility:

Contact:
Global Id: T0608174310
Contact Type: Regional Board Caseworker
Contact Name: UUU
Organization Name: SAN FRANCISCO BAY RWQCB (REGION 2)
Address: 1515 CLAY ST SUITE 1400
City: OAKLAND
Email: Not reported
Phone Number: Not reported

Global Id: T0608174310
Contact Type: Local Agency Caseworker
Contact Name: JACOB MADDEN
Organization Name: SAN MATEO COUNTY LOP
Address: 2000 ALAMEDA DE LAS PULGAS
City: SAN MATEO
Email: jmadden@smcgov.org

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BAYHILL OFFICE CENTER (Continued) **S104494344**

Phone Number: 6503726298

Status History:
Global Id: T0608174310
Status: Completed - Case Closed
Status Date: 06/12/1997

Global Id: T0608174310
Status: Open - Case Begin Date
Status Date: 12/16/1996

Regulatory Activities:
Global Id: T0608174310
Action Type: Other
Date: 09/23/1996
Action: Leak Discovery

Global Id: T0608174310
Action Type: ENFORCEMENT
Date: 12/16/1996
Action: * Historical Enforcement - #1

Global Id: T0608174310
Action Type: Other
Date: 09/23/1996
Action: Leak Reported

SAN MATEO CO. LUST:
Region: SAN MATEO
Facility ID: 889042
Facility Status: 9- Case Closed
Global ID: T0608174310
APN Number: 020015040
Case Type: SAN MATEO CO. LUST
EDR Link ID: SAN MATEO CO. LUST

San Mateo Co. BI:
Region: SAN MATEO
Facility ID: FA0051210
Prog Element Code: STORES MV FUELS OR WASTE ONLY
Record Id: PR0070998
Description: STORES MV FUELS OR WASTE ONLY

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27 **G V TRUCKING & MATERIALS** **San Mateo Co. BI** **S106981824**
ESE **1000 SAN BRUNO** **N/A**
1/8-1/4 **SAN BRUNO, CA 94066**
0.200 mi.
1055 ft.

San Mateo Co. BI:
Region: SAN MATEO
Facility ID: FA0024014
Prog Element Code: GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id: PR0025194
Description: GENERATES & RECYCLES WASTE OIL/SOLVENT

G V TRUCKING & MATERIALS (Continued) **S106981824**

Region: SAN MATEO
Facility ID: FA0024014
Prog Element Code: STORES HAZ MAT <219GAL,1,999LB, 879FT3
Record Id: PR0004578
Description: STORES HAZ MAT <219GAL,1,999LB, 879CF

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28 **ARCHSTONE APARTMENTS** **San Mateo Co. BI** **S112191834**
NNE **1051 NATIONAL** **N/A**
1/8-1/4 **SAN BRUNO, CA 94066**
0.235 mi.
1243 ft.

San Mateo Co. BI:
Region: SAN MATEO
Facility ID: FA0052134
Prog Element Code: STORES MV FUELS OR WASTE ONLY
Record Id: PR0072317
Description: STORES MV FUELS OR WASTE ONLY

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29 **DAVITA** **San Mateo Co. BI** **S112191836**
NNW **1178 CHERRY** **N/A**
1/8-1/4 **SAN BRUNO, CA 94066**
0.248 mi.
1309 ft.

San Mateo Co. BI:
Region: SAN MATEO
Facility ID: FA0052136
Prog Element Code: STORES MV FUELS OR WASTE ONLY
Record Id: PR0072321
Description: STORES MV FUELS OR WASTE ONLY

E30 **BAYHILL 7 FACILITY** **LUST** **S107410889**
ENE **999-1001 BAYHILL DRIVE** **SLIC** **N/A**
1/4-1/2 **SAN BRUNO, CA 94066**
0.286 mi.
1508 ft. **Site 1 of 3 in cluster E**

SAN MATEO CO. LUST:
Region: SAN MATEO
Facility ID: 889060
Facility Status: 9- Case Closed
Global ID: SL0608164408
APN Number: 020019070
Case Type: SAN MATEO CO. LUST
EDR Link ID: SAN MATEO CO. LUST

SLIC:
Region: STATE
Facility Status: **Completed - Case Closed**
Status Date: 06/16/2009
Global Id: SL0608164408
Lead Agency: SAN MATEO COUNTY LOP
Lead Agency Case Number: 889060

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BAYHILL 7 FACILITY (Continued) **S107410889**

Latitude:	37.6296464943732
Longitude:	-122.419002056122
Case Type:	Cleanup Program Site
Case Worker:	JM
Local Agency:	SAN MATEO COUNTY LOP
RB Case Number:	Not reported
File Location:	Local Agency
Potential Media Affected:	Other Groundwater (uses other than drinking water)
Potential Contaminants of Concern:	Waste Oil / Motor / Hydraulic / Lubricating
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

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31 NNW 1/4-1/2 0.315 mi. 1665 ft. **GOLDEN GATE NATIONAL CEMETERY**
1300 SNEATH LN
SAN BRUNO, CA 94066

RCRA-SQG 1001195335
FINDS CAR000019018
HIST CORTESE
LUST
San Mateo Co. BI
HAZNET

RCRA-SQG:

Date form received by agency:	04/03/1997
Facility name:	GOLDEN GATE NATIONAL CEMETERY
Facility address:	1300 SNEATH LN SAN BRUNO, CA 94066
EPA ID:	CAR000019018
Mailing address:	4150 CLEMENT ST (FIRST HUNDRED SAN FRANCISCO, CA 94121
Contact:	BILL LIVINGSTON
Contact address:	1300 SNEATH LN SAN BRUNO, CA 94066
Contact country:	US
Contact telephone:	(415) 761-1646
Contact email:	Not reported
EPA Region:	09
Classification:	Small Small Quantity Generator
Description:	Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:

Owner/operator name:	VETERAN AFFAIRS MEDICAL CTR
Owner/operator address:	4150 CLEMENT ST SAN FRANCISCO, CA 94121
Owner/operator country:	Not reported
Owner/operator telephone:	(415) 221-4810
Legal status:	Federal
Owner/Operator Type:	Owner
Owner/Op start date:	Not reported
Owner/Op end date:	Not reported

Handler Activities Summary:

U.S. importer of hazardous waste:	No
Mixed waste (haz. and radioactive):	No
Recycler of hazardous waste:	No

GOLDEN GATE NATIONAL CEMETERY (Continued) **1001195335**

Transporter of hazardous waste:	No
Treater, storer or disposer of HW:	No
Underground injection activity:	No
On-site burner exemption:	No
Furnace exemption:	No
Used oil fuel burner:	No
Used oil processor:	No
User oil refiner:	No
Used oil fuel marketer to burner:	No
Used oil Specification marketer:	No
Used oil transfer facility:	No
Used oil transporter:	No

Violation Status: No violations found

FINDS:

Registry ID: 110002916854

Environmental Interest/Information System

RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and corrective action activities required under RCRA.

HIST CORTESE:

Region:	CORTESE
Facility County Code:	41
Reg By:	LTNKA
Reg Id:	41-1175

LUST:

Region:	STATE
Global Id:	T0608101074
Latitude:	37.634081
Longitude:	-122.4274701
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	04/12/2005
Lead Agency:	SAN MATEO COUNTY LOP
Case Worker:	JM
Local Agency:	SAN MATEO COUNTY LOP
RB Case Number:	41-1175
LOC Case Number:	880047
File Location:	Local Agency Warehouse
Potential Media Affect:	Soil
Potential Contaminants of Concern:	Gasoline
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0608101074
Contact Type:	Regional Board Caseworker

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GOLDEN GATE NATIONAL CEMETERY (Continued) **1001195335**

Contact Name: UUU
Organization Name: SAN FRANCISCO BAY RWQCB (REGION 2)
Address: 1515 CLAY ST SUITE 1400
City: OAKLAND
Email: Not reported
Phone Number: Not reported

Global Id: T0608101074
Contact Type: Local Agency Caseworker
Contact Name: JACOB MADDEN
Organization Name: SAN MATEO COUNTY LOP
Address: 2000 ALAMEDA DE LAS PULGAS
City: SAN MATEO
Email: jmadden@smcgov.org
Phone Number: 6503726298

Status History:
Global Id: T0608101074
Status: Completed - Case Closed
Status Date: 04/12/2005

Global Id: T0608101074
Status: Open - Case Begin Date
Status Date: 06/02/1998

Global Id: T0608101074
Status: Open - Site Assessment
Status Date: 06/02/1998

Regulatory Activities:
Global Id: T0608101074
Action Type: ENFORCEMENT
Date: 07/08/1998
Action: Notice of Responsibility - #1

Global Id: T0608101074
Action Type: ENFORCEMENT
Date: 04/12/2005
Action: Closure/No Further Action Letter - #20050412

Global Id: T0608101074
Action Type: Other
Date: 06/02/1998
Action: Leak Reported

LUST REG 2:
Region: 2
Facility Id: Not reported
Facility Status: Preliminary site assessment underway
Case Number: 880047
How Discovered: OM
Leak Cause: Unknown
Leak Source: Unknown
Date Leak Confirmed: Not reported
Oversight Program: LUST

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GOLDEN GATE NATIONAL CEMETERY (Continued) **1001195335**

Prelim. Site Assesment Wokplan Submitted: Not reported
Preliminary Site Assesment Began: 1/1/1965
Pollution Characterization Began: Not reported
Pollution Remediation Plan Submitted: Not reported
Date Remediation Action Underway: Not reported
Date Post Remedial Action Monitoring Began: Not reported

SAN MATEO CO. LUST:
Region: SAN MATEO
Facility ID: 880047
Facility Status: 9- Case Closed
Global ID: T0608101074
APN Number: Not reported
Case Type: SAN MATEO CO. LUST
EDR Link ID: SAN MATEO CO. LUST

San Mateo Co. BI:
Region: SAN MATEO
Facility ID: FA0008700
Prog Element Code: GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id: PR0024192
Description: GENERATES & RECYCLES WASTE OIL/SOLVENT

Region: SAN MATEO
Facility ID: FA0008700
Prog Element Code: STORES HAZ MAT <1,199GAL,9,999LB,4,799FT3
Record Id: PR0024191
Description: STORES HAZ MAT <1,199GAL,9,999LB,4,799CF

Region: SAN MATEO
Facility ID: FA0008700
Prog Element Code: UNDERGROUND TANK - GENERAL
Record Id: PR0022966
Description: UNDERGROUND TANK - GENERAL

HAZNET:
envid: 1001195335
Year: 1998
GEPAID: CAR000019018
Contact: VETERAN AFFAIRS MEDICAL CTR
Telephone: 4157611646
Mailing Name: Not reported
Mailing Address: 4150 CLEMENT ST # 138
Mailing City,St,Zip: SAN FRANCISCO, CA 941211545
Gen County: Not reported
TSD EPA ID: CAD009466392
TSD County: Not reported
Waste Category: Other empty containers 30 gallons or more
Disposal Method: Recycler
Tons: 1.5850
Facility County: San Mateo

envid: 1001195335
Year: 1998
GEPAID: CAR000019018
Contact: VETERAN AFFAIRS MEDICAL CTR

GOLDEN GATE NATIONAL CEMETERY (Continued) **1001195335**

Telephone: 4157611646
Mailing Name: Not reported
Mailing Address: 4150 CLEMENT ST # 138
Mailing City,St,Zip: SAN FRANCISCO, CA 941211545
Gen County: Not reported
TSD EPA ID: CAD980887418
TSD County: Not reported
Waste Category: Waste oil and mixed oil
Disposal Method: Recycler
Tons: 6.5260
Facility County: San Mateo

E32 **BOB & KEVINS SERVICE** **HIST CORTESE** **S103065304**
ENE **900 EL CAMINO REAL** **N/A**
1/4-1/2 **SAN BRUNO, CA 94066**
0.332 mi.
1752 ft. **Site 2 of 3 in cluster E**

HIST CORTESE:
Region: CORTESE
Facility County Code: 41
Reg By: LTNKA
Reg Id: 41-0840

E33 **EUROPEAN CAR SERVICE** **HIST CORTESE** **S101303192**
ENE **900 EL CAMINO REAL** **LUST** **N/A**
1/4-1/2 **SAN BRUNO, CA 94066** **SWEEPS UST**
0.332 mi.
1752 ft. **Site 3 of 3 in cluster E**

HIST CORTESE:
Region: CORTESE
Facility County Code: 41
Reg By: LTNKA
Reg Id: 41-0212

Region: CORTESE
Facility County Code: 41
Reg By: LTNKA
Reg Id: 41-0966

LUST:
Region: STATE
Global Id: T0608100202
Latitude: 37.6233226
Longitude: -122.4130399
Case Type: LUST Cleanup Site
Status: Completed - Case Closed
Status Date: 10/17/2002
Lead Agency: SAN MATEO COUNTY LOP
Case Worker: JM
Local Agency: SAN MATEO COUNTY LOP
RB Case Number: 41-0212
LOC Case Number: 880021
File Location: Local Agency
Potential Media Affect: Other Groundwater (uses other than drinking water)

EUROPEAN CAR SERVICE (Continued) **S101303192**

Potential Contaminants of Concern: Gasoline
Site History: Not reported

Click here to access the California GeoTracker records for this facility:

Contact:
Global Id: T0608100202
Contact Type: Regional Board Caseworker
Contact Name: UUU
Organization Name: SAN FRANCISCO BAY RWQCB (REGION 2)
Address: 1515 CLAY ST SUITE 1400
City: OAKLAND
Email: Not reported
Phone Number: Not reported

Global Id: T0608100202
Contact Type: Local Agency Caseworker
Contact Name: JACOB MADDEN
Organization Name: SAN MATEO COUNTY LOP
Address: 2000 ALAMEDA DE LAS PULGAS
City: SAN MATEO
Email: jmadden@smcgov.org
Phone Number: 6503726298

Status History:
Global Id: T0608100202
Status: Completed - Case Closed
Status Date: 10/17/2002

Global Id: T0608100202
Status: Open - Case Begin Date
Status Date: 03/26/1991

Regulatory Activities:
Global Id: T0608100202
Action Type: Other
Date: 03/26/1991
Action: Leak Discovery

Global Id: T0608100202
Action Type: ENFORCEMENT
Date: 04/04/1991
Action: Notice of Responsibility - #1

Global Id: T0608100202
Action Type: Other
Date: 04/16/1991
Action: Leak Reported

LUST REG 2:
Region: 2
Facility Id: Not reported
Facility Status: Case Closed
Case Number: 880021
How Discovered: OM

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EUROPEAN CAR SERVICE (Continued) **S101303192**

Leak Cause: Unknown
Leak Source: Unknown
Date Leak Confirmed: Not reported
Oversight Program: LUST
Prelim. Site Assesment Wokplan Submitted: Not reported
Preliminary Site Assesment Began: Not reported
Pollution Characterization Began: Not reported
Pollution Remediation Plan Submitted: Not reported
Date Remediation Action Underway: Not reported
Date Post Remedial Action Monitoring Began: Not reported

SAN MATEO CO. LUST:
Region: SAN MATEO
Facility ID: 880021
Facility Status: 9- Case Closed
Global ID: T0608100202
APN Number: Not reported
Case Type: SAN MATEO CO. LUST
EDR Link ID: SAN MATEO CO. LUST

SWEEPS UST:
Status: Not reported
Comp Number: 880060
Number: Not reported
Board Of Equalization: Not reported
Referral Date: Not reported
Action Date: Not reported
Created Date: Not reported
Owner Tank Id: Not reported
SWRCB Tank Id: 41-000-880060-000001
Tank Status: Not reported
Capacity: 3000
Active Date: Not reported
Tank Use: M.V. FUEL
STG: PRODUCT
Content: REG UNLEADED
Number Of Tanks: 4

Status: Not reported
Comp Number: 880060
Number: Not reported
Board Of Equalization: Not reported
Referral Date: Not reported
Action Date: Not reported
Created Date: Not reported
Owner Tank Id: Not reported
SWRCB Tank Id: 41-000-880060-000002
Tank Status: Not reported
Capacity: 4000
Active Date: Not reported
Tank Use: M.V. FUEL
STG: PRODUCT
Content: REG UNLEADED
Number Of Tanks: Not reported

Status: Not reported

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EUROPEAN CAR SERVICE (Continued) **S101303192**

Comp Number:	880060
Number:	Not reported
Board Of Equalization:	Not reported
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	41-000-880060-000003
Tank Status:	Not reported
Capacity:	2000
Active Date:	Not reported
Tank Use:	M.V. FUEL
STG:	PRODUCT
Content:	LEADED
Number Of Tanks:	Not reported

Status:	Not reported
Comp Number:	880060
Number:	Not reported
Board Of Equalization:	Not reported
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	41-000-880060-000004
Tank Status:	Not reported
Capacity:	250
Active Date:	Not reported
Tank Use:	OIL
STG:	WASTE
Content:	WASTE OIL
Number Of Tanks:	Not reported

F34 **92759** **LUST** **U001594624**
East **801 EL CAMINO REAL** **HIST UST** **N/A**
1/4-1/2 **SAN BRUNO, CA 94066** **San Mateo Co. BI**
0.368 mi.
1941 ft. **Site 1 of 8 in cluster F**

LUST:

Region:	STATE
Global Id:	T0608100147
Latitude:	37.628924504
Longitude:	-122.41708418
Case Type:	LUST Cleanup Site
Status:	Open - Verification Monitoring
Status Date:	05/26/2011
Lead Agency:	SAN MATEO COUNTY LOP
Case Worker:	JM
Local Agency:	SAN MATEO COUNTY LOP
RB Case Number:	41-0155
LOC Case Number:	880006
File Location:	Local Agency
Potential Media Affect:	Other Groundwater (uses other than drinking water), Soil Vapor
Potential Contaminants of Concern:	Benzene, Gasoline
Site History:	Extracted from URS's June 26, 2009 Work Plan for Additional On-Site Source Area Assessment and Off-Site Monitoring Well Installation, San Mateo County does not take responsibility for the accuracy of the

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92759 (Continued) **U001594624**

statements made or any professional interpretations made in the referenced report. The intersection of El Camino Real and San Bruno Avenue has been the location of retail gasoline service stations for more than 50 years. The northwest corner of the intersection is currently occupied by SpeeDee Lube, an auto service establishment. A Chevron station previously occupied this address. Petroleum hydrocarbon impacted soil and groundwater were discovered beneath the site during the demolition of the former Chevron station in 1987; All known USTs were removed in 1988. An undocumented amount of soil was excavated during the UST removals; A groundwater extraction and treatment system operated from 1991 until 1996. During this time, approximately 341 pounds of fuel hydrocarbons and 2,094,156 gallons of groundwater were removed from the site; and Quarterly groundwater monitoring has occurred at the site from 1989 until 2001. Semiannual groundwater monitoring has occurred at the site since the first quarter of 2002 to present. Source areas at the former Chevron Station site include the former UST basin and the former waste oil UST basin. At the former Chevron location, a surfactant injection/extraction test was conducted. The results of the surfactant injection at the former Chevron facility indicated the mass in close proximity to the former extraction wells (E-1 and E-2) could be mobilized for subsequent treatment (either vacuum truck removal or in-situ treatment). However, for the geologic reasons noted for the former Exxon station and the Shell station, the surfactant injection/extraction pilot tests also may create pockets of residual contaminant mass and potential preferential pathways for the air and contaminant movement, thereby limiting the effectiveness of physical contaminant mass recovery/removal. On June 19 and 26, 2002, Cambria Environmental Technology, Inc. advanced two soil vapor borings using a 4-inch outer diameter hand auger at the former Chevron station. The purpose of the investigation was to evaluate benzene inhalation risk from dissolved-phase benzene concentrations in monitoring well E-2 located on the east of the property (Cambria, 2002). The two borings were placed in the vicinity of the former dispenser islands and former UST cavity. Based on the laboratory analytical results collected from the two soil vapor borings, benzene in sample VSB2@6 with a concentration of 5,600 8g/m3 was the only sample that exceeded the current commercial ESL of 280 8g/m3 presented in Shallow Soil Gas Screening Levels for Evaluation of Potential Vapor Intrusion Concerns (volatile chemicals only), Table E-2 (RWCQB, 2008)2. To further assess this exceedance, additional soil, soil vapor and groundwater sampling is proposed in this area.

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0608100147
Contact Type:	Regional Board Caseworker
Contact Name:	JOLANTA UCHMAN
Organization Name:	SAN FRANCISCO BAY RWQCB (REGION 2)
Address:	1515 CLAY ST SUITE 1400
City:	OAKLAND
Email:	juchman@waterboards.ca.gov
Phone Number:	Not reported

Global Id:	T0608100147
Contact Type:	Local Agency Caseworker
Contact Name:	JACOB MADDEN

92759 (Continued) **U001594624**

Organization Name: SAN MATEO COUNTY LOP
Address: 2000 ALAMEDA DE LAS PULGAS
City: SAN MATEO
Email: jmadden@smcgov.org
Phone Number: 6503726298

Status History:
Global Id: T0608100147
Status: Open - Site Assessment
Status Date: 01/31/2007

Global Id: T0608100147
Status: Open - Verification Monitoring
Status Date: 09/19/1996

Global Id: T0608100147
Status: Open - Assessment & Interim Remedial Action
Status Date: 01/17/2007

Global Id: T0608100147
Status: Open - Verification Monitoring
Status Date: 05/26/2011

Global Id: T0608100147
Status: Open - Case Begin Date
Status Date: 10/06/1987

Global Id: T0608100147
Status: Open - Remediation
Status Date: 01/01/1991

Global Id: T0608100147
Status: Open - Remediation
Status Date: 05/21/2010

Regulatory Activities:
Global Id: T0608100147
Action Type: ENFORCEMENT
Date: 04/13/2010
Action: Staff Letter - #20100413

Global Id: T0608100147
Action Type: ENFORCEMENT
Date: 05/21/2010
Action: Staff Letter - #20100521

Global Id: T0608100147
Action Type: ENFORCEMENT
Date: 08/04/2010
Action: Staff Letter - #20100804

Global Id: T0608100147
Action Type: RESPONSE
Date: 01/17/2013
Action: Soil Vapor Intrusion Investigation Report - Regulator Responded

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92759 (Continued) **U001594624**

Global Id:	T0608100147
Action Type:	RESPONSE
Date:	06/15/2013
Action:	Soil Vapor Intrusion Investigation Report - Regulator Responded
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	04/25/2013
Action:	Pilot Study/ Treatability Report - Regulator Responded
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	08/30/2013
Action:	Well Installation Workplan - Regulator Responded
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	08/28/2014
Action:	Pilot Study/ Treatability Report - Regulator Responded
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	04/13/2011
Action:	Correspondence
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	05/15/2011
Action:	Monitoring Report - Semi-Annually
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	12/12/2014
Action:	Corrective Action Plan / Remedial Action Plan - Regulator Responded
Global Id:	T0608100147
Action Type:	REMEDIATION
Date:	03/05/1991
Action:	Pump & Treat (P&T) Groundwater
Global Id:	T0608100147
Action Type:	Other
Date:	03/10/1988
Action:	Leak Discovery
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	11/15/2011
Action:	Monitoring Report - Semi-Annually
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	10/13/2011
Action:	Correspondence
Global Id:	T0608100147
Action Type:	REMEDIATION

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92759 (Continued) **U001594624**

Date:	06/18/2010
Action:	In Situ Physical/Chemical Treatment (other than SVE)
Global Id:	T0608100147
Action Type:	REMEDIATION
Date:	01/17/2007
Action:	Pump & Treat (P&T) Groundwater
Global Id:	T0608100147
Action Type:	ENFORCEMENT
Date:	09/01/2011
Action:	Staff Letter - #2011/09/01
Global Id:	T0608100147
Action Type:	ENFORCEMENT
Date:	12/07/2011
Action:	Staff Letter - #20111207
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	05/31/2012
Action:	Risk Assessment Report
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	04/13/2012
Action:	Correspondence
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	05/15/2012
Action:	Monitoring Report - Semi-Annually
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	11/15/2012
Action:	Monitoring Report - Semi-Annually
Global Id:	T0608100147
Action Type:	ENFORCEMENT
Date:	02/27/1989
Action:	Notice of Responsibility - #1
Global Id:	T0608100147
Action Type:	ENFORCEMENT
Date:	09/04/2007
Action:	Staff Letter - #20070904
Global Id:	T0608100147
Action Type:	ENFORCEMENT
Date:	11/09/2005
Action:	Staff Letter - #20051109
Global Id:	T0608100147
Action Type:	ENFORCEMENT
Date:	09/04/2007
Action:	Staff Letter - #20070904

92759 (Continued) **U001594624**

Global Id: T0608100147
Action Type: ENFORCEMENT
Date: 01/31/2008
Action: Staff Letter - #20080131

Global Id: T0608100147
Action Type: ENFORCEMENT
Date: 10/18/2001
Action: Staff Letter - #20011018

Global Id: T0608100147
Action Type: ENFORCEMENT
Date: 03/31/2006
Action: Staff Letter - #20060331

Global Id: T0608100147
Action Type: ENFORCEMENT
Date: 02/15/2005
Action: Staff Letter - #20050215

Global Id: T0608100147
Action Type: ENFORCEMENT
Date: 06/21/2013
Action: Staff Letter - #20130621

Global Id: T0608100147
Action Type: RESPONSE
Date: 10/13/2012
Action: Correspondence

Global Id: T0608100147
Action Type: RESPONSE
Date: 12/01/2012
Action: Risk Assessment Report

Global Id: T0608100147
Action Type: ENFORCEMENT
Date: 01/31/2008
Action: Staff Letter - #20080131

Global Id: T0608100147
Action Type: ENFORCEMENT
Date: 06/11/2007
Action: Notice of Violation - #20070611

Global Id: T0608100147
Action Type: ENFORCEMENT
Date: 01/24/2013
Action: Staff Letter - #20130124

Global Id: T0608100147
Action Type: RESPONSE
Date: 05/15/2013
Action: Monitoring Report - Semi-Annually

Global Id: T0608100147
Action Type: ENFORCEMENT

92759 (Continued) **U001594624**

Date:	01/21/2004
Action:	Staff Letter - #20040121
Global Id:	T0608100147
Action Type:	ENFORCEMENT
Date:	10/17/2012
Action:	Staff Letter - #20121017
Global Id:	T0608100147
Action Type:	Other
Date:	10/06/1987
Action:	Leak Reported
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	06/11/2007
Action:	CAP/RAP - Feasibility Study Report
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	04/15/2004
Action:	Monitoring Report - Quarterly
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	02/15/2008
Action:	Monitoring Report - Semi-Annually
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	02/15/2006
Action:	Monitoring Report - Semi-Annually
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	11/15/2004
Action:	Monitoring Report - Semi-Annually
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	02/15/2007
Action:	Monitoring Report - Semi-Annually
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	08/15/2006
Action:	Monitoring Report - Semi-Annually
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	08/26/2005
Action:	Monitoring Report - Semi-Annually
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	08/15/2007
Action:	Monitoring Report - Semi-Annually

92759 (Continued) **U001594624**

Global Id:	T0608100147
Action Type:	RESPONSE
Date:	04/15/2004
Action:	Other Report / Document
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	03/01/2006
Action:	Request for Closure
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	03/01/2006
Action:	CAP/RAP - Feasibility Study Report
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	08/25/2006
Action:	CAP/RAP - Feasibility Study Report
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	12/24/2007
Action:	Soil and Water Investigation Workplan
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	05/31/2008
Action:	Soil and Water Investigation Report
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	04/11/2014
Action:	Pilot Study/ Treatability Report
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	11/15/2013
Action:	Monitoring Report - Semi-Annually
Global Id:	T0608100147
Action Type:	ENFORCEMENT
Date:	02/26/2009
Action:	Staff Letter - #20090226
Global Id:	T0608100147
Action Type:	ENFORCEMENT
Date:	07/06/2012
Action:	Staff Letter - #20120705
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	02/29/2008
Action:	Electronic Reporting Submittal Due
Global Id:	T0608100147
Action Type:	RESPONSE

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92759 (Continued) **U001594624**

Date:	05/15/2014
Action:	Monitoring Report - Semi-Annually
Global Id:	T0608100147
Action Type:	ENFORCEMENT
Date:	07/30/2009
Action:	Staff Letter - #20090730
Global Id:	T0608100147
Action Type:	ENFORCEMENT
Date:	07/22/2009
Action:	Staff Letter - #20090722
Global Id:	T0608100147
Action Type:	ENFORCEMENT
Date:	11/20/2014
Action:	Staff Letter - #20141120
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	06/26/2009
Action:	Soil and Water Investigation Workplan
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	02/15/2009
Action:	Monitoring Report - Semi-Annually
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	08/15/2009
Action:	Monitoring Report - Semi-Annually
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	10/04/2007
Action:	Electronic Reporting Submittal Due
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	10/13/2010
Action:	Interim Remedial Action Plan
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	10/13/2010
Action:	Correspondence
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	04/15/2015
Action:	Well Installation Report
Global Id:	T0608100147
Action Type:	RESPONSE
Date:	11/15/2014
Action:	Monitoring Report - Semi-Annually

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92759 (Continued) **U001594624**

Global Id: T0608100147
Action Type: ENFORCEMENT
Date: 09/25/2014
Action: Staff Letter - #20140925

Global Id: T0608100147
Action Type: RESPONSE
Date: 08/15/2008
Action: Monitoring Report - Semi-Annually

Global Id: T0608100147
Action Type: RESPONSE
Date: 08/15/2010
Action: Monitoring Report - Semi-Annually

Global Id: T0608100147
Action Type: RESPONSE
Date: 02/15/2010
Action: Monitoring Report - Semi-Annually

Global Id: T0608100147
Action Type: RESPONSE
Date: 04/30/2010
Action: Soil and Water Investigation Report

Global Id: T0608100147
Action Type: RESPONSE
Date: 02/15/2011
Action: Monitoring Report - Semi-Annually

Global Id: T0608100147
Action Type: RESPONSE
Date: 07/29/2011
Action: Interim Remedial Action Report - Regulator Responded

Global Id: T0608100147
Action Type: RESPONSE
Date: 12/01/2011
Action: Risk Assessment Report - Regulator Responded

Global Id: T0608100147
Action Type: RESPONSE
Date: 10/12/2012
Action: Soil and Water Investigation Workplan - Regulator Responded

SAN MATEO CO. LUST:
Region: SAN MATEO
Facility ID: 880006
Facility Status: 5R- Remediation Plan
Global ID: T0608100147
APN Number: 020071040
Case Type: SAN MATEO CO. LUST
EDR Link ID: SAN MATEO CO. LUST

HIST UST:

92759 (Continued) **U001594624**

Region:	STATE
Facility ID:	00000062316
Facility Type:	Gas Station
Other Type:	Not reported
Contact Name:	GREINER, KARL J
Telephone:	4155893817
Owner Name:	CHEVRON U.S.A. INC.
Owner Address:	575 MARKET
Owner City,St,Zip:	SAN FRANCISCO, CA 94105
Total Tanks:	0004
Tank Num:	001
Container Num:	1
Year Installed:	1963
Tank Capacity:	00007500
Tank Used for:	PRODUCT
Type of Fuel:	Not reported
Container Construction Thickness:	0000250
Leak Detection:	Stock Inventor
Tank Num:	002
Container Num:	2
Year Installed:	1963
Tank Capacity:	00004000
Tank Used for:	PRODUCT
Type of Fuel:	Not reported
Container Construction Thickness:	0000170
Leak Detection:	Stock Inventor
Tank Num:	003
Container Num:	3
Year Installed:	1963
Tank Capacity:	00007500
Tank Used for:	PRODUCT
Type of Fuel:	Not reported
Container Construction Thickness:	0000250
Leak Detection:	Stock Inventor
Tank Num:	004
Container Num:	4
Year Installed:	1963
Tank Capacity:	00000550
Tank Used for:	WASTE
Type of Fuel:	Not reported
Container Construction Thickness:	0000100
Leak Detection:	Stock Inventor

San Mateo Co. BI:

Region:	SAN MATEO
Facility ID:	FA0013762
Prog Element Code:	GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id:	PR0024199
Description:	GENERATES & RECYCLES WASTE OIL/SOLVENT
Region:	SAN MATEO
Facility ID:	FA0013762
Prog Element Code:	STORES HAZ MAT <3,499GAL,27,999LB,13,999FT3

92759 (Continued) **U001594624**

Record Id: PR0024200
Description: STORES HAZ MAT <3,499GAL,27,999LB,13,999CF

Region: SAN MATEO
Facility ID: FA0013762
Prog Element Code: 2352
Record Id: PR0065677
Description: TIER I: TANK STOR CAP =>1,320 & <5,000 GAL

Region: SAN MATEO
Facility ID: FA0013762
Prog Element Code: ABOVE GROUND TANK/SPCC
Record Id: PR0051818
Description: ABOVE GROUND TANK/SPCC

Region: SAN MATEO
Facility ID: FA0013762
Prog Element Code: RECYCLER
Record Id: PR0049587
Description: RECYCLER

F35 **CHEVRON 9-2759** **LUST** **S104735822**
East **801 EL CAMINO REAL** **N/A**
1/4-1/2 **SAN BRUNO, CA 94066**
0.368 mi.
1941 ft. **Site 2 of 8 in cluster F**

LUST REG 2:
Region: 2
Facility Id: Not reported
Facility Status: Post remedial action monitoring
Case Number: 880006
How Discovered: Tank Closure
Leak Cause: Unknown
Leak Source: Unknown
Date Leak Confirmed: Not reported
Oversight Program: LUST
Prelim. Site Assesment Wokplan Submitted: Not reported
Preliminary Site Assesment Began: Not reported
Pollution Characterization Began: Not reported
Pollution Remediation Plan Submitted: Not reported
Date Remediation Action Underway: Not reported
Date Post Remedial Action Monitoring Began: 9/19/1996

F36 **CHEVRON** **HIST CORTESE** **S110060600**
East **801 EL CAMINO REAL** **N/A**
1/4-1/2 **SAN BRUNO, CA**
0.368 mi.
1941 ft. **Site 3 of 8 in cluster F**

HIST CORTESE:
Region: CORTESE
Facility County Code: 41
Reg By: LTNKA
Reg Id: 41-0155

F37 **TEXACO** **HIST CORTESE** **S104164297**
East **800 EL CAMINO REAL** **N/A**
1/4-1/2 **SAN BRUNO, CA**
0.377 mi.
1991 ft. **Site 4 of 8 in cluster F**

HIST CORTESE:

Region:	CORTESE
Facility County Code:	41
Reg By:	LTNKA
Reg Id:	41-0563

F38 **SERVICE STATION** **LUST** **S100178951**
East **800 EL CAMINO REAL** **SWEEPS UST** **N/A**
1/4-1/2 **SAN BRUNO, CA 92260** **Notify 65**
0.377 mi. **San Mateo Co. BI**
1991 ft. **Site 5 of 8 in cluster F**

LUST:

Region:	STATE
Global Id:	T0608100537
Latitude:	37.629162625
Longitude:	-122.416477006
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	07/02/2013
Lead Agency:	SAN MATEO COUNTY LOP
Case Worker:	JM
Local Agency:	SAN MATEO COUNTY LOP
RB Case Number:	41-0563
LOC Case Number:	880013
File Location:	Local Agency
Potential Media Affect:	Other Groundwater (uses other than drinking water), Soil Vapor
Potential Contaminants of Concern:	Benzene, Other Chlorinated Hydrocarbons, Gasoline
Site History:	Extracted from URS's June 26, 2009 Work Plan for Additional On-Site Source Area Assessment and Off-Site Monitoring Well Installation, San Mateo County does not take responsibility for the accuracy of the statements made or any professional interpretations made in the referenced report. The intersection of El Camino Real and San Bruno Avenue has been the location of retail gasoline service stations for more than 50 years. The northeast corner of the intersection is presently occupied by a Valero gasoline service station. An ExxonMobil station previously occupied this address. Petroleum hydrocarbon impacted soil and groundwater were discovered beneath the site in 1988; A groundwater extraction system was installed on the site and operated from 1991 to 1996. Approximately 67 pounds of petroleum hydrocarbons and 1,300,759 gallons of groundwater were removed from 1991 to 1996; Four 10,000-gallon fuel USTs and one 550-gallon waste oil UST were installed in 1982 and removed in 1997; Four 550-gallon fuel USTs were discovered and removed during the 1997 UST excavation activities. The USTs were of an unknown age, but are assumed to have been originally installed in about 1945; Approximately 2,800 tons of soil was removed from beneath the site during the 1997 UST excavation activities; and Quarterly groundwater monitoring has occurred at the site from 1993 until 2001. Semiannual groundwater monitoring has occurred at the site since the first quarter of 2002 to present. Source areas at the former ExxonMobil station site include the former central and southern UST basins and the former dispenser islands. At the former ExxonMobil site, remedial pilot studies included high vacuum dual phase extraction (HVDPE),

SERVICE STATION (Continued) **S100178951**

soil vapor extraction (SVE), air sparging (AS) and biosparging.The HVDPE, SVE, AS and biosparging pilot test results at the former Exxon station indicated the movement of air through the subsurface (both sparging and vapor extracting) could potentially reduce residual contaminant mass in the hot spot areas at these two sites. However, pilot testing also suggests that the complex/variable nature and geometry of unconsolidated materials beneath the Site appears to create preferential pathways for air and contaminant movement, thereby limiting the effectiveness of physical contaminant mass recovery/removal. On June 30, 2004, ERI installed and collected soil vapor samples from sampling points SV-1, SV-2, SV-3, SV-4 and SV-6 at the former ExxonMobil site. During installation, pea gravel was observed at soil vapor point SV-5. Due to safety concerns with encountering underground piping/equipment, installation of soil vapor sampling point SV-5 was not completed. Tracer gas was detected in soil vapor samples SV-1, SV-2, SV-3, SV-4 and SV-6. Due to soil vapor sample collection from low permeability clayey soils and the use of 5-L Summa canisters, ERI concluded that a leak likely occurred at the well seal tubing interface. Based on the data collected, ERI determined that the soil vapor samples collected from SV-3 were valid (ATC, 2007a). On September 24, 2004, ERI collected soil vapor samples from sampling points SV-2 and SV-3 using a custom made sampling manifold connected to a flow regulator, pressure gauges and a 1-L Summa canister. Gauze strips soaked in isopropyl alcohol (tracer gas) were wrapped around the well head sampling valve while collecting soil vapor samples from soil vapor points SV-2 and SV-3. Because tracer gas was detected above acceptable limits, the results of soil vapor sampling conducted in September 2004 utilizing soil vapor points SV-2 and SV-3 were not representative of soil vapor conditions beneath the Site. ERI concluded that due to the low permeability of the native soils, the soil vapor points short circuit at the well seal before sufficient vacuum is generated to extract soil vapor from the native material. On September 4, 2007, ATC conducted soil vapor assessment activities at the former ExxonMobil station. As previously mentioned, potential sources on the former ExxonMobil site include two former UST systems in use before 1997 and the current UST system that was installed in 1997. Based on the laboratory analytical results reported during this soil vapor assessment, all concentrations of detected VOCs in the soil vapor samples were below the Shallow Soil Gas Screening Levels for Evaluation of Potential Vapor Intrusion Concerns (volatile chemicals only), Table E-2 (RWCQB, 2008) and do not pose a human health risk. The geometry of fuel hydrocarbon impacts at the source areas (former dispenser islands, former southern UST basin, and former central UST basin) has been defined by the qualitative and quantitative work conducted to date. The geologic setting at the site appears to create preferential pathways for air and contaminant movement. The upper five feet of soil at the site consists of clayey soils which may act as a natural cap/barrier to volatilization and vertical contaminant migration. However, these conditions could accentuate the effect of preferential pathways, such as utility corridors.

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0608100537
Contact Type:	Regional Board Caseworker
Contact Name:	Cheryl L. Prowell

SERVICE STATION (Continued) **S100178951**

Organization Name: SAN FRANCISCO BAY RWQCB (REGION 2)
Address: 1515 Clay Street, Suite 1400
City: Oakland
Email: cprowell@waterboards.ca.gov
Phone Number: 5106222408

Global Id: T0608100537
Contact Type: Local Agency Caseworker
Contact Name: JACOB MADDEN
Organization Name: SAN MATEO COUNTY LOP
Address: 2000 ALAMEDA DE LAS PULGAS
City: SAN MATEO
Email: jmadden@smcgov.org
Phone Number: 6503726298

Status History:
Global Id: T0608100537
Status: Open - Site Assessment
Status Date: 11/01/2006

Global Id: T0608100537
Status: Completed - Case Closed
Status Date: 07/02/2013

Global Id: T0608100537
Status: Open - Assessment & Interim Remedial Action
Status Date: 10/01/2006

Global Id: T0608100537
Status: Open - Verification Monitoring
Status Date: 03/08/2010

Global Id: T0608100537
Status: Open - Case Begin Date
Status Date: 12/01/1988

Global Id: T0608100537
Status: Open - Eligible for Closure
Status Date: 12/18/2012

Global Id: T0608100537
Status: Open - Site Assessment
Status Date: 12/01/1988

Regulatory Activities:
Global Id: T0608100537
Action Type: ENFORCEMENT
Date: 04/13/2010
Action: Staff Letter - #20100413

Global Id: T0608100537
Action Type: RESPONSE
Date: 02/18/2013
Action: Well Destruction Workplan - Regulator Responded

Global Id: T0608100537

SERVICE STATION (Continued) **S100178951**

Action Type: RESPONSE
Date: 10/13/2012
Action: Request for Closure - Regulator Responded

Global Id: T0608100537
Action Type: RESPONSE
Date: 06/18/2013
Action: Well Destruction Report - Regulator Responded

Global Id: T0608100537
Action Type: ENFORCEMENT
Date: 08/04/2010
Action: Staff Letter - #20100804

Global Id: T0608100537
Action Type: RESPONSE
Date: 04/13/2011
Action: Correspondence

Global Id: T0608100537
Action Type: RESPONSE
Date: 05/15/2011
Action: Monitoring Report - Semi-Annually

Global Id: T0608100537
Action Type: REMEDIATION
Date: 05/05/1991
Action: Pump & Treat (P&T) Groundwater

Global Id: T0608100537
Action Type: REMEDIATION
Date: 01/01/1997
Action: Excavation

Global Id: T0608100537
Action Type: REMEDIATION
Date: 07/01/1991
Action: Excavation

Global Id: T0608100537
Action Type: Other
Date: 03/02/1989
Action: Leak Discovery

Global Id: T0608100537
Action Type: RESPONSE
Date: 10/13/2011
Action: Correspondence

Global Id: T0608100537
Action Type: RESPONSE
Date: 11/15/2011
Action: Monitoring Report - Semi-Annually

Global Id: T0608100537
Action Type: RESPONSE
Date: 04/13/2012

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SERVICE STATION (Continued) **S100178951**

Action:	Correspondence
Global Id:	T0608100537
Action Type:	RESPONSE
Date:	05/15/2012
Action:	Monitoring Report - Semi-Annually
Global Id:	T0608100537
Action Type:	RESPONSE
Date:	11/15/2012
Action:	Monitoring Report - Semi-Annually
Global Id:	T0608100537
Action Type:	ENFORCEMENT
Date:	09/04/2007
Action:	Staff Letter - #20070904B
Global Id:	T0608100537
Action Type:	ENFORCEMENT
Date:	01/31/2008
Action:	Staff Letter - #20080131
Global Id:	T0608100537
Action Type:	ENFORCEMENT
Date:	11/09/2005
Action:	Staff Letter - #20051109B
Global Id:	T0608100537
Action Type:	ENFORCEMENT
Date:	10/18/2001
Action:	Staff Letter - #20011018
Global Id:	T0608100537
Action Type:	ENFORCEMENT
Date:	05/03/2004
Action:	Staff Letter - #20040503B
Global Id:	T0608100537
Action Type:	ENFORCEMENT
Date:	03/31/2006
Action:	Staff Letter - #20060331B
Global Id:	T0608100537
Action Type:	ENFORCEMENT
Date:	06/11/2007
Action:	Notice of Violation - #20070611
Global Id:	T0608100537
Action Type:	ENFORCEMENT
Date:	03/31/2006
Action:	Staff Letter - #20060331C
Global Id:	T0608100537
Action Type:	ENFORCEMENT
Date:	03/31/2006
Action:	Staff Letter - #20060331A

SERVICE STATION (Continued) **S100178951**

Global Id: T0608100537
Action Type: ENFORCEMENT
Date: 02/15/2005
Action: Staff Letter - #20050215

Global Id: T0608100537
Action Type: ENFORCEMENT
Date: 03/23/1989
Action: Notice of Responsibility - #1

Global Id: T0608100537
Action Type: ENFORCEMENT
Date: 09/04/2007
Action: Staff Letter - #20070904

Global Id: T0608100537
Action Type: ENFORCEMENT
Date: 05/03/2004
Action: Staff Letter - #20040503A

Global Id: T0608100537
Action Type: ENFORCEMENT
Date: 01/31/2008
Action: Staff Letter - #20080131

Global Id: T0608100537
Action Type: ENFORCEMENT
Date: 11/09/2005
Action: Staff Letter - #20051109

Global Id: T0608100537
Action Type: RESPONSE
Date: 10/13/2012
Action: Correspondence

Global Id: T0608100537
Action Type: ENFORCEMENT
Date: 07/02/2013
Action: Closure/No Further Action Letter - #20130702

Global Id: T0608100537
Action Type: ENFORCEMENT
Date: 10/11/2012
Action: Notification - Public Notice of Case Closure - #20121011

Global Id: T0608100537
Action Type: ENFORCEMENT
Date: 09/18/2003
Action: Staff Letter - #20030918

Global Id: T0608100537
Action Type: ENFORCEMENT
Date: 12/18/2012
Action: Staff Letter - #20121218

Global Id: T0608100537
Action Type: Other

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SERVICE STATION (Continued) **S100178951**

Date: 03/02/1989
Action: Leak Reported

Global Id: T0608100537
Action Type: RESPONSE
Date: 08/15/2009
Action: Monitoring Report - Semi-Annually

Global Id: T0608100537
Action Type: RESPONSE
Date: 04/30/2010
Action: Soil and Water Investigation Report

Global Id: T0608100537
Action Type: RESPONSE
Date: 10/04/2007
Action: Electronic Reporting Submittal Due

Global Id: T0608100537
Action Type: RESPONSE
Date: 02/29/2008
Action: Electronic Reporting Submittal Due

Global Id: T0608100537
Action Type: RESPONSE
Date: 06/11/2007
Action: CAP/RAP - Feasibility Study Report

Global Id: T0608100537
Action Type: RESPONSE
Date: 08/15/2008
Action: Monitoring Report - Semi-Annually

Global Id: T0608100537
Action Type: RESPONSE
Date: 02/15/2006
Action: Monitoring Report - Semi-Annually

Global Id: T0608100537
Action Type: RESPONSE
Date: 02/15/2008
Action: Monitoring Report - Semi-Annually

Global Id: T0608100537
Action Type: RESPONSE
Date: 11/15/2004
Action: Monitoring Report - Semi-Annually

Global Id: T0608100537
Action Type: RESPONSE
Date: 02/15/2007
Action: Monitoring Report - Semi-Annually

Global Id: T0608100537
Action Type: RESPONSE
Date: 08/26/2005
Action: Monitoring Report - Semi-Annually

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SERVICE STATION (Continued) **S100178951**

Global Id: T0608100537
Action Type: RESPONSE
Date: 08/15/2007
Action: Monitoring Report - Semi-Annually

Global Id: T0608100537
Action Type: RESPONSE
Date: 02/12/2004
Action: Soil and Water Investigation Workplan

Global Id: T0608100537
Action Type: RESPONSE
Date: 07/12/2004
Action: Other Report / Document

Global Id: T0608100537
Action Type: RESPONSE
Date: 08/30/2004
Action: Soil and Water Investigation Report

Global Id: T0608100537
Action Type: RESPONSE
Date: 02/01/2006
Action: Soil and Water Investigation Workplan

Global Id: T0608100537
Action Type: RESPONSE
Date: 03/01/2006
Action: Soil and Water Investigation Report

Global Id: T0608100537
Action Type: RESPONSE
Date: 03/17/2005
Action: NPDES / WDR Reports

Global Id: T0608100537
Action Type: RESPONSE
Date: 03/17/2005
Action: Electronic Reporting Submittal Due

Global Id: T0608100537
Action Type: RESPONSE
Date: 03/01/2006
Action: CAP/RAP - Feasibility Study Report

Global Id: T0608100537
Action Type: RESPONSE
Date: 08/25/2006
Action: Soil and Water Investigation Report

Global Id: T0608100537
Action Type: RESPONSE
Date: 08/25/2006
Action: Soil and Water Investigation Report

Global Id: T0608100537
Action Type: RESPONSE

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SERVICE STATION (Continued) **S100178951**

Date: 08/25/2006
Action: CAP/RAP - Feasibility Study Report

Global Id: T0608100537
Action Type: RESPONSE
Date: 12/24/2007
Action: Soil and Water Investigation Workplan

Global Id: T0608100537
Action Type: RESPONSE
Date: 05/31/2008
Action: Soil and Water Investigation Report

Global Id: T0608100537
Action Type: ENFORCEMENT
Date: 02/26/2009
Action: Staff Letter - #20090226

Global Id: T0608100537
Action Type: ENFORCEMENT
Date: 07/30/2009
Action: Staff Letter - #20090730

Global Id: T0608100537
Action Type: ENFORCEMENT
Date: 07/22/2009
Action: Staff Letter - #20090722

Global Id: T0608100537
Action Type: RESPONSE
Date: 02/15/2009
Action: Monitoring Report - Semi-Annually

Global Id: T0608100537
Action Type: RESPONSE
Date: 04/15/2004
Action: Monitoring Report - Quarterly

Global Id: T0608100537
Action Type: RESPONSE
Date: 08/15/2006
Action: Monitoring Report - Semi-Annually

Global Id: T0608100537
Action Type: RESPONSE
Date: 08/30/2004
Action: Risk Assessment Report

Global Id: T0608100537
Action Type: RESPONSE
Date: 12/09/2005
Action: Electronic Reporting Submittal Due

Global Id: T0608100537
Action Type: RESPONSE
Date: 10/13/2010
Action: Correspondence

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Global Id: T0608100537
Action Type: RESPONSE
Date: 10/13/2010
Action: Correspondence

Global Id: T0608100537
Action Type: RESPONSE
Date: 08/15/2010
Action: Monitoring Report - Semi-Annually

Global Id: T0608100537
Action Type: RESPONSE
Date: 02/15/2010
Action: Monitoring Report - Semi-Annually

Global Id: T0608100537
Action Type: RESPONSE
Date: 06/26/2009
Action: Soil and Water Investigation Workplan

Global Id: T0608100537
Action Type: RESPONSE
Date: 02/15/2011
Action: Monitoring Report - Semi-Annually

SAN MATEO CO. LUST:
Region: SAN MATEO
Facility ID: 880013
Facility Status: 9- Case Closed
Global ID: T0608100537
APN Number: 020116330
Case Type: SAN MATEO CO. LUST
EDR Link ID: SAN MATEO CO. LUST

SWEEPS UST:
Status: Active
Comp Number: 880022
Number: 1
Board Of Equalization: 44-000285
Referral Date: 04-11-94
Action Date: 04-11-94
Created Date: 10-13-88
Owner Tank Id: 1
SWRCB Tank Id: 41-000-880022-000001
Tank Status: A
Capacity: 10000
Active Date: 04-11-94
Tank Use: M.V. FUEL
STG: P
Content: REG UNLEADED
Number Of Tanks: 5

Status: Active
Comp Number: 880022
Number: 1

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SERVICE STATION (Continued) **S100178951**

Board Of Equalization: 44-000285
Referral Date: 04-11-94
Action Date: 04-11-94
Created Date: 10-13-88
Owner Tank Id: 2
SWRCB Tank Id: 41-000-880022-000002
Tank Status: A
Capacity: 10000
Active Date: 04-11-94
Tank Use: M.V. FUEL
STG: P
Content: REG UNLEADED
Number Of Tanks: Not reported

Status: Active
Comp Number: 880022
Number: 1
Board Of Equalization: 44-000285
Referral Date: 04-11-94
Action Date: 04-11-94
Created Date: 10-13-88
Owner Tank Id: 3
SWRCB Tank Id: 41-000-880022-000003
Tank Status: A
Capacity: 10000
Active Date: 04-11-94
Tank Use: M.V. FUEL
STG: P
Content: LEADED
Number Of Tanks: Not reported

Status: Active
Comp Number: 880022
Number: 1
Board Of Equalization: 44-000285
Referral Date: 04-11-94
Action Date: 04-11-94
Created Date: 10-13-88
Owner Tank Id: 4
SWRCB Tank Id: 41-000-880022-000004
Tank Status: A
Capacity: 10000
Active Date: 04-11-94
Tank Use: M.V. FUEL
STG: P
Content: DIESEL
Number Of Tanks: Not reported

Status: Active
Comp Number: 880022
Number: 1
Board Of Equalization: 44-000285
Referral Date: 04-11-94
Action Date: 04-11-94
Created Date: 10-13-88
Owner Tank Id: 5
SWRCB Tank Id: 41-000-880022-000005

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SERVICE STATION (Continued) **S100178951**

Tank Status: A
Capacity: 550
Active Date: 04-11-94
Tank Use: OIL
STG: W
Content: WASTE OIL
Number Of Tanks: Not reported

NOTIFY 65:
Date Reported: Not reported
Staff Initials: Not reported
Board File Number: Not reported
Facility Type: Not reported
Discharge Date: Not reported
Incident Description: 92260

San Mateo Co. BI:
Region: SAN MATEO
Facility ID: FA0007517
Prog Element Code: GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id: PR0012228
Description: GENERATES & RECYCLES WASTE OIL/SOLVENT

Region: SAN MATEO
Facility ID: FA0007517
Prog Element Code: STORES HAZ MAT <219GAL,1,999LB, 879FT3
Record Id: PR0024165
Description: STORES HAZ MAT <219GAL,1,999LB, 879CF

Region: SAN MATEO
Facility ID: FA0018226
Prog Element Code: GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id: PR0025175
Description: GENERATES & RECYCLES WASTE OIL/SOLVENT

Region: SAN MATEO
Facility ID: FA0018226
Prog Element Code: GENERATES <27 GAL/YEAR
Record Id: PR0046343
Description: GENERATES <27 GAL/YEAR

Region: SAN MATEO
Facility ID: FA0018226
Prog Element Code: STORES MV FUELS OR WASTE ONLY
Record Id: PR0023763
Description: STORES MV FUELS OR WASTE ONLY

Region: SAN MATEO
Facility ID: FA0018226
Prog Element Code: UNDERGROUND TANK - GENERAL
Record Id: PR0022947
Description: UNDERGROUND TANK - GENERAL

Region: SAN MATEO
Facility ID: FA0050534
Prog Element Code: GENERATES <27 GAL/YEAR

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SERVICE STATION (Continued) **S100178951**

Record Id: PR0070007
Description: GENERATES <27 GAL/YEAR

Region: SAN MATEO
Facility ID: FA0050534
Prog Element Code: STORES MV FUELS OR WASTE ONLY
Record Id: PR0070006
Description: STORES MV FUELS OR WASTE ONLY

Region: SAN MATEO
Facility ID: FA0050534
Prog Element Code: UNDERGROUND TANK - GENERAL
Record Id: PR0070008
Description: UNDERGROUND TANK - GENERAL

F39 **EXXON/TEXACO** **LUST** **S104912737**
East **800 EL CAMINO REAL** **N/A**
1/4-1/2 **SAN BRUNO, CA 94066**
0.377 mi.
1991 ft. **Site 6 of 8 in cluster F**

LUST REG 2:
Region: 2
Facility Id: Not reported
Facility Status: Pollution Characterization
Case Number: 880013
How Discovered: OM
Leak Cause: Unknown
Leak Source: Unknown
Date Leak Confirmed: Not reported
Oversight Program: LUST
Prelim. Site Assesment Wokplan Submitted: Not reported
Preliminary Site Assesment Began: Not reported
Pollution Characterization Began: 12/1/1988
Pollution Remediation Plan Submitted: Not reported
Date Remediation Action Underway: Not reported
Date Post Remedial Action Monitoring Began: Not reported

F40 **SAN BRUNO SHELL** **LUST** **U001594655**
East **798 EL CAMINO REAL** **UST** **N/A**
1/4-1/2 **SAN BRUNO, CA 94066** **HIST UST**
0.385 mi. **San Mateo Co. BI**
2033 ft. **Site 7 of 8 in cluster F**

LUST:
Region: STATE
Global Id: T0608100491
Latitude: 37.628810797
Longitude: -122.416301937
Case Type: LUST Cleanup Site
Status: Completed - Case Closed
Status Date: 07/02/2013
Lead Agency: SAN MATEO COUNTY LOP
Case Worker: JM
Local Agency: SAN MATEO COUNTY LOP
RB Case Number: 41-0515

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SAN BRUNO SHELL (Continued) **U001594655**

LOC Case Number: 880015
File Location: Local Agency
Potential Media Affect: Other Groundwater (uses other than drinking water), Soil Vapor
Potential Contaminants of Concern: Gasoline
Site History: Extracted from URS's June 26, 2009 Work Plan for Additional On-Site Source Area Assessment and Off-Site Monitoring Well Installation, San Mateo County does not take responsibility for the accuracy of the statements made or any professional interpretations made in the referenced report. The intersection of El Camino Real and San Bruno Avenue has been the location of retail gasoline service stations for more than 50 years.The southeast corner of the intersection is occupied by a Shell retail petroleum station. Petroleum hydrocarbon impacted soil and groundwater were first discovered in 1986; Three underground storage tanks (USTs) and one waste oil UST were removed in 1988; Approximately 550 cubic yards of soil was excavated from beneath the site in 1988; A groundwater extraction system was installed and operational on the site from 1993 to 1996. Approximately 10.7 pounds of fuel hydrocarbons was removed and 520,000 gallons of groundwater were pumped from 1993 to 1996; Approximately 80 cubic yards of soil was excavated from beneath the site in 2002; and Quarterly groundwater monitoring has occurred at the site from 1991 until 2001. Semiannual groundwater monitoring has occurred at the site since the first quarter of 2002 to present. Petroleum hydrocarbon impacts were initially detected in 1986 at the Shell station. Approximately 550 cubic yards of soil and 520,000 gallons of groundwater (calculated petroleum hydrocarbon mass of 10.7 pounds) have been removed and treated at the Shell site. Source areas at the Shell Station site include a former UST basin located at the northeastern portion of the property and the northern and western dispenser islands. At the Shell-branded site, HVDPE, SVE, and AS feasibility studies were conducted. HVDPE, SVE, and AS pilot test results at the Shell station indicated the movement of air through the subsurface (both sparging and vapor extracting) could potentially reduce residual contaminant mass in the hot spot areas at these two sites. However, pilot testing also suggests that the complex/variable nature and geometry of unconsolidated materials beneath the Site appears to create preferential pathways for air and contaminant movement, thereby limiting the effectiveness of physical contaminant mass recovery/removal. Two SVE pilot studies were completed at the Shell station. The first pilot study was completed on August 2, 1990 under the direction of Applied GeoSystems (1990). This pilot study included the collection of soil vapor from three wells: MW-3, MW-4 and MW-5. Soil vapor samples for laboratory analyses were collected in Tedlar bags. The vapor samples with high organic vapor monitor (OVM) readings were selected for laboratory analysis. The results of this pilot study indicated elevated soil vapor concentrations of TPH-g and benzene. A second pilot test was completed by ATC (2007b) as described previously in Section 3.4, Pilot Study Results. Pilot test results indicated the movement of air through the subsurface (both sparging and vapor extracting) could potentially reduce residual contaminant mass in the hot spot areas at the Shell site sufficiently to achieve site closure. However, pilot testing suggests that the complex/variable nature and geometry of unconsolidated materials beneath the site appears to create preferential pathways for air and contaminant movement, thereby limiting the effectiveness of physical contaminant mass recovery/removal (ATC, 2007b). A review of previous investigations by URS as part of the preparation of this

SAN BRUNO SHELL (Continued) **U001594655**

Work Plan did not indicate that any discrete soil vapor samples have been collected from the Shell station. Because the soil vapor samples submitted for laboratory analysis from the previous two pilot studies were collected at high vacuum pressures and over various time periods, these reported concentrations cannot be directly compared to Shallow Soil Gas Screening Levels for Evaluation of Potential Vapor Intrusion Concerns (volatilechemicals only), Table E-2, (RWCQB, 2008). The geometry of fuel hydrocarbon impacts at the source areas (former UST basin, former northern dispenser island, and former western dispenser island) have been defined and are limited to the area beneath such sources and the downgradient smear zone along the water table. However, the western dispenser island does not appear to be a significant source of dissolved phase impact at the site. Pilot testing suggests that the complex/variable nature and geometry of unconsolidated materials beneath the site appears to create preferential pathways for air and contaminant movement.

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0608100491
Contact Type:	Regional Board Caseworker
Contact Name:	Cheryl L. Prowell
Organization Name:	SAN FRANCISCO BAY RWQCB (REGION 2)
Address:	1515 Clay Street, Suite 1400
City:	Oakland
Email:	cprowell@waterboards.ca.gov
Phone Number:	5106222408

Global Id:	T0608100491
Contact Type:	Local Agency Caseworker
Contact Name:	JACOB MADDEN
Organization Name:	SAN MATEO COUNTY LOP
Address:	2000 ALAMEDA DE LAS PULGAS
City:	SAN MATEO
Email:	jmadden@smcgov.org
Phone Number:	6503726298

Status History:

Global Id:	T0608100491
Status:	Open - Site Assessment
Status Date:	06/01/2007

Global Id:	T0608100491
Status:	Completed - Case Closed
Status Date:	07/02/2013

Global Id:	T0608100491
Status:	Open - Assessment & Interim Remedial Action
Status Date:	05/01/2007

Global Id:	T0608100491
Status:	Open - Verification Monitoring
Status Date:	03/08/2010

Global Id:	T0608100491
Status:	Open - Case Begin Date

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SAN BRUNO SHELL (Continued) **U001594655**

Status Date: 04/19/1989

Global Id: T0608100491
Status: Open - Eligible for Closure
Status Date: 12/18/2012

Global Id: T0608100491
Status: Open - Site Assessment
Status Date: 07/01/1989

Regulatory Activities:

Global Id: T0608100491
Action Type: ENFORCEMENT
Date: 04/13/2010
Action: Staff Letter - #20100413

Global Id: T0608100491
Action Type: RESPONSE
Date: 02/18/2013
Action: Well Destruction Workplan - Regulator Responded

Global Id: T0608100491
Action Type: RESPONSE
Date: 04/13/2012
Action: Request for Closure - Regulator Responded

Global Id: T0608100491
Action Type: RESPONSE
Date: 06/18/2013
Action: Well Destruction Report - Regulator Responded

Global Id: T0608100491
Action Type: RESPONSE
Date: 04/13/2011
Action: Correspondence

Global Id: T0608100491
Action Type: RESPONSE
Date: 05/15/2011
Action: Monitoring Report - Semi-Annually

Global Id: T0608100491
Action Type: REMEDIATION
Date: 12/01/1988
Action: Excavation

Global Id: T0608100491
Action Type: REMEDIATION
Date: 02/25/1993
Action: Pump & Treat (P&T) Groundwater

Global Id: T0608100491
Action Type: ENFORCEMENT
Date: 08/04/2010
Action: Staff Letter - #20100804

Global Id: T0608100491

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SAN BRUNO SHELL (Continued) **U001594655**

Action Type:	Other
Date:	04/19/1989
Action:	Leak Discovery
Global Id:	T0608100491
Action Type:	RESPONSE
Date:	10/13/2011
Action:	Correspondence
Global Id:	T0608100491
Action Type:	RESPONSE
Date:	11/15/2011
Action:	Monitoring Report - Semi-Annually
Global Id:	T0608100491
Action Type:	RESPONSE
Date:	04/13/2012
Action:	Correspondence
Global Id:	T0608100491
Action Type:	RESPONSE
Date:	05/15/2012
Action:	Monitoring Report - Semi-Annually
Global Id:	T0608100491
Action Type:	ENFORCEMENT
Date:	04/28/1989
Action:	Notice of Responsibility - #1
Global Id:	T0608100491
Action Type:	ENFORCEMENT
Date:	09/04/2007
Action:	Staff Letter - #20070904
Global Id:	T0608100491
Action Type:	ENFORCEMENT
Date:	01/31/2008
Action:	Staff Letter - #20080131
Global Id:	T0608100491
Action Type:	ENFORCEMENT
Date:	11/09/2005
Action:	Staff Letter - #20051109A
Global Id:	T0608100491
Action Type:	ENFORCEMENT
Date:	09/04/2007
Action:	Staff Letter - #20070904B
Global Id:	T0608100491
Action Type:	ENFORCEMENT
Date:	01/31/2008
Action:	Staff Letter - #20080131
Global Id:	T0608100491
Action Type:	ENFORCEMENT
Date:	11/09/2005

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SAN BRUNO SHELL (Continued) **U001594655**

Action: Staff Letter - #20051109B

Global Id: T0608100491
Action Type: ENFORCEMENT
Date: 10/18/2001
Action: Staff Letter - #20011018

Global Id: T0608100491
Action Type: ENFORCEMENT
Date: 07/20/2004
Action: Staff Letter - #20040720

Global Id: T0608100491
Action Type: ENFORCEMENT
Date: 06/11/2007
Action: Notice of Violation - #20070611

Global Id: T0608100491
Action Type: ENFORCEMENT
Date: 03/31/2006
Action: Staff Letter - #20060331B

Global Id: T0608100491
Action Type: ENFORCEMENT
Date: 03/31/2006
Action: Staff Letter - #20060331A

Global Id: T0608100491
Action Type: ENFORCEMENT
Date: 09/22/2003
Action: Staff Letter - #20030922A

Global Id: T0608100491
Action Type: ENFORCEMENT
Date: 01/26/2004
Action: Staff Letter - #20040126

Global Id: T0608100491
Action Type: ENFORCEMENT
Date: 07/02/2013
Action: Closure/No Further Action Letter - #20130702

Global Id: T0608100491
Action Type: RESPONSE
Date: 11/15/2012
Action: Monitoring Report - Semi-Annually

Global Id: T0608100491
Action Type: ENFORCEMENT
Date: 09/22/2003
Action: Staff Letter - #20030922B

Global Id: T0608100491
Action Type: ENFORCEMENT
Date: 12/18/2012
Action: Staff Letter - #20121218

SAN BRUNO SHELL (Continued) **U001594655**

Global Id: T0608100491
Action Type: RESPONSE
Date: 10/13/2012
Action: Correspondence

Global Id: T0608100491
Action Type: ENFORCEMENT
Date: 02/15/2005
Action: Staff Letter - #20050215

Global Id: T0608100491
Action Type: Other
Date: 04/19/1989
Action: Leak Reported

Global Id: T0608100491
Action Type: RESPONSE
Date: 08/15/2009
Action: Monitoring Report - Semi-Annually

Global Id: T0608100491
Action Type: RESPONSE
Date: 08/15/2008
Action: Monitoring Report - Semi-Annually

Global Id: T0608100491
Action Type: RESPONSE
Date: 02/15/2006
Action: Monitoring Report - Semi-Annually

Global Id: T0608100491
Action Type: RESPONSE
Date: 02/15/2008
Action: Monitoring Report - Semi-Annually

Global Id: T0608100491
Action Type: RESPONSE
Date: 11/15/2004
Action: Monitoring Report - Semi-Annually

Global Id: T0608100491
Action Type: RESPONSE
Date: 02/15/2007
Action: Monitoring Report - Semi-Annually

Global Id: T0608100491
Action Type: RESPONSE
Date: 08/15/2006
Action: Monitoring Report - Semi-Annually

Global Id: T0608100491
Action Type: RESPONSE
Date: 05/15/2005
Action: Monitoring Report - Semi-Annually

Global Id: T0608100491
Action Type: RESPONSE

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SAN BRUNO SHELL (Continued) **U001594655**

Date: 08/15/2007
Action: Monitoring Report - Semi-Annually

Global Id: T0608100491
Action Type: RESPONSE
Date: 01/12/2004
Action: Soil and Water Investigation Report

Global Id: T0608100491
Action Type: RESPONSE
Date: 11/10/2003
Action: Soil and Water Investigation Workplan

Global Id: T0608100491
Action Type: RESPONSE
Date: 03/15/2004
Action: Soil and Water Investigation Workplan

Global Id: T0608100491
Action Type: RESPONSE
Date: 02/01/2006
Action: Soil and Water Investigation Workplan

Global Id: T0608100491
Action Type: RESPONSE
Date: 03/01/2006
Action: Soil and Water Investigation Report

Global Id: T0608100491
Action Type: RESPONSE
Date: 03/17/2005
Action: Electronic Reporting Submittal Due

Global Id: T0608100491
Action Type: RESPONSE
Date: 03/01/2006
Action: CAP/RAP - Feasibility Study Report

Global Id: T0608100491
Action Type: RESPONSE
Date: 08/25/2006
Action: CAP/RAP - Feasibility Study Report

Global Id: T0608100491
Action Type: RESPONSE
Date: 08/25/2006
Action: Soil and Water Investigation Report

Global Id: T0608100491
Action Type: ENFORCEMENT
Date: 10/10/2012
Action: Notification - Public Notice of Case Closure - #20121010

Global Id: T0608100491
Action Type: RESPONSE
Date: 04/30/2010
Action: Soil and Water Investigation Report

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SAN BRUNO SHELL (Continued) **U001594655**

Global Id: T0608100491
Action Type: RESPONSE
Date: 10/04/2007
Action: Electronic Reporting Submittal Due

Global Id: T0608100491
Action Type: RESPONSE
Date: 02/29/2008
Action: Electronic Reporting Submittal Due

Global Id: T0608100491
Action Type: RESPONSE
Date: 06/11/2007
Action: CAP/RAP - Feasibility Study Report

Global Id: T0608100491
Action Type: RESPONSE
Date: 04/15/2004
Action: Monitoring Report - Quarterly

Global Id: T0608100491
Action Type: RESPONSE
Date: 12/09/2005
Action: Electronic Reporting Submittal Due

Global Id: T0608100491
Action Type: RESPONSE
Date: 12/24/2007
Action: Soil and Water Investigation Workplan

Global Id: T0608100491
Action Type: RESPONSE
Date: 05/31/2008
Action: Soil and Water Investigation Report

Global Id: T0608100491
Action Type: ENFORCEMENT
Date: 02/26/2009
Action: Staff Letter - #20090226

Global Id: T0608100491
Action Type: ENFORCEMENT
Date: 07/30/2009
Action: Staff Letter - #20090730

Global Id: T0608100491
Action Type: ENFORCEMENT
Date: 07/22/2009
Action: Staff Letter - #2009072

Global Id: T0608100491
Action Type: RESPONSE
Date: 08/15/2010
Action: Monitoring Report - Semi-Annually

Global Id: T0608100491
Action Type: RESPONSE

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SAN BRUNO SHELL (Continued) **U001594655**

Date: 11/19/2004
Action: Soil and Water Investigation Report

Global Id: T0608100491
Action Type: RESPONSE
Date: 10/13/2010
Action: Correspondence

Global Id: T0608100491
Action Type: RESPONSE
Date: 02/15/2010
Action: Monitoring Report - Semi-Annually

Global Id: T0608100491
Action Type: RESPONSE
Date: 02/15/2009
Action: Monitoring Report - Semi-Annually

Global Id: T0608100491
Action Type: RESPONSE
Date: 06/26/2009
Action: Soil and Water Investigation Workplan

Global Id: T0608100491
Action Type: RESPONSE
Date: 10/13/2010
Action: Correspondence

Global Id: T0608100491
Action Type: RESPONSE
Date: 02/15/2011
Action: Monitoring Report - Semi-Annually

SAN MATEO CO. LUST:
Region: SAN MATEO
Facility ID: 880015
Facility Status: 9- Case Closed
Global ID: T0608100491
APN Number: 020126170
Case Type: SAN MATEO CO. LUST
EDR Link ID: SAN MATEO CO. LUST

UST:
Facility ID: 41--880037
Permitting Agency: SAN MATEO COUNTY
Latitude: 37.6301458
Longitude: -122.4145545

HIST UST:
Region: STATE
Facility ID: 00000059387
Facility Type: Gas Station
Other Type: Not reported
Contact Name: JAVIER CHANG
Telephone: 4158736456

SAN BRUNO SHELL (Continued) **U001594655**

Owner Name: SHELL OIL COMPANY
Owner Address: BOX 5500
Owner City,St,Zip: SAN BRUNO, CA 94066
Total Tanks: 0004

Tank Num: 001
Container Num: 1
Year Installed: Not reported
Tank Capacity: 00000000
Tank Used for: PRODUCT
Type of Fuel: PREMIUM
Container Construction Thickness: Not reported
Leak Detection: Stock Inventor

Tank Num: 002
Container Num: 2
Year Installed: Not reported
Tank Capacity: 00000550
Tank Used for: WASTE
Type of Fuel: WASTE OIL
Container Construction Thickness: Not reported
Leak Detection: None

Tank Num: 003
Container Num: 3
Year Installed: Not reported
Tank Capacity: 00000000
Tank Used for: PRODUCT
Type of Fuel: REGULAR
Container Construction Thickness: Not reported
Leak Detection: Stock Inventor

Tank Num: 004
Container Num: 4
Year Installed: Not reported
Tank Capacity: 00000000
Tank Used for: PRODUCT
Type of Fuel: UNLEADED
Container Construction Thickness: Not reported
Leak Detection: Stock Inventor

San Mateo Co. BI:
Region: SAN MATEO
Facility ID: FA0033379
Prog Element Code: GENERATES <27 GAL/YEAR
Record Id: PR0045295
Description: GENERATES <27 GAL/YEAR

Region: SAN MATEO
Facility ID: FA0033379
Prog Element Code: STORES MV FUELS OR WASTE ONLY
Record Id: PR0004960
Description: STORES MV FUELS OR WASTE ONLY

Region: SAN MATEO
Facility ID: FA0033379
Prog Element Code: UNDERGROUND TANK - GENERAL

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SAN BRUNO SHELL (Continued) **U001594655**

Record Id: PR0022957
Description: UNDERGROUND TANK - GENERAL

Region: SAN MATEO
Facility ID: FA0046760
Prog Element Code: GENERATES <27 GAL/YEAR
Record Id: PR0063835
Description: GENERATES <27 GAL/YEAR

Region: SAN MATEO
Facility ID: FA0046760
Prog Element Code: STORES MV FUELS OR WASTE ONLY
Record Id: PR0063834
Description: STORES MV FUELS OR WASTE ONLY

Region: SAN MATEO
Facility ID: FA0046760
Prog Element Code: UNDERGROUND TANK - GENERAL
Record Id: PR0063837
Description: UNDERGROUND TANK - GENERAL

F41 **SHELL OIL CO** **RCRA-SQG** **1000288561**
East **798 EL CAMINO** **FINDS** **CAD981400658**
1/4-1/2 **SAN BRUNO, CA 94066** **HIST CORTESE**
0.385 mi. **LUST**
2033 ft. **Site 8 of 8 in cluster F**

RCRA-SQG:
Date form received by agency: 04/08/1998
Facility name: SHELL OIL CO
Facility address: 798 EL CAMINO
SAN BRUNO, CA 94066
EPA ID: CAD981400658
Mailing address: P O BOX 4453
HOUSTON, TX 772104453
Contact: SONDRA BIENVENU
Contact address: P O BOX 4453
HOUSTON, TX 772104453
Contact country: US
Contact telephone: (713) 241-2258
Contact email: Not reported
EPA Region: 09
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Owner/Operator Summary:
Owner/operator name: NOT REQUIRED
Owner/operator address: NOT REQUIRED
NOT REQUIRED, ME 99999
Owner/operator country: Not reported
Owner/operator telephone: (415) 555-1212
Legal status: Private
Owner/Operator Type: Operator

SHELL OIL CO (Continued) **1000288561**

Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: EQUILON ENTERPRISES LLC
Owner/operator address: P O BOX 4453
HOUSTON, TX 77210
Owner/operator country: Not reported
Owner/operator telephone: (713) 241-2258
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

. Waste code: D001
. Waste name: IGNITABLE WASTE

. Waste code: D018
. Waste name: BENZENE

Historical Generators:
Date form received by agency: 09/01/1996
Site name: SHELL OIL CO
Classification: Small Quantity Generator

Date form received by agency: 04/13/1990
Site name: SHELL OIL CO 204-6750-0409
Classification: Large Quantity Generator

Violation Status: No violations found

FINDS:

Registry ID: 110002694530

Environmental Interest/Information System
RCRAInfo is a national information system that supports the Resource Conservation and Recovery Act (RCRA) program through the tracking of events and activities related to facilities that generate, transport, and treat, store, or dispose of hazardous waste. RCRAInfo allows RCRA program staff to track the notification, permit, compliance, and

SHELL OIL CO (Continued) **1000288561**

corrective action activities required under RCRA.

HIST CORTESE:

Region:	CORTESE
Facility County Code:	41
Reg By:	LTNKA
Reg Id:	41-0515

LUST REG 2:

Region:	2
Facility Id:	Not reported
Facility Status:	Pollution Characterization
Case Number:	880015
How Discovered:	Tank Closure
Leak Cause:	Unknown
Leak Source:	Unknown
Date Leak Confirmed:	Not reported
Oversight Program:	LUST
Prelim. Site Assesment Wokplan Submitted:	Not reported
Preliminary Site Assesment Began:	Not reported
Pollution Characterization Began:	7/1/1989
Pollution Remediation Plan Submitted:	Not reported
Date Remediation Action Underway:	Not reported
Date Post Remedial Action Monitoring Began:	Not reported

G42 **MILLS PARK CLEANERS** **LUST** **1002847959**
East **709 CAMINO PLAZA** **SLIC** **N/A**
1/4-1/2 **SAN BRUNO, CA 94066** **San Mateo Co. BI**
0.387 mi. **EMI**
2045 ft. **Site 1 of 3 in cluster G**

SAN MATEO CO. LUST:

Region:	SAN MATEO
Facility ID:	889061
Facility Status:	3B- Preliminary Assessment Underway
Global ID:	TI0000001468
APN Number:	020072070
Case Type:	SAN MATEO CO. LUST
EDR Link ID:	SAN MATEO CO. LUST

SLIC:

Region:	STATE
Facility Status:	**Open - Site Assessment**
Status Date:	08/04/2009
Global Id:	T10000001468
Lead Agency:	SAN MATEO COUNTY LOP
Lead Agency Case Number:	889061
Latitude:	37.627420258195
Longitude:	-122.41644859314
Case Type:	Cleanup Program Site
Case Worker:	JM
Local Agency:	SAN MATEO COUNTY LOP
RB Case Number:	Not reported
File Location:	Not reported
Potential Media Affected:	Not reported

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MILLS PARK CLEANERS (Continued) **1002847959**

Potential Contaminants of Concern: Tetrachloroethylene (PCE)

Site History: Extracted from Golden Gate Environmental's January 29, 2010 Potential Responsible Party Search report, San Mateo County does not take responsibility for the accuracy of the statements made or any professional interpretations made in the referenced report. The Site is located in a commercial district near the intersection of San Bruno Avenue West and El Camino Real. The Site was occupied by the existing commercial store building in a strip mall shopping center prior to 1949 according to historical Sanborn fire insurance maps. We understand that G.W. Williams has owned the subject property since circa 1950. Apparently, the Williams family developed Camino Plaza along with the Mills Park housing tract in the late 1940s to early 1950s. Historical telephone directories indicate that the Mills Park Cleaners has occupied the store since circa 1981. In 1976, the Mills Park Cleaners & Laundry is listed as the occupant of the building. The current tenants, Mr. Juwon & Mrs. Sam Hahn leased the Mills Park Cleaners facility beginning in February 1987. The previous tenant of Suite 709 was In Sik & Chong Suk Park who operated the facility from circa 1980 through 1987. Prior to 1980, the former operator is believed to be Michael Barrese. Reportedly, Suite 709 has been continuously used for a dry cleaner facility since circa 1948. According to Sam Hahn, when they initially moved into Suite 709, the existing dry cleaning machine was less than five years old. However, the Permac machine was an older transfer type machine with three separated units prone to releases of Perchloroethylene (Perc or PCE) to the surrounding floor. Two photographs in Appendix A show the main clothes cleaning machine, sniffer unit, and distilling system of the in-place old machine. Significant staining of the underlying concrete floor is evident in these photos confirming Juwon & Sam Hahns account that Perc spills to the concrete floor had occurred prior to their occupancy. Being knowledgeable of the potential hazards of Perc, Juwon & Sam Hahn purchased and installed a new closed-system Dry-to Dry machine (with a secondary containment pan) on September 12, 1987. A photograph of the new machine being delivered to the Mills Park Cleaners facility is shown in Appendix A (Photograph No. 6). Since their occupancy in 1987, Juwon & Sam Hahn have been permitted and inspected by the San Mateo County Health System with no reported releases or other violations. They have records indicating their conscientious disposal of waste Perc from the dry cleaning machine by Technichem and Safety Kleen. In 2007- 2008, Sam Hahn voluntarily replaced the PERC machine with a hydrocarbon based dry cleaning machine. Additional photographs in Appendix A show the new machine installed in the facility. Two Leaking Underground Storage Tank (LUST) cases are located on El Camino Real near the Mills Park Cleaners facility (Photograph No. 2, Appendix A). The Gootnick Property at 732 El Camino Real and Melody Toyota and 750 El Camino Real have ongoing groundwater investigations. Groundwater measurements at these LUST cases indicate that groundwater is flowing underground from the subject property towards El Camino Real. The discovery of PCE contamination in groundwater at these two sites indicates that PCE contamination may be originating from the vicinity of the Mills Park Cleaners facility. In their November 4, 2005 document titled Subsurface Investigation and Risk Assessment Report, Cambria recommends investigating the Mills Park Cleaners as a potential upgradient source of PCE by completing additional subsurface investigation activities upgradient of the site. The San Mateo County Groundwater Protection Program (GPP) requested

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MILLS PARK CLEANERS (Continued) **1002847959**

groundwater sampling down-gradient from the dry cleaner facility. Sam Hahn subsequently submitted the analytical results of the April 9, 2009 grab groundwater sample requested by the GPP. The sample revealed a concentration of PCE in groundwater of 280-"g/l that is above the Environmental Screening Level (ESL). Because Mills Park Cleaners is the current business owner-operator at the property where the groundwater contamination was discovered, GPP staff named Mills Park Cleaners as a responsible party for corrective action. Other potential Responsible Parties identified in this search consist of the former operator of Mills Park Cleaners named Insik Park (from circa 1980 to 1987); and the historical operator prior to circa 1980 named Michael Barrese. Based on the documentation provided by Mrs. Sam Hahn, it appears reasonable to expect that PCE releases to soil (if any) and groundwater at the site will be associated with pre-1987 chemical storage, handling and disposal practices. As presented in the San Mateo County Health System Letter, dated August 6, 2009, GPP staff also named G.W. Williams & Co. as a responsible party for corrective action. Based on their history of conscientious chemical housekeeping since 1987, lack of violations, and installation of a closed-system dry cleaning machine with secondary containment in 1987, Ms. Sam Hahn requests that the current operator of Mills Park Cleaners not be listed as the primary responsible party for the corrective action at the site, and that it would be more appropriate for the owner and past operators of the dry cleaning facility to be listed as the primary responsible party, since the history of transfer-type dry cleaning machines with Perc spillage to the floor prior to 1987 would be the likely cause of any soil and groundwater contamination at the site.

Click here to access the California GeoTracker records for this facility:

San Mateo Co. BI:

Region:	SAN MATEO
Facility ID:	FA0018273
Prog Element Code:	GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id:	PR0012188
Description:	GENERATES & RECYCLES WASTE OIL/SOLVENT

Region:	SAN MATEO
Facility ID:	FA0018273
Prog Element Code:	STORES HAZ MAT <219GAL,1,999LB, 879FT3
Record Id:	PR0004988
Description:	STORES HAZ MAT <219GAL,1,999LB, 879CF

EMI:

Year:	1987
County Code:	41
Air Basin:	SF
Facility ID:	3589
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	0

MILLS PARK CLEANERS (Continued) **1002847959**

Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	1990
County Code:	41
Air Basin:	SF
Facility ID:	3589
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	1996
County Code:	41
Air Basin:	SF
Facility ID:	3589
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	1997
County Code:	41
Air Basin:	SF
Facility ID:	3589
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

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MILLS PARK CLEANERS (Continued) **1002847959**

Year:	1998
County Code:	41
Air Basin:	SF
Facility ID:	3589
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	1
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	1999
County Code:	41
Air Basin:	SF
Facility ID:	3589
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2000
County Code:	41
Air Basin:	SF
Facility ID:	3589
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2001
County Code:	41
Air Basin:	SF
Facility ID:	3589
Air District Name:	BA
SIC Code:	7216

MILLS PARK CLEANERS (Continued) **1002847959**

Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2002
County Code:	41
Air Basin:	SF
Facility ID:	3589
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2003
County Code:	41
Air Basin:	SF
Facility ID:	3589
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2004
County Code:	41
Air Basin:	SF
Facility ID:	3589
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.675
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0

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MILLS PARK CLEANERS (Continued) **1002847959**

NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0
Year:	2005
County Code:	41
Air Basin:	SF
Facility ID:	3589
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0
Year:	2006
County Code:	41
Air Basin:	SF
Facility ID:	3589
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	.067
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0
Year:	2007
County Code:	41
Air Basin:	SF
Facility ID:	3589
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	.067
Reactive Organic Gases Tons/Yr:	.0468062
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0
Year:	2008

MILLS PARK CLEANERS (Continued) **1002847959**

County Code:	41
Air Basin:	SF
Facility ID:	3589
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	.387
Reactive Organic Gases Tons/Yr:	.128
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2009
County Code:	41
Air Basin:	SF
Facility ID:	3589
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	6.7000000000000004E-2
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2010
County Code:	41
Air Basin:	SF
Facility ID:	3589
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.38700000000000001
Reactive Organic Gases Tons/Yr:	0.17480619999999999
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2011
County Code:	41
Air Basin:	SF
Facility ID:	3589
Air District Name:	BA
SIC Code:	7216
Air District Name:	BAY AREA AQMD

MILLS PARK CLEANERS (Continued) **1002847959**

Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.067
Reactive Organic Gases Tons/Yr:	0
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

G43 **MELODY TOYOTA** **HIST CORTESE** **U001594638**
East **750 EL CAMINO REAL** **LUST** **N/A**
1/4-1/2 **SAN BRUNO, CA 94066** **HIST UST**
0.413 mi. **HAZNET**
2180 ft. **Site 2 of 3 in cluster G**

HIST CORTESE:

Region:	CORTESE
Facility County Code:	41
Reg By:	LTNKA
Reg Id:	41-0971

LUST:

Region:	STATE
Global Id:	T0608100890
Latitude:	37.627958643
Longitude:	-122.41588789
Case Type:	LUST Cleanup Site
Status:	Open - Eligible for Closure
Status Date:	06/03/2013
Lead Agency:	SAN MATEO COUNTY LOP
Case Worker:	JM
Local Agency:	SAN MATEO COUNTY LOP
RB Case Number:	41-0971
LOC Case Number:	880039
File Location:	Local Agency
Potential Media Affect:	Other Groundwater (uses other than drinking water)
Potential Contaminants of Concern:	Gasoline
Site History:	Extracted from Cambria's March 20, 2007 Site Assessment Rpeort, San Mateo County does not take responsibility for the accuracy of the statements made or any professional interpretations made in the referenced report. The subject site is the Melody Toyota auto sales facility located at 750 El Camino Real in San Bruno, California. The site is near the intersection of San Bruno Avenue and El Camino Real in a mixed commercial and residential area (Figure 1). A site plan is presented in Figure 2. The site is bound by El Camino Real to the west, a Shell service station to the north, Hensley Avenue to the east, and car lots and Midas Muffler to the south. On the west side of El Camino Real and upgradient of the site is Mill's Park Cleaners, a tetrachloroethene (PCE) dry cleaning facility. Two car lots, defined as the Gootnick Property and located at 732 and 740 El Camino Real, are adjacent to the Melody Toyota and are a current environmental case with SMCHD. The Midas Muffler at 700 El Camino Real is a closed environmental case with SMCHD. From 1955 to 1960 the site was occupied by a full service automobile dealership. Since 1960, the site has been occupied by the Melody Toyota automobile dealership. In 1957, one 550 gallon gasoline underground storage tank

MELODY TOYOTA (Continued) **U001594638**

(UST) and two 300 gallon used-oil USTs were installed. In April 1996, the three USTs were removed from the site. 1996 UST and Hoist Removal: On April 19, 1996, Cottle Engineering (Cottle) of Antioch, California excavated and removed three USTs, and six underground hydraulic hoists from the site. The tanks consisted of one 550 gallon gasoline UST located in the sidewalk west of the dealership's service facility, and two 300 gallon used-oil USTs located in the driveway inside the service facility portion of the building (Figure 2). The tanks had visible signs of corrosion and perforations on the tank walls. Low hydrocarbon concentrations were detected beneath the gasoline UST and the eastern used-oil USTs. Elevated hydrocarbon concentrations were detected beneath the western used-oil UST and hydraulic hoist #l. During the last week of April 1996, overexcavation of both UST pits and hydraulic hoist #1 began. On May 6, 1996, confirmation samples were collected at the base of the excavations for the former USTs and hydraulic hoist #l. No hydrocarbons were detected in the overexcavation confirmation soil sample from the gasoline UST pit; therefore, it was backfilled with clean fill. Hydrocarbons were detected in the two used-oil UST and hydraulic hoist #1 overexcavation confirmation soil samples; therefore, both excavations were overexcavated a second time. No hydrocarbons were detected in the third confirmation soil sample from the hoist #1 pit; therefore, the excavation was backfilled with clean fill. On May 23, 1996, the second overexcavation of the former used-oil UST pit could not be continued to the north, because of two large foundation grade beams. On May 28, 1996, a soil confirmation sample was collected from the western side wall, along with a groundwater sample. No hydrocarbons or VOCs were detected in the western sidewall sample (MT-300). Groundwater was present in the excavation. The grab groundwater sample (MT-250) from the excavation had concentrations of 3,800 micrograms per liter (p a) total petroleum hydrocarbons as diesel (TPHd), 4,100 pgL TPH as motor oil (TPHmo), 700 pg/L TPH as gasoline (TPHg), 12 pg/L benzene, and 150 pg/L tetrachloroethene (PCE). On June 6, 1996, sidewall soil confirmation samples were collected from the north and east walls of the excavation. The northern sidewall soil confirmation sample (MT-2000) was found to contain 3,300 milligrams per kilogram (mglkg) TPHd, 19,000 mg/kg oil & grease (O&G), 650 mg/kg TPHg, 0.52 mg/kg benzene, and leaking underground fuel tanks (LUFT) metals. The eastern sidewall soil confinnation sample (MT-3000) was found to contain 1.1 mglkg TPHd, 0.270 mglkg PCE, 0.330 mglkg 1,2-dichlorobenzene (1,2-DCB), 0.021 mgtkg 1,4-DCB, and concentrations of LUFT metals. This sample may have been impacted by regional groundwater condition, specifically PCE. This excavation was backfilled with clean fill on July 1, 1996. During the April through June 1996 excavation activities, a total of approximately 212 tons of non-hazardous soil were transported offsite and properly disposed. 1996 Well Installation: After backfilling the used-oil UST excavation in July 1996, Cottle installed a four-inch diameter, 20 ft deep observation well, OW-1 (renamed well MW-3) in the center of the excavation. On July 22, 1996, soil borings MT-1 through MT-5 were advanced and borings MT-1 through MT-4 were converted into two-inch diameter monitoring wells (see Table 1 for current monitoring well names). Soil samples collected in MT-1 through MT-5 were analyzed for TPHd; TPHg; O&G; benzene, toluene, ethylbenzene, and xylenes (BTEX); volatile organic compounds (VOCs); and LUFT metals. In addition to metals, only TPHd was detected at 1.3 mglkg, in boring MT-3 at 14 ft

MELODY TOYOTA (Continued) **U001594638**

bgs. May 2003 Subsurface Investigation: On May 12, 2003, Hydro Analysis, Inc. (HA) advanced soil borings HB-I through HB-5 to 15 ft bgs. The borings were hand augered by Gregg Drilling of Martinez, California. Soil samples were collected from 5, 8, and 11 ft bgs were submitted for analysis. Soil samples were analyzed for TPHd, TPHmo, TPHg, O&G, BTEX, methyl tert-butyl ether (MTBE), VOCs, semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), and LUFT metals. Soil concentrations of TPHmo, O&G, TPHg, BTEX, SVOCs, and LUFT metals were detected. No TPE-Id, MTBE, or VOCs were detected. Detected SVOCs included naphthalene and 2-methyl-naphthalene. These are common to petroleum products. Grab groundwater samples were collected at each soil boring location. Elevated concentrations of TPHg and PCE were detected in all groundwater samples analyzed. 2005 Revised Subsurface Investigation Report: HA's March 30, 2005 Revised Subsurface Investigation report was apparently submitted in response to SMCHD letter dated November 6, 2003. HA identified TPHmo, total chromium, lead and 2-methyl-napthalene as contaminants of concern (COC) for soil. Groundwater COCs were identified as TPHg, TPHmo, xylenes, PCE, and 2-methyl-napthalene. HA recommended an additional subsurface investigation to define the dissolved petroleum hydrocarbon groundwater plume, investigate a possible off-site PCE source, and complete a site-specific risk assessment. 2005 Subsurface Investigation and Risk Assessment Report: Cambria's Subsurface Investigation and Risk Assessment Report, dated November 4, 2005, documented additional investigations and a review of available files from CSMHD and the City of San Bruno on Melody Toyota and neighboring sites. Conclusions presented in this report form the basis for the scope of the January 2007 investigation. Groundwater Monitoring: Periodic groundwater monitoring has been performed since 1997, with quarterly monitoring events since 2005.

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0608100890
Contact Type:	Regional Board Caseworker
Contact Name:	JOLANTA UCHMAN
Organization Name:	SAN FRANCISCO BAY RWQCB (REGION 2)
Address:	1515 CLAY ST SUITE 1400
City:	OAKLAND
Email:	juchman@waterboards.ca.gov
Phone Number:	Not reported

Global Id:	T0608100890
Contact Type:	Local Agency Caseworker
Contact Name:	JACOB MADDEN
Organization Name:	SAN MATEO COUNTY LOP
Address:	2000 ALAMEDA DE LAS PULGAS
City:	SAN MATEO
Email:	jmadden@smcgov.org
Phone Number:	6503726298

Status History:

Global Id:	T0608100890
Status:	Open - Site Assessment
Status Date:	02/02/2005

MELODY TOYOTA (Continued) **U001594638**

Global Id: T0608100890
Status: Open - Verification Monitoring
Status Date: 07/07/1987

Global Id: T0608100890
Status: Open - Verification Monitoring
Status Date: 05/03/2012

Global Id: T0608100890
Status: Open - Case Begin Date
Status Date: 07/07/1987

Global Id: T0608100890
Status: Open - Eligible for Closure
Status Date: 06/03/2013

Regulatory Activities:

Global Id: T0608100890
Action Type: Other
Date: 07/07/1987
Action: Leak Discovery

Global Id: T0608100890
Action Type: RESPONSE
Date: 02/15/2011
Action: Monitoring Report - Annually

Global Id: T0608100890
Action Type: RESPONSE
Date: 08/19/2011
Action: Corrective Action Plan / Remedial Action Plan - Addendum

Global Id: T0608100890
Action Type: RESPONSE
Date: 02/15/2012
Action: Monitoring Report - Annually

Global Id: T0608100890
Action Type: ENFORCEMENT
Date: 04/26/2011
Action: Staff Letter - #20110426

Global Id: T0608100890
Action Type: ENFORCEMENT
Date: 07/21/2010
Action: Staff Letter - #20100721

Global Id: T0608100890
Action Type: RESPONSE
Date: 08/04/2009
Action: Clean Up Fund - 5-Year Review Summary

Global Id: T0608100890
Action Type: ENFORCEMENT
Date: 02/01/2005
Action: Notice of Violation - #20050201

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MELODY TOYOTA (Continued) **U001594638**

Global Id: T0608100890
Action Type: ENFORCEMENT
Date: 06/18/2007
Action: Staff Letter - #20070618B

Global Id: T0608100890
Action Type: ENFORCEMENT
Date: 08/18/2006
Action: Staff Letter - #20060818

Global Id: T0608100890
Action Type: ENFORCEMENT
Date: 02/28/2006
Action: Staff Letter - #20060228

Global Id: T0608100890
Action Type: ENFORCEMENT
Date: 01/29/1996
Action: Notice of Responsibility - #1

Global Id: T0608100890
Action Type: ENFORCEMENT
Date: 11/06/2003
Action: Staff Letter - #20031106A

Global Id: T0608100890
Action Type: ENFORCEMENT
Date: 10/11/2006
Action: Staff Letter - #20061011

Global Id: T0608100890
Action Type: ENFORCEMENT
Date: 03/22/2012
Action: Notice of Violation - #20120322

Global Id: T0608100890
Action Type: RESPONSE
Date: 02/15/2013
Action: Monitoring Report - Annually

Global Id: T0608100890
Action Type: ENFORCEMENT
Date: 11/06/2003
Action: Staff Letter - #20031106B

Global Id: T0608100890
Action Type: ENFORCEMENT
Date: 06/18/2007
Action: Staff Letter - #20070618A

Global Id: T0608100890
Action Type: ENFORCEMENT
Date: 10/23/2008
Action: Warning Letter - #20081023

Global Id: T0608100890
Action Type: Other

MELODY TOYOTA (Continued) **U001594638**

Date: 08/25/1987
Action: Leak Reported

Global Id: T0608100890
Action Type: RESPONSE
Date: 11/15/2005
Action: Monitoring Report - Quarterly

Global Id: T0608100890
Action Type: RESPONSE
Date: 11/15/2006
Action: Monitoring Report - Quarterly

Global Id: T0608100890
Action Type: RESPONSE
Date: 01/15/2005
Action: Monitoring Report - Quarterly

Global Id: T0608100890
Action Type: RESPONSE
Date: 02/15/2006
Action: Monitoring Report - Quarterly

Global Id: T0608100890
Action Type: RESPONSE
Date: 02/15/2007
Action: Monitoring Report - Quarterly

Global Id: T0608100890
Action Type: RESPONSE
Date: 12/18/2003
Action: Soil and Water Investigation Report

Global Id: T0608100890
Action Type: ENFORCEMENT
Date: 05/03/2012
Action: Staff Letter - #20120503

Global Id: T0608100890
Action Type: ENFORCEMENT
Date: 11/15/2013
Action: Clean Up Fund - Case Closure Review Summary Report (RSR)

Global Id: T0608100890
Action Type: RESPONSE
Date: 02/15/2009
Action: Monitoring Report - Semi-Annually

Global Id: T0608100890
Action Type: RESPONSE
Date: 07/15/2005
Action: Monitoring Report - Quarterly

Global Id: T0608100890
Action Type: RESPONSE
Date: 07/17/2006
Action: Monitoring Report - Quarterly

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MELODY TOYOTA (Continued) **U001594638**

Global Id: T0608100890
Action Type: RESPONSE
Date: 08/15/2007
Action: Monitoring Report - Quarterly

Global Id: T0608100890
Action Type: RESPONSE
Date: 10/15/2004
Action: Monitoring Report - Quarterly

Global Id: T0608100890
Action Type: RESPONSE
Date: 02/07/2007
Action: Soil and Water Investigation Report

Global Id: T0608100890
Action Type: RESPONSE
Date: 05/15/2008
Action: Monitoring Report - Semi-Annually

Global Id: T0608100890
Action Type: RESPONSE
Date: 11/15/2007
Action: Monitoring Report - Semi-Annually

Global Id: T0608100890
Action Type: RESPONSE
Date: 04/29/2005
Action: Soil and Water Investigation Workplan

Global Id: T0608100890
Action Type: RESPONSE
Date: 01/15/2004
Action: Electronic Reporting Submittal Due

Global Id: T0608100890
Action Type: RESPONSE
Date: 05/30/2006
Action: Soil and Water Investigation Workplan

Global Id: T0608100890
Action Type: RESPONSE
Date: 09/29/2006
Action: Preliminary Site Assessment Workplan

Global Id: T0608100890
Action Type: RESPONSE
Date: 04/15/2004
Action: Monitoring Report - Quarterly

Global Id: T0608100890
Action Type: RESPONSE
Date: 04/15/2005
Action: Monitoring Report - Quarterly

Global Id: T0608100890
Action Type: RESPONSE

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MELODY TOYOTA (Continued) **U001594638**

Date: 05/15/2006
Action: Monitoring Report - Quarterly

Global Id: T0608100890
Action Type: RESPONSE
Date: 05/15/2007
Action: Monitoring Report - Quarterly

Global Id: T0608100890
Action Type: RESPONSE
Date: 07/15/2004
Action: Monitoring Report - Quarterly

Global Id: T0608100890
Action Type: ENFORCEMENT
Date: 07/16/2009
Action: Staff Letter - #20090716

Global Id: T0608100890
Action Type: ENFORCEMENT
Date: 11/15/2013
Action: Clean Up Fund - Letter to RP

Global Id: T0608100890
Action Type: ENFORCEMENT
Date: 04/17/2014
Action: State Water Board Closure Order

Global Id: T0608100890
Action Type: RESPONSE
Date: 05/15/2009
Action: Monitoring Report - Semi-Annually

Global Id: T0608100890
Action Type: RESPONSE
Date: 11/15/2009
Action: Monitoring Report - Semi-Annually

Global Id: T0608100890
Action Type: RESPONSE
Date: 05/15/2010
Action: Monitoring Report - Semi-Annually

Global Id: T0608100890
Action Type: RESPONSE
Date: 10/17/2014
Action: Well Destruction Report

Global Id: T0608100890
Action Type: ENFORCEMENT
Date: 02/02/2010
Action: Notice of Violation - #20100202

Global Id: T0608100890
Action Type: ENFORCEMENT
Date: 10/22/2014
Action: Notice of Violation - #20141022

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MELODY TOYOTA (Continued) **U001594638**

Global Id: T0608100890
Action Type: RESPONSE
Date: 10/29/2010
Action: Corrective Action Plan / Remedial Action Plan - Regulator Responded

Global Id: T0608100890
Action Type: RESPONSE
Date: 08/24/2010
Action: Clean Up Fund - 5-Year Review Summary - Regulator Responded

LUST REG 2:
Region: 2
Facility Id: Not reported
Facility Status: Post remedial action monitoring
Case Number: 880039
How Discovered: OM
Leak Cause: Unknown
Leak Source: Unknown
Date Leak Confirmed: Not reported
Oversight Program: LUST
Prelim. Site Assesment Wokplan Submitted: Not reported
Preliminary Site Assesment Began: Not reported
Pollution Characterization Began: Not reported
Pollution Remediation Plan Submitted: Not reported
Date Remediation Action Underway: Not reported
Date Post Remedial Action Monitoring Began: 1/1/1965

SAN MATEO CO. LUST:
Region: SAN MATEO
Facility ID: 880039
Facility Status: 5C- Pollution Characterization
Global ID: T0608100890
APN Number: 020126140
Case Type: SAN MATEO CO. LUST
EDR Link ID: SAN MATEO CO. LUST

HIST UST:
Region: STATE
Facility ID: 00000027275
Facility Type: Other
Other Type: NEW CAR DEALERSHIP
Contact Name: BILL WILSON & LARRY MALASOMA
Telephone: 4155882313
Owner Name: MELODY TOYOTA INC.
Owner Address: 750 EL CAMINO REAL
Owner City,St,Zip: SAN BRUNO, CA 94066
Total Tanks: 0002

Tank Num: 001
Container Num: 1
Year Installed: Not reported
Tank Capacity: 00000000
Tank Used for: WASTE
Type of Fuel: WASTE OIL
Container Construction Thickness: Not reported

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MELODY TOYOTA (Continued) **U001594638**

Leak Detection: None

Tank Num: 002
Container Num: 2
Year Installed: Not reported
Tank Capacity: 00000000
Tank Used for: WASTE
Type of Fuel: WASTE OIL
Container Construction Thickness: Not reported
Leak Detection: None

HAZNET:
envid: U001594638
Year: 2013
GEPAID: CAC002748417
Contact: DAVID HALEY
Telephone: 6506351000
Mailing Name: Not reported
Mailing Address: 750 EL CAMINO REAL
Mailing City,St,Zip: SAN BRUNO, CA 94066
Gen County: San Mateo
TSD EPA ID: CAT080013352
TSD County: Los Angeles
Waste Category: Not reported
Disposal Method: Other Recovery Of Reclamation For Reuse Including Acid Regeneration, Organics Recovery Ect
Tons: 0.1668
Facility County: Not reported

G44 **GOOTNICK PROPERTY** **HIST CORTESE** **S102430892**
East **732 EL CAMINO REAL** **LUST** **N/A**
1/4-1/2 **SAN BRUNO, CA 94066**
0.426 mi.
2251 ft. **Site 3 of 3 in cluster G**

HIST CORTESE:
Region: CORTESE
Facility County Code: 41
Reg By: LTNKA
Reg Id: 41-0862

LUST:
Region: STATE
Global Id: T0608100807
Latitude: 37.6276411853762
Longitude: -122.415542006493
Case Type: LUST Cleanup Site
Status: Completed - Case Closed
Status Date: 10/27/2011
Lead Agency: SAN MATEO COUNTY LOP
Case Worker: JM
Local Agency: SAN MATEO COUNTY LOP
RB Case Number: 41-0862
LOC Case Number: 880041
File Location: Local Agency
Potential Media Affect: Other Groundwater (uses other than drinking water)
Potential Contaminants of Concern: Gasoline

GOOTNICK PROPERTY (Continued) **S102430892**

Site History:

Extracted from LFR Arcadis' January 11, 2010 Limited Site Assessment Summary Report, San Mateo County does not take responsibility for the accuracy of the statements made or any professional interpretations made in the referenced report. The Site, identified in correspondence with the SMCHSA as 732 El Camino Real, is an 18,200 square foot asphalt paved parking lot which encompasses parcels with street addresses of 732 and 740 El Camino Real. The Site is located on the northeast side of El Camino Real, approximately 500 feet southeast of San Bruno Avenue. Prior to the SLR investigation, four groundwater monitoring wells (MW-1 through MW-4) existed at the Site. The Site is leased to the Melody Toyota auto dealership (Melody) which is located immediately north of the Site and is used for automobile parking. In August and September of 1996, Melody demolished an automobile showroom located on the Site to increase the amount of space available for automobile parking. In July 1996, HK2, Inc./SEMCO Environmental Contractors (SEMCO) removed one 500-gallon UST from the Site on behalf of the Property Owners. Several holes were reportedly observed at the bottom of the UST during removal. A soil sample collected at the center of the base of the UST cavity at a depth of approximately 9.8 feet below ground surface (bgs), yielded total petroleum hydrocarbons as gasoline (TPHg) at 21 milligrams per kilogram (mg/kg), total petroleum hydrocarbons as diesel (TPHd) at 870 mg/kg, and benzene at 0.036 mg/kg. Groundwater was reportedly not encountered in the UST cavity. Following receipt of the analytical data, the SMCHSA in a letter dated August 12, 1996, required the submittal of a Work Plan to evaluate the extent of impacts to soil, and potentially to groundwater. In September 1996, SEMCO submitted the requested Work Plan, proposing over excavation of impacted soil followed by confirmation soil sampling. The SMCHSA then notified the Property Owners that over excavation might not be necessary if the Site met existing criteria for low-risk case closure. In October 1996, SEMCO submitted a revised Work Plan, and on October 22, 1996, drilled one direct-push soil boring (B-1) to a depth of approximately 16 feet bgs immediately east of the former UST cavity. Groundwater was reportedly encountered in the boring at a depth of approximately 11 feet bgs, and a grab groundwater sample was collected for chemical analysis. Results of the water sample analysis revealed TPHg, TPHd, benzene, and methyl tertiary butyl ether (MTBE) at 480 micrograms per liter (8g/l), 270,000 8g/l, 30 8g/l, and 11 8g/l, respectively.
Between November and December 1996, SEMCO over excavated approximately 387 cubic yards of hydrocarbon-impacted soil in the vicinity of the former UST cavity. During over excavation activities, a 420-gallon capacity UST was discovered approximately 8.5 feet east of the former 500-gallon UST. After acquiring the necessary permits, SEMCO removed the 420-gallon UST under the supervision of the SMCHSA. Confirmation (sidewall) samples did not yield TPHg, TPHd, benzene, toluene, ethylbenzene, and total xylenes (BTEX compounds), or total lead at or above the corresponding laboratory method detection limits (LMDLs). Analysis of a grab groundwater sample collected from within the excavation yielded TPHg, TPHd, BTEX compounds, and MTBE at 5,900 8g/l, 14,000 8g/l, 1,500 8g/l, and 310 8g/l, respectively. Following completion of over excavation activities, SEMCO installed one 4-inch diameter groundwater monitoring well (MW-1) within the backfill material, along the northwest sidewall. The excavation was backfilled with crushed rock and pea gravel from 4 to 18 feet bgs, and with class II base material from the ground surface to 4 feet bgs. SEMCO gauged and sampled well MW-1 six times between June 1998 and

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GOOTNICK PROPERTY (Continued) **S102430892**

September 1999, and once thereafter on December 21, 2000. Results of the June 1998 sampling event revealed the presence of volatileorganic compounds (VOCs). However, because VOCs were not being analyzed, the laboratory did not quantify these constituents in their report. In September 1998, groundwater samples collected and analyzed from well MW-1 yielded VOCs at the maximum constituent concentrations, 1,2-dichloroethane (EDC) at 23 8g/l, trichloroethylene (TCE) at 72 8g/l, tetrachloroethylene (PCE) at 390 8g/l, isopropylbenzene at 3 8g/l, n-Propylbenzene at 8 8g/l, and 1,2,4-Trimethylbenzene at 27 8g/l. In a letter dated October 30, 1998, the SMCHSA requested a Work Plan to further evaluate the extent of hydrocarbon-impacted soil and groundwater at the Site, and to continue quarterly groundwater sampling. It is unknown if Work Plan was submitted, approved, or implemented. However, quarterly groundwater sampling was performed from December 1998 through September 1999. On February 15, 2000, the SMCHSA requested a Work Plan for additional Site assessment and collection and chemical analysis of groundwater samples from well MW-1. North State Environmental reviewed the SMCHSAs files for the Site, and nearby release cases, and submitted a Work Plan, on behalf of the Property Owners, to the SMCHSA in March 2000. Additional information regarding the submittal or implementation of the Work Plan is unknown. Quarterly groundwater sampling began on December 21, 2000. On January 4, 2001, the SMCHSA issued a letter requesting a Work Plan to characterize the full extent of impacts to the Site subsurface. The Work Plan was subsequently submitted to the SMCHSA on February 20, 2001, and following SMCHSA approval on April 12, 2001, implemented the Work Plan between July 17 and August 23, 2001. The proposed scope of work included a door-to-door well survey performed within 500 feet up-gradient and cross-gradient, and 1,000 feet downgradient, advanced six soil borings (B2 through B8), converted borings B6 through B8 into groundwater monitoring wells (MW-2 through MW-4), and submitted a Summary Report to the SMCHSA on December 31, 2001. On May 1, 2002, the SMCHSA issued a letter requesting a Work Plan to complete Site characterization, initiate quarterly groundwater monitoring, re-survey the wells for GeoTracker requirements, and upload data collected after January 2002 to the GeoTracker database. On August 16, 2002, an extension for submitting the Work Plan was requested and SMCHSA agreed to extend the submittal date to September 16, 2002. On October 23, 2002, the wells were surveyed as requested by SMCHSA per the GeoTracker requirements. On October 28, 2002, the SMCHSA issued a Notice of Violation (NOV) to the Property Owners for failing to meet the Work Plan submittal date, and required that the Work Plan to be submitted by September 15, 2002. On November 5, 2002, the Fourth Quarter 2002 sampling event was performed and the report summarizing the results was submitted to the SMCHSA on December 23, 2002. The Property Owners then requested that the SMCHSA review and comment on the groundwater monitoring report prior to finalizing and submitting the Work Plan. On February 28, 2003, SLR submitted the requested Work Plan, which the SMCHSA approved on March 14, 2003. The Work Plan proposed advancing six soil borings along Hensley Avenue and installing three monitoring wells on-Site.

Click here to access the California GeoTracker records for this facility:

Contact:
Global Id: T0608100807
Contact Type: Regional Board Caseworker

GOOTNICK PROPERTY (Continued) **S102430892**

Contact Name: UUU
Organization Name: SAN FRANCISCO BAY RWQCB (REGION 2)
Address: 1515 CLAY ST SUITE 1400
City: OAKLAND
Email: Not reported
Phone Number: Not reported

Global Id: T0608100807
Contact Type: Local Agency Caseworker
Contact Name: JACOB MADDEN
Organization Name: SAN MATEO COUNTY LOP
Address: 2000 ALAMEDA DE LAS PULGAS
City: SAN MATEO
Email: jmadden@smcgov.org
Phone Number: 6503726298

Status History:

Global Id: T0608100807
Status: Completed - Case Closed
Status Date: 10/27/2011

Global Id: T0608100807
Status: Open - Verification Monitoring
Status Date: 02/10/2010

Global Id: T0608100807
Status: Open - Case Begin Date
Status Date: 07/10/1996

Global Id: T0608100807
Status: Open - Site Assessment
Status Date: 07/10/1996

Regulatory Activities:

Global Id: T0608100807
Action Type: ENFORCEMENT
Date: 10/27/2011
Action: Closure/No Further Action Letter - #20111027

Global Id: T0608100807
Action Type: Other
Date: 07/10/1996
Action: Leak Discovery

Global Id: T0608100807
Action Type: RESPONSE
Date: 10/28/2011
Action: Well Destruction Report

Global Id: T0608100807
Action Type: ENFORCEMENT
Date: 06/09/2011
Action: Staff Letter - #20110609

Global Id: T0608100807
Action Type: RESPONSE

GOOTNICK PROPERTY (Continued) **S102430892**

Date: 08/04/2009
Action: Clean Up Fund - 5-Year Review Summary

Global Id: T0608100807
Action Type: ENFORCEMENT
Date: 07/26/1996
Action: Notice of Responsibility - #1

Global Id: T0608100807
Action Type: ENFORCEMENT
Date: 04/10/2003
Action: Staff Letter - #20030410

Global Id: T0608100807
Action Type: ENFORCEMENT
Date: 03/14/2003
Action: Staff Letter - #20030314

Global Id: T0608100807
Action Type: ENFORCEMENT
Date: 07/23/2004
Action: Staff Letter - #20040723

Global Id: T0608100807
Action Type: ENFORCEMENT
Date: 03/14/2003
Action: Staff Letter - #20030314A

Global Id: T0608100807
Action Type: ENFORCEMENT
Date: 04/21/2004
Action: Staff Letter - #20040421

Global Id: T0608100807
Action Type: Other
Date: 07/26/1996
Action: Leak Reported

Global Id: T0608100807
Action Type: RESPONSE
Date: 05/16/2003
Action: Electronic Reporting Submittal Due

Global Id: T0608100807
Action Type: RESPONSE
Date: 06/16/2004
Action: Soil and Water Investigation Workplan

Global Id: T0608100807
Action Type: RESPONSE
Date: 12/02/2004
Action: Soil and Water Investigation Report

Global Id: T0608100807
Action Type: RESPONSE
Date: 07/15/2003
Action: Monitoring Report - Quarterly

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GOOTNICK PROPERTY (Continued) **S102430892**

Global Id: T0608100807
Action Type: RESPONSE
Date: 04/15/2004
Action: Monitoring Report - Quarterly

Global Id: T0608100807
Action Type: RESPONSE
Date: 04/15/2005
Action: Monitoring Report - Quarterly

Global Id: T0608100807
Action Type: RESPONSE
Date: 07/15/2004
Action: Monitoring Report - Quarterly

Global Id: T0608100807
Action Type: RESPONSE
Date: 10/14/2003
Action: Monitoring Report - Quarterly

Global Id: T0608100807
Action Type: RESPONSE
Date: 10/15/2004
Action: Monitoring Report - Quarterly

Global Id: T0608100807
Action Type: RESPONSE
Date: 01/15/2005
Action: Monitoring Report - Quarterly

Global Id: T0608100807
Action Type: RESPONSE
Date: 07/07/2003
Action: Other Report / Document

Global Id: T0608100807
Action Type: ENFORCEMENT
Date: 05/27/2009
Action: Notice of Violation - #20090527

Global Id: T0608100807
Action Type: RESPONSE
Date: 10/15/2008
Action: Monitoring Report - Semi-Annually

Global Id: T0608100807
Action Type: RESPONSE
Date: 04/15/2007
Action: Monitoring Report - Semi-Annually

Global Id: T0608100807
Action Type: RESPONSE
Date: 10/15/2005
Action: Monitoring Report - Semi-Annually

Global Id: T0608100807
Action Type: RESPONSE

GOOTNICK PROPERTY (Continued) **S102430892**

Date: 10/15/2007
Action: Monitoring Report - Semi-Annually

Global Id: T0608100807
Action Type: RESPONSE
Date: 04/15/2008
Action: Monitoring Report - Semi-Annually

Global Id: T0608100807
Action Type: RESPONSE
Date: 04/15/2006
Action: Monitoring Report - Semi-Annually

Global Id: T0608100807
Action Type: RESPONSE
Date: 04/15/2009
Action: Monitoring Report - Semi-Annually

Global Id: T0608100807
Action Type: RESPONSE
Date: 10/15/2006
Action: Monitoring Report - Semi-Annually

Global Id: T0608100807
Action Type: RESPONSE
Date: 10/15/2009
Action: Monitoring Report - Semi-Annually

Global Id: T0608100807
Action Type: RESPONSE
Date: 01/15/2004
Action: Monitoring Report - Quarterly

Global Id: T0608100807
Action Type: RESPONSE
Date: 11/15/2010
Action: Monitoring Report - Annually

Global Id: T0608100807
Action Type: ENFORCEMENT
Date: 07/16/2009
Action: Staff Letter - #20090716

Global Id: T0608100807
Action Type: ENFORCEMENT
Date: 02/02/2010
Action: Staff Letter - #20100202

Global Id: T0608100807
Action Type: RESPONSE
Date: 07/14/2010
Action: Clean Up Fund - 5-Year Review Summary - Regulator Responded

LUST REG 2:
Region: 2
Facility Id: Not reported

GOOTNICK PROPERTY (Continued) **S102430892**

Facility Status: Preliminary site assessment underway
Case Number: 880041
How Discovered: OM
Leak Cause: Unknown
Leak Source: Unknown
Date Leak Confirmed: Not reported
Oversight Program: LUST
Prelim. Site Assesment Wokplan Submitted: Not reported
Preliminary Site Assesment Began: 1/1/1965
Pollution Characterization Began: Not reported
Pollution Remediation Plan Submitted: Not reported
Date Remediation Action Underway: Not reported
Date Post Remedial Action Monitoring Began: Not reported

SAN MATEO CO. LUST:
Region: SAN MATEO
Facility ID: 880041
Facility Status: 9- Case Closed
Global ID: T0608100807
APN Number: 020126080
Case Type: SAN MATEO CO. LUST
EDR Link ID: SAN MATEO CO. LUST

H45 **MIDAS MUFFLER** **LUST** **S102433354**
ESE **700 EL CAMINO REAL** **San Mateo Co. BI** **N/A**
1/4-1/2 **SAN BRUNO, CA 94066**
0.453 mi.
2392 ft. **Site 1 of 2 in cluster H**

LUST REG 2:
Region: 2
Facility Id: Not reported
Facility Status: Case Closed
Case Number: 880035
How Discovered: OM
Leak Cause: Unknown
Leak Source: Unknown
Date Leak Confirmed: Not reported
Oversight Program: LUST
Prelim. Site Assesment Wokplan Submitted: Not reported
Preliminary Site Assesment Began: Not reported
Pollution Characterization Began: Not reported
Pollution Remediation Plan Submitted: Not reported
Date Remediation Action Underway: Not reported
Date Post Remedial Action Monitoring Began: Not reported

San Mateo Co. BI:
Region: SAN MATEO
Facility ID: FA0022800
Prog Element Code: GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id: PR0027472
Description: GENERATES & RECYCLES WASTE OIL/SOLVENT

Region: SAN MATEO
Facility ID: FA0022800
Prog Element Code: STORES HAZ MAT <1,199GAL,9,999LB,4,799FT3
Record Id: PR0027473

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MIDAS MUFFLER (Continued) **S102433354**

Description: STORES HAZ MAT <1,199GAL,9,999LB,4,799CF

Region: SAN MATEO
Facility ID: FA0022800
Prog Element Code: UNDERGROUND TANK - GENERAL
Record Id: PR0025526
Description: UNDERGROUND TANK - GENERAL

H46 **MIDAS MUFFLER** **LUST** **S103975677**
ESE **700 EL CAMINO REAL** **N/A**
1/4-1/2 **SAN BRUNO, CA 94066**
0.453 mi.
2392 ft. **Site 2 of 2 in cluster H**

LUST:
Region: STATE
Global Id: T0608100836
Latitude: 37.627226
Longitude: -122.415151
Case Type: LUST Cleanup Site
Status: Completed - Case Closed
Status Date: 05/13/1998
Lead Agency: SAN MATEO COUNTY LOP
Case Worker: JM
Local Agency: SAN MATEO COUNTY LOP
RB Case Number: 41-0907
LOC Case Number: 880035
File Location: Local Agency Warehouse
Potential Media Affect: Other Groundwater (uses other than drinking water)
Potential Contaminants of Concern: Not reported
Site History: Not reported

Click here to access the California GeoTracker records for this facility:

Contact:
Global Id: T0608100836
Contact Type: Regional Board Caseworker
Contact Name: UUU
Organization Name: SAN FRANCISCO BAY RWQCB (REGION 2)
Address: 1515 CLAY ST SUITE 1400
City: OAKLAND
Email: Not reported
Phone Number: Not reported

Global Id: T0608100836
Contact Type: Local Agency Caseworker
Contact Name: JACOB MADDEN
Organization Name: SAN MATEO COUNTY LOP
Address: 2000 ALAMEDA DE LAS PULGAS
City: SAN MATEO
Email: jmadden@smcgov.org
Phone Number: 6503726298

Status History:
Global Id: T0608100836
Status: Completed - Case Closed
Status Date: 05/13/1998

MIDAS MUFFLER (Continued) **S103975677**

Global Id: T0608100836
Status: Open - Case Begin Date
Status Date: 04/14/1995

Regulatory Activities:
Global Id: T0608100836
Action Type: ENFORCEMENT
Date: 04/14/1995
Action: Notice of Responsibility - #1

Global Id: T0608100836
Action Type: Other
Date: 04/19/1995
Action: Leak Reported

SAN MATEO CO. LUST:
Region: SAN MATEO
Facility ID: 880035
Facility Status: 9- Case Closed
Global ID: T0608100836
APN Number: 020126130
Case Type: SAN MATEO CO. LUST
EDR Link ID: SAN MATEO CO. LUST

I47 **SEARCH AUTOMOTIVE CENTER** **LUST** **U001594657**
NNE **1178 EL CAMINO REAL** **HIST UST** **N/A**
1/4-1/2 **SAN BRUNO, CA 94066** **San Mateo Co. BI**
0.453 mi.
2393 ft. **Site 1 of 3 in cluster I**

LUST:
Region: STATE
Global Id: T0608100452
Latitude: 37.6380240221315
Longitude: -122.417585849762
Case Type: LUST Cleanup Site
Status: Open - Site Assessment
Status Date: 10/30/2006
Lead Agency: SAN MATEO COUNTY LOP
Case Worker: JM
Local Agency: SAN MATEO COUNTY LOP
RB Case Number: 41-0476
LOC Case Number: 880008
File Location: Local Agency
Potential Media Affect: Other Groundwater (uses other than drinking water)
Potential Contaminants of Concern: Gasoline
Site History: Can be extracted from most recent report in Geotracker or at San Mateo County offices if submitted prior to 2005, San Mateo County does not take responsibility for the accuracy of the statements made or any professional interpretations made in the referenced report.

Click here to access the California GeoTracker records for this facility:

Contact:
Global Id: T0608100452
Contact Type: Regional Board Caseworker

SEARS AUTOMOTIVE CENTER (Continued) **U001594657**

Contact Name: JOLANTA UCHMAN
Organization Name: SAN FRANCISCO BAY RWQCB (REGION 2)
Address: 1515 CLAY ST SUITE 1400
City: OAKLAND
Email: juchman@waterboards.ca.gov
Phone Number: Not reported

Global Id: T0608100452
Contact Type: Local Agency Caseworker
Contact Name: JACOB MADDEN
Organization Name: SAN MATEO COUNTY LOP
Address: 2000 ALAMEDA DE LAS PULGAS
City: SAN MATEO
Email: jmadden@smcgov.org
Phone Number: 6503726298

Status History:

Global Id: T0608100452
Status: Open - Site Assessment
Status Date: 10/30/2006

Global Id: T0608100452
Status: Open - Case Begin Date
Status Date: 04/10/1985

Global Id: T0608100452
Status: Open - Remediation
Status Date: 10/01/2006

Global Id: T0608100452
Status: Open - Site Assessment
Status Date: 04/10/1985

Regulatory Activities:

Global Id: T0608100452
Action Type: ENFORCEMENT
Date: 10/27/2010
Action: Staff Letter - #20101027

Global Id: T0608100452
Action Type: RESPONSE
Date: 03/11/2011
Action: Other Report / Document

Global Id: T0608100452
Action Type: Other
Date: 04/10/1985
Action: Leak Discovery

Global Id: T0608100452
Action Type: REMEDIATION
Date: 10/01/2006
Action: Excavation

Global Id: T0608100452
Action Type: ENFORCEMENT

SEARS AUTOMOTIVE CENTER (Continued) **U001594657**

Date: 06/26/2007
Action: Staff Letter - #20070626B

Global Id: T0608100452
Action Type: ENFORCEMENT
Date: 06/14/2005
Action: Staff Letter - #20050614C

Global Id: T0608100452
Action Type: ENFORCEMENT
Date: 10/17/2005
Action: Staff Letter - #20051017A

Global Id: T0608100452
Action Type: ENFORCEMENT
Date: 05/18/2011
Action: Staff Letter - #20110518

Global Id: T0608100452
Action Type: RESPONSE
Date: 02/15/2011
Action: Monitoring Report - Semi-Annually

Global Id: T0608100452
Action Type: RESPONSE
Date: 03/18/2010
Action: Monitoring Report - Semi-Annually

Global Id: T0608100452
Action Type: RESPONSE
Date: 05/15/2011
Action: Monitoring Report - Semi-Annually

Global Id: T0608100452
Action Type: RESPONSE
Date: 11/15/2011
Action: Monitoring Report - Semi-Annually

Global Id: T0608100452
Action Type: ENFORCEMENT
Date: 05/07/1991
Action: Notice of Responsibility - #1

Global Id: T0608100452
Action Type: ENFORCEMENT
Date: 10/17/2005
Action: Staff Letter - #20051017B

Global Id: T0608100452
Action Type: ENFORCEMENT
Date: 12/28/2005
Action: Staff Letter - #20051228

Global Id: T0608100452
Action Type: ENFORCEMENT
Date: 07/17/2006
Action: Staff Letter - #20060717

SEARS AUTOMOTIVE CENTER (Continued) **U001594657**

Global Id: T0608100452
Action Type: ENFORCEMENT
Date: 04/24/2003
Action: Staff Letter - #20030424

Global Id: T0608100452
Action Type: ENFORCEMENT
Date: 06/14/2005
Action: Staff Letter - #20050614A

Global Id: T0608100452
Action Type: ENFORCEMENT
Date: 12/22/2011
Action: Staff Letter - #20111222

Global Id: T0608100452
Action Type: ENFORCEMENT
Date: 11/22/2011
Action: Notice of Violation - #20111122

Global Id: T0608100452
Action Type: ENFORCEMENT
Date: 04/05/2012
Action: Staff Letter - #20120405

Global Id: T0608100452
Action Type: ENFORCEMENT
Date: 03/22/2012
Action: Notice of Violation - #20120322

Global Id: T0608100452
Action Type: RESPONSE
Date: 11/15/2009
Action: Monitoring Report - Semi-Annually

Global Id: T0608100452
Action Type: ENFORCEMENT
Date: 06/14/2005
Action: Staff Letter - #20050614B

Global Id: T0608100452
Action Type: ENFORCEMENT
Date: 11/09/2001
Action: Staff Letter - #20011109

Global Id: T0608100452
Action Type: ENFORCEMENT
Date: 05/14/2013
Action: Letter - Notice - #21030514

Global Id: T0608100452
Action Type: ENFORCEMENT
Date: 08/28/2012
Action: Referral to District Attorney - #20120828

Global Id: T0608100452
Action Type: RESPONSE

SEARS AUTOMOTIVE CENTER (Continued) **U001594657**

Date: 08/26/2005
Action: Soil and Water Investigation Workplan

Global Id: T0608100452
Action Type: RESPONSE
Date: 11/16/2005
Action: Interim Remedial Action Plan

Global Id: T0608100452
Action Type: RESPONSE
Date: 04/28/2006
Action: Risk Assessment Report

Global Id: T0608100452
Action Type: RESPONSE
Date: 10/27/2006
Action: Interim Remedial Action Report

Global Id: T0608100452
Action Type: RESPONSE
Date: 09/27/2007
Action: Electronic Reporting Submittal Due

Global Id: T0608100452
Action Type: RESPONSE
Date: 01/19/2009
Action: Well Destruction Report

Global Id: T0608100452
Action Type: RESPONSE
Date: 09/27/2007
Action: Other Report / Document

Global Id: T0608100452
Action Type: RESPONSE
Date: 09/27/2007
Action: Soil and Water Investigation Workplan

Global Id: T0608100452
Action Type: RESPONSE
Date: 11/15/2007
Action: Monitoring Report - Quarterly

Global Id: T0608100452
Action Type: RESPONSE
Date: 05/15/2012
Action: Monitoring Report - Semi-Annually

Global Id: T0608100452
Action Type: ENFORCEMENT
Date: 06/26/2007
Action: Staff Letter - #20070626A

Global Id: T0608100452
Action Type: ENFORCEMENT
Date: 03/15/2013
Action: Staff Letter - #20130315

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SEARS AUTOMOTIVE CENTER (Continued) **U001594657**

Global Id: T0608100452
Action Type: Other
Date: 04/10/1985
Action: Leak Reported

Global Id: T0608100452
Action Type: RESPONSE
Date: 03/17/2009
Action: Risk Assessment Report

Global Id: T0608100452
Action Type: RESPONSE
Date: 01/19/2009
Action: Soil and Water Investigation Report

Global Id: T0608100452
Action Type: RESPONSE
Date: 05/15/2007
Action: Monitoring Report - Quarterly

Global Id: T0608100452
Action Type: RESPONSE
Date: 07/16/2007
Action: Monitoring Report - Quarterly

Global Id: T0608100452
Action Type: RESPONSE
Date: 04/15/2003
Action: Monitoring Report - Quarterly

Global Id: T0608100452
Action Type: RESPONSE
Date: 04/15/2004
Action: Monitoring Report - Quarterly

Global Id: T0608100452
Action Type: RESPONSE
Date: 04/15/2005
Action: Monitoring Report - Quarterly

Global Id: T0608100452
Action Type: RESPONSE
Date: 05/15/2006
Action: Monitoring Report - Quarterly

Global Id: T0608100452
Action Type: RESPONSE
Date: 07/15/2003
Action: Monitoring Report - Quarterly

Global Id: T0608100452
Action Type: RESPONSE
Date: 07/15/2005
Action: Monitoring Report - Quarterly

Global Id: T0608100452
Action Type: RESPONSE

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SEARS AUTOMOTIVE CENTER (Continued) **U001594657**

Date: 08/15/2006
Action: Monitoring Report - Quarterly

Global Id: T0608100452
Action Type: RESPONSE
Date: 10/15/2002
Action: Monitoring Report - Quarterly

Global Id: T0608100452
Action Type: RESPONSE
Date: 10/15/2003
Action: Monitoring Report - Quarterly

Global Id: T0608100452
Action Type: RESPONSE
Date: 10/15/2004
Action: Monitoring Report - Quarterly

Global Id: T0608100452
Action Type: RESPONSE
Date: 11/15/2006
Action: Monitoring Report - Quarterly

Global Id: T0608100452
Action Type: RESPONSE
Date: 01/15/2003
Action: Monitoring Report - Quarterly

Global Id: T0608100452
Action Type: RESPONSE
Date: 01/15/2004
Action: Monitoring Report - Quarterly

Global Id: T0608100452
Action Type: RESPONSE
Date: 01/15/2005
Action: Monitoring Report - Quarterly

Global Id: T0608100452
Action Type: RESPONSE
Date: 02/15/2007
Action: Monitoring Report - Quarterly

Global Id: T0608100452
Action Type: RESPONSE
Date: 06/05/2003
Action: Other Report / Document

Global Id: T0608100452
Action Type: ENFORCEMENT
Date: 07/16/2009
Action: Staff Letter - #20090716

Global Id: T0608100452
Action Type: ENFORCEMENT
Date: 10/07/2009
Action: Staff Letter - #20091007

SEARS AUTOMOTIVE CENTER (Continued) **U001594657**

Global Id: T0608100452
Action Type: ENFORCEMENT
Date: 02/18/2014
Action: Notice of Violation - #20140218

Global Id: T0608100452
Action Type: RESPONSE
Date: 12/23/2009
Action: Correspondence

Global Id: T0608100452
Action Type: RESPONSE
Date: 08/15/2006
Action: Risk Assessment Report

Global Id: T0608100452
Action Type: RESPONSE
Date: 08/15/2007
Action: Risk Assessment Report

Global Id: T0608100452
Action Type: RESPONSE
Date: 11/15/2005
Action: Risk Assessment Report

Global Id: T0608100452
Action Type: RESPONSE
Date: 11/15/2006
Action: Risk Assessment Report

Global Id: T0608100452
Action Type: RESPONSE
Date: 02/15/2006
Action: Risk Assessment Report

Global Id: T0608100452
Action Type: RESPONSE
Date: 02/15/2007
Action: Risk Assessment Report

Global Id: T0608100452
Action Type: RESPONSE
Date: 08/26/2005
Action: Other Report / Document

Global Id: T0608100452
Action Type: RESPONSE
Date: 08/26/2005
Action: Soil and Water Investigation Report

Global Id: T0608100452
Action Type: RESPONSE
Date: 12/14/2005
Action: Other Report / Document

Global Id: T0608100452
Action Type: RESPONSE

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SEARS AUTOMOTIVE CENTER (Continued) **U001594657**

Date: 07/18/2004
Action: Risk Assessment Report

Global Id: T0608100452
Action Type: RESPONSE
Date: 08/12/2005
Action: Other Report / Document

Global Id: T0608100452
Action Type: RESPONSE
Date: 05/15/2006
Action: Risk Assessment Report

Global Id: T0608100452
Action Type: RESPONSE
Date: 05/15/2007
Action: Risk Assessment Report

Global Id: T0608100452
Action Type: RESPONSE
Date: 07/15/2004
Action: Monitoring Report - Quarterly

Global Id: T0608100452
Action Type: RESPONSE
Date: 11/15/2005
Action: Monitoring Report - Quarterly

Global Id: T0608100452
Action Type: RESPONSE
Date: 02/15/2006
Action: Monitoring Report - Quarterly

Global Id: T0608100452
Action Type: ENFORCEMENT
Date: 07/29/2008
Action: Staff Letter - #20080729

Global Id: T0608100452
Action Type: ENFORCEMENT
Date: 01/15/2015
Action: Staff Letter - #20150115

Global Id: T0608100452
Action Type: RESPONSE
Date: 03/15/2010
Action: Interim Remedial Action Plan

Global Id: T0608100452
Action Type: RESPONSE
Date: 05/15/2009
Action: Monitoring Report - Semi-Annually

Global Id: T0608100452
Action Type: RESPONSE
Date: 06/19/2015
Action: Pilot Study/ Treatability Report

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SEARS AUTOMOTIVE CENTER (Continued) **U001594657**

Global Id: T0608100452
Action Type: RESPONSE
Date: 02/18/2011
Action: CAP/RAP - Feasibility Study Report - Regulator Responded

SAN MATEO CO. LUST:
Region: SAN MATEO
Facility ID: 880008
Facility Status: 5C- Pollution Characterization
Global ID: T0608100452
APN Number: 014316150
Case Type: SAN MATEO CO. LUST
EDR Link ID: SAN MATEO CO. LUST

HIST UST:
Region: STATE
Facility ID: 00000017786
Facility Type: Gas Station
Other Type: Not reported
Contact Name: Not reported
Telephone: 4158732200
Owner Name: SEARS ROEBUCK & CO
Owner Address: 1178 EL CAMINO REAL
Owner City,St,Zip: SAN BRUNO, CA 94066
Total Tanks: 0005

Tank Num: 001
Container Num: 1
Year Installed: 1970
Tank Capacity: 00005000
Tank Used for: PRODUCT
Type of Fuel: PREMIUM
Container Construction Thickness: Not reported
Leak Detection: Vapor Sniff Well

Tank Num: 002
Container Num: 2
Year Installed: 1970
Tank Capacity: 00000500
Tank Used for: WASTE
Type of Fuel: WASTE OIL
Container Construction Thickness: Not reported
Leak Detection: Vapor Sniff Well

Tank Num: 003
Container Num: 3
Year Installed: 1970
Tank Capacity: 00012000
Tank Used for: PRODUCT
Type of Fuel: UNLEADED
Container Construction Thickness: Not reported
Leak Detection: Vapor Sniff Well

Tank Num: 004
Container Num: 4

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SEARS AUTOMOTIVE CENTER (Continued) **U001594657**

Year Installed:	1970
Tank Capacity:	00005000
Tank Used for:	PRODUCT
Type of Fuel:	PREMIUM
Container Construction Thickness:	Not reported
Leak Detection:	Vapor Sniff Well

Tank Num:	005
Container Num:	5
Year Installed:	1970
Tank Capacity:	00012000
Tank Used for:	PRODUCT
Type of Fuel:	REGULAR
Container Construction Thickness:	Not reported
Leak Detection:	Vapor Sniff Well

San Mateo Co. BI:

Region:	SAN MATEO
Facility ID:	FA0029051
Prog Element Code:	UNDERGROUND TANK - GENERAL
Record Id:	PR0049117
Description:	UNDERGROUND TANK - GENERAL

Region:	SAN MATEO
Facility ID:	FA0045375
Prog Element Code:	GEN <1 TONS HAZ WASTE/YR
Record Id:	PR0059042
Description:	GEN <1 TONS HAZ WASTE/YR

Region:	SAN MATEO
Facility ID:	FA0045375
Prog Element Code:	STORES MV FUELS OR WASTE ONLY
Record Id:	PR0059041
Description:	STORES MV FUELS OR WASTE ONLY

I48 **SEARS, #1478** **HIST CORTESE** **S101308696**
NNE **1178 EL CAMINO REAL** **LUST** **N/A**
1/4-1/2 **SAN BRUNO, CA 94066** **EMI**
0.453 mi.
2393 ft. **Site 2 of 3 in cluster I**

HIST CORTESE:

Region:	CORTESE
Facility County Code:	41
Reg By:	LTNKA
Reg Id:	41-0476

LUST REG 2:

Region:	2
Facility Id:	Not reported
Facility Status:	Pollution Characterization
Case Number:	880008
How Discovered:	OM
Leak Cause:	Unknown
Leak Source:	Unknown
Date Leak Confirmed:	Not reported
Oversight Program:	LUST

SEARS, #1478 (Continued) **S101308696**

Prelim. Site Assesment Wokplan Submitted:	Not reported
Preliminary Site Assesment Began:	Not reported
Pollution Characterization Began:	1/1/1965
Pollution Remediation Plan Submitted:	Not reported
Date Remediation Action Underway:	Not reported
Date Post Remedial Action Monitoring Began:	Not reported

EMI:

Year:	2006
County Code:	41
Air Basin:	SF
Facility ID:	16807
Air District Name:	BA
SIC Code:	5311
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	.001
Reactive Organic Gases Tons/Yr:	.0000914
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	.002
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2007
County Code:	41
Air Basin:	SF
Facility ID:	16807
Air District Name:	BA
SIC Code:	5311
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	.001
Reactive Organic Gases Tons/Yr:	.0000914
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	.002
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

Year:	2008
County Code:	41
Air Basin:	SF
Facility ID:	16807
Air District Name:	BA
SIC Code:	5311
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	.001
Reactive Organic Gases Tons/Yr:	.0000914
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	.002
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0

SEARS, #1478 (Continued) **S101308696**

Part. Matter 10 Micrometers & Smllr Tons/Yr:	0
Year:	2009
County Code:	41
Air Basin:	SF
Facility ID:	16807
Air District Name:	BA
SIC Code:	5311
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.001
Reactive Organic Gases Tons/Yr:	9.1399999999999999E-5
Carbon Monoxide Emissions Tons/Yr:	0
NOX - Oxides of Nitrogen Tons/Yr:	0.002
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0
Year:	2010
County Code:	41
Air Basin:	SF
Facility ID:	16807
Air District Name:	BA
SIC Code:	5311
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	6.0000000000000001E-3
Reactive Organic Gases Tons/Yr:	5.4839999999999999E-4
Carbon Monoxide Emissions Tons/Yr:	0.001
NOX - Oxides of Nitrogen Tons/Yr:	8.0000000000000002E-3
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0
Year:	2011
County Code:	41
Air Basin:	SF
Facility ID:	16807
Air District Name:	BA
SIC Code:	5311
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.006
Reactive Organic Gases Tons/Yr:	0.0005484
Carbon Monoxide Emissions Tons/Yr:	0.001
NOX - Oxides of Nitrogen Tons/Yr:	0.008
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0
Year:	2012
County Code:	41
Air Basin:	SF
Facility ID:	16807

SEARS, #1478 (Continued) **S101308696**

Air District Name:	BA
SIC Code:	5311
Air District Name:	BAY AREA AQMD
Community Health Air Pollution Info System:	Not reported
Consolidated Emission Reporting Rule:	Not reported
Total Organic Hydrocarbon Gases Tons/Yr:	0.006
Reactive Organic Gases Tons/Yr:	0.0005484
Carbon Monoxide Emissions Tons/Yr:	0.001
NOX - Oxides of Nitrogen Tons/Yr:	0.008
SOX - Oxides of Sulphur Tons/Yr:	0
Particulate Matter Tons/Yr:	0
Part. Matter 10 Micrometers & Smllr Tons/Yr:	0

J49 **WINSTON TIRE #100** **LUST** **S103662629**
East **504 W SAN BRUNO AVE** **N/A**
1/4-1/2 **SAN BRUNO, CA**
0.456 mi.
2409 ft. **Site 1 of 2 in cluster J**

SAN MATEO CO. LUST:

Region:	SAN MATEO
Facility ID:	880058
Facility Status:	9- Case Closed
Global ID:	T0608111410
APN Number:	020115360
Case Type:	SAN MATEO CO. LUST
EDR Link ID:	SAN MATEO CO. LUST

J50 **WINSTON TIRE #100** **LUST** **S109285636**
East **504 WEST SAN BRUNO AVENUE** **N/A**
1/4-1/2 **SAN BRUNO, CA 94066**
0.456 mi.
2409 ft. **Site 2 of 2 in cluster J**

LUST:

Region:	STATE
Global Id:	T0608111410
Latitude:	37.6295020459572
Longitude:	-122.415429353714
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	05/26/2010
Lead Agency:	SAN MATEO COUNTY LOP
Case Worker:	JM
Local Agency:	SAN MATEO COUNTY LOP
RB Case Number:	Not reported
LOC Case Number:	880058
File Location:	Local Agency
Potential Media Affect:	Other Groundwater (uses other than drinking water)
Potential Contaminants of Concern:	Gasoline
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0608111410
Contact Type:	Regional Board Caseworker

WINSTON TIRE #100 (Continued) **S109285636**

Contact Name: UUU
Organization Name: SAN FRANCISCO BAY RWQCB (REGION 2)
Address: 1515 CLAY ST SUITE 1400
City: OAKLAND
Email: Not reported
Phone Number: Not reported

Global Id: T0608111410
Contact Type: Local Agency Caseworker
Contact Name: JACOB MADDEN
Organization Name: SAN MATEO COUNTY LOP
Address: 2000 ALAMEDA DE LAS PULGAS
City: SAN MATEO
Email: jmadden@smcgov.org
Phone Number: 6503726298

Status History:
Global Id: T0608111410
Status: Completed - Case Closed
Status Date: 05/26/2010

Global Id: T0608111410
Status: Open - Case Begin Date
Status Date: 10/10/2002

Global Id: T0608111410
Status: Open - Site Assessment
Status Date: 05/15/2003

Regulatory Activities:
Global Id: T0608111410
Action Type: ENFORCEMENT
Date: 03/11/2010
Action: Staff Letter - #20100311

Global Id: T0608111410
Action Type: ENFORCEMENT
Date: 05/19/2010
Action: Closure/No Further Action Letter - #20100519

Global Id: T0608111410
Action Type: Other
Date: 10/10/2002
Action: Leak Began

Global Id: T0608111410
Action Type: Other
Date: 10/10/2002
Action: Leak Discovery

Global Id: T0608111410
Action Type: Other
Date: 10/10/2002
Action: Leak Stopped

Global Id: T0608111410

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WINSTON TIRE #100 (Continued) **S109285636**

Action Type: ENFORCEMENT
Date: 12/22/2005
Action: Staff Letter - #20051222

Global Id: T0608111410
Action Type: ENFORCEMENT
Date: 10/18/2006
Action: Staff Letter - #20061018

Global Id: T0608111410
Action Type: ENFORCEMENT
Date: 05/15/2003
Action: Notice of Responsibility - #1

Global Id: T0608111410
Action Type: ENFORCEMENT
Date: 01/11/2008
Action: Staff Letter - #20080111A

Global Id: T0608111410
Action Type: ENFORCEMENT
Date: 12/13/2006
Action: Staff Letter - #20061213

Global Id: T0608111410
Action Type: ENFORCEMENT
Date: 08/07/2006
Action: Staff Letter - #20060807

Global Id: T0608111410
Action Type: ENFORCEMENT
Date: 06/03/2008
Action: Staff Letter - #20080603

Global Id: T0608111410
Action Type: ENFORCEMENT
Date: 07/16/2007
Action: Staff Letter - #20070716

Global Id: T0608111410
Action Type: ENFORCEMENT
Date: 01/11/2008
Action: Staff Letter - #20080111B

Global Id: T0608111410
Action Type: Other
Date: 10/10/2002
Action: Leak Reported

Global Id: T0608111410
Action Type: ENFORCEMENT
Date: 03/03/2009
Action: Staff Letter - #20090303

Global Id: T0608111410
Action Type: RESPONSE
Date: 05/15/2009

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WINSTON TIRE #100 (Continued) **S109285636**

Action: Monitoring Report - Quarterly

Global Id: T0608111410
Action Type: RESPONSE
Date: 03/31/2006
Action: Soil and Water Investigation Workplan

Global Id: T0608111410
Action Type: RESPONSE
Date: 01/04/2007
Action: Soil and Water Investigation Report

Global Id: T0608111410
Action Type: RESPONSE
Date: 12/13/2006
Action: Soil and Water Investigation Report

Global Id: T0608111410
Action Type: RESPONSE
Date: 12/13/2006
Action: Soil and Water Investigation Workplan

Global Id: T0608111410
Action Type: RESPONSE
Date: 03/26/2007
Action: Soil and Water Investigation Report

Global Id: T0608111410
Action Type: RESPONSE
Date: 09/06/2007
Action: Other Report / Document

Global Id: T0608111410
Action Type: RESPONSE
Date: 02/15/2008
Action: Other Report / Document

Global Id: T0608111410
Action Type: RESPONSE
Date: 02/22/2008
Action: Soil and Water Investigation Workplan

Global Id: T0608111410
Action Type: RESPONSE
Date: 10/21/2008
Action: Soil and Water Investigation Report

Global Id: T0608111410
Action Type: ENFORCEMENT
Date: 07/21/2009
Action: Staff Letter - #20090721

Global Id: T0608111410
Action Type: RESPONSE
Date: 02/15/2010
Action: Monitoring Report - Quarterly

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WINSTON TIRE #100 (Continued) **S109285636**

Global Id: T0608111410
Action Type: RESPONSE
Date: 12/10/2010
Action: Well Destruction Report

Global Id: T0608111410
Action Type: RESPONSE
Date: 08/15/2009
Action: Monitoring Report - Quarterly

I51 **SHELL STATION** **LUST** **U001594629**
NNE **1199 EL CAMINO REAL** **HIST UST** **N/A**
1/4-1/2 **SAN BRUNO, CA 94066** **San Mateo Co. BI**
0.462 mi.
2441 ft. **Site 3 of 3 in cluster I**

LUST:
Region: STATE
Global Id: T0608182194
Latitude: 37.636381618
Longitude: -122.421412306
Case Type: LUST Cleanup Site
Status: Open - Remediation
Status Date: 03/15/2010
Lead Agency: SAN MATEO COUNTY LOP
Case Worker: MM
Local Agency: SAN MATEO COUNTY LOP
RB Case Number: Not reported
LOC Case Number: 880057
File Location: Local Agency
Potential Media Affect: Other Groundwater (uses other than drinking water)
Potential Contaminants of Concern: Benzene, MTBE / TBA / Other Fuel Oxygenates, Gasoline
Site History: Can be extracted from most recent report in Geotracker or at San Mateo County offices if submitted prior to 2005, San Mateo County does not take responsibility for the accuracy of the statements made or any professional interpretations made in the referenced report.

Click here to access the California GeoTracker records for this facility:

Contact:
Global Id: T0608182194
Contact Type: Local Agency Caseworker
Contact Name: MARC MULLANEY
Organization Name: SAN MATEO COUNTY LOP
Address: 2000 ALAMEDA DE LAS PULGAS
City: SAN MATEO
Email: mmullaney@smcgov.org
Phone Number: 6503726289

Status History:
Global Id: T0608182194
Status: Open - Site Assessment
Status Date: 07/19/2005

Global Id: T0608182194
Status: Open - Case Begin Date
Status Date: 09/05/2002

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SHELL STATION (Continued) **U001594629**

Global Id: T0608182194
Status: Open - Remediation
Status Date: 03/15/2010

Global Id: T0608182194
Status: Open - Site Assessment
Status Date: 09/05/2002

Regulatory Activities:

Global Id: T0608182194
Action Type: ENFORCEMENT
Date: 03/15/2010
Action: Staff Letter - #20100315

Global Id: T0608182194
Action Type: ENFORCEMENT
Date: 02/18/2014
Action: Staff Letter - #20140218

Global Id: T0608182194
Action Type: RESPONSE
Date: 08/15/2013
Action: Monitoring Report - Semi-Annually - Regulator Responded

Global Id: T0608182194
Action Type: RESPONSE
Date: 02/12/2013
Action: Request for Closure - Regulator Responded

Global Id: T0608182194
Action Type: RESPONSE
Date: 06/15/2014
Action: Well Installation Workplan - Regulator Responded

Global Id: T0608182194
Action Type: RESPONSE
Date: 02/14/2014
Action: Request for Closure - Regulator Responded

Global Id: T0608182194
Action Type: ENFORCEMENT
Date: 02/16/2011
Action: Staff Letter - #20110216

Global Id: T0608182194
Action Type: REMEDIATION
Date: 11/03/2005
Action: Pump & Treat (P&T) Groundwater

Global Id: T0608182194
Action Type: Other
Date: 09/05/2002
Action: Leak Discovery

Global Id: T0608182194
Action Type: RESPONSE
Date: 08/15/2010

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SHELL STATION (Continued) **U001594629**

Action: Monitoring Report - Quarterly

Global Id: T0608182194
Action Type: RESPONSE
Date: 11/15/2011
Action: Remedial Progress Report

Global Id: T0608182194
Action Type: RESPONSE
Date: 05/15/2011
Action: Monitoring Report - Quarterly

Global Id: T0608182194
Action Type: RESPONSE
Date: 11/15/2010
Action: Monitoring Report - Quarterly

Global Id: T0608182194
Action Type: RESPONSE
Date: 02/15/2010
Action: Monitoring Report - Quarterly

Global Id: T0608182194
Action Type: RESPONSE
Date: 08/15/2011
Action: Monitoring Report - Quarterly

Global Id: T0608182194
Action Type: RESPONSE
Date: 11/15/2011
Action: Monitoring Report - Quarterly

Global Id: T0608182194
Action Type: ENFORCEMENT
Date: 12/30/2008
Action: Staff Letter - #20081230a

Global Id: T0608182194
Action Type: RESPONSE
Date: 02/15/2012
Action: Monitoring Report - Quarterly

Global Id: T0608182194
Action Type: ENFORCEMENT
Date: 04/01/2003
Action: Staff Letter - #20030401

Global Id: T0608182194
Action Type: ENFORCEMENT
Date: 12/09/2004
Action: Staff Letter - #20041209

Global Id: T0608182194
Action Type: ENFORCEMENT
Date: 12/24/2003
Action: Staff Letter - #20031224

SHELL STATION (Continued) **U001594629**

Global Id: T0608182194
Action Type: ENFORCEMENT
Date: 10/28/2003
Action: Staff Letter - #20031028

Global Id: T0608182194
Action Type: ENFORCEMENT
Date: 12/19/2002
Action: Staff Letter - #20021219

Global Id: T0608182194
Action Type: ENFORCEMENT
Date: 03/02/2004
Action: Staff Letter - #20040302

Global Id: T0608182194
Action Type: ENFORCEMENT
Date: 12/22/2011
Action: Staff Letter - #20111222

Global Id: T0608182194
Action Type: RESPONSE
Date: 05/15/2012
Action: Monitoring Report - Quarterly

Global Id: T0608182194
Action Type: ENFORCEMENT
Date: 12/24/2002
Action: Notice of Responsibility - #1

Global Id: T0608182194
Action Type: ENFORCEMENT
Date: 07/19/2005
Action: Staff Letter - #20050719

Global Id: T0608182194
Action Type: RESPONSE
Date: 11/15/2012
Action: Monitoring Report - Quarterly

Global Id: T0608182194
Action Type: ENFORCEMENT
Date: 07/09/2008
Action: Staff Letter - #20080709

Global Id: T0608182194
Action Type: ENFORCEMENT
Date: 11/07/2008
Action: Staff Letter - #20081107

Global Id: T0608182194
Action Type: Other
Date: 09/30/2002
Action: Leak Reported

Global Id: T0608182194
Action Type: RESPONSE

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SHELL STATION (Continued) **U001594629**

Date: 08/15/2005
Action: Monitoring Report - Quarterly

Global Id: T0608182194
Action Type: RESPONSE
Date: 11/15/2005
Action: Monitoring Report - Quarterly

Global Id: T0608182194
Action Type: RESPONSE
Date: 02/15/2006
Action: Monitoring Report - Quarterly

Global Id: T0608182194
Action Type: RESPONSE
Date: 05/15/2006
Action: Monitoring Report - Quarterly

Global Id: T0608182194
Action Type: RESPONSE
Date: 08/15/2006
Action: Monitoring Report - Quarterly

Global Id: T0608182194
Action Type: RESPONSE
Date: 11/15/2006
Action: Monitoring Report - Quarterly

Global Id: T0608182194
Action Type: RESPONSE
Date: 02/15/2007
Action: Monitoring Report - Quarterly

Global Id: T0608182194
Action Type: RESPONSE
Date: 05/15/2007
Action: Monitoring Report - Quarterly

Global Id: T0608182194
Action Type: RESPONSE
Date: 08/15/2007
Action: Monitoring Report - Quarterly

Global Id: T0608182194
Action Type: RESPONSE
Date: 11/15/2003
Action: Monitoring Report - Quarterly

Global Id: T0608182194
Action Type: RESPONSE
Date: 02/03/2003
Action: Soil and Water Investigation Report

Global Id: T0608182194
Action Type: RESPONSE
Date: 09/30/2003
Action: Soil and Water Investigation Report

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SHELL STATION (Continued) **U001594629**

Global Id: T0608182194
Action Type: RESPONSE
Date: 03/19/2004
Action: Soil and Water Investigation Report

Global Id: T0608182194
Action Type: RESPONSE
Date: 01/27/2004
Action: Other Workplan

Global Id: T0608182194
Action Type: RESPONSE
Date: 06/04/2004
Action: Other Report / Document

Global Id: T0608182194
Action Type: RESPONSE
Date: 04/07/2005
Action: Soil and Water Investigation Report

Global Id: T0608182194
Action Type: RESPONSE
Date: 11/22/2005
Action: Soil and Water Investigation Report

Global Id: T0608182194
Action Type: RESPONSE
Date: 08/15/2003
Action: Monitoring Report - Quarterly

Global Id: T0608182194
Action Type: RESPONSE
Date: 02/16/2004
Action: Monitoring Report - Quarterly

Global Id: T0608182194
Action Type: RESPONSE
Date: 08/15/2004
Action: Monitoring Report - Quarterly

Global Id: T0608182194
Action Type: RESPONSE
Date: 11/15/2004
Action: Monitoring Report - Quarterly

Global Id: T0608182194
Action Type: RESPONSE
Date: 02/15/2005
Action: Monitoring Report - Quarterly

Global Id: T0608182194
Action Type: RESPONSE
Date: 05/15/2005
Action: Monitoring Report - Quarterly

Global Id: T0608182194
Action Type: ENFORCEMENT

SHELL STATION (Continued) **U001594629**

Date: 06/05/2013
Action: Staff Letter - #20130605

Global Id: T0608182194
Action Type: RESPONSE
Date: 11/15/2008
Action: Monitoring Report - Quarterly

Global Id: T0608182194
Action Type: RESPONSE
Date: 09/15/2008
Action: Soil and Water Investigation Workplan

Global Id: T0608182194
Action Type: RESPONSE
Date: 02/15/2014
Action: Monitoring Report - Semi-Annually

Global Id: T0608182194
Action Type: RESPONSE
Date: 02/24/2014
Action: Clean Up Fund - 5-Year Review Summary

Global Id: T0608182194
Action Type: RESPONSE
Date: 01/01/2015
Action: Site Assessment Report

Global Id: T0608182194
Action Type: ENFORCEMENT
Date: 07/02/2009
Action: Staff Letter - #20090702

Global Id: T0608182194
Action Type: ENFORCEMENT
Date: 08/11/2014
Action: Staff Letter - #20140811

Global Id: T0608182194
Action Type: RESPONSE
Date: 06/15/2009
Action: Conceptual Site Model

Global Id: T0608182194
Action Type: RESPONSE
Date: 05/15/2004
Action: Monitoring Report - Quarterly

Global Id: T0608182194
Action Type: RESPONSE
Date: 11/15/2009
Action: Monitoring Report - Quarterly

Global Id: T0608182194
Action Type: RESPONSE
Date: 05/15/2009
Action: Monitoring Report - Quarterly

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SHELL STATION (Continued) **U001594629**

Global Id: T0608182194
Action Type: RESPONSE
Date: 05/15/2010
Action: Monitoring Report - Quarterly

Global Id: T0608182194
Action Type: RESPONSE
Date: 02/15/2010
Action: Monitoring Report - Semi-Annually

Global Id: T0608182194
Action Type: RESPONSE
Date: 02/15/2009
Action: Monitoring Report - Quarterly

Global Id: T0608182194
Action Type: RESPONSE
Date: 08/15/2014
Action: Monitoring Report - Semi-Annually

Global Id: T0608182194
Action Type: ENFORCEMENT
Date: 04/15/2014
Action: Staff Letter - #20140415

Global Id: T0608182194
Action Type: RESPONSE
Date: 08/15/2009
Action: Monitoring Report - Semi-Annually

Global Id: T0608182194
Action Type: RESPONSE
Date: 02/15/2015
Action: Monitoring Report - Semi-Annually

Global Id: T0608182194
Action Type: RESPONSE
Date: 08/15/2015
Action: Monitoring Report - Semi-Annually

Global Id: T0608182194
Action Type: RESPONSE
Date: 04/23/2014
Action: Correspondence

Global Id: T0608182194
Action Type: RESPONSE
Date: 07/29/2010
Action: Conceptual Site Model - Regulator Responded

Global Id: T0608182194
Action Type: RESPONSE
Date: 02/15/2013
Action: Remedial Progress Report - Regulator Responded

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SHELL STATION (Continued) **U001594629**

SAN MATEO CO. LUST:
Region: SAN MATEO
Facility ID: 880057
Facility Status: 5C- Pollution Characterization
Global ID: T0608182194
APN Number: 020013110
Case Type: SAN MATEO CO. LUST
EDR Link ID: SAN MATEO CO. LUST

HIST UST:
Region: STATE
Facility ID: 00000010969
Facility Type: Gas Station
Other Type: Not reported
Contact Name: *= WU'S TRANFORAN SHELL D-1
Telephone: 4158729828
Owner Name: SHELL OIL COMPANY
Owner Address: P.O. BOX 4848
Owner City,St,Zip: ANAHEIM, CA 92803
Total Tanks: 0003

Tank Num: 001
Container Num: 1
Year Installed: 1984
Tank Capacity: 00015000
Tank Used for: PRODUCT
Type of Fuel: UNLEADED
Container Construction Thickness: 1/4
Leak Detection: Stock Inventor, 10

Tank Num: 002
Container Num: 2
Year Installed: 1984
Tank Capacity: 00012000
Tank Used for: PRODUCT
Type of Fuel: REGULAR
Container Construction Thickness: 1/4
Leak Detection: Stock Inventor, 10

Tank Num: 003
Container Num: 3
Year Installed: 1984
Tank Capacity: 00015000
Tank Used for: PRODUCT
Type of Fuel: PREMIUM
Container Construction Thickness: 1/4
Leak Detection: Stock Inventor, 10

San Mateo Co. BI:
Region: SAN MATEO
Facility ID: FA0033380
Prog Element Code: GENERATES <27 GAL/YEAR
Record Id: PR0046861
Description: GENERATES <27 GAL/YEAR

Region: SAN MATEO

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SHELL STATION (Continued) **U001594629**

Facility ID: FA0033380
Prog Element Code: STORES MV FUELS OR WASTE ONLY
Record Id: PR0023755
Description: STORES MV FUELS OR WASTE ONLY

Region: SAN MATEO
Facility ID: FA0033380
Prog Element Code: UNDERGROUND TANK - GENERAL
Record Id: PR0022949
Description: UNDERGROUND TANK - GENERAL

Region: SAN MATEO
Facility ID: FA0053982
Prog Element Code: GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id: PR0074572
Description: GENERATES & RECYCLES WASTE OIL/SOLVENT

Region: SAN MATEO
Facility ID: FA0053982
Prog Element Code: STORES MV FUELS OR WASTE ONLY
Record Id: PR0074571
Description: STORES MV FUELS OR WASTE ONLY

Region: SAN MATEO
Facility ID: FA0053982
Prog Element Code: UNDERGROUND TANK - GENERAL
Record Id: PR0074574
Description: UNDERGROUND TANK - GENERAL

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52 **SAN BRUNO FORD II** **LUST** **S104494333**
ESE **625 EL CAMINO REAL** **N/A**
1/4-1/2 **SAN BRUNO, CA 94066**
0.487 mi.
2572 ft.

LUST:
Region: STATE
Global Id: T0608100766
Latitude: 37.625829
Longitude: -122.414855
Case Type: LUST Cleanup Site
Status: Completed - Case Closed
Status Date: 08/21/1995
Lead Agency: SAN MATEO COUNTY LOP
Case Worker: JM
Local Agency: SAN MATEO COUNTY LOP
RB Case Number: 41-0816
LOC Case Number: 880032
File Location: Local Agency Warehouse
Potential Media Affect: Other Groundwater (uses other than drinking water)
Potential Contaminants of Concern: Gasoline
Site History: Not reported

Click here to access the California GeoTracker records for this facility:

Contact:
Global Id: T0608100766
Contact Type: Regional Board Caseworker

SAN BRUNO FORD II (Continued) **S104494333**

Contact Name: UUU
Organization Name: SAN FRANCISCO BAY RWQCB (REGION 2)
Address: 1515 CLAY ST SUITE 1400
City: OAKLAND
Email: Not reported
Phone Number: Not reported

Global Id: T0608100766
Contact Type: Local Agency Caseworker
Contact Name: JACOB MADDEN
Organization Name: SAN MATEO COUNTY LOP
Address: 2000 ALAMEDA DE LAS PULGAS
City: SAN MATEO
Email: jmadden@smcgov.org
Phone Number: 6503726298

Status History:
Global Id: T0608100766
Status: Open - Case Begin Date
Status Date: 09/28/1993

Global Id: T0608100766
Status: Completed - Case Closed
Status Date: 08/21/1995

Regulatory Activities:
Global Id: T0608100766
Action Type: ENFORCEMENT
Date: 12/21/1993
Action: Notice of Responsibility - #1

Global Id: T0608100766
Action Type: Other
Date: 09/28/1993
Action: Leak Reported

LUST REG 2:
Region: 2
Facility Id: Not reported
Facility Status: Case Closed
Case Number: 880032
How Discovered: OM
Leak Cause: Unknown
Leak Source: Unknown
Date Leak Confirmed: Not reported
Oversight Program: LUST
Prelim. Site Assesment Wokplan Submitted: Not reported
Preliminary Site Assesment Began: Not reported
Pollution Characterization Began: Not reported
Pollution Remediation Plan Submitted: Not reported
Date Remediation Action Underway: Not reported
Date Post Remedial Action Monitoring Began: Not reported

SAN MATEO CO. LUST:

SAN BRUNO FORD II (Continued) **S104494333**

Region: SAN MATEO
Facility ID: 880032
Facility Status: 9- Case Closed
Global ID: T0608100766
APN Number: Not reported
Case Type: SAN MATEO CO. LUST
EDR Link ID: SAN MATEO CO. LUST

53
NW
1/2-1
0.609 mi.
3214 ft.

GGNRA NAT'L CEMETERY **ENVIROSTOR** **S107736382**
N/A

SAN FRANCISCO, CA

ENVIROSTOR:
Facility ID: 80000395
Status: No Further Action
Status Date: 01/10/2013
Site Code: Not reported
Site Type: Military Evaluation
Site Type Detailed: FUDS
Acres: 164
NPL: NO
Regulatory Agencies: SMBRP
Lead Agency: SMBRP
Program Manager: Carrie Tatoian-Cain
Supervisor: Carrie Tatoian-Cain
Division Branch: Cleanup Sacramento
Assembly: 22
Senate: 13
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: DERA
Latitude: 37.63666
Longitude: -122.4327
APN: NONE SPECIFIED
Past Use: NONE SPECIFIED
Potential COC: NONE SPECIFIED
Confirmed COC: NONE SPECIFIED
Potential Description: NONE SPECIFIED
Alias Name: CA99799F574900
Alias Type: Federal Facility ID
Alias Name: J09CA0812
Alias Type: INPR
Alias Name: 80000395
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: No Department of Defense Action Indicated (NDAI)
Completed Date: 08/03/2012
Comments: No further action based on the information provided in NDAI. If future information indicates a release by the Department of Defense the Department will investigate the property again.

Future Area Name: Not reported

GGNRA NAT'L CEMETERY (Continued) **S107736382**

Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

---

54 **FLAT RATE RENT A CAR** **HIST CORTESE** **S100225465**
ENE **830 HUNTINGTON** **Notify 65** **N/A**
1/2-1 **SAN BRUNO, CA 94066**
0.634 mi.
3346 ft.

HIST CORTESE:
Region: CORTESE
Facility County Code: 41
Reg By: LTNKA
Reg Id: 41-0231

NOTIFY 65:
Date Reported: Not reported
Staff Initials: Not reported
Board File Number: Not reported
Facility Type: Not reported
Discharge Date: Not reported
Incident Description: 92260

---

55 **CAMP TANFORAN** **ENVIROSTOR** **S107736068**
NNE **N/A**
1/2-1 **SAN BRUNO, CA**
0.662 mi.
3497 ft.

ENVIROSTOR:
Facility ID: 80000381
Status: No Further Action
Status Date: 09/13/2012
Site Code: Not reported
Site Type: Military Evaluation
Site Type Detailed: FUDS
Acres: 118
NPL: NO
Regulatory Agencies: SMBRP
Lead Agency: SMBRP
Program Manager: Not reported
Supervisor: Carrie Tatoian-Cain
Division Branch: Cleanup Sacramento
Assembly: 22
Senate: 13
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: DERA
Latitude: 37.63944

CAMP TANFORAN (Continued) **S107736068**

Longitude: -122.4202
APN: NONE SPECIFIED
Past Use: NONE SPECIFIED
Potential COC: NONE SPECIFIED
Confirmed COC: NONE SPECIFIED
Potential Description: NONE SPECIFIED
Alias Name: CA99799F571500
Alias Type: Federal Facility ID
Alias Name: J09CA0774
Alias Type: INPR
Alias Name: 80000381
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: No Department of Defense Action Indicated (NDAI)
Completed Date: 09/13/2012
Comments: This determination is based on information in DTSCs and the Water Boards possession at this time concerning Department of Defense (DoD) activities on the sites listed above. DTSC and the Water Boards reserve the right to address any appropriate environmental or human health related issue, should additional information concerning the environmental condition of these sites become available in the future.
Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

---

56 **CYCLE SHACK,INC** **HIST CORTESE** **1000279463**
NE **1104 SAN MATEO** **LUST** **N/A**
1/2-1 **S SAN FRANCISCO, CA 94080** **CA FID UST**
0.845 mi. **HIST UST**
4461 ft. **SWEEPS UST**
ENVIROSTOR

HIST CORTESE:
Region: CORTESE
Facility County Code: 41
Reg By: LTNKA
Reg Id: 41-0768

LUST:
Region: STATE
Global Id: T0608100727
Latitude: 37.6374266
Longitude: -122.411478
Case Type: LUST Cleanup Site
Status: Completed - Case Closed
Status Date: 11/13/2000
Lead Agency: SAN MATEO COUNTY LOP

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CYCLE SHACK,INC (Continued) **1000279463**

Case Worker:	JM
Local Agency:	SAN MATEO COUNTY LOP
RB Case Number:	41-0768
LOC Case Number:	550123
File Location:	Local Agency
Potential Media Affect:	Other Groundwater (uses other than drinking water)
Potential Contaminants of Concern:	Gasoline
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0608100727
Contact Type:	Regional Board Caseworker
Contact Name:	UUU
Organization Name:	SAN FRANCISCO BAY RWQCB (REGION 2)
Address:	1515 CLAY ST SUITE 1400
City:	OAKLAND
Email:	Not reported
Phone Number:	Not reported

Global Id:	T0608100727
Contact Type:	Local Agency Caseworker
Contact Name:	JACOB MADDEN
Organization Name:	SAN MATEO COUNTY LOP
Address:	2000 ALAMEDA DE LAS PULGAS
City:	SAN MATEO
Email:	jmadden@smcgov.org
Phone Number:	6503726298

Status History:

Global Id:	T0608100727
Status:	Completed - Case Closed
Status Date:	11/13/2000

Global Id:	T0608100727
Status:	Open - Case Begin Date
Status Date:	06/11/1993

Regulatory Activities:

Global Id:	T0608100727
Action Type:	REMEDIATION
Date:	10/20/1993
Action:	Excavation

Global Id:	T0608100727
Action Type:	REMEDIATION
Date:	10/20/1993
Action:	Excavation

Global Id:	T0608100727
Action Type:	Other
Date:	06/11/1994
Action:	Leak Discovery

Global Id:	T0608100727
Action Type:	ENFORCEMENT

CYCLE SHACK,INC (Continued) **1000279463**

Date: 10/12/1994
Action: Notice of Responsibility - #1

Global Id: T0608100727
Action Type: Other
Date: 06/11/1993
Action: Leak Reported

LUST REG 2:
Region: 2
Facility Id: Not reported
Facility Status: Case Closed
Case Number: 550123
How Discovered: OM
Leak Cause: Unknown
Leak Source: Unknown
Date Leak Confirmed: Not reported
Oversight Program: LUST
Prelim. Site Assesment Wokplan Submitted: Not reported
Preliminary Site Assesment Began: Not reported
Pollution Characterization Began: Not reported
Pollution Remediation Plan Submitted: Not reported
Date Remediation Action Underway: Not reported
Date Post Remedial Action Monitoring Began: Not reported

SAN MATEO CO. LUST:
Region: SAN MATEO
Facility ID: 550123
Facility Status: 9- Case Closed
Global ID: T0608100727
APN Number: Not reported
Case Type: SAN MATEO CO. LUST
EDR Link ID: SAN MATEO CO. LUST

CA FID UST:
Facility ID: 41000034
Regulated By: UTNKA
Regulated ID: Not reported
Cortese Code: Not reported
SIC Code: Not reported
Facility Phone: 4155837014
Mail To: Not reported
Mailing Address: 1104 SAN MATEO AVE
Mailing Address 2: Not reported
Mailing City,St,Zip: SO. SAN FRANCISCO 94080
Contact: Not reported
Contact Phone: Not reported
DUNs Number: Not reported
NPDES Number: Not reported
EPA ID: Not reported
Comments: Not reported
Status: Active

HIST UST:

CYCLE SHACK,INC (Continued) **1000279463**

Region:	STATE
Facility ID:	00000009926
Facility Type:	Other
Other Type:	LIGHT MANUFACTURING
Contact Name:	BUZZ DYER
Telephone:	4155837014
Owner Name:	C&S PROPERTIES
Owner Address:	1104 SAN MATEO AVE.
Owner City,St,Zip:	SO. SAN FRANCISCO, CA 94080
Total Tanks:	0001
Tank Num:	001
Container Num:	#1
Year Installed:	1978
Tank Capacity:	00001000
Tank Used for:	PRODUCT
Type of Fuel:	UNLEADED
Container Construction Thickness:	12
Leak Detection:	None

SWEEPS UST:

Status:	Not reported
Comp Number:	550059
Number:	Not reported
Board Of Equalization:	Not reported
Referral Date:	Not reported
Action Date:	Not reported
Created Date:	Not reported
Owner Tank Id:	Not reported
SWRCB Tank Id:	41-000-550059-000001
Tank Status:	Not reported
Capacity:	1000
Active Date:	Not reported
Tank Use:	M.V. FUEL
STG:	PRODUCT
Content:	REG UNLEADED
Number Of Tanks:	1

ENVIROSTOR:

Facility ID:	71002485
Status:	Inactive - Needs Evaluation
Status Date:	Not reported
Site Code:	Not reported
Site Type:	Tiered Permit
Site Type Detailed:	Tiered Permit
Acres:	Not reported
NPL:	NO
Regulatory Agencies:	NONE SPECIFIED
Lead Agency:	NONE SPECIFIED
Program Manager:	Not reported
Supervisor:	Not reported
Division Branch:	Cleanup Berkeley
Assembly:	22
Senate:	13
Special Program:	Not reported
Restricted Use:	NO

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CYCLE SHACK,INC (Continued) **1000279463**

Site Mgmt Req: NONE SPECIFIED
Funding: Not reported
Latitude: 37.63742
Longitude: -122.4114
APN: NONE SPECIFIED
Past Use: NONE SPECIFIED
Potential COC: NONE SPECIFIED
Confirmed COC: NONE SPECIFIED
Potential Description: NONE SPECIFIED
Alias Name: CAD058402173
Alias Type: EPA Identification Number
Alias Name: 110021006294
Alias Type: EPA (FRS #)
Alias Name: 71002485
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: Not reported
Completed Sub Area Name: Not reported
Completed Document Type: Not reported
Completed Date: Not reported
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

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57 **POETSCH AND PETERSON TANNERS** **ENVIROSTOR** **S106798271**
NNE **325 SOUTH MAPLE AVENUE** **N/A**
1/2-1 **S SAN FRANCISCO, CA 94080**
0.871 mi.
4601 ft.

ENVIROSTOR:
Facility ID: 41310004
Status: Refer: RWQCB
Status Date: 06/08/1994
Site Code: Not reported
Site Type: Historical
Site Type Detailed: * Historical
Acres: Not reported
NPL: NO
Regulatory Agencies: NONE SPECIFIED
Lead Agency: NONE SPECIFIED
Program Manager: Not reported
Supervisor: Referred - Not Assigned
Division Branch: Cleanup Berkeley
Assembly: 22
Senate: 13
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED

POETSCH AND PETERSON TANNERS (Continued) **S106798271**

Funding: Not reported
Latitude: 37.64236
Longitude: -122.4169
APN: 014232030
Past Use: NONE SPECIFIED
Potential COC: * Metals - Sludge
Confirmed COC: NONE SPECIFIED
Potential Description: NONE SPECIFIED
Alias Name: 014232030
Alias Type: APN
Alias Name: 41310004
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: * Discovery
Completed Date: 08/01/1980
Comments: FACILITY IDENTIFIED ACTIVE SITE I.D.'D IND. OF DRIVE BY

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

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58 **AUTOHAUS SAN BRUNO** **LUST** **S100179030**
East **675 EAST SAN BRUNO** **Notify 65** **N/A**
1/2-1 **SAN BRUNO, CA 92260** **San Mateo Co. BI**
0.919 mi.
4851 ft.

LUST:
Region: STATE
Global Id: T0608100047
Latitude: 37.6311971729195
Longitude: -122.406921386719
Case Type: LUST Cleanup Site
Status: Completed - Case Closed
Status Date: 04/24/1997
Lead Agency: SAN MATEO COUNTY LOP
Case Worker: JM
Local Agency: SAN MATEO COUNTY LOP
RB Case Number: 41-0048
LOC Case Number: 880014
File Location: Local Agency
Potential Media Affect: Other Groundwater (uses other than drinking water)
Potential Contaminants of Concern: Gasoline
Site History: Not reported

Click here to access the California GeoTracker records for this facility:

Contact:
Global Id: T0608100047
Contact Type: Regional Board Caseworker

AUTOHAUS SAN BRUNO (Continued) **S100179030**

Contact Name: UUU
Organization Name: SAN FRANCISCO BAY RWQCB (REGION 2)
Address: 1515 CLAY ST SUITE 1400
City: OAKLAND
Email: Not reported
Phone Number: Not reported

Global Id: T0608100047
Contact Type: Local Agency Caseworker
Contact Name: JACOB MADDEN
Organization Name: SAN MATEO COUNTY LOP
Address: 2000 ALAMEDA DE LAS PULGAS
City: SAN MATEO
Email: jmadden@smcgov.org
Phone Number: 6503726298

Status History:
Global Id: T0608100047
Status: Completed - Case Closed
Status Date: 04/24/1997

Global Id: T0608100047
Status: Open - Case Begin Date
Status Date: 04/28/1989

Regulatory Activities:
Global Id: T0608100047
Action Type: Other
Date: 04/28/1989
Action: Leak Discovery

Global Id: T0608100047
Action Type: ENFORCEMENT
Date: 06/01/1989
Action: Notice of Responsibility - #1

Global Id: T0608100047
Action Type: Other
Date: 04/28/1989
Action: Leak Reported

NOTIFY 65:
Date Reported: Not reported
Staff Initials: Not reported
Board File Number: Not reported
Facility Type: Not reported
Discharge Date: Not reported
Incident Description: 92260

San Mateo Co. BI:
Region: SAN MATEO
Facility ID: FA0018269
Prog Element Code: GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id: PR0012185

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AUTOHAUS SAN BRUNO (Continued) **S100179030**

Description: GENERATES & RECYCLES WASTE OIL/SOLVENT

Region: SAN MATEO
Facility ID: FA0018269
Prog Element Code: STORES MV FUELS OR WASTE ONLY
Record Id: PR0005032
Description: STORES MV FUELS OR WASTE ONLY

Region: SAN MATEO
Facility ID: FA0047860
Prog Element Code: GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id: PR0065342
Description: GENERATES & RECYCLES WASTE OIL/SOLVENT

Region: SAN MATEO
Facility ID: FA0047860
Prog Element Code: STORES MV FUELS OR WASTE ONLY
Record Id: PR0065341
Description: STORES MV FUELS OR WASTE ONLY

59
NE
1/2-1
0.920 mi.
4857 ft.

PHASE II CORP
1229 MONTGOMERY
SAN BRUNO, CA 94066

RCRA-SQG **1000379055**
CA FID UST **CAD056188212**
SLIC
HIST UST
SWEEPS UST
ENF
San Mateo Co. BI
HAZNET
EMI
ENVIROSTOR

RCRA-SQG:
Date form received by agency: 03/04/1999
Facility name: PHASE II CORP
Site name: PHASE II
Facility address: 1229 MONTGOMERY
SAN BRUNO, CA 94066
EPA ID: CAD056188212
Contact: JAQUIM PORTUGAL
Contact address: Not reported
Not reported
Contact country: US
Contact telephone: (650) 737-8400
Contact email: Not reported
EPA Region: 09
Land type: Facility is not located on Indian land. Additional information is not known.
Classification: Small Small Quantity Generator
Description: Handler: generates more than 100 and less than 1000 kg of hazardous waste during any calendar month and accumulates less than 6000 kg of hazardous waste at any time; or generates 100 kg or less of hazardous waste during any calendar month, and accumulates more than 1000 kg of hazardous waste at any time

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No

PHASE II CORP (Continued) **1000379055**

Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 09/01/1996
Site name: PHASE II CORP
Classification: Large Quantity Generator

Date form received by agency: 09/01/1996
Site name: PHASE II CORP
Classification: Small Quantity Generator

Date form received by agency: 02/28/1996
Site name: PHASE II
Classification: Large Quantity Generator

Date form received by agency: 03/18/1994
Site name: PHASE II
Classification: Large Quantity Generator

Date form received by agency: 02/27/1992
Site name: PHASE II CORP
Classification: Large Quantity Generator

Date form received by agency: 10/03/1980
Site name: PHASE II CORP
Classification: Large Quantity Generator

Violation Status: No violations found

Evaluation Action Summary:
Evaluation date: 10/21/1994
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State Contractor/Grantee

CA FID UST:
Facility ID: 41004984
Regulated By: UTNKA
Regulated ID: Not reported
Cortese Code: Not reported
SIC Code: Not reported
Facility Phone: 4155897709
Mail To: Not reported
Mailing Address: 1229 MONTGOMERY AVE
Mailing Address 2: Not reported

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PHASE II CORP (Continued) **1000379055**

Mailing City,St,Zip: SAN BRUNO 94066
Contact: Not reported
Contact Phone: Not reported
DUNs Number: Not reported
NPDES Number: Not reported
EPA ID: Not reported
Comments: Not reported
Status: Active

SLIC:
Region: STATE
Facility Status: Open - Remediation
Status Date: 10/31/2007
Global Id: SL0608187730
Lead Agency: SAN FRANCISCO BAY RWQCB (REGION 2)
Lead Agency Case Number: Not reported
Latitude: 37.640136894
Longitude: -122.412673591
Case Type: Cleanup Program Site
Case Worker: JGU
Local Agency: SAN MATEO COUNTY LOP
RB Case Number: 41S0155
File Location: Regional Board
Potential Media Affected: Other Groundwater (uses other than drinking water), Soil, Soil Vapor
Potential Contaminants of Concern: Benzene, Other Solvent or Non-Petroleum Hydrocarbon, Trichloroethylene (TCE)
Site History: San Bruno does use some groundwater to supplement the water supplied via the Hetch Hetchy/SFPUC. This site is not impacting the groundwater used for drinking water, although the cleanup will require achieving drinking water standards.

Click here to access the California GeoTracker records for this facility:

HIST UST:
Region: STATE
Facility ID: 00000016543
Facility Type: Other
Other Type: MFG PRINTED WIRING B
Contact Name: Not reported
Telephone: 4155897709
Owner Name: PHASE II
Owner Address: 1229 MONTGOMERY AV
Owner City,St,Zip: SAN BRUNO, CA 94066
Total Tanks: 0002

Tank Num: 001
Container Num: 1
Year Installed: 1984
Tank Capacity: 00000000
Tank Used for: Not reported
Type of Fuel: Not reported
Container Construction Thickness: 5
Leak Detection: Visual

Tank Num: 001
Container Num: 1

PHASE II CORP (Continued) **1000379055**

Year Installed: Not reported
Tank Capacity: 00000000
Tank Used for: WASTE
Type of Fuel: 6U
Container Construction Thickness: X
Leak Detection: None

Tank Num: 002
Container Num: 0000000001
Year Installed: 1984
Tank Capacity: 00000550
Tank Used for: WASTE
Type of Fuel: Not reported
Container Construction Thickness: 0.5
Leak Detection: Visual

SWEEPS UST:
Status: Active
Comp Number: 880049
Number: 9
Board Of Equalization: Not reported
Referral Date: 04-11-94
Action Date: 04-11-94
Created Date: 10-13-88
Owner Tank Id: Not reported
SWRCB Tank Id: Not reported
Tank Status: Not reported
Capacity: Not reported
Active Date: Not reported
Tank Use: Not reported
STG: Not reported
Content: Not reported
Number Of Tanks: Not reported

ENF:
Region: 2
Facility Id: 226250
Agency Name: San Bruno Investment Company Inc
Place Type: Facility
Place Subtype: Not reported
Facility Type: Industrial
Agency Type: Privately-Owned Business
Of Agencies: 1
Place Latitude: 37.639996
Place Longitude: -122.41245
SIC Code 1: Not reported
SIC Desc 1: Not reported
SIC Code 2: Not reported
SIC Desc 2: Not reported
SIC Code 3: Not reported
SIC Desc 3: Not reported
NAICS Code 1: Not reported
NAICS Desc 1: Not reported
NAICS Code 2: Not reported
NAICS Desc 2: Not reported
NAICS Code 3: Not reported

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PHASE II CORP (Continued) **1000379055**

NAICS Desc 3:	Not reported
# Of Places:	1
Source Of Facility:	Reg Meas
Design Flow:	Not reported
Threat To Water Quality:	Not reported
Complexity:	Not reported
Pretreatment:	Not reported
Facility Waste Type:	Not reported
Facility Waste Type 2:	Not reported
Facility Waste Type 3:	Not reported
Facility Waste Type 4:	Not reported
Program:	UNREGS
Program Category1:	UNREGS
Program Category2:	UNREGS
# Of Programs:	1
WDID:	2 41S0155
Reg Measure Id:	169588
Reg Measure Type:	Unregulated
Region:	2
Order #:	Not reported
Npdes# CA#:	Not reported
Major-Minor:	Not reported
Npdes Type:	Not reported
Reclamation:	Not reported
Dredge Fill Fee:	Not reported
301H:	Not reported
Application Fee Amt Received:	Not reported
Status:	Never Active
Status Date:	02/21/2013
Effective Date:	Not reported
Expiration/Review Date:	Not reported
Termination Date:	Not reported
WDR Review - Amend:	Not reported
WDR Review - Revise/Renew:	Not reported
WDR Review - Rescind:	Not reported
WDR Review - No Action Required:	Not reported
WDR Review - Pending:	Not reported
WDR Review - Planned:	Not reported
Status Enrollee:	N
Individual/General:	I
Fee Code:	Not reported
Direction/Voice:	Passive
Enforcement Id(EID):	239500
Region:	2
Order / Resolution Number:	UNKNOWN
Enforcement Action Type:	13267 Letter
Effective Date:	02/28/2002
Adoption/Issuance Date:	Not reported
Achieve Date:	Not reported
Termination Date:	Not reported
ACL Issuance Date:	Not reported
EPL Issuance Date:	Not reported
Status:	Active
Title:	Enforcement - 2 41S0155
Description:	Not reported
Program:	UNREGS
Latest Milestone Completion Date:	Not reported

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PHASE II CORP (Continued) **1000379055**

# Of Programs1:	1
Total Assessment Amount:	0.00
Initial Assessed Amount:	0.00
Liability $ Amount:	0.00
Project $ Amount:	0.00
Liability $ Paid:	0.00
Project $ Completed:	0.00
Total $ Paid/Completed Amount:	0.00
Region:	2
Facility Id:	226250
Agency Name:	San Bruno Investment Company Inc
Place Type:	Facility
Place Subtype:	Not reported
Facility Type:	Industrial
Agency Type:	Privately-Owned Business
# Of Agencies:	1
Place Latitude:	37.639996
Place Longitude:	-122.41245
SIC Code 1:	Not reported
SIC Desc 1:	Not reported
SIC Code 2:	Not reported
SIC Desc 2:	Not reported
SIC Code 3:	Not reported
SIC Desc 3:	Not reported
NAICS Code 1:	Not reported
NAICS Desc 1:	Not reported
NAICS Code 2:	Not reported
NAICS Desc 2:	Not reported
NAICS Code 3:	Not reported
NAICS Desc 3:	Not reported
# Of Places:	1
Source Of Facility:	Reg Meas
Design Flow:	Not reported
Threat To Water Quality:	Not reported
Complexity:	Not reported
Pretreatment:	Not reported
Facility Waste Type:	Not reported
Facility Waste Type 2:	Not reported
Facility Waste Type 3:	Not reported
Facility Waste Type 4:	Not reported
Program:	UNREGS
Program Category1:	UNREGS
Program Category2:	UNREGS
# Of Programs:	1
WDID:	2 41S0155
Reg Measure Id:	169588
Reg Measure Type:	Unregulated
Region:	2
Order #:	Not reported
Npdes# CA#:	Not reported
Major-Minor:	Not reported
Npdes Type:	Not reported
Reclamation:	Not reported
Dredge Fill Fee:	Not reported
301H:	Not reported
Application Fee Amt Received:	Not reported

PHASE II CORP (Continued) **1000379055**

Status:	Never Active
Status Date:	02/21/2013
Effective Date:	Not reported
Expiration/Review Date:	Not reported
Termination Date:	Not reported
WDR Review - Amend:	Not reported
WDR Review - Revise/Renew:	Not reported
WDR Review - Rescind:	Not reported
WDR Review - No Action Required:	Not reported
WDR Review - Pending:	Not reported
WDR Review - Planned:	Not reported
Status Enrollee:	N
Individual/General:	I
Fee Code:	Not reported
Direction/Voice:	Passive
Enforcement Id(EID):	239297
Region:	2
Order / Resolution Number:	UNKNOWN
Enforcement Action Type:	13267 Letter
Effective Date:	12/07/2001
Adoption/Issuance Date:	Not reported
Achieve Date:	Not reported
Termination Date:	Not reported
ACL Issuance Date:	Not reported
EPL Issuance Date:	Not reported
Status:	Active
Title:	Enforcement - 2 41S0155
Description:	Request for site history and workplan for additional investigation
Program:	UNREGS
Latest Milestone Completion Date:	Not reported
# Of Programs1:	1
Total Assessment Amount:	0.00
Initial Assessed Amount:	0.00
Liability $ Amount:	0.00
Project $ Amount:	0.00
Liability $ Paid:	0.00
Project $ Completed:	0.00
Total $ Paid/Completed Amount:	0.00

San Mateo Co. BI:

Region:	SAN MATEO
Facility ID:	FA0006530
Prog Element Code:	UNDERGROUND TANK - GENERAL
Record Id:	PR0022964
Description:	UNDERGROUND TANK - GENERAL

Region:	SAN MATEO
Facility ID:	FA0018250
Prog Element Code:	COND EXEMPT - SPECIAL WASTES
Record Id:	PR0030028
Description:	COND EXEMPT - SPECIAL WASTES

Region:	SAN MATEO
Facility ID:	FA0018250
Prog Element Code:	GEN 51-250 TONS HAZ WASTE/YR
Record Id:	PR0012180

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PHASE II CORP (Continued) **1000379055**

Description: GEN 51-250 TONS HAZ WASTE/YR

Region: SAN MATEO
Facility ID: FA0018250
Prog Element Code: STORES HAZ MAT <15999GAL, 111999LB, 5599FT^3
Record Id: PR0004970
Description: STORES HAZ MAT <15999GAL, 111999LB, 5599CF

Region: SAN MATEO
Facility ID: FA0025500
Prog Element Code: BUSINESS PLAN - GENERAL
Record Id: PR0034072
Description: BUSINESS PLAN - GENERAL

Region: SAN MATEO
Facility ID: FA0025500
Prog Element Code: GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id: PR0034071
Description: GENERATES & RECYCLES WASTE OIL/SOLVENT

Region: SAN MATEO
Facility ID: FA0025500
Prog Element Code: STORES MV FUELS OR WASTE ONLY
Record Id: PR0050390
Description: STORES MV FUELS OR WASTE ONLY

Region: SAN MATEO
Facility ID: FA0028959
Prog Element Code: GENERATES <27 GAL/YEAR
Record Id: PR0048894
Description: GENERATES <27 GAL/YEAR

Region: SAN MATEO
Facility ID: FA0028959
Prog Element Code: STORES HAZ MAT <219GAL,1,999LB, 879FT3
Record Id: PR0048893
Description: STORES HAZ MAT <219GAL,1,999LB, 879CF

Region: SAN MATEO
Facility ID: FA0035253
Prog Element Code: GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id: PR0053065
Description: GENERATES & RECYCLES WASTE OIL/SOLVENT

Region: SAN MATEO
Facility ID: FA0035253
Prog Element Code: STORES HAZ MAT <219GAL,1,999LB, 879FT3
Record Id: PR0053064
Description: STORES HAZ MAT <219GAL,1,999LB, 879CF

Region: SAN MATEO
Facility ID: FA0039905
Prog Element Code: GENERATES and RECYCLES WASTE OIL/SOLVENT
Record Id: PR0055912
Description: GENERATES & RECYCLES WASTE OIL/SOLVENT

Region: SAN MATEO

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PHASE II CORP (Continued) **1000379055**

Facility ID: FA0039905
Prog Element Code: STORES HAZ MAT <219GAL,1,999LB, 879FT3
Record Id: PR0055911
Description: STORES HAZ MAT <219GAL,1,999LB, 879CF

HAZNET:
envid: 1000379055
Year: 2013
GEPAID: CAL000386366
Contact: RONAIO MAGANA
Telephone: 6505880890
Mailing Name: Not reported
Mailing Address: 1229 MONTGOMERY AVE
Mailing City,St,Zip: SAN BRUNO, CA 94066
Gen County: San Mateo
TSD EPA ID: CAD059494310
TSD County: Santa Clara
Waste Category: Not reported
Disposal Method: Storage, Bulking, And/Or Transfer Off Site--No Treatment/Reovery (H010-H129) Or (H131-H135)
Tons: 0.0714
Facility County: Not reported

envid: 1000379055
Year: 2000
GEPAID: CAD056188212
Contact: JAQUIM PORTUGAL
Telephone: 6507378400
Mailing Name: Not reported
Mailing Address: 1229 MONTGOMERY
Mailing City,St,Zip: SAN BRUNO, CA 940660000
Gen County: Not reported
TSD EPA ID: CAD980887418
TSD County: Not reported
Waste Category: Waste oil and mixed oil
Disposal Method: Recycler
Tons: 12.09
Facility County: San Mateo

envid: 1000379055
Year: 1999
GEPAID: CAD056188212
Contact: PHASE II
Telephone: 6507378400
Mailing Name: Not reported
Mailing Address: 1245 MONTGOMERY ST
Mailing City,St,Zip: SAN BRUNO, CA 940660000
Gen County: Not reported
TSD EPA ID: NVD980895338
TSD County: Not reported
Waste Category: Liquids with pH <= 2 with metals
Disposal Method: Not reported
Tons: .4170
Facility County: San Mateo

envid: 1000379055
Year: 1999

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PHASE II CORP (Continued) **1000379055**

GEPAID: CAD056188212
Contact: PHASE II
Telephone: 6507378400
Mailing Name: Not reported
Mailing Address: 1245 MONTGOMERY ST
Mailing City,St,Zip: SAN BRUNO, CA 940660000
Gen County: Not reported
TSD EPA ID: NVD980895338
TSD County: Not reported
Waste Category: Aqueous solution with metals (< restricted levels and (Alkaline solution (pH >= 12.5) with metals))
Disposal Method: Treatment, Tank
Tons: 25.4370
Facility County: San Mateo

envid: 1000379055
Year: 1999
GEPAID: CAD056188212
Contact: PHASE II
Telephone: 6507378400
Mailing Name: Not reported
Mailing Address: 1245 MONTGOMERY ST
Mailing City,St,Zip: SAN BRUNO, CA 940660000
Gen County: Not reported
TSD EPA ID: NVD980895338
TSD County: Not reported
Waste Category: Other inorganic solid waste
Disposal Method: Recycler
Tons: 2.2500
Facility County: San Mateo

Click this hyperlink while viewing on your computer to access
93 additional CA_HAZNET: record(s) in the EDR Site Report.

EMI:
Year: 2011
County Code: 41
Air Basin: SF
Facility ID: 20143
Air District Name: BA
SIC Code: 6531
Air District Name: BAY AREA AQMD
Community Health Air Pollution Info System: Not reported
Consolidated Emission Reporting Rule: Not reported
Total Organic Hydrocarbon Gases Tons/Yr: 0.008
Reactive Organic Gases Tons/Yr: 0.0055888
Carbon Monoxide Emissions Tons/Yr: 0
NOX - Oxides of Nitrogen Tons/Yr: 0
SOX - Oxides of Sulphur Tons/Yr: 0
Particulate Matter Tons/Yr: 0
Part. Matter 10 Micrometers & Smllr Tons/Yr: 0

ENVIROSTOR:
Facility ID: 71002470
Status: Inactive - Needs Evaluation
Status Date: Not reported

PHASE II CORP (Continued) **1000379055**

Site Code: Not reported
Site Type: Tiered Permit
Site Type Detailed: Tiered Permit
Acres: Not reported
NPL: NO
Regulatory Agencies: NONE SPECIFIED
Lead Agency: NONE SPECIFIED
Program Manager: Not reported
Supervisor: Not reported
Division Branch: Cleanup Berkeley
Assembly: 22
Senate: 13
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: Not reported
Latitude: 37.63978
Longitude: -122.4125
APN: NONE SPECIFIED
Past Use: NONE SPECIFIED
Potential COC: NONE SPECIFIED
Confirmed COC: NONE SPECIFIED
Potential Description: NONE SPECIFIED
Alias Name: CAD056188212
Alias Type: EPA Identification Number
Alias Name: 71002470
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: Not reported
Completed Sub Area Name: Not reported
Completed Document Type: Not reported
Completed Date: Not reported
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

K60 **E.I. DUPONT DE NEMOURS** **HIST Cal-Sites** **S100714698**
NNE **160 SOUTH LINDEN AVENUE** **N/A**
1/2-1 **S SAN FRANCISCO, CA 94080**
0.989 mi.
5222 ft. **Site 1 of 4 in cluster K**

Calsite:
Region: BERKELEY
Facility ID: 41280049
Facility Type: RP
Type: RESPONSIBLE PARTY
Branch: NC
Branch Name: NORTH COAST

E.I. DUPONT DE NEMOURS (Continued) **S100714698**

File Name:	Not reported
State Senate District:	01011983
Status:	CERTIFIED AS HAVING BEEN REMEDIED SATISFACTORILY UNDER DTSC OVERSIGHT
Status Name:	CERTIFIED
Lead Agency:	N/A
NPL:	Not reported
SIC Code:	28
SIC Name:	MANU - CHEMICALS & ALLIED PRODUCTS
Access:	Not reported
Cortese:	Not reported
Hazardous Ranking Score:	Not reported
Date Site Hazard Ranked:	Not reported
Groundwater Contamination:	Not reported
Staff Member Responsible for Site:	GWHITE
Supervisor Responsible for Site:	Not reported
Region Water Control Board:	Not reported
Region Water Control Board Name:	Not reported
Lat/Long Direction:	Not reported
Lat/Long (dms):	0 0 0 / 0 0 0
Lat/long Method:	Not reported
Lat/Long Description:	Not reported
State Assembly District Code:	19
State Senate District Code:	08
Facility ID:	41280049
Activity:	DISC
Activity Name:	DISCOVERY
AWP Code:	Not reported
Proposed Budget:	0
AWP Completion Date:	Not reported
Revised Due Date:	Not reported
Comments Date:	08011980
Est Person-Yrs to complete:	0
Estimated Size:	Not reported
Request to Delete Activity:	Not reported
Activity Status:	CERT
Definition of Status:	CERTIFIED
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Facility ID:	41280049
Activity:	CERT
Activity Name:	CERTIFICATION
AWP Code:	Not reported
Proposed Budget:	0
AWP Completion Date:	Not reported
Revised Due Date:	Not reported
Comments Date:	01011983
Est Person-Yrs to complete:	0
Estimated Size:	Not reported

E.I. DUPONT DE NEMOURS (Continued) **S100714698**

Request to Delete Activity:	Not reported
Activity Status:	CERT
Definition of Status:	CERTIFIED
Liquids Removed (Gals):	0
Liquids Treated (Gals):	0
Action Included Capping:	Not reported
Well Decommissioned:	Not reported
Action Included Fencing:	Not reported
Removal Action Certification:	Not reported
Activity Comments:	Not reported
For Commercial Reuse:	0
For Industrial Reuse:	0
For Residential Reuse:	0
Unknown Type:	0
Alternate Address:	160 SOUTH LINDEN AVENUE
Alternate City,St,Zip:	S SAN FRANCISCO, CA 94080
Background Info:	The Site is located in an industrial area. There is a one-story building and a warehouse on the Site, which is used for automotive storage. A portion of the Site is leased to a wood pallet company and another portion is used for storage of inactive AT&T vehicles. From 1935 to 2000, DuPont de Nemours (DuPont) owned the Site. DuPont manufactured automotive paints and varnishes until 1982, and warehoused and distributed their products until 1990. Deerfield Realty Corporation acquired the Site in September 2000 and plans to develop it as a Class A office park.
Comments Date:	08011980
Comments:	independent of drive-by; same address as Koningsberg
Comments Date:	08011980
Comments:	Electronics, Inc, (#41360066).
Comments Date:	11212002
Comments:	Completed Site Screening. In 1991, soil samples were collected
Comments Date:	01011983
Comments:	Certified Site. 1600 tons of hazardous waste was removed. No
Comments Date:	01011983
Comments:	month and day information was available. January 1 chosen
Comments Date:	01011983
Comments:	because it gives the earliest statute of limitations date.
Comments Date:	01161981
Comments:	Facility drive-by: No evidence of waste.
Comments Date:	01181981
Comments:	Recommend NFA based on Drive-by.
Comments Date:	08011980
Comments:	Site Discovery. Facility was identified as an active site
Comments Date:	11212002
Comments:	and analyzed for volatile organic compounds, semi-volatile
Comments Date:	11212002
Comments:	organic compounds, total petroleum hydrocarbons and some metals.
Comments Date:	11212002
Comments:	The results indicated that lead, toluene, xylene and benzene
Comments Date:	11212002
Comments:	were detected in soil at concentrations that exceeded industrial
Comments Date:	11212002
Comments:	screening levels. In 2000, hot spot soil removal was conducted
Comments Date:	11212002
Comments:	in three areas on the property. Contaminated soil was excavated
Comments Date:	11212002

E.I. DUPONT DE NEMOURS (Continued) **S100714698**

Comments:	to industrial standards and disposed at an appropriate facility.
Comments Date:	11212002
Comments:	Confirmation samples were collected from the excavated areas
Comments Date:	11212002
Comments:	and arsenic was detected at concentrations ranging from 1.2 to
Comments Date:	11212002
Comments:	20 ppm and concentrations of lead remaining in the soil were
Comments Date:	11212002
Comments:	between 2.1 and 762 ppm. The San Mateo County Health Services
Comments Date:	11212002
Comments:	Agency (SMCHSA), the lead agency for the Site, issued a no
Comments Date:	11212002
Comments:	further action letter with respect to the contaminated soil.
Comments Date:	11212002
Comments:	The groundwater contaminants detected during the Phase 1 ESA
Comments Date:	11212002
Comments:	included TPH as gasoline, benzene, toluene and xylene. After
Comments Date:	11212002
Comments:	the underground storage tank (believed to be the groundwater
Comments Date:	11212002
Comments:	contamination source) was removed, four monitoring wells were
Comments Date:	11212002
Comments:	installed. SMCHSA is currently overseeing quarterly groundwater
Comments Date:	11212002
Comments:	monitoring at the Site.
ID Name:	CALSTARS CODE
ID Value:	200394
Alternate Name:	DUPONT DE NEMOURS & COMPANYE.I. DUPONT DE NEMOURS
Special Programs Code:	Not reported
Special Programs Name:	Not reported

K61 **AUTOMOTIVE SERVICE CENTER** **CERCLIS** **1000335044**
NNE **160 S. LINDEN AVE.** **CORRACTS** **CAD009206855**
1/2-1 **SOUTH SAN FRANCISCO, CA 94080** **RCRA NonGen / NLR**
0.989 mi.
5222 ft. **Site 2 of 4 in cluster K**

CERCLIS:

Site ID:	0903899
EPA ID:	CAD009206855
Facility County:	SAN MATEO
Short Name:	AUTOMOTIVE SERVICE CENTER
Congressional District:	11
IFMS ID:	Not reported
SMSA Number:	7360
USGC Hydro Unit:	18050004
Federal Facility:	Not a Federal Facility
DMNSN Number:	0.00000
Site Orphan Flag:	N
RCRA ID:	E
USGS Quadrangle:	Not reported
Site Init By Prog:	Not reported
NFRAP Flag:	Not reported
Parent ID:	Not reported
RST Code:	Not reported
EPA Region:	09
Classification:	Not reported
Site Settings Code:	Not reported

AUTOMOTIVE SERVICE CENTER (Continued) **1000335044**

NPL Status: Not on the NPL
DMNSN Unit Code: Not reported
RBRAC Code: Not reported
RResp Fed Agency Code: Not reported
Non NPL Status: NFRAP-Site does not qualify for the NPL based on existing information
Non NPL Status Date: 09/23/04
Site Fips Code: 06081
CC Concurrence Date: / /
CC Concurrence FY: Not reported
Alias EPA ID: Not reported
Site FUDS Flag: Not reported

CERCLIS Site Contact Name(s):
Contact ID: 13003854.00000
Contact Name: Leslie Ramirez
Contact Tel: (415) 972-3978
Contact Title: Site Assessment Manager (SAM)
Contact Email: Not reported

Contact ID: 13003858.00000
Contact Name: Sharon Murray
Contact Tel: (415) 972-4250
Contact Title: Site Assessment Manager (SAM)
Contact Email: Not reported

Contact ID: 13004003.00000
Contact Name: Carl Brickner
Contact Tel: Not reported
Contact Title: Site Assessment Manager (SAM)
Contact Email: Not reported

Alias Comments: Not reported
Site Description: Returned from RCRA

CERCLIS Assessment History:

Action Code: 001
Action: DISCOVERY
Date Started: / /
Date Completed: 05/21/91
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: EPA Fund-Financed
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 001
Action: PRELIMINARY ASSESSMENT
Date Started: / /
Date Completed: 09/24/91
Priority Level: Deferred to RCRA (Subtitle C)
Operable Unit: SITEWIDE
Primary Responsibility: EPA Fund-Financed
Planning Status: Not reported
Urgency Indicator: Not reported

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AUTOMOTIVE SERVICE CENTER (Continued) **1000335044**

Action Anomaly: Not reported

Action Code: 001
Action: ARCHIVE SITE
Date Started: / /
Date Completed: 01/23/96
Priority Level: Not reported
Operable Unit: SITEWIDE
Primary Responsibility: EPA In-House
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

Action Code: 001
Action: SITE REASSESSMENT
Date Started: 07/01/03
Date Completed: 09/23/04
Priority Level: NFRAP-Site does not qualify for the NPL based on existing information
Operable Unit: SITEWIDE
Primary Responsibility: State, Fund Financed
Planning Status: Not reported
Urgency Indicator: Not reported
Action Anomaly: Not reported

CORRACTS:

EPA ID: CAD009206855
EPA Region: 09
Area Name: ENTIRE FACILITY
Actual Date: 19910919
Action: CA075ME - CA Prioritization, Facility or area was assigned a medium corrective action priority
NAICS Code(s): Not reported
Original schedule date: Not reported
Schedule end date: Not reported

RCRA NonGen / NLR:
Date form received by agency: 11/09/2000
Facility name: DUPONT/ KANSAI AUTOMOTIVE SERVICE CTR
Facility address: 160 S LINDEN AVE
SOUTH SAN FRANCISCO, CA 94080
EPA ID: CAD009206855
Contact: GENE RUSSELL
Contact address: 6004 BRIDGEHEAD RD
OAKLEY, CA 94561
Contact country: US
Contact telephone: (925) 776-1177
Contact email: Not reported
EPA Region: 09
Land type: Other land type
Classification: Non-Generator
Description: Handler: Non-Generators do not presently generate hazardous waste

AUTOMOTIVE SERVICE CENTER (Continued) **1000335044**

Owner/Operator Summary:
Owner/operator name: EI DU PONT DE NEMOURS & COMPANY INC.
Owner/operator address: 1007 MARKET STREET
CITY NOT REPORTED, DE 99999
Owner/operator country: Not reported
Owner/operator telephone: (302) 774-3891
Legal status: Private
Owner/Operator Type: Operator
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Owner/operator name: EI DU PONT DE NEMOURS & COMPANY INC.
Owner/operator address: 1007 MARKET STREET
WILMINGTON, DE 19898
Owner/operator country: Not reported
Owner/operator telephone: (302) 774-3891
Legal status: Private
Owner/Operator Type: Owner
Owner/Op start date: Not reported
Owner/Op end date: Not reported

Handler Activities Summary:
U.S. importer of hazardous waste: No
Mixed waste (haz. and radioactive): No
Recycler of hazardous waste: No
Transporter of hazardous waste: No
Treater, storer or disposer of HW: No
Underground injection activity: No
On-site burner exemption: No
Furnace exemption: No
Used oil fuel burner: No
Used oil processor: No
User oil refiner: No
Used oil fuel marketer to burner: No
Used oil Specification marketer: No
Used oil transfer facility: No
Used oil transporter: No

Historical Generators:
Date form received by agency: 10/12/2000
Site name: DUPONT/KANSAI
Classification: Large Quantity Generator

Date form received by agency: 03/04/1999
Site name: DUPONT/KANSAI
Classification: Large Quantity Generator

Date form received by agency: 09/01/1996
Site name: DUPONT/ KANSAI AUTOMOTIVE SERVICE CTR
Classification: Large Quantity Generator

Date form received by agency: 02/14/1996
Site name: DU PONT - KANSAI
Classification: Large Quantity Generator

Date form received by agency: 02/22/1994

AUTOMOTIVE SERVICE CENTER (Continued) **1000335044**

Site name: DU PONT/KANSAI-AUTOMOTIVE COATINGS
Classification: Large Quantity Generator

Corrective Action Summary:
Event date: 09/19/1991
Event: CA029EP

Event date: 09/19/1991
Event: CA Prioritization, Facility or area was assigned a medium corrective action priority.

Event date: 09/19/1991
Event: CA049PA

Facility Has Received Notices of Violations:
Regulation violated: FR - 262.10-12.A
Area of violation: Generators - General
Date violation determined: 03/12/1986
Date achieved compliance: 03/12/1991
Violation lead agency: State
Enforcement action: Not reported
Enforcement action date: Not reported
Enf. disposition status: Not reported
Enf. disp. status date: Not reported
Enforcement lead agency: Not reported
Proposed penalty amount: Not reported
Final penalty amount: Not reported
Paid penalty amount: Not reported

Evaluation Action Summary:
Evaluation date: 07/25/2002
Evaluation: FOCUSED COMPLIANCE INSPECTION
Area of violation: Not reported
Date achieved compliance: Not reported
Evaluation lead agency: State

Evaluation date: 03/12/1986
Evaluation: COMPLIANCE EVALUATION INSPECTION ON-SITE
Area of violation: Generators - General
Date achieved compliance: 03/12/1991
Evaluation lead agency: State Contractor/Grantee

K62 **DUPONT** **NPDES** **1000925659**
NNE **160 LINDEN** **HIST CORTESE** **N/A**
1/2-1 **S SAN FRANCISCO, CA 94080** **LUST**
0.989 mi. **RESPONSE**
5222 ft. **Site 3 of 4 in cluster K** **ENVIROSTOR**

NPDES:
Npdes Number: Not reported
Facility Status: Not reported
Agency Id: Not reported
Region: 2
Regulatory Measure Id: 434637
Order No: Not reported
Regulatory Measure Type: Industrial
Place Id: Not reported

DUPONT (Continued) **1000925659**

WDID:	2 41I024053
Program Type:	Not reported
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	Not reported
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Discharge Name:	Not reported
Discharge Address:	Not reported
Discharge City:	Not reported
Discharge State:	Not reported
Discharge Zip:	Not reported
RECEIVED DATE:	02/01/2013
PROCESSED DATE:	02/01/2013
STATUS CODE NAME:	Active
STATUS DATE:	02/01/2013
PLACE SIZE:	2
PLACE SIZE UNIT:	Acres
FACILITY CONTACT NAME:	Kevin Taylor
FACILITY CONTACT TITLE:	Not reported
FACILITY CONTACT PHONE:	650-246-2770
FACILITY CONTACT PHONE EXT:	Not reported
FACILITY CONTACT EMAIL:	Not reported
OPERATOR NAME:	Veolia Transportation
OPERATOR ADDRESS:	160 South Linden Avenue
OPERATOR CITY:	South San Francisco
OPERATOR STATE:	California
OPERATOR ZIP:	94080
OPERATOR CONTACT NAME:	Kevin Taylor
OPERATOR CONTACT TITLE:	Not reported
OPERATOR CONTACT PHONE:	650-246-2770
OPERATOR CONTACT PHONE EXT:	Not reported
OPERATOR CONTACT EMAIL:	Not reported
OPERATOR TYPE:	Private Business
DEVELOPER NAME:	Not reported
DEVELOPER ADDRESS:	Not reported
DEVELOPER CITY:	Not reported
DEVELOPER STATE:	California
DEVELOPER ZIP:	Not reported
DEVELOPER CONTACT NAME:	Not reported
DEVELOPER CONTACT TITLE:	Not reported
CONSTYPE LINEAR UTILITY IND:	Not reported
EMERGENCY PHONE NO:	Not reported
EMERGENCY PHONE EXT:	Not reported
CONSTYPE ABOVE GROUND IND:	Not reported
CONSTYPE BELOW GROUND IND:	Not reported
CONSTYPE CABLE LINE IND:	Not reported
CONSTYPE COMM LINE IND:	Not reported
CONSTYPE COMMERTIAL IND:	Not reported
CONSTYPE ELECTRICAL LINE IND:	Not reported
CONSTYPE GAS LINE IND:	Not reported
CONSTYPE INDUSTRIAL IND:	Not reported
CONSTYPE OTHER DESRIPTION:	Not reported
CONSTYPE OTHER IND:	Not reported
CONSTYPE RECONS IND:	Not reported
CONSTYPE RESIDENTIAL IND:	Not reported
CONSTYPE TRANSPORT IND:	Not reported
CONSTYPE UTILITY DESCRIPTION:	Not reported

DUPONT (Continued) **1000925659**

CONSTYPE UTILITY IND:	Not reported
CONSTYPE WATER SEWER IND:	Not reported
DIR DISCHARGE USWATER IND:	N
RECEIVING WATER NAME:	San Francisco Bay/ Pacific Ocean
CERTIFIER NAME:	Not reported
CERTIFIER TITLE:	Not reported
CERTIFICATION DATE:	Not reported
PRIMARY SIC:	4111-Local and Suburban Transit
SECONDARY SIC:	4141-Local Bus Charter Service
TERTIARY SIC:	Not reported
Npdes Number:	CAS000001
Facility Status:	Active
Agency Id:	0
Region:	2
Regulatory Measure Id:	434637
Order No:	97-03-DWQ
Regulatory Measure Type:	Enrollee
Place Id:	Not reported
WDID:	2 41I024053
Program Type:	Industrial
Adoption Date Of Regulatory Measure:	Not reported
Effective Date Of Regulatory Measure:	02/01/2013
Expiration Date Of Regulatory Measure:	Not reported
Termination Date Of Regulatory Measure:	Not reported
Discharge Name:	Veolia Transportation
Discharge Address:	160 South Linden Avenue
Discharge City:	South San Francisco
Discharge State:	California
Discharge Zip:	94080
RECEIVED DATE:	Not reported
PROCESSED DATE:	Not reported
STATUS CODE NAME:	Not reported
STATUS DATE:	Not reported
PLACE SIZE:	Not reported
PLACE SIZE UNIT:	Not reported
FACILITY CONTACT NAME:	Not reported
FACILITY CONTACT TITLE:	Not reported
FACILITY CONTACT PHONE:	Not reported
FACILITY CONTACT PHONE EXT:	Not reported
FACILITY CONTACT EMAIL:	Not reported
OPERATOR NAME:	Not reported
OPERATOR ADDRESS:	Not reported
OPERATOR CITY:	Not reported
OPERATOR STATE:	Not reported
OPERATOR ZIP:	Not reported
OPERATOR CONTACT NAME:	Not reported
OPERATOR CONTACT TITLE:	Not reported
OPERATOR CONTACT PHONE:	Not reported
OPERATOR CONTACT PHONE EXT:	Not reported
OPERATOR CONTACT EMAIL:	Not reported
OPERATOR TYPE:	Not reported
DEVELOPER NAME:	Not reported
DEVELOPER ADDRESS:	Not reported
DEVELOPER CITY:	Not reported
DEVELOPER STATE:	Not reported
DEVELOPER ZIP:	Not reported

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DUPONT (Continued) **1000925659**

DEVELOPER CONTACT NAME:	Not reported
DEVELOPER CONTACT TITLE:	Not reported
CONSTYPE LINEAR UTILITY IND:	Not reported
EMERGENCY PHONE NO:	Not reported
EMERGENCY PHONE EXT:	Not reported
CONSTYPE ABOVE GROUND IND:	Not reported
CONSTYPE BELOW GROUND IND:	Not reported
CONSTYPE CABLE LINE IND:	Not reported
CONSTYPE COMM LINE IND:	Not reported
CONSTYPE COMMERTIAL IND:	Not reported
CONSTYPE ELECTRICAL LINE IND:	Not reported
CONSTYPE GAS LINE IND:	Not reported
CONSTYPE INDUSTRIAL IND:	Not reported
CONSTYPE OTHER DESRIPTION:	Not reported
CONSTYPE OTHER IND:	Not reported
CONSTYPE RECONS IND:	Not reported
CONSTYPE RESIDENTIAL IND:	Not reported
CONSTYPE TRANSPORT IND:	Not reported
CONSTYPE UTILITY DESCRIPTION:	Not reported
CONSTYPE UTILITY IND:	Not reported
CONSTYPE WATER SEWER IND:	Not reported
DIR DISCHARGE USWATER IND:	Not reported
RECEIVING WATER NAME:	Not reported
CERTIFIER NAME:	Not reported
CERTIFIER TITLE:	Not reported
CERTIFICATION DATE:	Not reported
PRIMARY SIC:	Not reported
SECONDARY SIC:	Not reported
TERTIARY SIC:	Not reported

HIST CORTESE:

Region:	CORTESE
Facility County Code:	41
Reg By:	LTNKA
Reg Id:	41-0692

LUST:

Region:	STATE
Global Id:	T0608100658
Latitude:	37.643406602
Longitude:	-122.414492
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	10/06/2011
Lead Agency:	SAN MATEO COUNTY LOP
Case Worker:	JM
Local Agency:	SAN MATEO COUNTY LOP
RB Case Number:	41-0692
LOC Case Number:	550117
File Location:	Not reported
Potential Media Affect:	Other Groundwater (uses other than drinking water)
Potential Contaminants of Concern:	Arsenic, Stoddard solvent / Mineral Spriits / Distillates
Site History:	Extracted from URS documents San Mateo County does not take responsibility for the accuracy of the statements made or any professional interpretations made in the referenced reports. The former DuPont plant in South San Francisco was an active paint

DUPONT (Continued) **1000925659**

manufacturing operation from 1934 through 1982. Peak production at the plant occurred in 1955, when employment reached 250 workers. In 1982, operations were reduced, and from 1982 until September 2000 the facility was used mainly for warehousing paints and quality control testing of bulk paints that were shipped to the NUMMI plant in Fremont, California. In 1985, DuPont sold one of its parcels (150 South Linden Avenue) to Bay Cities Building Materials. In September 2000, Intrinsic Ventures LLC of Menlo Park, California, purchased the remaining parcel (160 South Linden Avenue) from DuPont. The Site is currently being used for commercial occupancy. The Site is located on a bay plain about 1.5 miles west of San Francisco Bay. The Site is located at an elevation of about 20 feet above sea level and slopes gently northwestward. A map prepared by the U.S. Geological Survey shows that old marshlands, that have been covered with man-made fill, begin about 500 feet northeast of the site and extend to the edge of San Francisco Bay. On the U.S. Geological Survey map the Site is shown as being underlain by the Quaternary age Colma Formation, which is composed of sand, sandy clay, and silty sand. Toward San Francisco Bay, younger alluvium and bay mud overlie the Colma Formation. Depth to groundwater at the Site during the latest monitoring event on June 14, 2007 ranged from 5.38 to 8.57 feet bgs. The average direction of groundwater flow for that date was to the northeast at an average gradient of 0.013 feet per foot. The entire area from the Site eastward to San Francisco Bay is developed as industrial and commercial properties. Industrial and commercial properties also extend north, west, and south from the Site. There are no residential properties in the vicinity of the Site. Several investigations have been conducted at the Site to characterize its soil, groundwater quality, and hydrogeologic conditions. In general, these investigations were designed to evaluate the extent of impacted soils and groundwater beneath the Site and to assess the hydrogeologic conditions. Groundwater monitoring is ongoing at the Site. DuPont Environmental Remediation Services (DERS) performed a limited Environmental Assessment of the Site in 1991. Eleven soil borings were advanced at locations selected after a review of historical site activities. Soil samples were collected from each boring. The soil analytical results from this investigation showed the presence of impacted soils in the area of the former tank farm. Soils were impacted with BTEX and other volatile organic compounds (VOCs), including acetone, 2-butanone, hexanone, methylene chloride, and di-nbutylphthlate. In October 1998, URS Greiner Woodward-Clyde performed a Phase II Environmental Site Assessment (ESA) at the Site. Eleven more soil borings were advanced at locations based on the results of the DERS investigation and a historical review of Site activities. Soil and groundwater samples were collected at each boring. In addition, shallow soil samples were collected at five other locations. Toluene, ethylbenzene, xylenes, TPH-gas, and total petroleum hydrocarbons as diesel (TPH-diesel) were detected in over half of the soil samples. Benzo(a)pyrene, di-n-butylphthalate, and naphthalene were detected in soil samples from the tank farm area. BTEX, acetone, 2-butanone, 1,2-dichloroethane, and several semi-volatile organic compounds (SVOCs) were detected in Site groundwater samples. Site Specific Target Levels (SSTLs) were prepared for several future use scenarios in response to a County request and submitted with the Phase II ESA Report. URS performed a remedial investigation at the Site in July 1999. Among other tasks, the remedial investigation included collection and analysis of

DUPONT (Continued) **1000925659**

groundwater samples from the former tank farm area. The remedial investigation results indicated a potential hydrocarbon plume (TPH-mineral spirits, toluene, ethylbenzene, and xylenes) in groundwater that extended from the former tank farm area to South Linden Avenue. DuPont conducted a soil removal action in May-July 2000 under the direction of the County. URS submitted a remedial action report on July 26, 2000 that detailed the source removal activities performed as part of this action. The excavations were backfilled with imported clean bank-run fill material. In August 2000, four monitoring wells were installed in accordance with the work plan. Three monitoring wells were installed along the centerline of the plume and are being sampled in accordance with the groundwater monitoring and reporting plan. The fourth well was installed at an upgradient location and serves as a background well. Five quarters of groundwater monitoring were performed from December 2000 through December 2001 to investigate plume stability at the Site. Because the sampling results indicated a stable plume, the County approved a change to semiannual monitoring beginning in June 2002. In December 2002, URS performed an off-site groundwater investigation to evaluate possible off-site groundwater impacts of the former DuPont Automotive Products facility, in response to the San Mateo County Health Services Agency request for investigation. The investigation activities included sampling and analysis of shallow groundwater in two areas. The first area of investigation was along the border between the former DuPont Automotive Products facility and the adjacent Bay Cities Building Materials site. The second area of investigation occurred in the roadway on South Linden Avenue. Six soil borings were advanced and groundwater was collected from the temporary wells installed in the borings. Analytical results showed that the risk-based screening levels (RBSLs), based on exposure to vapor emissions from groundwater in indoor environment, were not exceeded at the sampled locations. Hence, it was concluded that the former DuPont Automotive Products facility was not causing human health concerns at the adjacent Bay Cities Building Materials site or in the roadway of South Linden Avenue. In a letter dated July 28, 2003, the County approved the elimination of groundwater analysis for TPH-gas, total petroleum hydrocarbons as mineral spirits (TPH-mineral spirits), and equipment blanks based on the submitted groundwater monitoring data. In 2003, the County notified DuPont by letter that the Site would need to be remediated to a residential standard unless a new, separate deed restriction was recorded for the Site. In a letter dated September 14, 2005, the County requested that DuPont compare historical Site soil and groundwater data with San Francisco Bay Region Water Quality Control Board Environmental Screening Levels (ESLs) for a hypothetical future residential land use of residential slab-ongrade construction. In response to the Countys request, DuPont submitted the Current Conditions Report on March 31, 2006. On June 8, 2006, the County requested that a Work Plan be submitted to establish cleanup goals and either propose additional Site characterization based on the residential land use criteria or evaluate several remedial alternatives. As a result of previous investigations and removal actions, concentrations and distributions of constituents of concern are well understood over much of the Site. However, as stated in DuPonts July 3, 2006, recommendations for further characterization in the Amendment to the Current Conditions Report, additional groundwater sampling was needed to address data gaps pertinent to an assumed future residential use with slab-on-grade construction. In a

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letter dated July 18, 2006, the County provided comments and requested that additional groundwater data be collected as part of the Work Plan to assess plume stability. On August 10, 2006, DuPont submitted the Site Characterization Work Plan for Potential Future Residential Use, which presented the proposed work scope to further characterize and evaluate on-site soil, groundwater and soil gas based on a future hypothetical residential land use scenario, assuming slab-on-grade construction. The Work Plan was prepared in response to the Countys letters of June 8 and July 18, 2006. The Work Plan also presented a proposed scope of work to further evaluate and characterize the stability of the groundwater plume, both on-site and off-site, in response to the Countys letter of July 18, 2006. In a letter dated September 6, 2006, the County indicated acceptance of the work plan with modifications including analysis for hexavalent chromium in soil, evaluation of soil ecotoxicity screening levels, unsuitability of GeoprobeTM methods for geotechnical sampling, and collecting samples from the adjacent downgradient property location. In a letter dated November 22, 2006, the County indicated that it had received verification of the commercial deed restriction cosigned by San Mateo County, and that the deed restriction may decrease the scope of, but not necessarily eliminate, the Work Plan submitted on August 10, 2006. In a meeting with URS on December 5, 2006, the County agreed to a modification of the scope of work in the work plan to include only characterization of the on-site and off-site stability of the toluene plume in groundwater. The revised scope of work was summarized in a letter from URS to the County dated December 22, 2006. A subsurface investigation to characterize the groundwater toluene plume stability on-site and off-site was performed on January 31 and February 1 and 2, 2007. Fourteen grab groundwater samples were collected and analyzed for BTEX, acetone, 2-butanone (MEK), 4-methyl-2-pentanone (MIBK), 1,2-dichloroethane (DCA), and naphthalene. The data show that constituent levels exceeded RWQCB ESLs for groundwater as a potential drinking water resource at several sample locations on the Site and the adjacent property at 150 South Linden Avenue. None of the groundwater sample results exceed the Site-Specific Target Levels (SSTLs) developed for the Dupont facility or the RWQCB ESLs for indoor air impact in a commercial/industrial land use scenario with highly permeable soils. DuPont submitted the Site Groundwater Plume Stability Characterization Report on April 25, 2007, and concluded in the report that upgradient and crossgradient extents of the main contaminant plume in shallow groundwater had been substantially delineated. The report also concluded that the downgradient offsite extent of the main contaminant plume in shallow groundwater had not been fully delineated; however, the plume appeared to narrow substantially to the east beyond the west margin of South Linden Avenue. The June 14, 2007 groundwater monitoring results showed benzene, toluene, ethylbenzene, xylenes, acetone, 2-butanone (MEK) and 4-methyl-2-pentanone (MIBK) in monitoring well MW-1 at concentrations of 170 micrograms per liter (8g/L), 150,000 8g/L, 4,700 8g/L, 23,000 8g/L, 8,200 8g/L, 110 8g/L and 790 8g/L respectively (URS 2007b). Well MW-1 is the well closest to the former source area and is upgradient to the Central Concrete Supply Company (former Bay Cities Building Materials) site. In the July 1999 remedial investigation, two borings, A1 and A2, were advanced at the property boundary between the former DuPont site and the Bay Cities Building Materials site, and three borings, B1, B2, and B3, were

DUPONT (Continued) **1000925659**

advanced in South Linden Avenue roadway, adjacent to the two sites. In July 1999, BTEX was detected at both borings advanced at the property boundary, A1 and A2. Benzene was detected at concentrations of 100 8g/L at boring A1 and 200 8g/L at boring A2. Toluene was detected at concentrations of 45,000 8g/L at boring A1 and 110,000 8g/L at boring A2. Ethylbenzene was detected at concentrations of 3,000 8g/L at boring A1 and 3,500 8g/L at boring A2. Total xylenes were detected at concentrations of 13,000 8g/L at boring A1 and 16,000 8g/L at boring A2. TPH-gas was detected at concentrations of 130 mg/L at boring A1 and 190 mg/L at boring A2. TPH-diesel was found at concentrations of 4.2 mg/L at boring A1 and 3.9 mg/L at boring A2. In July 1999, BTEX was also present in all three borings advanced in the South Linden Avenue roadway, B1, B2, and B3. The concentrations ranged from 0.3 8g/L (data qualified with a J) to 50 8g/L for benzene, 180 8g/L to 12,000 8g/L for toluene, 8 8g/L to 390 8g/L for ethylbenzene, and 39 8g/L to 2,000 8g/L for total xylenes. TPH-gas was detected at concentrations ranging from 0.38 mg/L to 28 mg/L, and TPH-diesel was found at concentrations ranging from 0.67 mg/L to 1.5 mg/L. These results were obtained before the May-June 2000 soil removal action in the vicinity of the former tank farm area of the site, and therefore represent a range of concentrations that might be expected off-site.

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0608100658
Contact Type:	Regional Board Caseworker
Contact Name:	UUU
Organization Name:	SAN FRANCISCO BAY RWQCB (REGION 2)
Address:	1515 CLAY ST SUITE 1400
City:	OAKLAND
Email:	Not reported
Phone Number:	Not reported

Global Id:	T0608100658
Contact Type:	Local Agency Caseworker
Contact Name:	JACOB MADDEN
Organization Name:	SAN MATEO COUNTY LOP
Address:	2000 ALAMEDA DE LAS PULGAS
City:	SAN MATEO
Email:	jmadden@smcgov.org
Phone Number:	6503726298

Status History:

Global Id:	T0608100658
Status:	Open - Site Assessment
Status Date:	09/14/2005

Global Id:	T0608100658
Status:	Completed - Case Closed
Status Date:	10/06/2011

Global Id:	T0608100658
Status:	Open - Verification Monitoring
Status Date:	07/01/2000

DUPONT (Continued) **1000925659**

Global Id: T0608100658
Status: Open - Verification Monitoring
Status Date: 10/08/2007

Global Id: T0608100658
Status: Open - Case Begin Date
Status Date: 04/24/1987

Global Id: T0608100658
Status: Open - Remediation
Status Date: 10/01/1999

Global Id: T0608100658
Status: Open - Site Assessment
Status Date: 03/01/1999

Regulatory Activities:

Global Id: T0608100658
Action Type: ENFORCEMENT
Date: 10/06/2011
Action: Closure/No Further Action Letter - #20111006

Global Id: T0608100658
Action Type: ENFORCEMENT
Date: 02/16/2011
Action: Notification - Fee Title Owners Notice - #20110216

Global Id: T0608100658
Action Type: RESPONSE
Date: 12/16/2010
Action: Correspondence

Global Id: T0608100658
Action Type: ENFORCEMENT
Date: 02/16/2011
Action: Staff Letter - #20110216

Global Id: T0608100658
Action Type: Other
Date: 02/09/1993
Action: Leak Discovery

Global Id: T0608100658
Action Type: RESPONSE
Date: 08/15/2011
Action: Well Destruction Report

Global Id: T0608100658
Action Type: REMEDIATION
Date: 11/01/2010
Action: Excavation

Global Id: T0608100658
Action Type: REMEDIATION
Date: 05/01/2000
Action: Excavation

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DUPONT (Continued) **1000925659**

Global Id: T0608100658
Action Type: ENFORCEMENT
Date: 09/10/2003
Action: Staff Letter - #20030910A

Global Id: T0608100658
Action Type: ENFORCEMENT
Date: 05/31/2007
Action: Staff Letter - #20060906

Global Id: T0608100658
Action Type: ENFORCEMENT
Date: 06/10/2002
Action: Staff Letter - #20020610

Global Id: T0608100658
Action Type: ENFORCEMENT
Date: 03/28/2008
Action: Staff Letter - #20080328

Global Id: T0608100658
Action Type: ENFORCEMENT
Date: 09/07/2006
Action: Notice of Responsibility - #20060907

Global Id: T0608100658
Action Type: ENFORCEMENT
Date: 05/03/1993
Action: Notice of Responsibility - #1

Global Id: T0608100658
Action Type: ENFORCEMENT
Date: 07/28/2003
Action: Staff Letter - #20030728

Global Id: T0608100658
Action Type: ENFORCEMENT
Date: 10/08/2002
Action: Staff Letter - #20021008

Global Id: T0608100658
Action Type: ENFORCEMENT
Date: 09/14/2005
Action: Staff Letter - #20050914

Global Id: T0608100658
Action Type: ENFORCEMENT
Date: 09/06/2006
Action: Staff Letter - #20060906

Global Id: T0608100658
Action Type: ENFORCEMENT
Date: 06/08/2006
Action: Staff Letter - #20060608

Global Id: T0608100658
Action Type: ENFORCEMENT

DUPONT (Continued) **1000925659**

Date: 09/10/2003
Action: Staff Letter - #20030910B

Global Id: T0608100658
Action Type: ENFORCEMENT
Date: 08/05/2010
Action: Staff Letter - #20100805

Global Id: T0608100658
Action Type: Other
Date: 04/24/1987
Action: Leak Reported

Global Id: T0608100658
Action Type: RESPONSE
Date: 02/15/2004
Action: Monitoring Report - Quarterly

Global Id: T0608100658
Action Type: RESPONSE
Date: 02/15/2007
Action: Monitoring Report - Quarterly

Global Id: T0608100658
Action Type: RESPONSE
Date: 02/15/2005
Action: Monitoring Report - Quarterly

Global Id: T0608100658
Action Type: RESPONSE
Date: 02/15/2006
Action: Monitoring Report - Quarterly

Global Id: T0608100658
Action Type: RESPONSE
Date: 02/15/2003
Action: Monitoring Report - Quarterly

Global Id: T0608100658
Action Type: RESPONSE
Date: 08/15/2003
Action: Monitoring Report - Quarterly

Global Id: T0608100658
Action Type: RESPONSE
Date: 08/15/2007
Action: Monitoring Report - Quarterly

Global Id: T0608100658
Action Type: RESPONSE
Date: 08/15/2005
Action: Monitoring Report - Quarterly

Global Id: T0608100658
Action Type: RESPONSE
Date: 08/15/2004
Action: Monitoring Report - Quarterly

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DUPONT (Continued) **1000925659**

Global Id: T0608100658
Action Type: RESPONSE
Date: 04/19/2002
Action: Soil and Water Investigation Report

Global Id: T0608100658
Action Type: RESPONSE
Date: 08/11/2003
Action: Soil and Water Investigation Report

Global Id: T0608100658
Action Type: RESPONSE
Date: 10/10/2003
Action: Electronic Reporting Submittal Due

Global Id: T0608100658
Action Type: RESPONSE
Date: 07/07/2006
Action: Soil and Water Investigation Report

Global Id: T0608100658
Action Type: RESPONSE
Date: 08/08/2006
Action: Risk Assessment Report

Global Id: T0608100658
Action Type: RESPONSE
Date: 09/27/2007
Action: Soil and Water Investigation Report

Global Id: T0608100658
Action Type: RESPONSE
Date: 06/30/2007
Action: Electronic Reporting Submittal Due

Global Id: T0608100658
Action Type: ENFORCEMENT
Date: 05/26/2009
Action: Staff Letter - #20090526

Global Id: T0608100658
Action Type: ENFORCEMENT
Date: 03/17/2009
Action: Verbal Enforcement

Global Id: T0608100658
Action Type: ENFORCEMENT
Date: 07/14/2009
Action: Staff Letter - #20090714

Global Id: T0608100658
Action Type: RESPONSE
Date: 12/15/2008
Action: Monitoring Report - Semi-Annually

Global Id: T0608100658
Action Type: RESPONSE

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DUPONT (Continued) **1000925659**

Date: 04/15/2009
Action: Correspondence

Global Id: T0608100658
Action Type: RESPONSE
Date: 09/25/2009
Action: Other Workplan

Global Id: T0608100658
Action Type: RESPONSE
Date: 08/15/2006
Action: Monitoring Report - Quarterly

Global Id: T0608100658
Action Type: RESPONSE
Date: 03/10/2004
Action: Other Report / Document

Global Id: T0608100658
Action Type: ENFORCEMENT
Date: 11/11/2009
Action: Staff Letter - #20091111

Global Id: T0608100658
Action Type: RESPONSE
Date: 03/26/2010
Action: Site Assessment Report

LUST REG 2:
Region: 2
Facility Id: Not reported
Facility Status: Post remedial action monitoring
Case Number: 550117
How Discovered: OM
Leak Cause: Unknown
Leak Source: Unknown
Date Leak Confirmed: Not reported
Oversight Program: LUST
Prelim. Site Assesment Wokplan Submitted: Not reported
Preliminary Site Assesment Began: Not reported
Pollution Characterization Began: 3/1/1999
Pollution Remediation Plan Submitted: Not reported
Date Remediation Action Underway: 10/1/1999
Date Post Remedial Action Monitoring Began: 7/1/2000

RESPONSE:
Facility ID: 41280049
Site Type: State Response
Site Type Detail: State Response or NPL
Acres: Not reported
National Priorities List: NO
Cleanup Oversight Agencies: NONE SPECIFIED
Lead Agency Description: Not reported
Project Manager: Not reported
Supervisor: Mark Piros

DUPONT (Continued) **1000925659**

Division Branch:	Cleanup Berkeley
Site Code:	200394
Site Mgmt. Req.:	NONE SPECIFIED
Assembly:	22
Senate:	13
Special Program Status:	Not reported
Status:	Certified
Status Date:	01/01/1983
Restricted Use:	NO
Funding:	Responsible Party
Latitude:	37.64256
Longitude:	-122.4148
APN:	NONE SPECIFIED
Past Use:	NONE SPECIFIED
Potential COC :	NONE SPECIFIED
Confirmed COC:	NONE SPECIFIED
Potential Description:	NONE SPECIFIED
Alias Name:	DUPONT DE NEMOURS & COMPANY
Alias Type:	Alternate Name
Alias Name:	110033618645
Alias Type:	EPA (FRS #)
Alias Name:	200394
Alias Type:	Project Code (Site Code)
Alias Name:	41280049
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Certification
Completed Date:	01/01/1983
Comments:	Certified Site. 1600 tons of hazardous waste was removed. No month and day information was available. January 1 chosen because it gives the earliest statute of limitations date.

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	* Discovery
Completed Date:	08/01/1980
Comments:	Site Discovery. Facility was identified as an active site independent of drive-by; same address as Koningsberg Electronics, Inc, (#41360066).

Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported
Schedule Revised Date:	Not reported

ENVIROSTOR:

Facility ID:	41280049
Status:	Certified
Status Date:	01/01/1983

DUPONT (Continued) **1000925659**

Site Code: 200394
Site Type: State Response
Site Type Detailed: State Response or NPL
Acres: Not reported
NPL: NO
Regulatory Agencies: NONE SPECIFIED
Lead Agency: NONE SPECIFIED
Program Manager: Not reported
Supervisor: Mark Piros
Division Branch: Cleanup Berkeley
Assembly: 22
Senate: 13
Special Program: Not reported
Restricted Use: NO
Site Mgmt Req: NONE SPECIFIED
Funding: Responsible Party
Latitude: 37.64256
Longitude: -122.4148
APN: NONE SPECIFIED
Past Use: NONE SPECIFIED
Potential COC: NONE SPECIFIED
Confirmed COC: NONE SPECIFIED
Potential Description: NONE SPECIFIED
Alias Name: DUPONT DE NEMOURS & COMPANY
Alias Type: Alternate Name
Alias Name: 110033618645
Alias Type: EPA (FRS #)
Alias Name: 200394
Alias Type: Project Code (Site Code)
Alias Name: 41280049
Alias Type: Envirostor ID Number

Completed Info:
Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Certification
Completed Date: 01/01/1983
Comments: Certified Site. 1600 tons of hazardous waste was removed. No month and day information was available. January 1 chosen because it gives the earliest statute of limitations date.

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: * Discovery
Completed Date: 08/01/1980
Comments: Site Discovery. Facility was identified as an active site independent of drive-by; same address as Koningsberg Electronics, Inc, (#41360066).

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

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K63 **WEST COAST AUTOMOTIVE SERVICE CENTER** **ENVIROSTOR** **S100948238**
NNE **160 S LINDEN AVE** **N/A**
1/2-1 **SOUTH SAN FRANCISCO, CA 94080**
0.989 mi.
5222 ft. **Site 4 of 4 in cluster K**

ENVIROSTOR:

Facility ID:	80001622
Status:	Inactive - Needs Evaluation
Status Date:	03/30/2011
Site Code:	Not reported
Site Type:	Corrective Action
Site Type Detailed:	Corrective Action
Acres:	0
NPL:	NO
Regulatory Agencies:	NONE SPECIFIED
Lead Agency:	NONE SPECIFIED
Program Manager:	Not reported
Supervisor:	Mark Piros
Division Branch:	Cleanup Berkeley
Assembly:	22
Senate:	13
Special Program:	Not reported
Restricted Use:	NO
Site Mgmt Req:	NONE SPECIFIED
Funding:	Not reported
Latitude:	37.65065
Longitude:	-122.4118
APN:	NONE SPECIFIED
Past Use:	NONE SPECIFIED
Potential COC:	NONE SPECIFIED
Confirmed COC:	NONE SPECIFIED
Potential Description:	NONE SPECIFIED
Alias Name:	CAD009206855
Alias Type:	EPA Identification Number
Alias Name:	80001622
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Assessment Report
Completed Date:	09/19/1991
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Assessment Report
Completed Date:	03/31/2004
Comments:	No action under CERCLA, but ongoing work needed to address contamination.
Future Area Name:	Not reported
Future Sub Area Name:	Not reported
Future Document Type:	Not reported
Future Due Date:	Not reported
Schedule Area Name:	Not reported
Schedule Sub Area Name:	Not reported
Schedule Document Type:	Not reported
Schedule Due Date:	Not reported

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WEST COAST AUTOMOTIVE SERVICE CENTER (Continued) **S100948238**

Schedule Revised Date: Not reported

Count: 0 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
		NO SITES FOUND			

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GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 03/26/2015
Date Data Arrived at EDR: 04/08/2015
Date Made Active in Reports: 06/22/2015
Number of Days to Update: 75

Source: EPA
Telephone: N/A
Last EDR Contact: 04/08/2015
Next Scheduled EDR Contact: 07/20/2015
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 03/26/2015
Date Data Arrived at EDR: 04/08/2015
Date Made Active in Reports: 06/22/2015
Number of Days to Update: 75

Source: EPA
Telephone: N/A
Last EDR Contact: 04/08/2015
Next Scheduled EDR Contact: 07/20/2015
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 03/26/2015
Date Data Arrived at EDR: 04/08/2015
Date Made Active in Reports: 06/22/2015
Number of Days to Update: 75

Source: EPA
Telephone: N/A
Last EDR Contact: 04/08/2015
Next Scheduled EDR Contact: 07/20/2015
Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 02/13/2014
Number of Days to Update: 94

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 05/29/2015
Next Scheduled EDR Contact: 09/07/2015
Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 03/26/2015
Date Data Arrived at EDR: 04/08/2015
Date Made Active in Reports: 06/11/2015
Number of Days to Update: 64

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 04/08/2015
Next Scheduled EDR Contact: 07/20/2015
Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 02/13/2014
Number of Days to Update: 94

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 05/29/2015
Next Scheduled EDR Contact: 09/07/2015
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/10/2015
Date Data Arrived at EDR: 03/31/2015
Date Made Active in Reports: 06/11/2015
Number of Days to Update: 72

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 06/26/2015
Next Scheduled EDR Contact: 10/12/2015
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/10/2015
Date Data Arrived at EDR: 03/31/2015
Date Made Active in Reports: 06/11/2015
Number of Days to Update: 72

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 06/26/2015
Next Scheduled EDR Contact: 10/12/2015
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/10/2015
Date Data Arrived at EDR: 03/31/2015
Date Made Active in Reports: 06/11/2015
Number of Days to Update: 72

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 06/26/2015
Next Scheduled EDR Contact: 10/12/2015
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/10/2015
Date Data Arrived at EDR: 03/31/2015
Date Made Active in Reports: 06/11/2015
Number of Days to Update: 72

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 06/26/2015
Next Scheduled EDR Contact: 10/12/2015
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/10/2015
Date Data Arrived at EDR: 03/31/2015
Date Made Active in Reports: 06/11/2015
Number of Days to Update: 72

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 06/26/2015
Next Scheduled EDR Contact: 10/12/2015
Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 03/16/2015
Date Data Arrived at EDR: 03/17/2015
Date Made Active in Reports: 06/02/2015
Number of Days to Update: 77

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 06/01/2015
Next Scheduled EDR Contact: 09/14/2015
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 03/16/2015
Date Data Arrived at EDR: 03/17/2015
Date Made Active in Reports: 06/02/2015
Number of Days to Update: 77

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 06/01/2015
Next Scheduled EDR Contact: 09/14/2015
Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 05/28/2015
Date Data Arrived at EDR: 05/29/2015
Date Made Active in Reports: 06/11/2015
Number of Days to Update: 13

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 05/18/2015
Next Scheduled EDR Contact: 08/31/2015
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 03/30/2015
Date Data Arrived at EDR: 03/31/2015
Date Made Active in Reports: 06/02/2015
Number of Days to Update: 63

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 06/26/2015
Next Scheduled EDR Contact: 10/12/2015
Data Release Frequency: Annually

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 05/04/2015
Date Data Arrived at EDR: 05/05/2015
Date Made Active in Reports: 05/14/2015
Number of Days to Update: 9

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/05/2015
Next Scheduled EDR Contact: 08/17/2015
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

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ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 05/04/2015
Date Data Arrived at EDR: 05/05/2015
Date Made Active in Reports: 05/14/2015
Number of Days to Update: 9

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/05/2015
Next Scheduled EDR Contact: 08/17/2015
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 05/18/2015
Date Data Arrived at EDR: 05/20/2015
Date Made Active in Reports: 06/05/2015
Number of Days to Update: 16

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 05/20/2015
Next Scheduled EDR Contact: 08/31/2015
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST: Geotracker's Leaking Underground Fuel Tank Report

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 03/13/2015
Date Data Arrived at EDR: 03/18/2015
Date Made Active in Reports: 03/24/2015
Number of Days to Update: 6

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 06/17/2015
Next Scheduled EDR Contact: 09/28/2015
Data Release Frequency: Quarterly

LUST REG 6V: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

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LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

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Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

SLIC: Statewide SLIC Cases

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 03/13/2015
Date Data Arrived at EDR: 03/18/2015
Date Made Active in Reports: 03/24/2015
Number of Days to Update: 6

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 06/17/2015
Next Scheduled EDR Contact: 09/28/2015
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing

The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

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Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 03/30/2015
Date Data Arrived at EDR: 04/28/2015
Date Made Active in Reports: 06/22/2015
Number of Days to Update: 55

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 04/27/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 04/30/2015
Date Data Arrived at EDR: 05/05/2015
Date Made Active in Reports: 06/22/2015
Number of Days to Update: 48

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 04/27/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Quarterly

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 02/03/2015
Date Data Arrived at EDR: 02/12/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 29

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 04/27/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Quarterly

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 04/30/2015
Date Data Arrived at EDR: 05/29/2015
Date Made Active in Reports: 06/22/2015
Number of Days to Update: 24

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 04/27/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 01/08/2015
Date Data Arrived at EDR: 01/08/2015
Date Made Active in Reports: 02/09/2015
Number of Days to Update: 32

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 01/08/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 02/03/2015
Date Data Arrived at EDR: 04/30/2015
Date Made Active in Reports: 06/22/2015
Number of Days to Update: 53

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 04/03/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Varies

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INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 03/17/2015
Date Data Arrived at EDR: 05/01/2015
Date Made Active in Reports: 06/22/2015
Number of Days to Update: 52

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 09/30/2014
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 10

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 04/27/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Semi-Annually

State and tribal registered storage tank lists

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 03/13/2015
Date Data Arrived at EDR: 03/18/2015
Date Made Active in Reports: 03/26/2015
Number of Days to Update: 8

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 06/17/2015
Next Scheduled EDR Contact: 09/28/2015
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 08/01/2009
Date Data Arrived at EDR: 09/10/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 21

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 06/22/2015
Next Scheduled EDR Contact: 10/12/2015
Data Release Frequency: Quarterly

INDIAN UST R1: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 02/03/2015
Date Data Arrived at EDR: 04/30/2015
Date Made Active in Reports: 06/22/2015
Number of Days to Update: 53

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 04/28/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 09/30/2014
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 10

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 04/27/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Semi-Annually

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INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/30/2015
Date Data Arrived at EDR: 05/26/2015
Date Made Active in Reports: 06/22/2015
Number of Days to Update: 27

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 04/27/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 03/17/2015
Date Data Arrived at EDR: 05/01/2015
Date Made Active in Reports: 06/22/2015
Number of Days to Update: 52

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Semi-Annually

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 09/23/2014
Date Data Arrived at EDR: 11/25/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 65

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 04/27/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 04/30/2015
Date Data Arrived at EDR: 05/05/2015
Date Made Active in Reports: 06/22/2015
Number of Days to Update: 48

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 04/27/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 12/14/2014
Date Data Arrived at EDR: 02/13/2015
Date Made Active in Reports: 03/13/2015
Number of Days to Update: 28

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 01/26/2015
Next Scheduled EDR Contact: 05/11/2015
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 05/06/2015
Date Data Arrived at EDR: 05/19/2015
Date Made Active in Reports: 06/22/2015
Number of Days to Update: 34

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 04/27/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Quarterly

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FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55
Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 04/13/2015
Next Scheduled EDR Contact: 07/27/2015
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27
Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 09/29/2014
Date Data Arrived at EDR: 10/01/2014
Date Made Active in Reports: 11/06/2014
Number of Days to Update: 36
Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 06/26/2015
Next Scheduled EDR Contact: 10/12/2015
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties
Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 05/04/2015
Date Data Arrived at EDR: 05/05/2015
Date Made Active in Reports: 05/14/2015
Number of Days to Update: 9
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/05/2015
Next Scheduled EDR Contact: 08/17/2015
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 03/23/2015
Date Data Arrived at EDR: 03/24/2015
Date Made Active in Reports: 06/02/2015
Number of Days to Update: 70
Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 06/24/2015
Next Scheduled EDR Contact: 10/05/2015
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39
Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137
Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 04/23/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 03/16/2015
Date Data Arrived at EDR: 03/18/2015
Date Made Active in Reports: 03/26/2015
Number of Days to Update: 8
Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 06/17/2015
Next Scheduled EDR Contact: 09/28/2015
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 05/26/2015
Date Data Arrived at EDR: 05/28/2015
Date Made Active in Reports: 06/05/2015
Number of Days to Update: 8
Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 05/18/2015
Next Scheduled EDR Contact: 08/31/2015
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52
Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 05/01/2015
Next Scheduled EDR Contact: 08/17/2015
Data Release Frequency: Varies

WMUDS/SWAT: Waste Management Unit Database
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30
Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 05/06/2015
Next Scheduled EDR Contact: 08/24/2015
Data Release Frequency: No Update Planned

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Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 02/25/2015
Date Data Arrived at EDR: 03/10/2015
Date Made Active in Reports: 03/25/2015
Number of Days to Update: 15
Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 05/29/2015
Next Scheduled EDR Contact: 09/14/2015
Data Release Frequency: Quarterly

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21
Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 05/04/2015
Date Data Arrived at EDR: 05/05/2015
Date Made Active in Reports: 05/14/2015
Number of Days to Update: 9
Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/05/2015
Next Scheduled EDR Contact: 08/17/2015
Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27
Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 03/10/2015
Date Made Active in Reports: 03/18/2015
Number of Days to Update: 8
Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 04/13/2015
Next Scheduled EDR Contact: 07/27/2015
Data Release Frequency: Varies

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US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 02/25/2015
Date Data Arrived at EDR: 03/10/2015
Date Made Active in Reports: 03/25/2015
Number of Days to Update: 15

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 05/29/2015
Next Scheduled EDR Contact: 09/14/2015
Data Release Frequency: No Update Planned

Local Lists of Registered Storage Tanks

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/23/2009
Date Data Arrived at EDR: 09/23/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 8

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 06/01/2015
Next Scheduled EDR Contact: 09/14/2015
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

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Date of Government Version: 02/18/2014
Date Data Arrived at EDR: 03/18/2014
Date Made Active in Reports: 04/24/2014
Number of Days to Update: 37

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 04/27/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Varies

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 03/11/2015
Date Data Arrived at EDR: 03/13/2015
Date Made Active in Reports: 03/24/2015
Number of Days to Update: 11

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 06/05/2015
Next Scheduled EDR Contact: 09/21/2015
Data Release Frequency: Varies

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 03/09/2015
Date Data Arrived at EDR: 03/10/2015
Date Made Active in Reports: 03/18/2015
Number of Days to Update: 8

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 06/09/2015
Next Scheduled EDR Contact: 09/21/2015
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 03/30/2015
Date Data Arrived at EDR: 03/31/2015
Date Made Active in Reports: 06/11/2015
Number of Days to Update: 72

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 06/26/2015
Next Scheduled EDR Contact: 10/12/2015
Data Release Frequency: Annually

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 04/14/2015
Date Data Arrived at EDR: 04/29/2015
Date Made Active in Reports: 05/21/2015
Number of Days to Update: 22

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 04/27/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Varies

LDS: Land Disposal Sites Listing

The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units.

Date of Government Version: 03/13/2015
Date Data Arrived at EDR: 03/18/2015
Date Made Active in Reports: 03/24/2015
Number of Days to Update: 6

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 06/17/2015
Next Scheduled EDR Contact: 09/28/2015
Data Release Frequency: Quarterly

CPRA Confidential Treatment Request
Not for Public Release – CPRA Exempt
Confidential and Proprietary Business / Siting Information
Pre-Decisional Draft – For Review Only

MCS: Military Cleanup Sites Listing

The State Water Resources Control Board and nine Regional Water Quality Control Boards partner with the Department of Defense (DoD) through the Defense and State Memorandum of Agreement (DSMOA) to oversee the investigation and remediation of water quality issues at military facilities.

Date of Government Version: 03/13/2015
Date Data Arrived at EDR: 03/18/2015
Date Made Active in Reports: 03/24/2015
Number of Days to Update: 6

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 06/17/2015
Next Scheduled EDR Contact: 09/28/2015
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 03/10/2015
Date Data Arrived at EDR: 03/31/2015
Date Made Active in Reports: 06/11/2015
Number of Days to Update: 72

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 06/26/2015
Next Scheduled EDR Contact: 10/12/2015
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 05/05/2015
Next Scheduled EDR Contact: 08/17/2015
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 04/14/2015
Next Scheduled EDR Contact: 07/27/2015
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

CPRA Confidential Treatment Request
Not for Public Release – CPRA Exempt
Confidential and Proprietary Business / Siting Information
Pre-Decisional Draft – For Review Only

Date of Government Version: 06/06/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 09/18/2014
Number of Days to Update: 8

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 06/12/2015
Next Scheduled EDR Contact: 09/21/2015
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 04/17/2015
Date Made Active in Reports: 06/02/2015
Number of Days to Update: 46

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 06/22/2015
Next Scheduled EDR Contact: 10/12/2015
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 74

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 06/12/2015
Next Scheduled EDR Contact: 09/21/2015
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 05/26/2015
Next Scheduled EDR Contact: 09/07/2015
Data Release Frequency: Varies

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 12/30/2014
Date Data Arrived at EDR: 12/31/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 29

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 06/03/2015
Next Scheduled EDR Contact: 09/14/2015
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 02/12/2015
Date Made Active in Reports: 06/02/2015
Number of Days to Update: 110

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 01/29/2015
Next Scheduled EDR Contact: 06/08/2015
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 01/15/2015
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 14

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 06/25/2015
Next Scheduled EDR Contact: 10/05/2015
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 05/20/2015
Next Scheduled EDR Contact: 09/07/2015
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 05/20/2015
Next Scheduled EDR Contact: 09/07/2015
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

CPRA Confidential Treatment Request
Not for Public Release – CPRA Exempt
Confidential and Proprietary Business / Siting Information
Pre-Decisional Draft – For Review Only

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 04/10/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 01/23/2015
Date Data Arrived at EDR: 02/06/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 04/09/2015
Next Scheduled EDR Contact: 07/27/2015
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 10/15/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 33

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 04/17/2015
Next Scheduled EDR Contact: 07/27/2015
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 03/31/2015
Date Data Arrived at EDR: 04/09/2015
Date Made Active in Reports: 06/11/2015
Number of Days to Update: 63

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 06/04/2015
Next Scheduled EDR Contact: 09/21/2015
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 04/07/2015
Date Data Arrived at EDR: 04/09/2015
Date Made Active in Reports: 06/11/2015
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 04/09/2015
Next Scheduled EDR Contact: 07/20/2015
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 01/18/2015
Date Data Arrived at EDR: 02/27/2015
Date Made Active in Reports: 03/25/2015
Number of Days to Update: 26

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 06/10/2015
Next Scheduled EDR Contact: 09/21/2015
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 02/01/2015
Date Data Arrived at EDR: 02/13/2015
Date Made Active in Reports: 03/25/2015
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 04/27/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 04/19/2013
Number of Days to Update: 52

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 05/29/2015
Next Scheduled EDR Contact: 09/07/2015
Data Release Frequency: Biennially

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UIC: UIC Listing

A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 11/19/2014
Date Data Arrived at EDR: 12/15/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 45

Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 06/19/2015
Next Scheduled EDR Contact: 09/28/2015
Data Release Frequency: Varies

CPRA Confidential Treatment Request
Not for Public Release – CPRA Exempt
Confidential and Proprietary Business / Siting Information
Pre-Decisional Draft – For Review Only

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 05/18/2015
Date Data Arrived at EDR: 05/20/2015
Date Made Active in Reports: 06/11/2015
Number of Days to Update: 22

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 05/20/2015
Next Scheduled EDR Contact: 08/31/2015
Data Release Frequency: Quarterly

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 03/10/2015
Date Data Arrived at EDR: 03/31/2015
Date Made Active in Reports: 04/10/2015
Number of Days to Update: 10

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 06/26/2015
Next Scheduled EDR Contact: 10/12/2015
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List
The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 10/21/1993
Date Data Arrived at EDR: 11/01/1993
Date Made Active in Reports: 11/19/1993
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 06/17/2015
Next Scheduled EDR Contact: 10/05/2015
Data Release Frequency: No Update Planned

DRYCLEANERS: Cleaner Facilities
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 02/18/2015
Date Data Arrived at EDR: 02/20/2015
Date Made Active in Reports: 03/12/2015
Number of Days to Update: 20

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 06/05/2015
Next Scheduled EDR Contact: 09/21/2015
Data Release Frequency: Annually

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 06/22/2015
Next Scheduled EDR Contact: 10/12/2015
Data Release Frequency: Varies

CPRA Confidential Treatment Request
Not for Public Release – CPRA Exempt
Confidential and Proprietary Business / Siting Information
Pre-Decisional Draft – For Review Only

ENF: Enforcement Action Listing

A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 04/30/2015
Date Data Arrived at EDR: 05/01/2015
Date Made Active in Reports: 05/13/2015
Number of Days to Update: 12

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 04/27/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 10/15/2014
Date Made Active in Reports: 11/19/2014
Number of Days to Update: 35

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 04/17/2015
Next Scheduled EDR Contact: 07/27/2015
Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 03/25/2014
Date Made Active in Reports: 04/28/2014
Number of Days to Update: 34

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 06/25/2015
Next Scheduled EDR Contact: 10/05/2015
Data Release Frequency: Varies

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 04/14/2015
Next Scheduled EDR Contact: 07/27/2015
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 05/21/2015
Next Scheduled EDR Contact: 08/31/2015
Data Release Frequency: Varies

COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 04/15/2015
Next Scheduled EDR Contact: 07/27/2015
Data Release Frequency: Varies

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 04/13/2015
Date Data Arrived at EDR: 04/15/2015
Date Made Active in Reports: 04/23/2015
Number of Days to Update: 8

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 04/15/2015
Next Scheduled EDR Contact: 07/27/2015
Data Release Frequency: Quarterly

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 05/26/2015
Date Data Arrived at EDR: 05/28/2015
Date Made Active in Reports: 06/05/2015
Number of Days to Update: 8

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 05/28/2015
Next Scheduled EDR Contact: 09/07/2015
Data Release Frequency: Quarterly

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/16/2014
Date Data Arrived at EDR: 10/31/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 17

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 06/22/2015
Next Scheduled EDR Contact: 10/05/2015
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/16/2014
Date Data Arrived at EDR: 10/31/2014
Date Made Active in Reports: 11/17/2014
Number of Days to Update: 17

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 06/22/2015
Next Scheduled EDR Contact: 10/22/2015
Data Release Frequency: Annually

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 07/01/2014
Date Data Arrived at EDR: 09/10/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 06/12/2015
Next Scheduled EDR Contact: 09/21/2015
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 03/09/2015
Date Data Arrived at EDR: 03/10/2015
Date Made Active in Reports: 03/25/2015
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 05/14/2015
Next Scheduled EDR Contact: 08/31/2015
Data Release Frequency: Quarterly

CPRA Confidential Treatment Request
Not for Public Release – CPRA Exempt
Confidential and Proprietary Business / Siting Information
Pre-Decisional Draft – For Review Only

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 05/01/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing
A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 05/18/2015
Date Data Arrived at EDR: 05/22/2015
Date Made Active in Reports: 06/05/2015
Number of Days to Update: 14
Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 05/18/2015
Next Scheduled EDR Contact: 08/31/2015
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing
Financial Assurance information

Date of Government Version: 04/30/2015
Date Data Arrived at EDR: 05/01/2015
Date Made Active in Reports: 05/13/2015
Number of Days to Update: 12
Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 04/27/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Varies

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 03/16/2015
Date Data Arrived at EDR: 03/18/2015
Date Made Active in Reports: 03/24/2015
Number of Days to Update: 6
Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 06/17/2015
Next Scheduled EDR Contact: 09/28/2015
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST
EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88
Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 05/07/2015
Next Scheduled EDR Contact: 08/24/2015
Data Release Frequency: Quarterly

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 10/17/2014
Date Made Active in Reports: 10/20/2014
Number of Days to Update: 3
Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 05/14/2015
Next Scheduled EDR Contact: 08/24/2015
Data Release Frequency: Quarterly

CPRA Confidential Treatment Request
Not for Public Release – CPRA Exempt
Confidential and Proprietary Business / Siting Information
Pre-Decisional Draft – For Review Only

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 04/22/2013
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/09/2015
Number of Days to Update: 6

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 05/14/2015
Next Scheduled EDR Contact: 08/24/2015
Data Release Frequency: Varies

WDS: Waste Discharge System

Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 05/20/2015
Next Scheduled EDR Contact: 09/07/2015
Data Release Frequency: Quarterly

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 11/25/2014
Date Data Arrived at EDR: 11/26/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 64

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 04/10/2015
Next Scheduled EDR Contact: 07/20/2015
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 04/14/2015
Next Scheduled EDR Contact: 07/27/2015
Data Release Frequency: N/A

MWMP: Medical Waste Management Program Listing

The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 01/16/2015
Date Data Arrived at EDR: 03/10/2015
Date Made Active in Reports: 03/18/2015
Number of Days to Update: 8

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 06/09/2015
Next Scheduled EDR Contact: 09/21/2015
Data Release Frequency: Varies

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR US Hist Auto Stat: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/21/2015
Date Data Arrived at EDR: 01/28/2015
Date Made Active in Reports: 02/26/2015
Number of Days to Update: 29

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 06/22/2015
Next Scheduled EDR Contact: 10/12/2015
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 01/21/2015
Date Data Arrived at EDR: 01/28/2015
Date Made Active in Reports: 02/26/2015
Number of Days to Update: 29

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 06/22/2015
Next Scheduled EDR Contact: 10/12/2015
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA Facility List

Cupa Facility List

Date of Government Version: 03/09/2015
Date Data Arrived at EDR: 03/24/2015
Date Made Active in Reports: 03/31/2015
Number of Days to Update: 7

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 06/05/2015
Next Scheduled EDR Contact: 09/21/2015
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA Facility Listing

Cupa facility list.

CPRA Confidential Treatment Request
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Date of Government Version: 11/20/2014
Date Data Arrived at EDR: 11/24/2014
Date Made Active in Reports: 01/07/2015
Number of Days to Update: 44

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 04/14/2015
Next Scheduled EDR Contact: 04/27/2015
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 04/17/2015
Date Data Arrived at EDR: 04/21/2015
Date Made Active in Reports: 05/07/2015
Number of Days to Update: 16

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 06/22/2015
Next Scheduled EDR Contact: 10/12/2015
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 06/11/2014
Date Data Arrived at EDR: 06/13/2014
Date Made Active in Reports: 07/07/2014
Number of Days to Update: 24

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 06/12/2015
Next Scheduled EDR Contact: 08/24/2015
Data Release Frequency: Varies

CONTRA COSTA COUNTY:

Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 05/26/2015
Date Data Arrived at EDR: 05/29/2015
Date Made Active in Reports: 06/11/2015
Number of Days to Update: 13

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 05/04/2015
Next Scheduled EDR Contact: 08/17/2015
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA Facility List
Cupa Facility list

Date of Government Version: 05/19/2015
Date Data Arrived at EDR: 05/22/2015
Date Made Active in Reports: 06/05/2015
Number of Days to Update: 14

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 05/18/2015
Next Scheduled EDR Contact: 08/17/2015
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 05/26/2015
Date Data Arrived at EDR: 05/29/2015
Date Made Active in Reports: 06/05/2015
Number of Days to Update: 7

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 05/04/2015
Next Scheduled EDR Contact: 08/17/2015
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA Resources List

Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 03/31/2015
Date Data Arrived at EDR: 04/15/2015
Date Made Active in Reports: 04/23/2015
Number of Days to Update: 8

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 04/06/2015
Next Scheduled EDR Contact: 07/20/2015
Data Release Frequency: Semi-Annually

HUMBOLDT COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 03/11/2015
Date Data Arrived at EDR: 03/13/2015
Date Made Active in Reports: 03/24/2015
Number of Days to Update: 11

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 05/26/2015
Next Scheduled EDR Contact: 09/07/2015
Data Release Frequency: Varies

IMPERIAL COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 04/27/2015
Date Data Arrived at EDR: 04/28/2015
Date Made Active in Reports: 05/13/2015
Number of Days to Update: 15

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 04/27/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Varies

INYO COUNTY:

CUPA Facility List

Cupa facility list.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 09/11/2013
Date Made Active in Reports: 10/14/2013
Number of Days to Update: 33

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 05/21/2015
Next Scheduled EDR Contact: 09/07/2015
Data Release Frequency: Varies

KERN COUNTY:

CPRA Confidential Treatment Request
Not for Public Release – CPRA Exempt
Confidential and Proprietary Business / Siting Information
Pre-Decisional Draft – For Review Only

Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 07/22/2014
Date Data Arrived at EDR: 11/12/2014
Date Made Active in Reports: 12/19/2014
Number of Days to Update: 37

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 06/12/2015
Next Scheduled EDR Contact: 08/24/2015
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 05/26/2015
Date Data Arrived at EDR: 05/28/2015
Date Made Active in Reports: 06/15/2015
Number of Days to Update: 18

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 05/21/2015
Next Scheduled EDR Contact: 09/07/2015
Data Release Frequency: Varies

LAKE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 05/05/2015
Date Data Arrived at EDR: 05/07/2015
Date Made Active in Reports: 05/20/2015
Number of Days to Update: 13

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 04/16/2015
Next Scheduled EDR Contact: 08/03/2015
Data Release Frequency: Varies

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 06/17/2015
Next Scheduled EDR Contact: 10/05/2015
Data Release Frequency: No Update Planned

HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 11/24/2014
Date Data Arrived at EDR: 01/30/2015
Date Made Active in Reports: 03/04/2015
Number of Days to Update: 33

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 04/13/2015
Next Scheduled EDR Contact: 07/27/2015
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

CPRA Confidential Treatment Request
Not for Public Release – CPRA Exempt
Confidential and Proprietary Business / Siting Information
Pre-Decisional Draft – For Review Only

Date of Government Version: 04/20/2015
Date Data Arrived at EDR: 04/20/2015
Date Made Active in Reports: 05/07/2015
Number of Days to Update: 17

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 04/20/2015
Next Scheduled EDR Contact: 08/03/2015
Data Release Frequency: Varies

City of Los Angeles Landfills

Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 03/05/2009
Date Data Arrived at EDR: 03/10/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 29

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 04/15/2015
Next Scheduled EDR Contact: 08/03/2015
Data Release Frequency: Varies

Site Mitigation List

Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 01/15/2015
Date Data Arrived at EDR: 01/29/2015
Date Made Active in Reports: 03/10/2015
Number of Days to Update: 40

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 04/16/2015
Next Scheduled EDR Contact: 08/03/2015
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank

Underground storage tank sites located in El Segundo city.

Date of Government Version: 03/30/2015
Date Data Arrived at EDR: 04/02/2015
Date Made Active in Reports: 04/13/2015
Number of Days to Update: 11

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 03/06/2015
Next Scheduled EDR Contact: 08/03/2015
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank

Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/03/2015
Date Data Arrived at EDR: 05/26/2015
Date Made Active in Reports: 06/11/2015
Number of Days to Update: 16

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 04/27/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Annually

City of Torrance Underground Storage Tank

Underground storage tank sites located in the city of Torrance.

Date of Government Version: 04/14/2015
Date Data Arrived at EDR: 04/23/2015
Date Made Active in Reports: 05/11/2015
Number of Days to Update: 18

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 04/13/2015
Next Scheduled EDR Contact: 07/27/2015
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA Facility List

A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 05/28/2015
Date Data Arrived at EDR: 05/29/2015
Date Made Active in Reports: 06/15/2015
Number of Days to Update: 17

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 05/22/2015
Next Scheduled EDR Contact: 09/07/2015
Data Release Frequency: Varies

MARIN COUNTY:

Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 10/08/2014
Date Data Arrived at EDR: 10/22/2014
Date Made Active in Reports: 12/15/2014
Number of Days to Update: 54

Source: Public Works Department Waste Management
Telephone: 415-499-6647
Last EDR Contact: 05/05/2015
Next Scheduled EDR Contact: 07/20/2015
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 05/22/2015
Date Data Arrived at EDR: 05/26/2015
Date Made Active in Reports: 06/05/2015
Number of Days to Update: 10

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 05/22/2015
Next Scheduled EDR Contact: 09/07/2015
Data Release Frequency: Varies

MONO COUNTY:

CUPA Facility List
CUPA Facility List

Date of Government Version: 02/27/2015
Date Data Arrived at EDR: 03/06/2015
Date Made Active in Reports: 03/10/2015
Number of Days to Update: 4

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 06/01/2015
Next Scheduled EDR Contact: 09/14/2015
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 03/19/2015
Date Data Arrived at EDR: 03/20/2015
Date Made Active in Reports: 03/31/2015
Number of Days to Update: 11

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 05/26/2015
Next Scheduled EDR Contact: 09/07/2015
Data Release Frequency: Varies

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

CPRA Confidential Treatment Request
Not for Public Release – CPRA Exempt
Confidential and Proprietary Business / Siting Information
Pre-Decisional Draft – For Review Only

Date of Government Version: 12/05/2011
Date Data Arrived at EDR: 12/06/2011
Date Made Active in Reports: 02/07/2012
Number of Days to Update: 63

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 06/01/2015
Next Scheduled EDR Contact: 09/14/2015
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008
Date Data Arrived at EDR: 01/16/2008
Date Made Active in Reports: 02/08/2008
Number of Days to Update: 23

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 06/01/2015
Next Scheduled EDR Contact: 09/14/2015
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 02/12/2015
Date Data Arrived at EDR: 02/13/2015
Date Made Active in Reports: 03/03/2015
Number of Days to Update: 18

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 05/04/2015
Next Scheduled EDR Contact: 08/17/2015
Data Release Frequency: Varies

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 05/01/2015
Date Data Arrived at EDR: 05/12/2015
Date Made Active in Reports: 06/05/2015
Number of Days to Update: 24

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/06/2015
Next Scheduled EDR Contact: 08/24/2015
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 05/01/2015
Date Data Arrived at EDR: 05/12/2015
Date Made Active in Reports: 06/08/2015
Number of Days to Update: 27

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/06/2015
Next Scheduled EDR Contact: 08/24/2015
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 05/01/2015
Date Data Arrived at EDR: 05/12/2015
Date Made Active in Reports: 06/11/2015
Number of Days to Update: 30

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 05/12/2015
Next Scheduled EDR Contact: 08/24/2015
Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 03/10/2015
Date Data Arrived at EDR: 03/12/2015
Date Made Active in Reports: 03/18/2015
Number of Days to Update: 6
Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 06/22/2015
Next Scheduled EDR Contact: 09/21/2015
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 04/28/2015
Date Data Arrived at EDR: 04/30/2015
Date Made Active in Reports: 05/13/2015
Number of Days to Update: 13
Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 06/22/2015
Next Scheduled EDR Contact: 10/05/2015
Data Release Frequency: Quarterly

Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 04/28/2015
Date Data Arrived at EDR: 04/30/2015
Date Made Active in Reports: 05/13/2015
Number of Days to Update: 13
Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 06/22/2015
Next Scheduled EDR Contact: 10/05/2015
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 02/02/2015
Date Data Arrived at EDR: 04/08/2015
Date Made Active in Reports: 04/16/2015
Number of Days to Update: 8
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 04/08/2015
Next Scheduled EDR Contact: 07/20/2015
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 02/02/2015
Date Data Arrived at EDR: 04/08/2015
Date Made Active in Reports: 04/16/2015
Number of Days to Update: 8
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 04/08/2015
Next Scheduled EDR Contact: 07/20/2015
Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

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Date of Government Version: 03/02/2015
Date Data Arrived at EDR: 03/03/2015
Date Made Active in Reports: 03/10/2015
Number of Days to Update: 7

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 05/12/2015
Next Scheduled EDR Contact: 08/24/2015
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 09/23/2013
Date Data Arrived at EDR: 09/24/2013
Date Made Active in Reports: 10/17/2013
Number of Days to Update: 23

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 06/05/2015
Next Scheduled EDR Contact: 09/21/2015
Data Release Frequency: Quarterly

Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2014
Date Data Arrived at EDR: 11/21/2014
Date Made Active in Reports: 12/29/2014
Number of Days to Update: 38

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 04/27/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Varies

Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 06/03/2015
Next Scheduled EDR Contact: 09/21/2015
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversite Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 05/06/2015
Next Scheduled EDR Contact: 08/24/2015
Data Release Frequency: Quarterly

Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/29/2010
Date Data Arrived at EDR: 03/10/2011
Date Made Active in Reports: 03/15/2011
Number of Days to Update: 5

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 05/06/2015
Next Scheduled EDR Contact: 08/24/2015
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

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San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 03/24/2015
Date Data Arrived at EDR: 03/25/2015
Date Made Active in Reports: 03/31/2015
Number of Days to Update: 6

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 06/17/2015
Next Scheduled EDR Contact: 10/05/2015
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 05/22/2015
Date Data Arrived at EDR: 05/26/2015
Date Made Active in Reports: 06/10/2015
Number of Days to Update: 15

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 05/20/2015
Next Scheduled EDR Contact: 09/07/2015
Data Release Frequency: Varies

SAN MATEO COUNTY:

Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 04/13/2015
Date Data Arrived at EDR: 04/15/2015
Date Made Active in Reports: 04/23/2015
Number of Days to Update: 8

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 06/15/2015
Next Scheduled EDR Contact: 09/28/2015
Data Release Frequency: Annually

Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/16/2015
Date Data Arrived at EDR: 03/17/2015
Date Made Active in Reports: 03/24/2015
Number of Days to Update: 7

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 06/10/2015
Next Scheduled EDR Contact: 06/29/2015
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 05/22/2015
Next Scheduled EDR Contact: 09/07/2015
Data Release Frequency: Varies

SANTA CLARA COUNTY:

Cupa Facility List
Cupa facility list

Date of Government Version: 02/23/2015
Date Data Arrived at EDR: 02/25/2015
Date Made Active in Reports: 03/03/2015
Number of Days to Update: 6

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 06/05/2015
Next Scheduled EDR Contact: 09/07/2015
Data Release Frequency: Varies

HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 06/01/2015
Next Scheduled EDR Contact: 09/14/2015
Data Release Frequency: Annually

Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 05/07/2015
Date Data Arrived at EDR: 05/12/2015
Date Made Active in Reports: 06/08/2015
Number of Days to Update: 27

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 05/07/2015
Next Scheduled EDR Contact: 08/24/2015
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA Facility List
CUPA facility listing.

Date of Government Version: 05/22/2015
Date Data Arrived at EDR: 05/26/2015
Date Made Active in Reports: 06/08/2015
Number of Days to Update: 13

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 05/22/2015
Next Scheduled EDR Contact: 09/07/2015
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 03/11/2015
Date Data Arrived at EDR: 03/13/2015
Date Made Active in Reports: 03/24/2015
Number of Days to Update: 11

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 05/26/2015
Next Scheduled EDR Contact: 09/07/2015
Data Release Frequency: Varies

SOLANO COUNTY:

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Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 03/13/2015
Date Data Arrived at EDR: 03/19/2015
Date Made Active in Reports: 03/24/2015
Number of Days to Update: 5

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 06/10/2015
Next Scheduled EDR Contact: 09/28/2015
Data Release Frequency: Quarterly

Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 03/13/2015
Date Data Arrived at EDR: 03/20/2015
Date Made Active in Reports: 03/31/2015
Number of Days to Update: 11

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 06/10/2015
Next Scheduled EDR Contact: 09/28/2015
Data Release Frequency: Quarterly

SONOMA COUNTY:

Cupa Facility List
Cupa Facility list

Date of Government Version: 03/31/2015
Date Data Arrived at EDR: 04/02/2015
Date Made Active in Reports: 04/10/2015
Number of Days to Update: 8

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 06/22/2015
Next Scheduled EDR Contact: 10/12/2015
Data Release Frequency: Varies

Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 04/01/2015
Date Data Arrived at EDR: 04/02/2015
Date Made Active in Reports: 04/13/2015
Number of Days to Update: 11

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 06/22/2015
Next Scheduled EDR Contact: 10/12/2015
Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 03/09/2015
Date Data Arrived at EDR: 03/10/2015
Date Made Active in Reports: 03/18/2015
Number of Days to Update: 8

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 06/05/2015
Next Scheduled EDR Contact: 09/21/2015
Data Release Frequency: Semi-Annually

TUOLUMNE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 05/05/2015
Date Data Arrived at EDR: 05/07/2015
Date Made Active in Reports: 05/13/2015
Number of Days to Update: 6

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 04/27/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Varies

VENTURA COUNTY:

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Business Plan, Hazardous Waste Producers, and Operating Underground Tanks

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 04/27/2015
Date Data Arrived at EDR: 05/22/2015
Date Made Active in Reports: 06/05/2015
Number of Days to Update: 14

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 05/18/2015
Next Scheduled EDR Contact: 08/31/2015
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 06/26/2015
Next Scheduled EDR Contact: 10/19/2015
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites

Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 05/18/2015
Next Scheduled EDR Contact: 08/31/2015
Data Release Frequency: Quarterly

Medical Waste Program List

To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 04/27/2015
Date Data Arrived at EDR: 04/29/2015
Date Made Active in Reports: 05/13/2015
Number of Days to Update: 14

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 04/27/2015
Next Scheduled EDR Contact: 08/10/2015
Data Release Frequency: Quarterly

Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 02/27/2015
Date Data Arrived at EDR: 03/18/2015
Date Made Active in Reports: 03/26/2015
Number of Days to Update: 8

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 06/17/2015
Next Scheduled EDR Contact: 09/28/2015
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report

Underground storage tank sites located in Yolo county.

Date of Government Version: 03/26/2015
Date Data Arrived at EDR: 04/01/2015
Date Made Active in Reports: 04/13/2015
Number of Days to Update: 12

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 06/17/2015
Next Scheduled EDR Contact: 10/05/2015
Data Release Frequency: Annually

YUBA COUNTY:

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CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 05/18/2015
Date Data Arrived at EDR: 05/19/2015
Date Made Active in Reports: 06/05/2015
Number of Days to Update: 17

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 05/18/2015
Next Scheduled EDR Contact: 08/17/2015
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 07/30/2013
Date Data Arrived at EDR: 08/19/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 45

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 05/18/2015
Next Scheduled EDR Contact: 08/31/2015
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 04/29/2015
Date Made Active in Reports: 05/29/2015
Number of Days to Update: 30

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 04/14/2015
Next Scheduled EDR Contact: 07/27/2015
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 05/01/2015
Date Data Arrived at EDR: 05/06/2015
Date Made Active in Reports: 05/20/2015
Number of Days to Update: 14

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 05/06/2015
Next Scheduled EDR Contact: 08/17/2015
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 07/21/2014
Date Made Active in Reports: 08/25/2014
Number of Days to Update: 35

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 04/16/2015
Next Scheduled EDR Contact: 08/03/2015
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 07/15/2014
Date Made Active in Reports: 08/13/2014
Number of Days to Update: 29

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 05/26/2015
Next Scheduled EDR Contact: 09/07/2015
Data Release Frequency: Annually

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WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 03/19/2015
Date Made Active in Reports: 04/07/2015
Number of Days to Update: 19

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 06/11/2015
Next Scheduled EDR Contact: 09/28/2015
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: PennWell Corporation
Telephone: 281-546-1505
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Electric Power Transmission Line Data
Source: PennWell Corporation
Telephone: 800-823-6277
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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

900 AND 1000 CHERRY AVENUE
900 CHERRY AVENUE
SAN BRUNO, CA 94066

TARGET PROPERTY COORDINATES

Latitude (North):	37.6287 - 37° 37' 43.32''
Longitude (West):	122.4254 - 122° 25' 31.44''
Universal Tranverse Mercator:	Zone 10
UTM X (Meters):	550703.1
UTM Y (Meters):	4164570.2

USGS TOPOGRAPHIC MAP

Target Property Map:	37122-F4 SAN FRANCISCO SOUTH, CA
Most Recent Revision:	1999
South Map:	37122-E4 MONTARA MOUNTAIN, CA
Most Recent Revision:	1999

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General ENE

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
SAN MATEO, CA	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 0603260000B - FEMA Q3 Flood data

Additional Panels in search area: 0650620007B - FEMA Q3 Flood data
0650620008B - FEMA Q3 Flood data
0603110025B - FEMA Q3 Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
SAN FRANCISCO SOUTH	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius: 1.25 miles
Status: Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
2	1/4 - 1/2 Mile ENE	ESE
A4	1/4 - 1/2 Mile East	E
A5	1/4 - 1/2 Mile East	E
A6	1/4 - 1/2 Mile East	ESE
A7	1/4 - 1/2 Mile East	ESE
A8	1/2 - 1 Mile East	E
B9	1/2 - 1 Mile East	Not Reported

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* ©1996 Site–specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
B11	1/2 - 1 Mile East	ENE
C12	1/2 - 1 Mile SW	NE
13	1/2 - 1 Mile West	Not Reported
C14	1/2 - 1 Mile SW	E
D15	1/2 - 1 Mile ESE	Not Reported
D16	1/2 - 1 Mile ESE	Not Reported
D17	1/2 - 1 Mile ESE	Not Reported
19	1/2 - 1 Mile ENE	Not Reported
20	1/2 - 1 Mile East	Not Reported
E21	1/2 - 1 Mile East	SE
F23	1/2 - 1 Mile ESE	NNW
F24	1/2 - 1 Mile ESE	NNW
E25	1/2 - 1 Mile ENE	ESE
26	1/2 - 1 Mile ENE	Not Reported
E27	1/2 - 1 Mile ENE	ESE
28	1/2 - 1 Mile North	W
G29	1/2 - 1 Mile North	N
G30	1/2 - 1 Mile North	N
G31	1/2 - 1 Mile North	Not Reported
32	1/2 - 1 Mile SE	Not Reported
33	1/2 - 1 Mile NE	ESE

For additional site information, refer to Physical Setting Source Map Findings.

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GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

Era:	Cenozoic
System:	Quaternary
Series:	Quaternary
Code:	Q *(decoded above as Era, System & Series)*

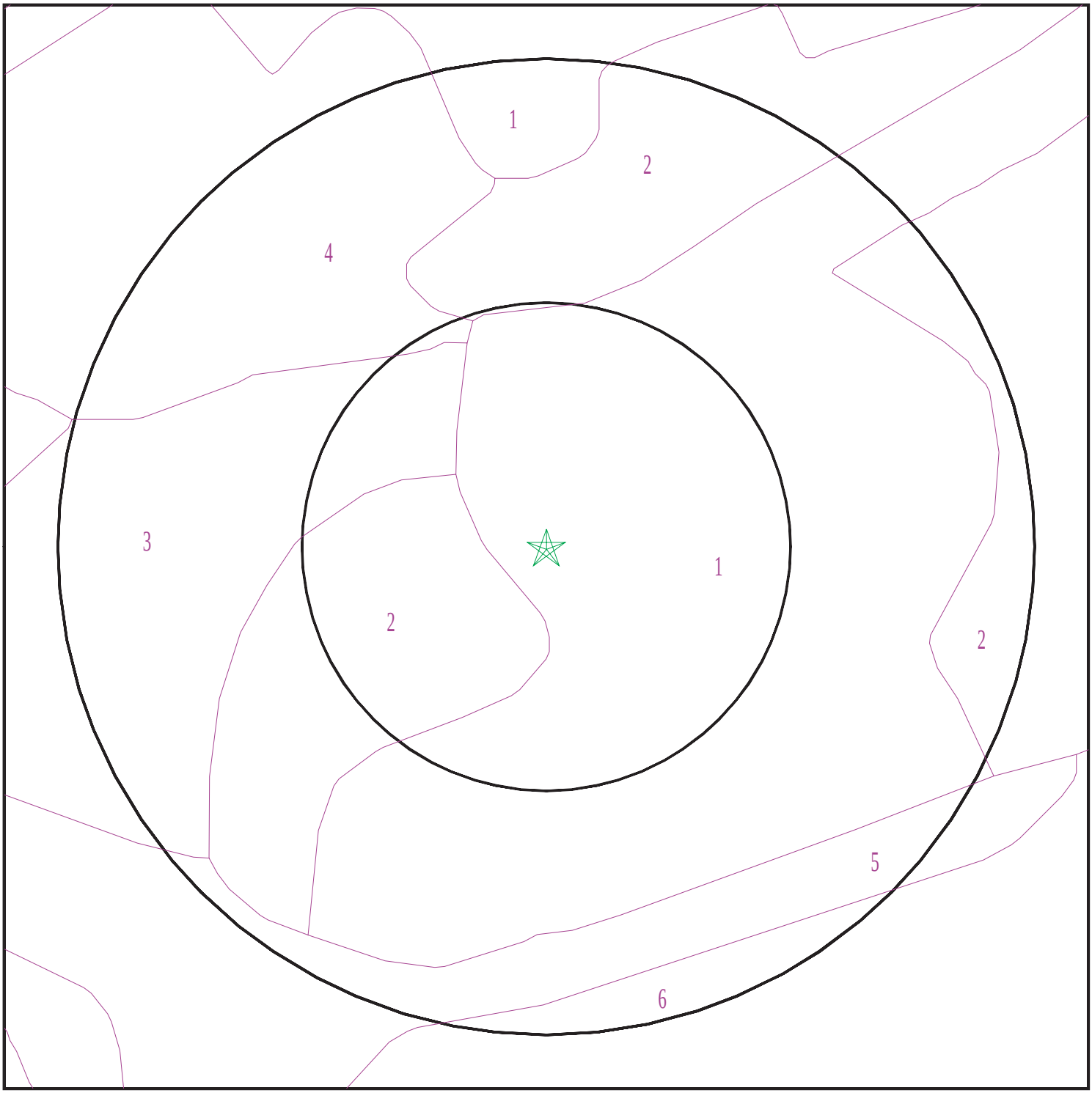
GEOLOGIC AGE IDENTIFICATION

Category: Stratifed Sequence

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

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SSURGO SOIL MAP - 4342931.2s



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SITE NAME: 900 and 1000 Cherry Avenue ADDRESS: 900 Cherry Avenue San Bruno CA 94066 LAT/LONG: 37.6287 / 122.4254	CLIENT: Iris Environmental CONTACT: Karen Smith INQUIRY #: 4342931.2s DATE: July 02, 2015 8:01 am

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DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Urban land

Soil Surface Texture:
Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class:
Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches		Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:

Soil Map ID: 2

Soil Component Name: Orthents

Soil Surface Texture: variable

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		Soil Reaction (pH)
1	0 inches	59 inches	variable	Not reported	Not reported	Max: Min:	Max: Min:

Soil Map ID: 3

Soil Component Name: Orthents

Soil Surface Texture:

Hydrologic Group: Class A - High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		Soil Reaction (pH)
1	0 inches	59 inches		Not reported	Not reported	Max: Min:	Max: Min:

Soil Map ID: 4

Soil Component Name: Urban land

Soil Surface Texture:

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class:

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Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches		Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:

Soil Map ID: 5

Soil Component Name: Orthents

Soil Surface Texture:

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	59 inches		Not reported	Not reported	Max: Min:	Max: Min:

Soil Map ID: 6

Soil Component Name: Urban land

Soil Surface Texture:

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class:

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Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Not Reported

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches		Not reported	Not reported	Max: 0.01 Min: 0	Max: Min:

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
E22	CA4900720	1/2 - 1 Mile East

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP

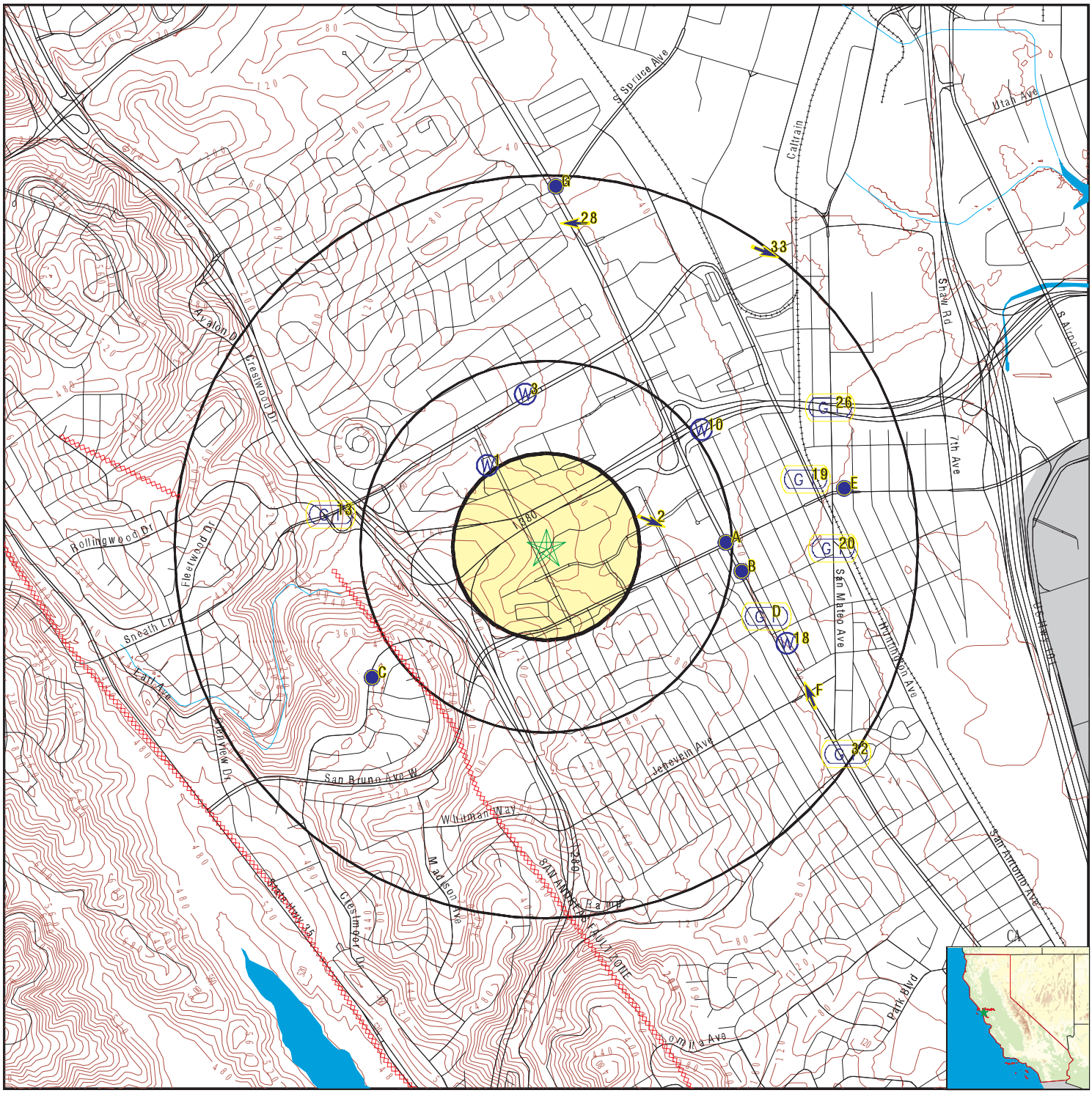
GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	3553	1/4 - 1/2 Mile NW
3	CADW50000029699	1/4 - 1/2 Mile North
10	3554	1/2 - 1 Mile NE
18	3555	1/2 - 1 Mile ESE

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PHYSICAL SETTING SOURCE MAP - 4342931.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Airports
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

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SITE NAME: 900 and 1000 Cherry Avenue	CLIENT: Iris Environmental
ADDRESS: 900 Cherry Avenue San Bruno CA 94066	CONTACT: Karen Smith INQUIRY #: 4342931.2s
LAT/LONG: 37.6287 / 122.4254	DATE: July 02, 2015 8:01 am

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

1
NW
1/4 - 1/2 Mile
Lower

CA WELLS **3553**

Water System Information:

Prime Station Code:	03S/05W-33D01 M	User ID:	ENG
FRDS Number:	4110023001	County:	San Mateo
District Number:	04	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Active Raw
Source Lat/Long:	373755.0 1222538.0	Precision:	1,000 Feet (10 Seconds)
Source Name:	COMMODORE DRIVE WELL 15		
System Number:	4110023		
System Name:	City of San Bruno		
Organization That Operates System:			
	567 El Camino Real		
	San Bruno, CA 94066		
Pop Served:	39000	Connections:	11317
Area Served:	SAN BRUNO		
Sample Collected:	21-MAR-07	Findings:	5. UNITS
Chemical:	COLOR		

2
ENE
1/4 - 1/2 Mile
Lower

AQUIFLOW **65868**

Site ID:	889042
Groundwater Flow:	ESE
Shallow Water Depth:	Not Reported
Deep Water Depth:	Not Reported
Average Water Depth:	20
Date:	06/13/1997

3
North
1/4 - 1/2 Mile
Lower

CA WELLS **CADW50000029699**

Latitude :	37.63466		
Longitude :	122.426425		
Site code:	376063N1223938W001	Casgem sta:	Not Reported
Local well:	CUP 44-1 MW 460	Casgem s 1:	Observation
County id:	41		
Basin cd:	2-35	Basin desc:	Westside Basin
Org unit n:	North Central Region Office	Site id:	CADW50000029699

A4
East
1/4 - 1/2 Mile
Lower

AQUIFLOW **65861**

Site ID:	880015
Groundwater Flow:	E
Shallow Water Depth:	13.24
Deep Water Depth:	19.00
Average Water Depth:	Not Reported
Date:	08/01/1997

A5
East
1/4 - 1/2 Mile
Lower

AQUIFLOW **51755**

Site ID:	880006
Groundwater Flow:	E
Shallow Water Depth:	13.20
Deep Water Depth:	15.53
Average Water Depth:	Not Reported
Date:	01/1998

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation			Database	EDR ID Number
A6 **East** **1/4 - 1/2 Mile** **Lower**	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	880013 ESE 11.50 13.95 Not Reported 02/22/1999	**AQUIFLOW**	**65863**
A7 **East** **1/4 - 1/2 Mile** **Lower**	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	41-0563 ESE 11.50 13.95 Not Reported 02/22/1999	**AQUIFLOW**	**65862**
A8 **East** **1/2 - 1 Mile** **Lower**	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	880039 E Not Reported Not Reported 10 07/1996	**AQUIFLOW**	**65857**
B9 **East** **1/2 - 1 Mile** **Lower**	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	880041 Not Reported 7.5 8 Not Reported 07/20/1998	**AQUIFLOW**	**65851**
10 **NE** **1/2 - 1 Mile** **Lower**			**CA WELLS**	**3554**

Water System Information:

Prime Station Code:	03S/05W-33F01 M	User ID:	ENG
FRDS Number:	4110023004	County:	San Mateo
District Number:	04	Station Type:	WELL/AMBNT/MUN/INTAKE/SUPPLY
Water Type:	Well/Groundwater	Well Status:	Monitoring Well
Source Lat/Long:	373800.0 1222500.0	Precision:	Undefined
Source Name:	WELL 12 - ELM AVE. (MONITORING WELL)		
System Number:	4110023		
System Name:	City of San Bruno		
Organization That Operates System:			
	567 El Camino Real San Bruno, CA 94066		
Pop Served:	39000	Connections:	11317
Area Served:	SAN BRUNO		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID / Direction / Distance / Elevation			Database	EDR ID Number
B11 **East** **1/2 - 1 Mile** **Lower**	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	880035 ENE 8.06 12.20 Not Reported 03/14/1997	**AQUIFLOW**	**65841**
C12 **SW** **1/2 - 1 Mile** **Higher**	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	880044 NE 8 21.5 Not Reported 09/28/1988	**AQUIFLOW**	**65795**
13 **West** **1/2 - 1 Mile** **Higher**	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	880029 Not Reported Not Reported Not Reported 30 08/09/1993	**AQUIFLOW**	**51727**
C14 **SW** **1/2 - 1 Mile** **Higher**	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	880008 E 14.74 16.23 Not Reported 12/10/1991	**AQUIFLOW**	**65782**
D15 **ESE** **1/2 - 1 Mile** **Lower**	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	880032 Not Reported 9.60 9.72 Not Reported 04/31/1994	**AQUIFLOW**	**65832**
D16 **ESE** **1/2 - 1 Mile** **Lower**	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	880023 Not Reported 11.5 14 Not Reported 10/01/1991	**AQUIFLOW**	**65826**
D17 **ESE** **1/2 - 1 Mile** **Lower**	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	880016 Not Reported 10.03 10.89 Not Reported 08/18/1992	**AQUIFLOW**	**51747**

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Map ID / Direction / Distance / Elevation			Database	EDR ID Number
18 **ESE** **1/2 - 1 Mile** **Lower**			**CA WELLS**	**3555**

Water System Information:

Prime Station Code:	03S/05W-33Q01 M	User ID:	ENG
FRDS Number:	4110023005	County:	San Mateo
District Number:	04	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Monitoring Well
Source Lat/Long:	373730.0 1222445.0	Precision:	1,000 Feet (10 Seconds)
Source Name:	WELL 13 - SHANNON (MONITORING WELL)		
System Number:	4110023		
System Name:	City of San Bruno		
Organization That Operates System:			
	567 El Camino Real		
	San Bruno, CA 94066		
Pop Served:	39000	Connections:	11317
Area Served:	SAN BRUNO		

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19 **ENE** **1/2 - 1 Mile** **Lower**	Site ID:	880019	**AQUIFLOW**	**65867**
	Groundwater Flow:	Not Reported		
	Shallow Water Depth:	Not Reported		
	Deep Water Depth:	Not Reported		
	Average Water Depth:	10.63		
	Date:	07/10/1990		

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20 **East** **1/2 - 1 Mile** **Lower**	Site ID:	880036	**AQUIFLOW**	**51751**
	Groundwater Flow:	Not Reported		
	Shallow Water Depth:	Not Reported		
	Deep Water Depth:	Not Reported		
	Average Water Depth:	11’		
	Date:	05/12/1995		

E21 **East** **1/2 - 1 Mile** **Lower**	Site ID:	880007	**AQUIFLOW**	**51717**
	Groundwater Flow:	SE		
	Shallow Water Depth:	6.23		
	Deep Water Depth:	6.90		
	Average Water Depth:	Not Reported		
	Date:	08/07/1990		

E22 **East** **1/2 - 1 Mile** **Lower**			**FRDS PWS**	**CA4900720**

Epa region:	09	State:	CA
Pwsid:	CA4900720		
Pwsname:	MOBILE HOME ESTATES		
City served:	Not Reported	State served:	CA
Zip served:	Not Reported	Fips county:	06097
Status:	Active	Pop srvd:	320
Pwssvcconn:	142	Source:	Groundwater
Pws type:	CWS	Owner:	Private
Contact:	BOCCI, JOHN		
Contactor gname:	BOCCI, JOHN		

Contact phone:	707-576-0377	Contact address1:	5761 Old Redwood Highway North
Contact address2:	Not Reported	Contact city:	SANTA ROSA
Contact state:	CA	Contact zip:	95403
Activity code:	A		

Location Information:

Name:	MOBILE HOME ESTATES		
Pwstypcd:	CWS	Primsrccd:	GW
Popserved:	320		
Add1:	5761 OLD REDWOOD HIGHWAY NORTH		
Add2:	Not Reported		
City:	SANTA ROSA	State:	CA
Zip:	95403	Phone:	707-576-0377
Cityserv:	Not Reported	Cntyserv:	Sonoma
Stateserv:	CA	Zipserv:	Not Reported

Enforcement Information:

Violation id:	9903004	Orig cd:	S
Enf fy:	2012	Enf act date:	08/27/2012
Enf act detail:	St AO (w/o penalty) issued	Enf act cat:	Formal

Enforcement Information:

Violation id:	95V0001	Orig cd:	F
Enf fy:	2005	Enf act date:	09/30/2005
Enf act detail:	Fed Compliance achieved	Enf act cat:	Resolving

Enforcement Information:

Violation id:	618014	Orig cd:	S
Enf fy:	2008	Enf act date:	12/14/2007
Enf act detail:	St Compliance achieved	Enf act cat:	Resolving

Enforcement Information:

Violation id:	618014	Orig cd:	S
Enf fy:	2008	Enf act date:	12/14/2007
Enf act detail:	St AO (w/o penalty) issued	Enf act cat:	Formal

Enforcement Information:

Violation id:	618013	Orig cd:	S
Enf fy:	2008	Enf act date:	12/14/2007
Enf act detail:	St Compliance achieved	Enf act cat:	Resolving

Enforcement Information:

Violation id:	618013	Orig cd:	S
Enf fy:	2008	Enf act date:	12/14/2007
Enf act detail:	St AO (w/o penalty) issued	Enf act cat:	Formal

Enforcement Information:

Violation id:	618012	Orig cd:	S
Enf fy:	2008	Enf act date:	12/14/2007
Enf act detail:	St AO (w/o penalty) issued	Enf act cat:	Formal

Enforcement Information:

Violation id:	618012	Orig cd:	S
Enf fy:	2008	Enf act date:	12/14/2007
Enf act detail:	St Compliance achieved	Enf act cat:	Resolving

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Enforcement Information:

Violation id:	618011	Orig cd:	S
Enf fy:	2008	Enf act date:	12/14/2007
Enf act detail:	St Compliance achieved	Enf act cat:	Resolving

Enforcement Information:

Violation id:	618011	Orig cd:	S
Enf fy:	2008	Enf act date:	12/14/2007
Enf act detail:	St AO (w/o penalty) issued	Enf act cat:	Formal

Enforcement Information:

Violation id:	618010	Orig cd:	S
Enf fy:	2008	Enf act date:	12/14/2007
Enf act detail:	St AO (w/o penalty) issued	Enf act cat:	Formal

Enforcement Information:

Violation id:	618010	Orig cd:	S
Enf fy:	2008	Enf act date:	12/14/2007
Enf act detail:	St Compliance achieved	Enf act cat:	Resolving

Enforcement Information:

Violation id:	618009	Orig cd:	S
Enf fy:	2007	Enf act date:	06/13/2007
Enf act detail:	St AO (w/o penalty) issued	Enf act cat:	Formal

Enforcement Information:

Violation id:	518015	Orig cd:	S
Enf fy:	2009	Enf act date:	05/27/2009
Enf act detail:	St AO (w/o penalty) issued	Enf act cat:	Formal

Enforcement Information:

Violation id:	518008	Orig cd:	S
Enf fy:	2005	Enf act date:	07/21/2005
Enf act detail:	St AO (w/o penalty) issued	Enf act cat:	Formal

Enforcement Information:

Violation id:	518007	Orig cd:	S
Enf fy:	2005	Enf act date:	05/24/2005
Enf act detail:	St AO (w/o penalty) issued	Enf act cat:	Formal

Enforcement Information:

Violation id:	518006	Orig cd:	S
Enf fy:	2005	Enf act date:	05/24/2005
Enf act detail:	St AO (w/o penalty) issued	Enf act cat:	Formal

Enforcement Information:

Violation id:	518006	Orig cd:	S
Enf fy:	2005	Enf act date:	05/17/2005
Enf act detail:	St Compliance achieved	Enf act cat:	Resolving

Enforcement Information:

Violation id:	518005	Orig cd:	S
Enf fy:	2005	Enf act date:	05/24/2005
Enf act detail:	St AO (w/o penalty) issued	Enf act cat:	Formal

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Enforcement Information:

Violation id:	218004	Orig cd:	S
Enf fy:	2002	Enf act date:	03/22/2002
Enf act detail:	St AO (w/o penalty) issued	Enf act cat:	Formal

Violations Information:

Violoation id:	9903004	Orig cd:	S
State:	CA	Viol fy:	2012
Contamcd:	7500		
Contamnm:	Public Notice		
Viol code:	76		
Viol name:	PN Violation without NPDWR Violation		
Rule code:	410		
Rule name:	PN rule		
Violmeasur:	Not Reported	Unitmeasur:	Not Reported
State mcl:	Not Reported	Cmpbdt:	08/27/2012
Cmpedt:	Not Reported		

Violations Information:

Violoation id:	95V0001	Orig cd:	F
State:	CA	Viol fy:	1993
Contamcd:	5000		
Contamnm:	Lead and Copper Rule		
Viol code:	51		
Viol name:	Initial Tap Sampling for Pb and Cu		
Rule code:	350		
Rule name:	LCR		
Violmeasur:	0	Unitmeasur:	Not Reported
State mcl:	0	Cmpbdt:	07/01/1993
Cmpedt:	Not Reported		

Violations Information:

Violoation id:	618014	Orig cd:	S
State:	CA	Viol fy:	2006
Contamcd:	2050		
Contamnm:	Atrazine		
Viol code:	03		
Viol name:	Monitoring, Regular		
Rule code:	320		
Rule name:	SOC		
Violmeasur:	Not Reported	Unitmeasur:	Not Reported
State mcl:	Not Reported	Cmpbdt:	01/01/2006
Cmpedt:	12/31/2006		

Violations Information:

Violoation id:	618013	Orig cd:	S
State:	CA	Viol fy:	2006
Contamcd:	1032		
Contamnm:	Manganese		
Viol code:	03		
Viol name:	Monitoring, Regular		
Rule code:	500		
Rule name:	Not Regulated		
Violmeasur:	Not Reported	Unitmeasur:	Not Reported

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State mcl:	Not Reported	Cmpbdt:	01/01/2006
Cmpedt:	12/31/2006		

Violations Information:

Violoation id:	618012	Orig cd:	S
State:	CA	Viol fy:	2006
Contamcd:	1041		
Contamnm:	Nitrite		
Viol code:	03		
Viol name:	Monitoring, Regular		
Rule code:	331		
Rule name:	Nitrates		
Violmeasur:	Not Reported	Unitmeasur:	Not Reported
State mcl:	Not Reported	Cmpbdt:	01/01/2006
Cmpedt:	12/31/2006		

Violations Information:

Violoation id:	618011	Orig cd:	S
State:	CA	Viol fy:	2006
Contamcd:	1094		
Contamnm:	Asbestos		
Viol code:	03		
Viol name:	Monitoring, Regular		
Rule code:	333		
Rule name:	Other IOC		
Violmeasur:	Not Reported	Unitmeasur:	Not Reported
State mcl:	Not Reported	Cmpbdt:	01/01/2006
Cmpedt:	12/31/2006		

Violations Information:

Violoation id:	618010	Orig cd:	S
State:	CA	Viol fy:	2006
Contamcd:	1002		
Contamnm:	Aluminum		
Viol code:	03		
Viol name:	Monitoring, Regular		
Rule code:	500		
Rule name:	Not Regulated		
Violmeasur:	Not Reported	Unitmeasur:	Not Reported
State mcl:	Not Reported	Cmpbdt:	01/01/2006
Cmpedt:	12/31/2006		

Violations Information:

Violoation id:	618009	Orig cd:	S
State:	CA	Viol fy:	2006
Contamcd:	1040		
Contamnm:	Nitrate		
Viol code:	03		
Viol name:	Monitoring, Regular		
Rule code:	331		
Rule name:	Nitrates		
Violmeasur:	Not Reported	Unitmeasur:	Not Reported
State mcl:	Not Reported	Cmpbdt:	01/01/2006
Cmpedt:	12/31/2006		

Violations Information:

Violoation id:	518015	Orig cd:	S
State:	CA	Viol fy:	2005
Contamcd:	5000		
Contamnm:	Lead and Copper Rule		
Viol code:	52		
Viol name:	Follow-up Or Routine LCR Tap M/R		
Rule code:	350		
Rule name:	LCR		
Violmeasur:	Not Reported	Unitmeasur:	Not Reported
State mcl:	Not Reported	Cmpbdt:	07/01/2005
Cmpedt:	Not Reported		

Violations Information:

Violoation id:	518008	Orig cd:	S
State:	CA	Viol fy:	2005
Contamcd:	3100		
Contamnm:	Coliform (TCR)		
Viol code:	23		
Viol name:	Monitoring, Routine Major (TCR)		
Rule code:	110		
Rule name:	TCR		
Violmeasur:	Not Reported	Unitmeasur:	Not Reported
State mcl:	Not Reported	Cmpbdt:	06/01/2005
Cmpedt:	06/30/2005		

Violations Information:

Violoation id:	518007	Orig cd:	S
State:	CA	Viol fy:	2005
Contamcd:	7000		
Contamnm:	Consumer Confidence Rule		
Viol code:	71		
Viol name:	CCR Complete Failure to Report		
Rule code:	420		
Rule name:	CCR		
Violmeasur:	Not Reported	Unitmeasur:	Not Reported
State mcl:	Not Reported	Cmpbdt:	07/01/2005
Cmpedt:	Not Reported		

Violations Information:

Violoation id:	518006	Orig cd:	S
State:	CA	Viol fy:	2005
Contamcd:	5000		
Contamnm:	Lead and Copper Rule		
Viol code:	51		
Viol name:	Initial Tap Sampling for Pb and Cu		
Rule code:	350		
Rule name:	LCR		
Violmeasur:	Not Reported	Unitmeasur:	Not Reported
State mcl:	Not Reported	Cmpbdt:	05/01/2005
Cmpedt:	Not Reported		

Violations Information:

Violoation id:	518005	Orig cd:	S
State:	CA	Viol fy:	2005
Contamcd:	3100		
Contamnm:	Coliform (TCR)		
Viol code:	22		
Viol name:	MCL, Monthly (TCR)		
Rule code:	110		
Rule name:	TCR		
Violmeasur:	Not Reported	Unitmeasur:	Not Reported

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State mcl:	Not Reported	Cmpbdt:	04/01/2005
Cmpedt:	04/30/2005		

Violations Information:

Violoation id:	218004	Orig cd:	S
State:	CA	Viol fy:	2002
Contamcd:	3100		
Contamnm:	Coliform (TCR)		
Viol code:	23		
Viol name:	Monitoring, Routine Major (TCR)		
Rule code:	110		
Rule name:	TCR		
Violmeasur:	Not Reported	Unitmeasur:	Not Reported
State mcl:	Not Reported	Cmpbdt:	02/01/2002
Cmpedt:	02/28/2002		

PWS ID:	CA4900720		
Date Initiated:	Not Reported	Date Deactivated:	Not Reported
PWS Name:	MOBILE HOME ESTATES SANTA ROSA, CA 95403		

Addressee / Facility: System Owner/Responsible Party
MOBILE HOME ESTATES
2190 ROSEWOOD DRIVE
SAN BRUNO, CA 94066

Facility Latitude:	37 37 50	Facility Longitude:	122 24 36
City Served:	Not Reported		
Treatment Class:	Untreated	Population:	320

Violations information not reported.

ENFORCEMENT INFORMATION:

Truedate:	03/31/2009	Pwsid:	CA4900720
Pwsname:	Mobile Home Estates		
Retpopsrvd:	320	Pwstypecod:	C
Vioid:	0218004	Contaminant:	COLIFORM (TCR)
Viol. Type:	Monitoring, Routine Major (TCR)		
Complperbe:	2/1/2002 0:00:00		
Complperen:	2/28/2002 0:00:00	Enfdate:	3/22/2002 0:00:00
Enf action:	State AO (w/o Penalty) Issued		
Violmeasur:	Not Reported		

Truedate:	03/31/2009	Pwsid:	CA4900720
Pwsname:	Mobile Home Estates		
Retpopsrvd:	320	Pwstypecod:	C
Vioid:	0518005	Contaminant:	COLIFORM (TCR)
Viol. Type:	MCL, Monthly (TCR)		
Complperbe:	4/1/2005 0:00:00		
Complperen:	4/30/2005 0:00:00	Enfdate:	5/24/2005 0:00:00
Enf action:	State AO (w/o Penalty) Issued		
Violmeasur:	Not Reported		

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Truedate:	03/31/2009	Pwsid:	CA4900720
Pwsname:	Mobile Home Estates		
Retpopsrvd:	320	Pwstypecod:	C
Vioid:	0518006	Contaminant:	LEAD & COPPER RULE
Viol. Type:	Initial Tap Sampling for Pb and Cu		
Complperbe:	5/1/2005 0:00:00		
Complperen:	5/17/2005 0:00:00	Enfdate:	5/17/2005 0:00:00
Enf action:	State Compliance Achieved		
Violmeasur:	Not Reported		

Truedate:	03/31/2009	Pwsid:	CA4900720
Pwsname:	Mobile Home Estates		
Retpopsrvd:	320	Pwstypecod:	C
Vioid:	0518006	Contaminant:	LEAD & COPPER RULE
Viol. Type:	Initial Tap Sampling for Pb and Cu		
Complperbe:	5/1/2005 0:00:00		
Complperen:	5/17/2005 0:00:00	Enfdate:	5/24/2005 0:00:00
Enf action:	State AO (w/o Penalty) Issued		
Violmeasur:	Not Reported		

Truedate:	03/31/2009	Pwsid:	CA4900720
Pwsname:	Mobile Home Estates		
Retpopsrvd:	320	Pwstypecod:	C
Vioid:	0518007	Contaminant:	7000
Viol. Type:	CCR Complete Failure to Report		
Complperbe:	7/1/2005 0:00:00		
Complperen:	12/31/2025 0:00:00	Enfdate:	5/24/2005 0:00:00
Enf action:	State AO (w/o Penalty) Issued		
Violmeasur:	Not Reported		

Truedate:	03/31/2009	Pwsid:	CA4900720
Pwsname:	Mobile Home Estates		
Retpopsrvd:	320	Pwstypecod:	C
Vioid:	0518008	Contaminant:	COLIFORM (TCR)
Viol. Type:	Monitoring, Routine Major (TCR)		
Complperbe:	6/1/2005 0:00:00		
Complperen:	6/30/2005 0:00:00	Enfdate:	No Enf Action as of
Enf action:	7/8/2009 0:00:00		
Violmeasur:	Not Reported		

Truedate:	03/31/2009	Pwsid:	CA4900720
Pwsname:	Mobile Home Estates		
Retpopsrvd:	320	Pwstypecod:	C
Vioid:	0618009	Contaminant:	NITRATE
Viol. Type:	3		
Complperbe:	1/1/2006 0:00:00		
Complperen:	12/31/2006 0:00:00	Enfdate:	6/13/2007 0:00:00
Enf action:	State AO (w/o Penalty) Issued		
Violmeasur:	Not Reported		

Truedate:	03/31/2009	Pwsid:	CA4900720
Pwsname:	Mobile Home Estates		
Retpopsrvd:	320	Pwstypecod:	C
Vioid:	0618010	Contaminant:	ALUMINUM
Viol. Type:	3		
Complperbe:	1/1/2006 0:00:00		
Complperen:	12/31/2006 0:00:00	Enfdate:	12/14/2007 0:00:00
Enf action:	State AO (w/o Penalty) Issued		
Violmeasur:	Not Reported		

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Truedate:	03/31/2009	Pwsid:	CA4900720
Pwsname:	Mobile Home Estates		
Retpopsrvd:	320	Pwstypecod:	C
Vioid:	0618010	Contaminant:	ALUMINUM
Viol. Type:	3		
Complperbe:	1/1/2006 0:00:00		
Complperen:	12/31/2006 0:00:00	Enfdate:	12/14/2007 0:00:00
Enf action:	State Compliance Achieved		
Violmeasur:	Not Reported		

Truedate:	03/31/2009	Pwsid:	CA4900720
Pwsname:	Mobile Home Estates		
Retpopsrvd:	320	Pwstypecod:	C
Vioid:	0618011	Contaminant:	ASBESTOS
Viol. Type:	3		
Complperbe:	1/1/2006 0:00:00		
Complperen:	12/31/2006 0:00:00	Enfdate:	12/14/2007 0:00:00
Enf action:	State AO (w/o Penalty) Issued		
Violmeasur:	Not Reported		

Truedate:	03/31/2009	Pwsid:	CA4900720
Pwsname:	Mobile Home Estates		
Retpopsrvd:	320	Pwstypecod:	C
Vioid:	0618011	Contaminant:	ASBESTOS
Viol. Type:	3		
Complperbe:	1/1/2006 0:00:00		
Complperen:	12/31/2006 0:00:00	Enfdate:	12/14/2007 0:00:00
Enf action:	State Compliance Achieved		
Violmeasur:	Not Reported		

Truedate:	03/31/2009	Pwsid:	CA4900720
Pwsname:	Mobile Home Estates		
Retpopsrvd:	320	Pwstypecod:	C
Vioid:	0618012	Contaminant:	NITRITE
Viol. Type:	3		
Complperbe:	1/1/2006 0:00:00		
Complperen:	12/31/2006 0:00:00	Enfdate:	12/14/2007 0:00:00
Enf action:	State AO (w/o Penalty) Issued		
Violmeasur:	Not Reported		

Truedate:	03/31/2009	Pwsid:	CA4900720
Pwsname:	Mobile Home Estates		
Retpopsrvd:	320	Pwstypecod:	C
Vioid:	0618012	Contaminant:	NITRITE
Viol. Type:	3		
Complperbe:	1/1/2006 0:00:00		
Complperen:	12/31/2006 0:00:00	Enfdate:	12/14/2007 0:00:00
Enf action:	State Compliance Achieved		
Violmeasur:	Not Reported		

Truedate:	03/31/2009	Pwsid:	CA4900720
Pwsname:	Mobile Home Estates		
Retpopsrvd:	320	Pwstypecod:	C
Vioid:	0618013	Contaminant:	MANGANESE
Viol. Type:	3		
Complperbe:	1/1/2006 0:00:00		
Complperen:	12/31/2006 0:00:00	Enfdate:	12/14/2007 0:00:00
Enf action:	State AO (w/o Penalty) Issued		
Violmeasur:	Not Reported		

Truedate:	03/31/2009	Pwsid:	CA4900720
Pwsname:	Mobile Home Estates		
Retpopsrvd:	320	Pwstypecod:	C
Vioid:	0618013	Contaminant:	MANGANESE
Viol. Type:	3		
Complperbe:	1/1/2006 0:00:00		
Complperen:	12/31/2006 0:00:00	Enfdate:	12/14/2007 0:00:00
Enf action:	State Compliance Achieved		
Violmeasur:	Not Reported		

Truedate:	03/31/2009	Pwsid:	CA4900720
Pwsname:	Mobile Home Estates		
Retpopsrvd:	320	Pwstypecod:	C
Vioid:	0618014	Contaminant:	ATRAZINE
Viol. Type:	3		
Complperbe:	1/1/2006 0:00:00		
Complperen:	12/31/2006 0:00:00	Enfdate:	12/14/2007 0:00:00
Enf action:	State AO (w/o Penalty) Issued		
Violmeasur:	Not Reported		

Truedate:	03/31/2009	Pwsid:	CA4900720
Pwsname:	Mobile Home Estates		
Retpopsrvd:	320	Pwstypecod:	C
Vioid:	0618014	Contaminant:	ATRAZINE
Viol. Type:	3		
Complperbe:	1/1/2006 0:00:00		
Complperen:	12/31/2006 0:00:00	Enfdate:	12/14/2007 0:00:00
Enf action:	State Compliance Achieved		
Violmeasur:	Not Reported		

Truedate:	03/31/2009	Pwsid:	CA4900720
Pwsname:	Mobile Home Estates		
Retpopsrvd:	320	Pwstypecod:	C
Vioid:	95V0001	Contaminant:	LEAD & COPPER RULE
Viol. Type:	Initial Tap Sampling for Pb and Cu		
Complperbe:	7/1/1993 0:00:00		
Complperen:	9/30/2005 0:00:00	Enfdate:	9/30/2005 0:00:00
Enf action:	Fed Compliance Achieved		
Violmeasur:	0		

System Name:	Mobile Home Estates		
Violation Type:	Monitoring, Routine Major (TCR)		
Contaminant:	COLIFORM (TCR)		
Compliance Period:	2/1/2002 0:00:00 - 2/28/2002 0:00:00		
Violation ID:	0218004		
Enforcement Date:	3/22/2002 0:00:00	Enf. Action:	State AO (w/o Penalty) Issued

System Name:	Mobile Home Estates		
Violation Type:	Monitoring, Routine Major (TCR)		
Contaminant:	COLIFORM (TCR)		
Compliance Period:	02/01/02 - 02/28/02		
Violation ID:	0218004		
Enforcement Date:	03/22/02	Enf. Action:	State AO (w/o Penalty) Issued

System Name:	Mobile Home Estates		
Violation Type:	MCL, Monthly (TCR)		
Contaminant:	COLIFORM (TCR)		
Compliance Period:	4/1/2005 0:00:00 - 4/30/2005 0:00:00		
Violation ID:	0518005		
Enforcement Date:	5/24/2005 0:00:00	Enf. Action:	State AO (w/o Penalty) Issued

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System Name:	Mobile Home Estates		
Violation Type:	MCL, Monthly (TCR)		
Contaminant:	COLIFORM (TCR)		
Compliance Period:	04/01/05 - 04/30/05		
Violation ID:	0518005		
Enforcement Date:	05/24/05	Enf. Action:	State AO (w/o Penalty) Issued
System Name:	Mobile Home Estates		
Violation Type:	Initial Tap Sampling for Pb and Cu		
Contaminant:	LEAD & COPPER RULE		
Compliance Period:	5/1/2005 0:00:00 - 12/31/2025 0:00:00		
Violation ID:	0518006		
Enforcement Date:	No Enf Action as of	Enf. Action:	10/17/2006 0:00:00
System Name:	Mobile Home Estates		
Violation Type:	Initial Tap Sampling for Pb and Cu		
Contaminant:	LEAD & COPPER RULE		
Compliance Period:	5/1/2005 0:00:00 - 12/31/2025 0:00:00		
Violation ID:	0518006		
Enforcement Date:	4/12/2007 0:00:00	Enf. Action:	Not Reported
System Name:	Mobile Home Estates		
Violation Type:	Monitoring, Routine Major (TCR)		
Contaminant:	COLIFORM (TCR)		
Compliance Period:	6/1/2005 0:00:00 - 6/30/2005 0:00:00		
Violation ID:	0518008		
Enforcement Date:	4/12/2007 0:00:00	Enf. Action:	Not Reported
System Name:	Mobile Home Estates		
Violation Type:	Monitoring, Routine Major (TCR)		
Contaminant:	COLIFORM (TCR)		
Compliance Period:	6/1/2005 0:00:00 - 6/30/2005 0:00:00		
Violation ID:	0518008		
Enforcement Date:	No Enf Action as of	Enf. Action:	10/17/2006 0:00:00
System Name:	MOBILE HOME ESTATES		
Violation Type:	MCL, Monthly (TCR)		
Contaminant:	COLIFORM (TCR)		
Compliance Period:	1995-02-01 - 1995-02-28		
Violation ID:	9503001		
Enforcement Date:	1995-04-20	Enf. Action:	State Compliance Achieved
System Name:	MOBILE HOME ESTATES		
Violation Type:	MCL, Monthly (TCR)		
Contaminant:	COLIFORM (TCR)		
Compliance Period:	1995-02-01 - 1995-02-28		
Violation ID:	9503001		
Enforcement Date:	1995-09-06	Enf. Action:	State Formal NOV Issued
System Name:	MOBILE HOME ESTATES		
Violation Type:	Initial Tap Sampling for Pb and Cu		
Contaminant:	LEAD & COPPER RULE		
Compliance Period:	1993-07-01 - 2015-12-31		
Violation ID:	95V0001		
Enforcement Date:	Not Reported	Enf. Action:	Not Reported
System Name:	Mobile Home Estates		
Violation Type:	Initial Tap Sampling for Pb and Cu		
Contaminant:	LEAD & COPPER RULE		
Compliance Period:	07/01/93 - 09/30/05		
Violation ID:	95V0001		
Enforcement Date:	09/30/05	Enf. Action:	Fed Compliance Achieved

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ENFORCEMENT INFORMATION:

System Name:	Mobile Home Estates		
Violation Type:	Initial Tap Sampling for Pb and Cu		
Contaminant:	LEAD & COPPER RULE		
Compliance Period:	7/1/1993 0:00:00 - 9/30/2005 0:00:00		
Violation ID:	95V0001		
Enforcement Date:	9/30/2005 0:00:00	Enf. Action:	Fed Compliance Achieved

CONTACT INFORMATION:

Name:	Mobile Home Estates	Population:	320
Contact:	John Bocci	Phone:	Not Reported
Address:	5761 Old Redwood Hwy N		
Address 2:	Santa Rosa CA, 95 70757		

F23
ESE
1/2 - 1 Mile
Lower

Site ID:	41-0179
Groundwater Flow:	NNW
Shallow Water Depth:	Not Reported
Deep Water Depth:	Not Reported
Average Water Depth:	13
Date:	05/17/1991

AQUIFLOW **65821**

F24
ESE
1/2 - 1 Mile
Lower

Site ID:	880018
Groundwater Flow:	NNW
Shallow Water Depth:	Not Reported
Deep Water Depth:	Not Reported
Average Water Depth:	13
Date:	05/17/1991

AQUIFLOW **65822**

E25
ENE
1/2 - 1 Mile
Lower

Site ID:	880022
Groundwater Flow:	ESE
Shallow Water Depth:	1.03
Deep Water Depth:	3.12
Average Water Depth:	Not Reported
Date:	02/22/1995

AQUIFLOW **65845**

26
ENE
1/2 - 1 Mile
Lower

Site ID:	880002
Groundwater Flow:	Not Reported
Shallow Water Depth:	7.0
Deep Water Depth:	9.0
Average Water Depth:	Not Reported
Date:	03/27/1996

AQUIFLOW **65776**

E27
ENE
1/2 - 1 Mile
Lower

Site ID:	880014
Groundwater Flow:	ESE
Shallow Water Depth:	3
Deep Water Depth:	4
Average Water Depth:	Not Reported
Date:	04/28/1997

AQUIFLOW **65835**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID / Direction / Distance / Elevation			Database	EDR ID Number
28 **North** **1/2 - 1 Mile** **Lower**	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	41-0605 W 45.89 48.37 Not Reported 03/02/1993	**AQUIFLOW**	**68861**
G29 **North** **1/2 - 1 Mile** **Lower**	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	550037 N Not Reported Not Reported 51 01/25/1993	**AQUIFLOW**	**68880**
G30 **North** **1/2 - 1 Mile** **Lower**	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	550037 N Not Reported Not Reported 51 01/25/1993	**AQUIFLOW**	**68883**
G31 **North** **1/2 - 1 Mile** **Lower**	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	41-0685 Not Reported Not Reported Not Reported 36.86 03/08/1993	**AQUIFLOW**	**68999**
32 **SE** **1/2 - 1 Mile** **Lower**	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	880020 Not Reported 26.0 35 Not Reported 06/21/1991	**AQUIFLOW**	**65813**
33 **NE** **1/2 - 1 Mile** **Lower**	Site ID: Groundwater Flow: Shallow Water Depth: Deep Water Depth: Average Water Depth: Date:	550133 ESE Not Reported Not Reported 11 12/06/1994	**AQUIFLOW**	**50572**

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
94066	45	3

Federal EPA Radon Zone for SAN MATEO County: 2

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 94066

Number of sites tested: 2

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.100 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

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PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Department of Conservation
Telephone: 916-323-1779
Oil and Gas well locations in the state.

RADON

State Database: CA Radon
Source: Department of Health Services
Telephone: 916-324-2208
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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Appendix D

Historical Research Documentation

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900 and 1000 Cherry Avenue
900 Cherry Avenue
San Bruno, CA 94066

Inquiry Number: 4342931.12
July 06, 2015

The EDR Aerial Photo Decade Package

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6 Armstrong Road, 4th Floor
Shelton, Connecticut 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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Date EDR Searched Historical Sources:

Aerial Photography July 06, 2015

Target Property:

900 Cherry Avenue

San Bruno, CA 94066

Year	***Scale***	***Details***	***Source***
1943	Aerial Photograph. Scale: 1"=500'	Flight Year: 1943	USGS
1946	Aerial Photograph. Scale: 1"=500'	Flight Year: 1946	USGS
1956	Aerial Photograph. Scale: 1"=500'	Flight Year: 1956	USGS
1968	Aerial Photograph. Scale: 1"=500'	Flight Year: 1968	USGS
1974	Aerial Photograph. Scale: 1"=500'	Flight Year: 1974	USGS
1982	Aerial Photograph. Scale: 1"=500'	Flight Year: 1982	USGS
1993	Aerial Photograph. Scale: 1"=500'	/DOQQ - acquisition dates: 1993	USGS/DOQQ
1998	Aerial Photograph. Scale: 1"=500'	Flight Year: 1998 Best Copy Available from original source	USGS
2005	Aerial Photograph. Scale: 1"=500'	Flight Year: 2005	USDA/NAIP
2006	Aerial Photograph. Scale: 1"=500'	Flight Year: 2006	USDA/NAIP
2009	Aerial Photograph. Scale: 1"=500'	Flight Year: 2009	USDA/NAIP
2010	Aerial Photograph. Scale: 1"=500'	Flight Year: 2010	USDA/NAIP
2012	Aerial Photograph. Scale: 1"=500'	Flight Year: 2012	USDA/NAIP

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INQUIRY #: 4342931.12

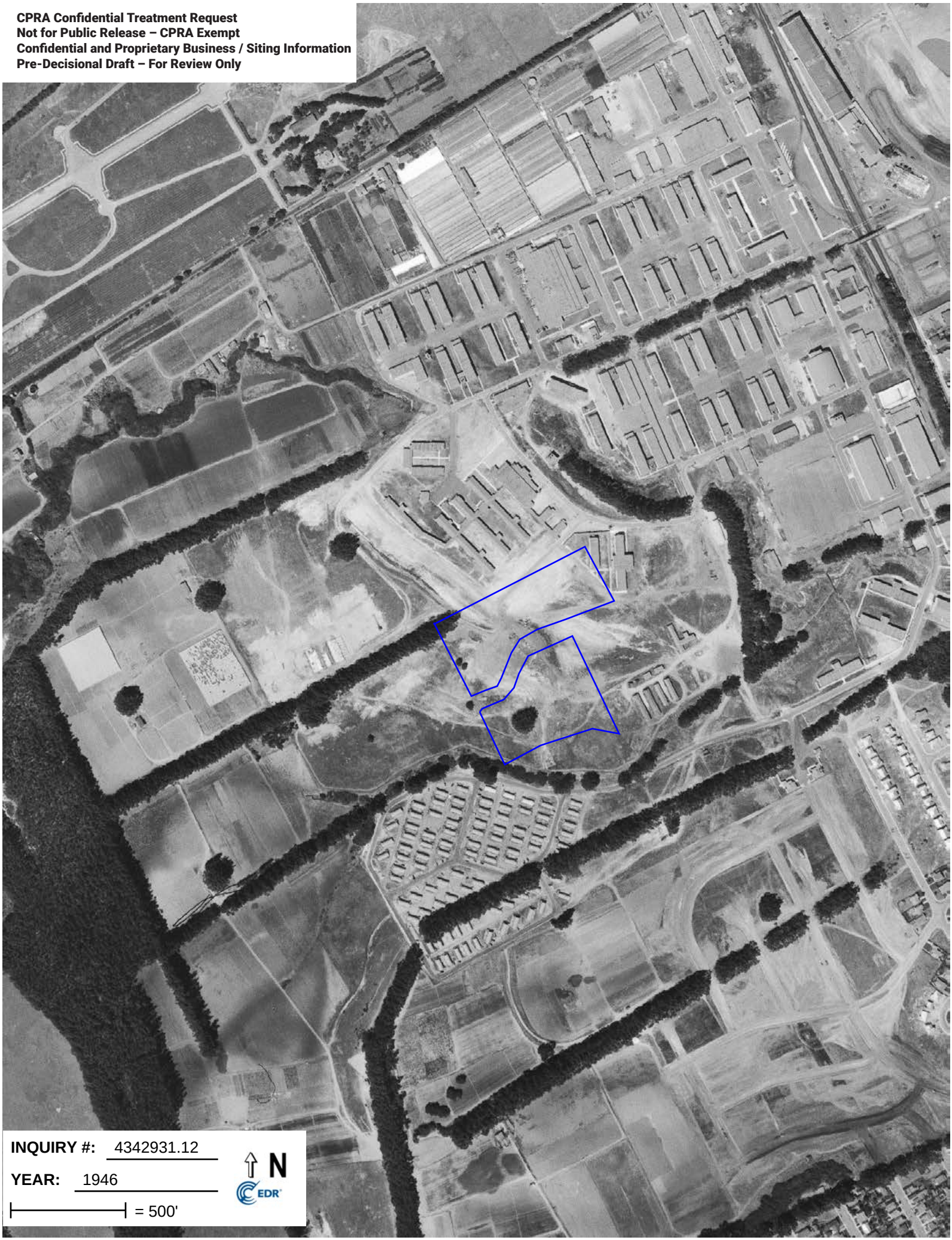
YEAR: 1943

= 500'

N

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INQUIRY #: 4342931.12

YEAR: 1946

= 500'

N

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INQUIRY #: 4342931.12

YEAR: 1956

= 500'

N

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INQUIRY #: 4342931.12

YEAR: 1968

= 500'

N

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INQUIRY #: 4342931.12

YEAR: 1974

= 500'

N

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INQUIRY #: 4342931.12

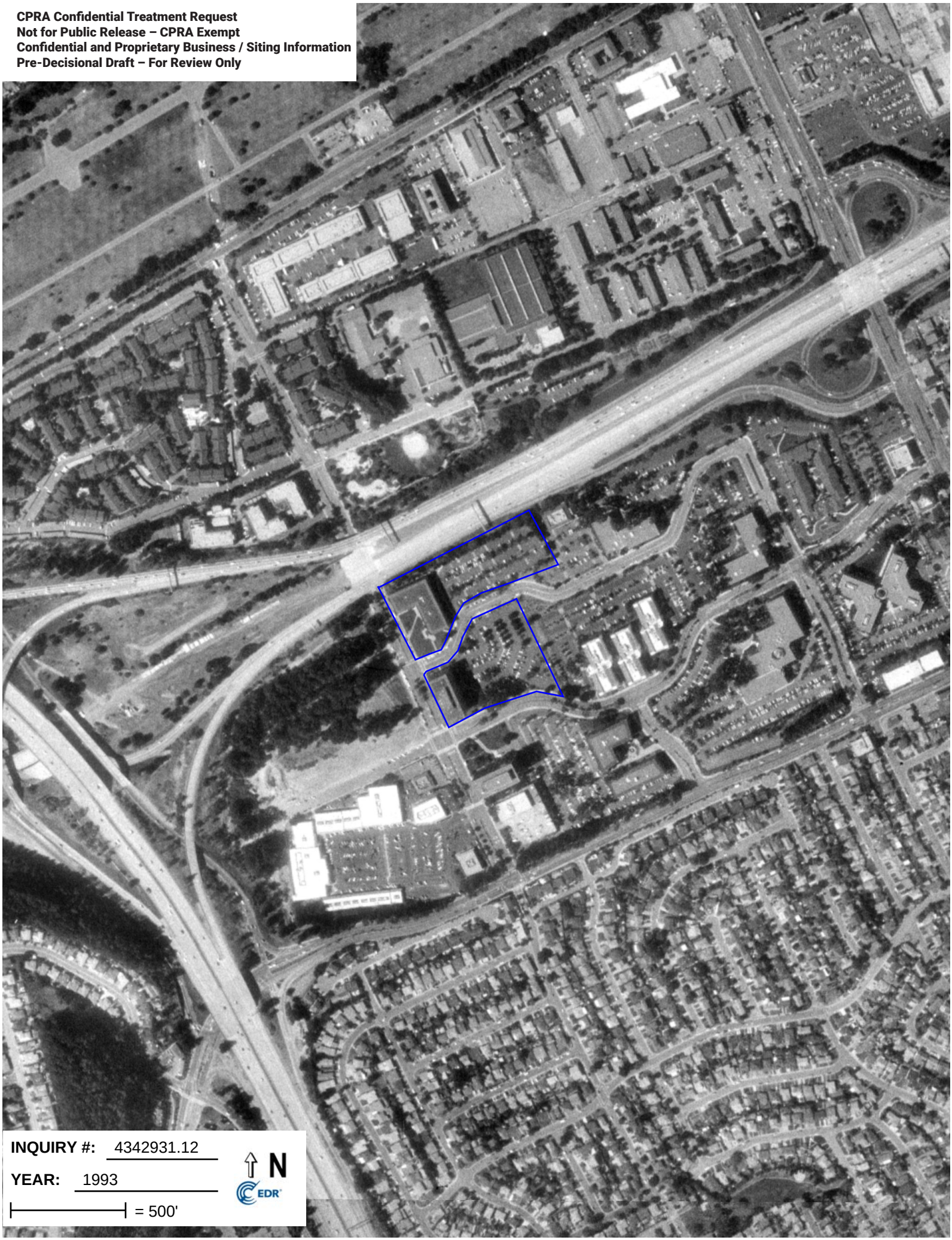
YEAR: 1982

= 500'

N

EDR

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INQUIRY #: 4342931.12

YEAR: 1993

= 500'

N

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INQUIRY #: 4342931.12

YEAR: 1998

= 500'

N

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INQUIRY #: 4342931.12

YEAR: 2005

= 500'

N

EDR

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INQUIRY #: 4342931.12

YEAR: 2006

= 500'

N

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INQUIRY #: 4342931.12

YEAR: 2010

= 500'

N

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INQUIRY #: 4342931.12

YEAR: 2012

= 500'

N

EDR

900 and 1000 Cherry Avenue
900 Cherry Avenue
San Bruno, CA 94066

Inquiry Number: 4342931.5
July 07, 2015

The EDR-City Directory Image Report

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EDR® Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

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Executive Summary

Findings

City Directory Images

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

Year	*Target Street*	*Cross Street*	*Source*
2013	☑	☑	Cole Information Services
2008	☑	☑	Cole Information Services
2003	☑	☑	Cole Information Services
1999	☑	☑	Cole Information Services
1995	☑	☑	Cole Information Services
1992	☑	☑	Cole Information Services
1985	☑	☑	Haines Criss-Cross Directory
1980	☑	☑	Haines Criss-Cross Directory
1977	☑	☐	Haines Criss-Cross Directory
1970	☑	☐	Haines Criss-Cross Directory

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FINDINGS

TARGET PROPERTY STREET

900 Cherry Avenue
San Bruno, CA 94066

Year	*CD Image*	*Source*
CHERRY AVE		
2013	pg A4	Cole Information Services
2008	pg A13	Cole Information Services
2003	pg A22	Cole Information Services
1999	pg A30	Cole Information Services
1995	pg A38	Cole Information Services
1992	pg A44	Cole Information Services
1985	pg A48	Haines Criss-Cross Directory
1985	pg A49	Haines Criss-Cross Directory
1980	pg A51	Haines Criss-Cross Directory
1980	pg A52	Haines Criss-Cross Directory
1977	pg A53	Haines Criss-Cross Directory
1970	pg A54	Haines Criss-Cross Directory

FINDINGS

CROSS STREETS

BAYHILL DR

Year	*CD Image*	*Source*	
2013	pg. A2	Cole Information Services	
2008	pg. A10	Cole Information Services	
2003	pg. A19	Cole Information Services	
1999	pg. A28	Cole Information Services	
1995	pg. A36	Cole Information Services	
1992	pg. A42	Cole Information Services	
1985	pg. A46	Haines Criss-Cross Directory	
1985	pg. A47	Haines Criss-Cross Directory	
1980	pg. A50	Haines Criss-Cross Directory	
1977	-	Haines Criss-Cross Directory	Street not listed in Source
1970	-	Haines Criss-Cross Directory	Street not listed in Source

City Directory Images

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Target Street	Cross Street	Source
-	✓	Cole Information Services

BAYHILL DR 2013

999	AAAA LOCKSMITH
	DEMANDLINE COM
	LASH GROUP INC
	OLYMPIANFLYERS
	SCAN HEALTH PLAN
1001	AGILE ENERGY INC
	ARMAND MINASIAN
	AVANIT AVIATION
	BIOLOGIC US
	BIOSOTERIA
	BISCAYNE VENTURE PARTNERS
	DE VILLIERS WALTON
	DO CONSULTING GROUP INC DO
	EPOINT MANAGEMENT INC
	GREALISH KENT
	HOUSEHOLDER GROUP
	KW SECURITIES CORP
	LANDAMERICA
	LAW OFFICE OF PATRICIA BRUNO
	LEGACY PRIME INVESTMENTS
	MEDION USA
	MODIFIED BUSINESS SOLUTIONS
	PARALLAX VENTURE PARTNERS
	PARMA FLOYD D
	QAS
	QDQUALITY TRAINING SOLUTIONS
	QUACERA CAPITAL MANAGEMENT LLC
	STERNE AGEE FINANCIAL SERVICES
	SWEDISH TRADE COUNCIL
	TAPLIN REAL ESTATE
	TESSARA FINANCIAL ADVISORS INC
	VANTAGEPOINT VENTURES
	VIRTUOX INC
	WALTON DEVILLIERS
1050	COURTYARD BY MARRIOTT
	COURTYARD BY MARRIOTT SAN FRANCISCO
1111	24 HOUR LOCKSMITH
	ADITAZZ INC
	AMERICAN DRUGGIST BLUE BOOK DATA CEN
	BUSINESS ALLIANCE
	BYRNES W J & CO
	CLAPP MORONEY BELLAGAMBA & VUCINICH
	DAVITA SAN BRUNO RX
	EQUITY OFFICE
	ERIDE INC
	ISCHEMIA RESEARCH EDUCATION FOUNDATI
	JOHNS BAYHILL CAFE & CATERING SERVI
	JUNO SOURCE
	LOHIKA
	MYERSSTEVENSMELLO & CO INSURANCE S

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-	✓	Cole Information Services

BAYHILL DR 2013 (Cont'd)

1111	ON ASSIGNMENT
	PAYCHEX
	SAN DAVITA
	SHERMAN CLAY & CO
	TESTMART
	VARSITY LOGISTICS INC
	WEST COAST CONFERENCE
1150	AMERICAN HOME LABORATORIES
	AVILA RICHARD LAW OFFICE OF
	BALBOA TRAVEL
	HERTZ
	LAB SUPPORT
	ON ASSIGNMENT
	PENINSULA TRAFFIC CONGESTION RELIEF
	SCANWELL FREIGHT EXPRESS INC
	UCON INC
	ZIP REALTY
1200	CAFE ON THE LAKE
	CORD BLOOD REGISTRY
	FINANCIAL NETWORK INVESTMENT
	FINANCIAL NETWORK INVESTMENT CORPORA
	INVENTS COMPANY LLC
	KELLSMITH C & ASSOCIATES
	MARQUEZ VINCENT CPA
	NUBLA DOUGLAS T
	PREGNANCYWEEKLY
1250	APEX SYSTEMS INC
	BELVEDERE EQUIPMENT FINANCE
	CBIC
	ED MC GOVERN CONSULTING
	EOPLLY USA INC
	IMAGE SOLUTIONS INC
	LDRA TECHNOLOGY INC
	REALTY ASSOCIATED FUND
	SHARESPOST INC
	SOMPO JAPAN INSURANCE COMPANY
	TECHNOLOGY FINANCE PARTNERS
	TIRET & COMPANY CPAS

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✓	-	Cole Information Services

CHERRY AVE 2013

666	KEVIN KLEIN
667	KATHLEEN HEALY
672	JIMMY WILSON
702	MICHAEL OCHOA
714	JAMES JONES
726	ARTHUR GILBERT
738	ERNEST MAGARIS
740	VINCENT GARCIA
746	MICHELE MCKENNA
752	WALTER GOTELLI
758	JEFF WONG
762	CLOVIS BARBOSA
764	ANDREW BRADFORD
766	PATRICIA KERWIN
770	VERONICA PARRY
774	BRIAN TROUNG
788	MANUEL PALAFOX
811	LOCKSMITH 24 HOUR EMERGENCY INC
813	RADIOSHACK
851	AAA SAN BRUNO LOCKSMITH
	ALLY SHOOSRTRY
	AUS KITCHEN
	BASKINROBBINS
	BAYHILL DENTAL CARE
	BAYHILL GYM & FITNESS
	BAYHILL PLAZA CLEANERS
	BAYHILL SPA
	BIG MOUTH RESTAURANT
	CAFE GRILLADES
	CREATIONS
	DAVID GROLL
	DIAZ LUISA F DMD
	EXTREME PIZZA
	GNC
	JAMBA JUICE
	JAMES SOMAN
	JEFFREY DAVIS
	KLEOS NAILS
	LAWLERS TAE KWON DO
	LONORA GOLDSMITH & WATCH
	MARIA B CUTS & COLOR
	MIKE ROSEN
	MOLLIE STONES MARKETS
	MR DRAIN PLUMBING OF SAN BRUNO
	OLD REPUBLIC TITLE CO
	PENINSULA BEAUTY
	PLUMBING PATROL OF SAN BRUNO
	POSTALANNEX+
	QUIZNOS
	RESUME PROS 4 LESS

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Target Street	Cross Street	Source
✓	-	Cole Information Services

CHERRY AVE 2013 (Cont'd)

851	RICHARD PEREZ
	ROOBIKS CUT
	STARBUCKS COFFEE
	STATE FARM INSURANCE
	STEVEN LAWTON
	SUNNY SUSHI
	TACO BELL
	UHAUL NEIGHBORHOOD DEALER
	VIETMAN VILLAGE RESTAURANT
	WAYNE WEATHERS STATE FARM INSURANC
899	24 HOUR EXPRESS LOCKSMITH
	CARLS JUNIOR RESTAURANT
900	DE ALBA RICARDO LAW OFFICES OF
	EMPYREAN INTL LLC
	FRM CONSULTANTS INC
	GALLINA LLP
	GAP
	RESPONSYS
901	YELLOW CAB
1000	L2 WIRELESS INC
1031	AMANDA SCHRICK
	ANALEE CONDEVILLAMAR
	BEILEI CHEN
	BERNEL MERSHON
	BRANDON WEAVER
	BRYNA RIFKIND
	CHING WANG
	CHRISTINE SIU
	DAVE ADORNETO
	DEANNE WILKES
	DEBORAH TUDAL
	DONAVON BAXTER
	DONNA SINGH
	EMILIO GONZALEZ
	EUSEBIO LANTIN
	FELIMON REYES
	FOSTER CAMPBELL
	GEORGE KALEH
	GUSTAVO OLIVEIRA
	HOI IP
	IGOR ITKIN
	ITKIN IGOR
	JACK STEPHENSON
	JAMIE EFFISIMO
	JEFF HARRISON
	JENE OBIASMAPA
	JEONG YOO
	JILL MICHELI
	JOANNE ARREOLA
	JOANNE WANSTRATH

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Target Street	Cross Street	Source
✓	-	Cole Information Services

CHERRY AVE 2013 (Cont'd)

1031	JOSE LOPEZ
	JOYCE CIRIMELLI
	JTO
	JULIE PRESTA
	KRISTOPHER CAVIN
	LARRY HICKMAN
	LEE LAWLER
	LEE OWENS
	LEO DILEM
	LEONARD SMITH
	LILIANE SILVA
	LORRAINE AMENDA
	MARIA BARAJAS
	MARY MONROE
	MATTHEW LIWANAG
	MAY LIN
	MEAGHANN MOONEY
	MELISSA RAMOS
	MILAGROS ZIALCITA
	MINORU KANEKO
	MUBEENUDDIN SYED
	NILOOFAR MOTTAGHI
	PAUL LOUIE
	PEBBLE CARBALLO
	PETER OSHEA
	ROBERT ANDERSEN
	ROBERT FINNEY
	ROBERT GREGGANS
	ROBERT KAUP
	ROBERT STREICH
	SANDRA CHOY
	SAROCHA DIPRATNA
	SHARON ABEYTA
	SING CHENG
	STANISLAV NIKOLAYENKO
	STEPHEN FONTAINE
	STEVEN KYI
	SUSAN LOPEZ
	THAN MYINT
	VERNON ISHIZAKI
	WILLIAM GILMOUR
	WINIFRED SANCHEZ
	YOSUKE ARIGA
1125	BRYAN ROHDA
	IGOR SHEKHTMAN
	PENINSULA PLACE HOMEOWNERS
	RUSSELL FEDELE
1126	ADISORN CHAIYARUEK
	ALAN CENIGLIO
	ALBERT KOO

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CHERRY AVE 2013 (Cont'd)

1126	AMERIUS TERCIANO
	AMY YEE
	ANA GAMINO
	ANTONIO CARDENAS
	AYYAPPA ANANTAPALLI
	BALANAGENDRA BINGI
	BEHZAD GOSHTASB
	BRYAN SNODGRASS
	CELESTE BANCROFT
	CLAIRE TREACY
	CLIFFORD PONG
	COLIN MACKENZIE
	DAN SAUTER
	DANIEL ELETICH
	DANIELLE BERGEZ
	DAVE DOES DOORS
	DAVID RIENECKER
	DE RIEGO
	DHARAM SINGH
	DIANNE WILEY
	DONATO PEREZ
	EILENE OZAWA
	EKA TANTALIS
	ELEANOR HERTZLER
	ELVIRA RIOS
	ERIC FEGER
	EVELYN GARCIA
	FATEN RAZZOUK
	FELICITO MANZARATE
	FELIX CHAN
	FLORENE FELICIANO
	FRANCISCA RUSLI
	G MENDOZA
	GAURAV KARHADKAR
	GINA BEVAN
	GRAHAM COOPER
	HIMA ARANI
	HSIU YU
	IRINA POLOSKOVA
	JACK SAFRONOV
	JAMIE GONZALEZ
	JENNIFER DIANOS
	JENSEN BONIFACIO
	JOHN LEWIS
	JOYCE GULICK
	JUAN MUNOZ
	KEVIN KOZAK
	LACRU DE
	LELAND GEE
	LELIS CASIL

Target Street	Cross Street	Source
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CHERRY AVE 2013 (Cont'd)

1126 LENA RATHBONE
LEONARD CORSINOTTI
LESLIE ROSE
MANUEL VERDAN
MARCELO LUNA
MARCO LAW
MARCOS PAULE
MARGARET DUMONT
MARGIE QUIJANO
MARIA DEATO
MARIE DELACRUZ
MARTA MOCTEZUMA
MATTHEW GOMEZ
MATTHEW MURPHY
MICHAEL COFFEY
MICHAEL FRIESNER
MILAGROS LAYOS
MURIEL DAVIS
MYRNA ABAD
NOLAN CALLEJO
PATRICK SERVANTES
PAUL RAJU
PAWAN DUBE
PETER DISPENSA
RAFAEL LAHOZ
REBECCA DIAZ
RICKEY MIN
ROBERT HEDGES
ROBERT HOLLOWAY
ROBERT RUBIO
ROD ALAVI
ROLANDO NAVAS
RON HEILIGMAN
RONY AGUS
ROWENA YU
SHIN CHANG
SONIA PEREZ
STEVEN KRCHNIAK
STEVEN TURNER
SUELY LOGSDON
TANYA MARCELINO
THERESA JALOCHA
TIMOTHY BOLUS
TIMOTHY STERRETT
VEGA DELA
VIRGILIO CAINIA
WILSON NOVILLOS
XIAO LU
XIU LI
ZEINA BAZOUZI

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CHERRY AVE 2013 (Cont'd)

1162	OHL DBA BARTCHO
1164	BARTHCO
1166	SERVICE LOGISTICS INC
	SUDDATH RELOCATION
1172	CONCORDIA INTERNATIONAL
1178	DAVITA
1194	SWANSON SERVICES CORPORATION
1196	GCS SERVICE INC

Target Street	Cross Street	Source
-	✓	Cole Information Services

BAYHILL DR 2008

999	CITIMUTUAL CORP
	CITYMUTAL FINANCIAL
	INTAKE INITIATIVES INC
	LASH GROUP
	OLYMPIAN
	OLYMPIAN GULF PROPERTIES INC
1001	AMERICAN EAGLE
	AMERICAN EAGLE SECURITY SERVICE
	ATHERTON CAPITAL INC
	BELLE ROSE PROPERTIES
	BERNARD LUK
	BIOLOGICAL US INC
	BISCAYNE VENTURE PARTNERS
	BT LEGACY INC
	COGITO RESEARCH INSTITUTE LLC
	COUNTRYWIDE HOME LOANS INC
	CROSSBRIDGE VENTURE PARTNERS LLC
	DESERT ROSE PRODUCTIONS
	EFA FINANCIAL SERVICES
	GENESIS CONSULTING GROUP INC
	GOLDEN STATE NAVLINK INC
	GREALISH KENT
	I P WIRELESS INC
	K W FINANCIAL SERVICES INC
	KEANE INC
	KW SECURITIES CORP
	LAW OFFICES OF DOLORES VICTOR
	LAWRENCE A KRAUSE & ASSOCIATES INC
	LAWRENCE KRAUSE
	LEGACY PRIME INVESTMENTS INC
	LUK BERNARD
	M I S I
	M I S I CO LTD
	MARILYN PABLO
	MARYANN SWEIS
	MENTOR EXECUTIVE SEARCH
	MIDLAND PAPER
	NET CAPITAL INC
	NISSAN FIRE & MARINE INSURANCE CO
	OHAYON INVESTMENTS LLC
	QUACERA CAPITAL MANAGEMENT
	REGUS BUSINESS CENTRE
	TECH THINK LLC
	THE ATHERTON GROUP
	THE MEJIA LAW FIRM INC
	TRIDENT FINANCIAL GROUP INC
	UNISON INTERNATIONAL CORP
	VANTAGE POINT MANAGEMENT INC
	VANTAGEPOINT VENTURE PARTNERS
	YASU TECHNOLOGIES INC

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BAYHILL DR 2008 (Cont'd)

1050	COURTYARD BY MARRIOTT
	COURTYARD SAN FRANCISCO AIRPORT
	SAN BRUNO COURTYARD BY MARRIOTT
1111	AETNA
	ALLEGRO ACCEPTANCE
	ALLIANCE TITLE CO
	BLACKHAWK PARENT LLC
	BULLOCK & JONES LLC
	CA BAYHILL 4 7 LTD PARTNERSHIP
	CHROMA GROUP INC
	CLAPP MORONEY BELLAGAMBA VUCINICH
	CSC CONSULTING INC
	FIRST DATA BANK INC
	HERITAGE STAR HOMES & FINANCE
	IC FINANCIAL GROUP
	IDX SYSTEMS CORP
	INLEAGUE INC
	INTEGRITY REALTY
	J B MCINTOSH
	JUNO SOURCE
	LAB SUPPORT INC
	LIBERTY GREENFIELD LLLP
	LOHIKA SYSTEMS INC
	MYERS STEVENS MELLO & CO INSURANCE S
	ON ASSIGNMENT INC
	PACIFIC BIODEVELOPMENT
	PREMIER LANDING GROUP
	PRINCIPAL EQUITY INC
	SAGEWORKS
	THOUGHTWORKS INC
	WAGGENER EDSTROM
	WEB SIDE STORY CORP
	WEBSIDESTORY SEARCH
	WILLIAM H HEFTER
1150	AIRLINE PILOTS ASSOCIATION INTERNATI
	ALLIANCE TITLE CO
	AMERICAN HOME LABORATORIES
	APP TERA INC
	COMPUTERS
	COUNTY OF SAN MATEO
	EMLAB
	ENVIRONMENTAL MICROBIOLOGY LAB INC
	GLOBAL CROSS BORDER SERVICES L
	LELAND JOHN
	PENINSULA TRAFFIC CONGESTION RELIEF
	RICHARD AVILA ATTORNEY AT LAW
	THERESA BENNETT CORP
1200	ASSISTANTS SEC ADMINMGT
	BAY AREA TAX CONSULTANTS INC
	BAY MORTGAGE & INVESTMENTS

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BAYHILL DR 2008 (Cont'd)

1200	BRIDGEPOINTE INVESTMENT CO INC
	C KELL SMITH
	CAFE ON THE LAKE
	CBIC
	CBR SYSTEMS INC
	CORD BLOOD DONOR FOUNDATION
	CORD BLOOD REGISTRY
	DACOR FINANCIAL INC
	DENNIS CHANDLER INSURANCE AGENCY
	DOUGLAS T NUBLA FARMERS INSURANCE
	HEALTHCARE FINANCIAL
	ROGER JORDAN TOTAL CNC HAIR
	TECHNICAL AID CRYSTAL INC
	WISH INTERNATIONAL USA
1250	APEX STAFFING INC
	BELVEDERE EQUIPMENT FINANCE
	BUSINESS OBJECTS AMERICAS
	CONTRACTORS BONDING & INSUR CO
	COYTE SMOLIN & ASSOCIATES INC
	DECOR FINANCIAL
	GEOFFREY MOORE CONSULTING
	GOLDEN GATE RETIREMENT CONSULTANTS
	HIRE COM INC
	HOLLWOOD VIDEO
	INVISION INVESTMENTS INC
	KEAN
	KURT SALMON ASSOCIATES INC
	LAKE AMIR OFFICE PARK
	LAWRENCE GRUNER LAW OFFICE
	PENINSULA HYPNOTHERAPY
	ROTARY ROCKET
	STANFORD CAPITAL FINANC RLT
	TCG ADVISORS LLC
	TIRET & CO CPAS
	UNITED CAPITAL CORP
	WCCSPORTS
	WEST COAST CONFERENCE

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CHERRY AVE 2008

666	KEVIN KLEIN
667	KATHLEEN HEALY
672	JIMMY WILSON
702	MICHAEL OCHOA
714	MARTIN MAYO
	REMEDY GROUP
726	ARTHUR GILBERT
738	JACQUELINE MITCHELL
740	VINCENT GARCIA
746	OCCUPANT UNKNOWN
752	OCCUPANT UNKNOWN
758	JEFF WONG
762	RICARLA VARELA
764	ANDREW BRADFORD
766	DANIEL KERWIN
770	VERONICA PARRY
774	OSCAR SANTOS
788	OCCUPANT UNKNOWN
811	PASTA POMODORO
813	RADIOSHACK
850	BANANA REPUBLIC
	OLD NAVY INC
	THE GAP INC
851	AUS KITCHEN
	BAYHILL DENTAL CARE
	CD WAREHOUSE
	CLUB BAYHILL GYM
	EXTREME PIZZA
	HOLIDAY CLEANERS
	JAMBA JUICE
	KELLY M STEPHEN OD
	KLEO TANNING
	KLEOS NAILS
	LONGS DRUG PHARMACY 84
	LUISA FRANCO DIAZ DMD
	MAJESTIC HEALTH & FITNESS INC
	PATISSERIE GANACHCE
	POSTAL ANNEX PLUS
	POSTALANNEX STORE
	QUIZNOS
	ROOBIKS CUT
	SCHRODERS BAKERY
	SHADOWHELPER INC
	STARBUCKS CORP
	STEPHEN KELLY
	SUNNY SUSHI
	W FEDERAL CREDIT UNION
899	CARLS JR
	TWM FRESNO LLC
	VALLEY CONNECTION LLC

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CHERRY AVE 2008 (Cont'd)

900	BRUNO ESCOBAR PATRICIA LAW
	CURRAN & CONNORS
	DEVICESCAPE SOFTWARE INC
	JOHNSON & DUGAN INSURANCE SERVICES C
	LARRY P CHAO INSURANCE SERVICES INC
	MDA CONSULTANTS INC
	MEYER & DEVINE ASSOCIATES
	NEWCROSS TECHNOLOGIES INC
	NORCAL CONSULTING INC
	SFO BUSINESS CENTERS INC
	THE FICON GROUP INC
901	9008 GROUP INC
	GAP INC
	SPHERION
1000	FORMATION ENTERPRISES LP
	PHILLIP LEW
	TECHNICAL COMMUNITIES INC
	TESTMART
1031	ALFREDO ROJAS
	ALYS ALBRIGHT
	BART NELSON
	BENJAMIN ROSENSTEIN
	BEVERLY HOLQUIN
	CHARLES DETERSON
	CHRISTINE SIU
	DAVID SLOSBERG
	DEANNE WILKES
	DONAVON BAXTER
	DWAYNE GUNNER
	ELBERT KLOB
	ERIC LOWE
	EWA KURPIEWSKA
	FABRIZIO BERTOLUCCI
	FOSTER CAMPBELL
	FRANCIS NOVERO
	GEORGE JONES
	HERNG WANG
	HONG CHUNG
	IGOR ITKIN
	IGOR SKLOVSKIY
	IGOR TUMANOV
	JACK STEPHENSON
	JAD TAWASHA
	JASON AGENA
	JEONG YOO
	JESUS GUZMAN
	JIAN ZHOU
	JOANNE ARREOLA
	JOANNE WANSTRATH
	JOHN ONDO

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1031	JOSE SANTOS
	JOYCE CIRIMELLI
	JR DAVIS
	JTO & ASSOCIATES
	JULIE PRESTA
	KLAUS CUNANAN
	LARRY HICKMAN
	LEE LAWLER
	LIEZL REYES
	LILIANE SILVA
	LINDSAY SARIOTTI
	LORRAINE AMENDA
	MARC CASPER
	MARY GOETZE
	MARY MONROE
	MAY LIN
	MELISSA RAMOS
	MILAGROS ZIALCITA
	MINORU KANEKO
	MOHAMMAD NAGHIPOUR
	NATHANIEL FRANKLIN
	NICOLAS GUITERREZ
	PATRICIA ELLIOTT
	PAUL LEONARDO
	PAUL LOUIE
	PETER OSHEA
	R FRIAS
	RAYMOND GEE
	ROBERT ANDERSEN
	ROBERT GREGGANS
	ROBERT KAUP
	ROBERT STREICH
	SARAH GASEM
	SHARON AISSA
	STEPHEN FONTAINE
	SUH YUAN
	SUSAN LOPEZ
	SUSAN MOSUNIC
	THAN MYINT
	THERESA GILMOUR
	TIEN YEH
	TIZIANA ELNESER
	TOSHA HAMLIN
	VANDANA SINGH
	VERNON ISHIZAKI
	WENDY STARK
	WILLIAM SMITH
	WINIFRED SANCHEZ
	YOSUKE ARIGA
1051	VIJAY KHANNA

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CHERRY AVE 2008 (Cont'd)

1120 WAI WONG
1125 HAULING SERVICES
IGOR STOLPER
JAYNIE BURKE
JEFFREY ROSE
MACELE ROTTA
PENINSULA PLACE HOMEOWNERS
VICENTE DEDIOS
VINCENT PETERSON
1126 AARON JETER
ADISORN CHAIYAPUEK
ALAN ANG
ALAN CENIGLIO
ALEXANDER ARISTORENAS
ANA GAMINO
ANGELES BANTA
ANNA ANTONIO
ARMICHAEL VIDUYA
ARTHUR OREJUDOS
BYUNG KIM
CELESTE BANCROFT
CELESTE RIVERA
CESAR GARCIA
CHONG HONG
CHRISTIAN DEDIOS
CHRISTINA VARGAS
CLAIRE TREACY
CLIFFORD PONG
COLIN MACKENZIE
D KIMDON
DAN SAUTER
DAVID RIENECKER
DAVID SKROBEL
DHARAM SINGH
DIANNE WILEY
DINO MARTIN
DOMINIC ALLING
EDUARDO LUNA
ELEANOR HERTZLER
EUN NOH
EVAMARIE ATIJERA
FALELUA TAGOAI
FELICITO MANZARATE
FLORENE FELICIANO
G MENDOZA
GARY LOGSDON
GASPAR ROCAMORA
GERMAN FERNANDEZ
GERNARD FERIL
HESTER MAK

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CHERRY AVE 2008 (Cont'd)

1126	HINEHINA MATAELA
	IRINA POLOSKOVA
	IVIE SMITH
	JACOB STOUT
	JAIME SALANDANAN
	JAMES HEPPERT
	JAMES STAFF
	JAMIE GONZALEZ
	JASON GRANIZO
	JENNIFER DIANOS
	JERIES JASER
	JIMMY BROWNE
	JINAHLEA MCKEEHEN
	JOE PINEDA
	JOHN COFFEY
	JOSE ARENAS
	JOSEPH ORTIZ
	JOYCE GULICK
	JR FLORO
	KALYANASUNDARAM NATARAJAN
	KAREN STREET
	KATHRYN LOVETTE
	KEVIN KOZAK
	LAWRENCE RABASCO
	LELIS CASIL
	LEONARD CORSINOTTI
	LESTER CONNER
	M MENDES
	MADHULICA MISRA
	MARCOS PAULE
	MARGARET DUMONT
	MARILYN BLANCARTE
	MARIVIC SEBASTIAN
	MARK SALTER
	MARTA MOCTEZUMA
	MATTHEW MURPHY
	MATTHEW SCHAUKOWITCH
	MELISSA LOUIS
	MICHAEL FRIESNER
	MICHAEL MATAELE
	MILAGROS LAYOS
	MURIEL DAVIS
	MYRA SANJUAN
	MYRNA ABAD
	NAJMA KHAN
	NITIN BAJAJ
	NOLAN CALLEJO
	OTTO AVENDANO
	PARVIZE OLOUMI
	PAUL MCCLAIN

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CHERRY AVE 2008 (Cont'd)

1126	PHILLIP IGNACIO
	R LINGINGSMITH
	RAYMOND WONG
	REBECCA DIAZ
	REGINA FRUNDA
	RICKEY MIN
	ROBERT HEDGES
	ROBERT HOLLOWAY
	ROLANDO NAVAS
	ROMMEL VERDAN
	RON HEILIGMAN
	RONY AGUS
	SAMUEL GONZAGA
	SANJAY FERNANDES
	SCHAGER & ASSOCIATES
	SHANNON BENNETT
	SHAWN RIENTE
	SHEILA MONEGAS
	SONIA PEREZ
	SRINIVASA ANNAMRDDY
	STEVE MARKOFF
	STEVEN TURNER
	TANYA MARCELINO
	THERESA JALOCHA
	THOMAS HO
	TIMOTHY BOLUS
	VICTOR CANALES
	VIRGILIO CAINIA
	WILLIAM TOSCANO
	WYNSTON ALBERTS
1136	DEBRA VASQUEZ
1142	WORLDWIDE MANUFACTURING USA INC
1160	T H KELLY INTERNATIONAL INC
1162	DART EXPRESS SAN FRANCISCO INC
1164	DART EXPRESS
	T H KELLY
1166	FOND EXPRESS INC
1178	AERONET WORLDWIDE
1192	JAPAN LUPICIA
	YESASIACOM INC
1196	GCS SERVICE INC
1198	AMERICAN ALLIANCE ALWAYS AVAILABLE

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BAYHILL DR 2003

999	AON RISK
	DEMANDLINE CO
	TAYLOR GORDON LAW GROUP PC
1001	ALAN SALZMAN
	ATHERTON CAPITAL INC
	BERNARD LUK
	BISCAYNE VENTURE PARTNERS
	BORLAND SOFTWARE CORP
	CORAL GROUP
	CROSSBRIDGE VENTURE
	EXPRESS ACTION INC
	FAST CO
	GOLDEN STATE NAVLINK INC
	GRASSROOTSCOM INC
	IP WIRELESS INC
	KAREN BOEZI
	KEANE INC
	KW SECURITIES CORP
	LAWRENCE A KRAUSE & ASSOC
	LAWRENCE KRAUSE
	MEDICAL TECHNICAL RESEARCH ASC
	METRO INFORMATION SERVICES
	MIRANT CORP
	NAVLINK INC
	ONE DEMOCRACY INC
	PARKSIDE GROUP
	REGUS BUSINESS CTR
	SEETHARAMAN CHAKRAPANY
	THE PARKSIDE GROUP LLC
	VANTAGE POINT VENTURE PARTNERS
	WORKMENS AUTO INSURANCE CO
1050	COURTYARD BY MARRIOTT
	OCCUPANT UNKNOWN
1111	AETNA HEALTH PLANS
	ANTONIO BACA
	ATOMZ CO
	BT NORTH AMERICA WEB HOSTING
	BULLOCK & JONES
	CAMDAT CORP
	CSC CONSULTING
	EOPS INC
	EQUITY OFFICE PROPERTIES TRUST
	FOUR FOR SUCCESS
	HEALTHCARE FINANCIAL STAFFING
	IC FINANCIAL GROUP
	J B MCINTOSH
	JEREMY STELL
	JUNTUNEN COMBS POIRIER
	LAB SUPPORT INC
	ON ASSIGNMENT INC

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BAYHILL DR 2003 (Cont'd)

1111 REAL TIME IMAGE
THOUGHTWORKS
WILLIAM H HEFTER
1150 AIR LINE PILOTS ASSOCIATION
AMERICAN HOME LAB INC
ENVIRO MICROBIOLOGY LAB
ENVIRONMENTAL MICROBIOLOGY LAB
EXIT CUBE INC
IDENTICATOR
NATIONAL IMAGING ASSOCS INC
SCANWELL FREIGHT EXPRESS INC
WINERYEXCHANGE CO
1200 BAYHILL FINANCIAL CONSULTANTS
C KELL SMITH & ASSOC
CAFE ON THE LAKE
CBIC CNTRCTR BNDNG & INSRNC
HOLOPHANE CORP
INSPECTOR GENERAL OFFICE
JUSTICE DEPT OF INSPECTOR GNRL
KELL SMITH C & ASSOCS
KYN PAGANELLO
LAKE AMIR
MARINELLI & SCOTT LLP CPAS
PROGRESS SOFTWARE
REIMER ASSOCS
SIERRA VISTA RESEARCH INC
TECH AID
WEST COAST CONFERENCE
1250 A AFFORDABLE LAW OFC OF LWRNC
A GILLIN
ALASKA AIRLINES
APEX SYSTEMS INC
ASAP SOFTWARE EXPRESS
AVILA RICHARD G ATTY AT LAW
CHRIS BOLSONI
CURRAN & CONNORS INC
DIS RESEARCH
FIRST AMERICAN CORP
GRUNER LAWRENCE LAW OFFICE
HEADQUARTERS GLOBAL NETWORKS
HEADQUARTERS GLOBAL WORK PLC
HOME BUYERS ALLIANCE
ISAO SUGIYAI
JEFFREY TIRET
LAW OFFICES OF ROSA MORAN
NORCAL CONSULTING INC
PACIFIC CONCESSIONS
RETAIL CONTROL SYSTEMS
ROTARY ROCKET CO
RSI NOVA SOFT LLC

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1250	RSI REALTIME SOLUTIONS LLC
	STANFORD CAPITAL FINANCE RLTY
	STRONG PROPERTY MANAGEMENT
	SUPER BUDGET INC
	TIRET CO
	TRUST FINANCIAL GROUP
	VIRTUAL PHOTONICS
	WINERY ECHANGECOM INC
	YYPLANET INC

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CHERRY AVE 2003

666	JOANNE LEWIN
667	KATHLEEN HEALY
672	JIMMIE TAKASHIMA
702	PETER OCHOA
714	ANNADEL ALMENDRAS
726	ARTHUR GILBERT
738	JACQUELINE MITCHELL
740	VINCENT GARCIA
752	WALTER GOTELLI
758	JEFF WONG
764	ANDREW BRADFORD
766	DANIEL KERWIN
770	DOUGLAS HOLLANDER
774	STEVEN CRAMER
788	EDWARD PETITI
811	OCCUPANT UNKNOWN
	PASTA POMODORO
813	RADIOSHACK
851	CAROLES SHOE RACK
	CD WAREHOUSE
	CLUB BAYHILL
	CREATIONS
	CU SERVICE CTR
	GENERAL NUTRITION CTR
	HAIR STUDIO
	HIT OR MISS
	JAMBA JUICE
	JAYS HALLMARK
	KING CHOPSTIX
	KLEOS NAILS
	LA CREPERIE
	LENORA GOLDSMITH & WATCH RPR
	MANILA EATERY
	MANILA RESTAURANT
	PAPA MRPHYS TAKE & BAKE PIZZA
	POSTALANNEX STORE 450
	SANDY AT BAYHILL HAIR STUDIO
	SCHRODERS BAKERY
	STARBUCK COFFEE
	TACO BELL
	TANFASTIC SAN BRUNO
	TOTAL CONCERN FOR HAIR
	WEBPRINT CO
	WESTERN FEDERAL CREDIT UNION
899	CARLS JR
	CARLS JUNIOR RESTAURANT
	OCCUPANT UNKNOWN
	TWM INDUSTRIES
900	GANTOS GAPKIDS DIV
	GAP INC

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CHERRY AVE 2003 (Cont'd)

900	GAP KIDS
	GAP KIDS/BABY
	GAP ONLINE INC
	GAP OUTLET
	GAP STORES INC
	MIC 1TX1
	OLD NAVY INC
	THE GAP HUMAN RSRC DVLPMNT
901	KEN NEMETH
	THOMAS ZAPPELLI
1000	STEPHEN CARTER
1031	ALYS ALBRIGHT
	ANNABELLE JIMENEZ
	ANTHONY MATELLI
	BARBARA FIGONE
	BEVERLY HOLQUIN
	BRENT ALBERT
	BRUCE HIURA
	C LEE
	C WANG
	CHRISTINE SIU
	DAVID CHAN
	DEANNE WILKES
	DONALD LEWIS
	FOSTER CAMPBELL
	GEORGE JONES
	GLENN MIRACLE
	HIROSHI HISHIDA
	IGOR ITKIN
	IGOR SKLOVSKIY
	JACK STEPHENSON
	JANETTE HASHIMOTO
	JOANNE WANSTRATH
	JOYCE CIRIMELLI
	JULIE MAJOR
	JULIE PRESTA
	KATE KENEIPP
	KATHLEEN PAULSEN
	KRISHNA PETTITT
	L MADONICH
	LARRY HICKMAN
	LEE LAWLER
	LEON HARMON
	LIEZE REYES
	LISA DEVITO
	LORRAINE AMENDA
	M SANTOS
	MARC CASPER
	MARC KASPER
	MARK MCCLURE

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1031	MARLENE KOLLIAS
	MARNE HILFERTY
	MARY MONROE
	MAY LIN
	N PEANUT
	NANCY MONSON
	NEIL ARRIETA
	NICHOLAS MIRANDA
	PAUL LEONARDO
	PAUL LOUIE
	PAULETTE VOLONTE
	PETER OSHEA
	PETER SHIEH
	REAGAN LANDUCCI
	ROBERT ANDERSEN
	ROBERT CAMERON
	ROBERT KAUP
	ROBERT STREICH
	RONALD COLCLEASURE
	RONALD PURSER
	SANG KIM
	SHARON AISSA
	SONYA SMITH
	SUSAN LOPEZ
	SUSAN MOSUNIC
	THAN MYINT
	THERESA GILMOUR
	THOMAS LEDZION
	THOMAS LENDZION
	TIEN YEH
	TRACY GALLEGOS
	VANDANA SINGH
	VERNON ISHIZAKI
	WILLIAM HANLEY
	WINIFRED SANCHEZ
1125	EVANGELINE ANTEOLA
	IGOR STOLPER
	JAYNIE BURKE
	JOHN LATHAM
	LESTER LOOK
	LISA LOCSIN
	PENINSULA PLACE HOMEOWNERS
	YOUNESS ELHALLAOUI
1126	AFROZ AHMAD
	ALAN CENIGLIO
	AMANDA SANCHEZ
	AMERIUS TERCIANO
	ANGELES BANTA
	ANNA SIU
	ARMICHAEL VIDUYA

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1126 ARRMICHAEL VIDUYA
ARTHUR BROOKS
CELESTE BANCROFT
CLAUDIA DAVILA
CLAUDIA SORIA
CLIFFORD PONG
COLIN MACKENZIE
CRESCENCIAN FAMORCAN
CYNTHIA HEFFERNAN
D COLUMBUS
DAN CHUANG
DAN SAUTER
DANIEL FRAZER
DAVID RIENECKER
DAVID SIRLIN
DAVID SKROBEL
DELMY HINDS
DHARAM SINGH
DIANNE WILEY
E MULLEN
ELEANOR HERTZLER
ELIZABETH CONSUNTO
ELIZABETH SOUW
ELVIRA RIOS
ERIK SANDVIK
ERIK YOUNG
ERMA HATHAWAY
ERNEST CHEU
ESTHER PEREZ
EVAMARIE ATIJERA
FLORENCE DEVERE
FLORENE FELICIANO
GARY DEMATTEIS
GARY LOGSDON
GARY LYSON
HEATHER GOTHOT
HERBERT DIETZLER
JENNEL RAYO
JILL GONZALEZ
JOHN DAY
JOHN HORTON
JOSEPHINE VILLA
JOYCE GULICK
JULIE BEDFORD
KATHLEEN HENRY
KATHLEEN OGDEN
KATHRYN LOVETTE
KRISTINE MARQUEZ
L CASTILLO
LAWRENCE RABASCO

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1126 LEONARD CORSINOTTI
LEONETTE MOTTA
LETICIA FRANCO
LORENZO MARTINEZ
M MENDES
MARCELO LUNA
MARCOS PAULE
MARGARET DUMONT
MARIE SAPPARRART
MARIVIC SEBASTIAN
MARK BROWER
MARK BROWN
MARTA MOCTEZUMA
MATTHEW SCHAUKOWITCH
MAVIC GOROSPE
MICHAEL FRIESNER
MILAGROS LAYOS
MILAGROS MENDOZA
MOSES EDRALIN
MURIEL DAVIS
MYRNA ABAD
MYRON YANOVSKY
NASIR MIR
NEERAJ DUBEY
NOLAN CALLEJO
OTTO AVENDANO
PAUL BROWN
PAWAN DUBE
PETER LUNG
PRAKASH SUBRAMANIAN
R LINGINGSMITH
RAFAEL LAHOZ
REBECCA DIAZ
REBECCA GENDRON
REGINA FRUNDA
ROBERT HEDGES
ROBERTA FIQUERA
ROBIN DEWAR
ROLANDO NAVAS
ROMMEL ADAO
RON HEILIGMAN
RONALD CLARK
ROSARIO ATENCIO
ROSARIO VERDAN
RUBEN ARCEO
RUTH DELEON
SANJAY FERNANDES
SCOTT MURRAY
SISIONA WOLFGRAMM
STEL PAPASTYLIANOS

Target Street	Cross Street	Source
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CHERRY AVE 2003 (Cont'd)

1126	SUNIL LALJI
	THERESA JALOCHA
	THOMAS HO
	TUCKER HARRINGTON
	VALENTE NAVARRO
	VICTOR HERNANDEZ
	VIDAL FRIAS
	VINAY GUPTA
	VINCENT AMAYUN
	WASIM ALI
	WENDY BERGESON
	WESSIE MCKELLERY
1136	DEBRA VASQUEZ
1142	ADT SECURITY SERVICES INC
	COMPEX LEGAL SERVICES
1160	OCCUPANT UNKNOWN
1162	JACKSON KAO
1164	DART EXPRESS
	KELLY T H
1166	DAMAN EXPRESS
	STEVE CONWAY
1172	CONCORDIA INTERNATIONAL
	CONCORDIA INTRNTNL FRWRDNG CORP
1178	AERONET WORLDWIDE
	OCCUPANT UNKNOWN
1192	IBC PACIFIC INC
1196	FAST FLEET SYSTEMS
	OCCUPANT UNKNOWN
	SKYNET WORLDWIDE EXPRESS
1198	OCCUPANT UNKNOWN

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BAYHILL DR 1999

999	CNA INSURANCE
1001	ATHERTON GROUP THE
	ATKINSON COMPANY OF CALIFORNIA HEADQUARTERS
	LUK BERNARD CPA
	MARYANN SWEIS
	MYERS HOLUM & COMPANY
	NISSAN FIRE & MARINE INSURANCE COMPANY
	RIVERLAND COMPUTING INCORPORATED
	SOUTHERN ENERGY TRADING & MARKETING INCORPORATED
	TRANS OCEAN DISTRIBUTION
	VANTAGEPOINT VENTURES
	VENTURI AND COMPANY
	VIDEOLOGIC INCORPORATED
	VIDEOLOGIC TECHNICAL SUPPORT
	WORKMENS AUTO INSURANCE
1050	COURTYARD BY MARRIOTT
1111	AMERICAN DRUGGIST BLUE BOOK DATA CENTER
	BANKERS CLEARING HOUSE
	CSC PARTNERS
	FIRST DATABANK
	JOHNS BAYHILL CAFE & CATERING SERVICE
	JUNTUNEN COMBS POIRIER
	LOGIXWEST
	MCINTOSH J B
	ONCARE
	PACIFIC A & M LIMITED INCORPORATED
	PAYCHEX INCORPORATED
	SERGEI MALTCHENKO
	THE HERITAGE GROUP
	THOUGHTWORKS
	WESTERN PAYMENTS ALLIANCE
	WILSON WILLIAM & ASSOCIATES SATELLITE OFFICES
1150	BAYHILL FINANCIAL CONSULTANTS
	COAST MEDICAL CLINIC INCORPORATED
	FINANCIAL NETWORK INVESTMENT CORPORATION
	HERTZ RENT A CAR ADMINISTRATIVE
	HERTZ RENT A CAR CORPORATE SALES OFFICE
	HERTZ RENT A CAR TRAINING FACILITY
	ICMS INTERNATIONAL
	IDENTICATOR
	INDICATOR
	JOHNSON & DUGAN
	JOHNSON & DUGAN INSURANCE SERVICES
	JOHNSON & DUGAN INSURANCE SERVICES CORPORATION
	LAKE AMIR OFFICE PARK
	MITSUBISHI ELECTRONICS AMERICA INDUSTRIAL AUTOMATION DIVISIO
	NEW ENGLAND THE
	PRICE PUBLIC RELATIONS
	SAN FRANCISCO INDIVIDUAL PRACTICE ASSOCIATION
	UNITED PROPERTY SERVICES

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BAYHILL DR 1999 (Cont'd)

1200 ALPERIN RALPH MD
CAFE ON THE LAKE
CALIFORNIA MEDICAL CLINICS FOR WEIGHT CONTROL
GREY APPRAISAL ASSOCIATES
HEALTHCARE FINANCIAL STAFFING
HOUSEHOLD FINANCE CORPORATION
KELL-SMITH C & ASSOCIATES
L MARINELLI
LAB SUPPORT INCORPORATED
MARINELLI & SCOTT LLP CPAS
MCNAMARA ASSOCIATES INCORPORATED
NATIONAL IMAGING ASSOCIATES INCORPORATED
NATIONAL MARKETING ALLIANCE
PROGRESS SOFTWARE
SCOTT GEFF CPA
TAC TEMPS
TREX CORPORATION
UNITED STATES GOVERNMENT JUSTICE DEPARTMENT OF
WORLD BRANDS DUTY FREE

1250 AMERICAN HVA YANG ENTERPRISES INCORPORATED
APLIO INCORPORATED
BELMONT RESEARCH
BUSINESS OBJECTS INCORPORATED
CAYENNE SOFTWARE
DRUBACH LEONARDO D LAW OFFICE OF
EMERALD SOLUTIONS
ENRICKE INDUSTRIES
FORECLOSURE BROKER GOVERNMENT HOUSES
HQ BUSINESS CENTERS
KONING & ASSOCIATES
KRYSTAL SOLUTIONS COMPUTER MANAGEMENT CONSULTANTS INCORPORAT
LIGATURE SOFTWARE LIMITED
MULLIKIN IPA SAN FRANCISCO PENINSULA REGION
PACIFIC CONCESSIONS INCORPORATED
PACIFIC THRIFT AND LOAN COMPANY
PROFESSIONALS THE CMPTR MANAGEMENT CONSULTANTS INCORPORATED
QUANTEL INCORPORATED
RAPTOR SERVICES
RAPTOR SYSTEMS
RSI REALTIME SOLUTIONS LLC
SAVVIS COMMUNICATIONS
SCRANTON LAW FIRM SAN BRUNO
STANFORD CAPITAL FINANCE REALTY
TIRET & COMPANY CPAS
UNISOFT CORPORATION
UNITED STATES

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CHERRY AVE 1999

666	KEVIN KLEIN
	OCCUPANT UNKNOWN
667	KATHLEEN HEALY
672	JIMMY WILSON
702	LEON OCHOA
	MICHAEL OCHOA
714	MARTIN MAYO
726	ARTHUR GILBERT
738	JACQUELINE MITCHELL
740	VINCENT GARCIA
746	OCCUPANT UNKNOWN
752	LAWRENCE GOTELLI
	OCCUPANT UNKNOWN
758	JEFF WONG
762	RICARLA VARELA
764	ANDREW BRADFORD
766	PATRICIA KERWIN
770	VERONICA PARRY
774	OCCUPANT UNKNOWN
	ROBIN NOGUCHI
788	STACY RICH
811	LEASE MOBILE
	PENINSULA BANK OF COMMERCE
851	BAYHILL DENTAL CARE
	C U SERVICE CENTER
	CLUB BAYHILL
	CREATIONS
	DANIEL MARIETTA HAIR STUDIO
	DAVID GROLL
	DIAZ M LUISA FRANCO DMD
	HIT OR MISS
	LAPETITE BOULANGERIE INCORPORATED
	LENORA GOLDSMITH & WATCH REPAIR
	LISAMARIE AT BAYHILL HAIR STUDIO
	LONORA GOLDSMITH & WATCH REPAIR
	MANILA EATERY
	NOTHINGS NEW VINTAGE MEDIA BAYHILL SHOPPING CENTER
	OK CORRAL
	SANDY AT BAYHILL HAIR STUDIO
	SCHRODERS BAKERY
	TACO BELL
	TANFASTIC TANNING CENTER
	WESTERN FEDERAL CREDIT UNION
899	CARLS JUNIOR RESTAURANT
900	JEFFEREY LEE
901	FISHER DEVELOPMENT INCORPORATED
	GAP THE
1031	ALYS ALBRIGHT
	BENJAMIN ROSENSTEIN
	BEVERLY HOLQUIN

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1031 BRYNA RIFKIND
CARLOS CORREA
CHING WANG
CHRISTINE SIU
DAVID SOLSBERG
DEANNE WILKES
DONAVON BAXTER
ELSA ACEVEDO
ERNEST KUO
ESTHER KECK
EWA KURPIEWSKA
FOSTER CAMPBELL
FRANCIS NOVERO
GEORGE JONES
GEORGE UEHARA
GILL CONTRERAS
IGOR ITKIN
IGOR KRASNEVICH
JACK STEPHENSON
JACQUELINE WELCH
JAD TAWASHA
JAS MALERBI
JEONG YOO
JESUS GUZMAN
JILL MICHELI
JOANNE WANSTRATH
JOHN ONDO
JOYCE CIRIMELLI
JR DAVIS
JULIE PRESTA
K HARAMES
KLAUS CUNANAN
L MADONICH
LARRY HICKMAN
LEE OWENS
LIEZL REYES
LILIANE SILVA
LINDSAY SARIOTTI
LORRAINE AMENDA
MARY MONROE
MAY LIN
MELISSA RAMOS
MILAGROS ZIALCITA
MINORU KANEKO
NATHANIEL FRANKLIN
PAUL LEONARDO
PAUL LOUIE
PETER OSHEA
R FRIAS
RAYMOND GEE

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1031	REGIANE CLEMENTS
	REID BATHGATE
	ROBERT ANDERSEN
	ROBERT GREGGANS
	ROBERT KAUP
	ROBERT STREICH
	ROBT CAMERON
	SHARON AISSA
	SOLIMAN DOGHA
	SONIA THOMAS
	STEPHEN FONTAINE
	SUSAN LOPEZ
	SUSAN MOSUNIC
	THAN MYINT
	THERESA GILMOUT
	TIEN YEH
	TOSHA HAMLIN
	VANDANA SINGH
	VERNON ISHIZAKI
	WENDY STARK
	WILLIAM HANLEY
	WINIFRED SANCHEZ
	YOSUKE ARIGA
	YU TAN
1120	WAI WONG
1125	IGOR STOLPER
	JAYNIE BURKE
	JEFFREY ROSE
	MACELE ROTTA
	PENINSULA PLACE HOMEOWNERS
	VICENTE DEDIOS
	VINCENT PETERSON
1126	ADISORN CHAIYARUEK
	ALAN ANG
	ALAN CENIGLIO
	ANA GAMINO
	ANGELES BANTA
	ARTHUR OREJUDOS
	C REYES
	CELESTE BANCROFT
	CHARISSE GONZALES
	CHERISMA FERIL
	CHONG CHOI
	CHRISTINA VARGAS
	CLIFFORD PONG
	COLIN MACKENZIE
	CYRIL ANTONIO
	DAN SAUTER
	DANILO DEGUZMAN
	DAVID IAMPIETRO

CHERRY AVE 1999 (Cont'd)

1126	DAVID RIENECKER
	DAVID SKROBEL
	DEDIOS RIEGO
	DHARAM SINGH
	DIANNE WILEY
	DOMINIC ALLING
	EDUARDO LUNA
	ELEANOR HERTZLER
	ELIZABETH SOUW
	ERMA HATHAWAY
	EUN NOH
	FALELUA TAGOAI
	FELICITO MANZARATE
	FLORENE FELICIANO
	G MENDOZA
	GERMAN FERNANDEZ
	IRINA POLOSKOVA
	IVIE SMITH
	JAMES HAWKINS
	JAMIE GONZALEZ
	JAY ELIARES
	JENNIFER DAVID
	JERIES JASER
	JINAHLEA MCKEEHEN
	JOHN COFFEY
	JOSEPH ORTIZ
	JOYCE GULICK
	KALYANASUNDAR NATARAJAN
	KAREN STREET
	KEVIN KOZAK
	LAWRENCE RABASCO
	LELIS CASIL
	LEONARD CORSINOTTI
	LINDA CORSINOTTI
	M MARSKELL
	MARCOS PAULE
	MARGARET DUMONT
	MARIA CABRERA
	MARIE DELACRUZ
	MARIVIC SEBASTIAN
	MARK LEE
	MARTA MOCTEZUMA
	MATTHEW MURPHY
	MATTHEW SCHAUKOWITCH
	MELISSA LOUIS
	MICHAEL FRIESNER
	MILAGROS LAYOS
	MIRTA ARANKI
	MURIEL DAVIS
	MYRNA ABAD

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1126	NOLAN CALLEJO
	PARVIZE OLOUMI
	PATRICK SERVANTES
	PAWAN DUBE
	PHILLIP IGNACIO
	RAFAEL LAHOZ
	RAMON MASCARENA
	RAYMOND WONG
	REBECCA DIAZ
	REGINA FRUNDA
	RICHARD COLLINS
	RICKEY MIN
	ROBERT DAVIS
	ROBERT HEDGES
	ROBERT HOLLOWAY
	ROLANDO NAVAS
	ROMELL JORDAN
	ROMMEL VERDAN
	RON HEILIGMAN
	RONY AGUS
	ROSS MANDT
	ROWENA YU
	SAMUEL GONZAGA
	SANJAY FERNANDES
	SELITA MACARAIG
	SHANNON BENNETT
	SHAWN GRUBB
	SHAWN RIENTE
	SHEILA MONEGAS
	SONIA PEREZ
	STEVE MARKOFF
	STEVEN TURNER
	SUELY LOGSDON
	THERESA JALOCHA
	THOMAS HO
	TITO MARTINEZ
	VICTOR CANALES
	VIRGILIO CAINIA
	XAVIER SALABURU
	XIANG MAO
	XIAO LU
	XIU LI
1136	DEBRA VASQUEZ
1142	COMPEX
	HOLMES PROTECTION INCORPORATED
1164	DART EXPRESS
	KELLY T H
1166	CALIFORNIA OVERNIGHT
	DAYBREAK EXPRESS
	OCCUPANT UNKNOWN

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CHERRY AVE 1999 (Cont'd)

1172 CONCORDIA INTERNATIONAL FORWARDING
CROSSROADS EXPRESS INCORPORATED
1178 CENTRAL AIR FREIGHT
1192 AEI MUSIC NETWORK INCORPORATED
1194 SWANSON INMATE COMMISSARY
1196 CITY BUSINESS PRODUCTS

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1001	AAR AIRCRAFT TURBINE CTR
	BERNARD LUK ACCOUNTANCY CORP
	BORLAND INTERNATIONAL INC
	CSC PARTNERS
	DEANS & HOMER
	FIDELITY NATIONAL TITLE INS CO
	MARRIOTT HEALTH CARE
	MISI CO LTD
	WORKMENS AUTO INSURANCE
1050	COURTYARD BY MARRIOTT
1111	ADMAR CORP
	AETNA HEALTH PLANS INC
	ASSOCIATED TAX CONSULTANTS
	BARABAN SECURITIES INC
	COASTWISE INDUSTRIAL CO
	DUN & BRADSTREET CREDIT SVC
	GENERAL AMERICAN LIFE INS CO
	INFORMATION & GRAPHICS SYSTEM
	LIBERTY MUTUAL INSURANCE
	MC CARTY & LIEBERMAN ATTORNEYS
	NORTH LILY MINING CO
	PACIFIC GAS & ELECTRIC CO
	PAYCHEX INC
	S Y WANG & ASSOC
	WALLSTREET CAFE
1150	BALBOA TRAVEL INC
	BAY AREA TAX CONSULTANTS
	BEN C ANDRES
	BEZ FINANCIAL NETWORK INC
	ICMS
	ICMS INTL
	KELLEY DUNLOP & GREY
	NATIONAL MARKETING ALLIANCE
	NEW ENGLAND
	OPTIMA REALTY
	PUBLIC UTILITIES
	RESOURCE MARKETING INC
	SHELL OIL RETAIL SALES
1200	A D MC NAMARA CO
	AUTOMATION RESOURCES INC
	CAFE ON THE LAKE
	CALIFORNIA ONE INVESTMENTS
	CANDIDO ELECTRIC CO
	JOANN K LOPEZ
	JOANN K LOPEZ INSURANCE SVC
	LAKE AMIR OFFICE PARK
	MEDIFAST
	MITSUBISHI ELECTRONICS AMERICA
	PHOENIX PORTFOLIO MANAGEMENT
	PRICE INSURANCE SVC

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1200	SKYLAWN MEMORIAL PARK
	TAC TEMPORARIES
	TRANSAMERICA FINANCIAL SVC
	U S IND TECHNOLOGY CO
	WESTERN DEVELOPEMENT GROUP
	WESTERN HIGHWAY INSTITUTE
1250	U S DEFENSE DEPT
	U S DEFENSE LOGISTICS

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666	LEWIN, JOANNE M
667	CONTI, CYNTHIA
677	CONTI, CYNTHIA A
702	OCHOA, LEON
714	SWIM, KEITH R
726	OCCUPANT UNKNOWNN
738	MITCHELL, GEORGE G
740	MCCARTHY, DANIEL
746	OCCUPANT UNKNOWNN
752	OCCUPANT UNKNOWNN
758	TANG, JEFF G
762	WING, LESTER E
764	BRADFORD, ANDREW
766	KERWIN, DANIEL A
770	FLING, R V
774	WINCHESTER, EDWARD C
811	LEASE MOBILE
850	PENINSULA POSTAL CREDIT UNION
851	BEAR ELEGANT GIFTS
	CHINA EXPRESS
	CREATIONS
	CROWN BOOKS
	HIT OR MISS
	JOHNS BAYHILL DELI
	LA PETITE BOULANGERIE
	PUDLEYS
	SCHRODERS BAKERY
	TANFASTIC TANNING CTR
	VICINO DELI & CAFE
899	CARLS JR RESTAURANT
1031	ADKISON, DALE
	ARAI, JUN
	BROWN, DARLENE G
	CALDWELL, FRANK
	CASTELLINO, JANET
	CHERRY AVENUE VILLAS HOMEOWNER
	CHUNG, MANNON R
	CROGHAN, ROGER T
	DESOUZA, JULIO M
	DI, FILIPPO P
	DUDLEY, WINFIEL
	ENBOM, DEL
	GILMOUR, THERESA A
	GOMEZ, EULOGIO
	GREGGANS, HELEN
	HAMLIN, TOSHA
	HANLEY, WILLIAM D
	HARAMES, K
	HAYDEN, ROYCE
	HESSELMEYER, LORETTA J

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1031	HOLTKAMP, RUDI
	HU, SHI M
	HUGHES, D
	HULFMANN, BOB
	HULSMANN, ROBERT H
	ITKIN, IGOR A
	JAMIESON, FRANCES
	KANEKO, M
	KAUP, ROBERT J
	KECK, JOHN
	KLOB, BERNEL I
	KOLLIAS, M M
	KUVER, O
	LAWLER, LEE E
	LEACH, CHARLES A
	LEE, J
	LENDZION, THOMAS G
	LIN, MAY
	MADONICH, L E
	MALERBI, JAMES
	MARQUEZ, RICHARD
	MONROE, MARY H
	NAZARI, RAZMIK
	OBRIEN, FRANK E
	OGAN, SYLVIA
	ONDO, JOHN P
	ONEIL, GENE P
	ONG, MARK J
	OSHAUGHNESSY, V
	OSHEA, PETER
	PALMER, GARY A
	PEANUT, N
	PETTITT, KRISHNA L
	PRESTA, JULIE A
	QUIMSON, VICTOR J
	ROSELLI, JANET M
	ROSS, E E
	SANTOS, ARLEEN C
	SONG, SUKI
	STEPHENSON, JACK
	STONE, DOUG
	STREICH, ROBERT G
	TENGAN, DEAN
	WALLER, MARLIN L
	WANG, SHUN S
	WILKES, D
	YEH, CHUTSA
	ZANE, ANDREW F
	ZIALCITA, J
1125	PENINSULA PLACE HOMEOWNERS

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1125	ROHDA, BRYAN
1126	ABARA, LEANDRO C
	AHERN, K
	BAILISS, ELTON
	BEDFORD, JULIE
	BETTENCOURT, THOMAS M
	BISORDI, MARK
	BONIFACIO, F M
	BROWN, DONALD L
	BURNSTEIN, SIDNEY
	CENIGLIO, ALAN
	COWLES, SILINTI
	CUEVA, C
	DAVIS, MURIEL I
	DOLLY, JAMES
	DUBINSKY, VICTORI
	DUNSHEE, TOD
	FUQUA, WILLIAM R
	GIANNINI, LAURA
	GONZALEZ, RAUL
	GOSHTASB, BEHZAD
	GREEN, ROBERT J
	GUDAITIS, G J
	HERNANDEZ, VICTOR M
	JONES, CHARLES
	KELLY, M
	KERN, JOANNE M
	LAHOZ, RAFAEL
	LAMA, BOWSHAN
	LI, ELAINE
	LOGSDON, GARY L
	LOO, DAVID
	MCCARTHY, E D
	MULLEN, LIZ
	MURRAY, SCOTT M
	NEAL, RONA
	OBALLE, JOEY
	PONG, C L
	REEIS, MAE C
	ROSSI, LIVIO R
	SAUSSER, DAN
	VEILLEUX, RICHARD
	VROOS, HARRY
	WILSON, TED
	ZAMORA, JUAN A
	ZAN, MICHAEL
1142	COMPEX
1164	ACI
	COLUMBIA SHIPPING INC WEST
	FAST FREIGHT SVC

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CHERRY AVE 1995 (Cont'd)

1192 AEI MUSIC NETWORK INC
1196 LITTLE CITY OFFICE SUPPLY

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BAYHILL DR 1992

999	C N A INSURANCE
1001	A A R ARCRFT TURBNE
	BORLAND INTERNATL
	C S C PARTNERS
	CLARIS CORP
	DEANS&HOMER
	FAX WORKMENS AUTO
	FIDELITY NATL TITLE
	LEGENT CORP
	LUK BERNARD CPA
	M I S I CO LTD
	MARKET DATA RTRVL
	MARRIOTT CORP SERVS
	WORKMENS AUTO INS
1050	MARRIOTT COURTYARD
1111	ADMAR CORPORATION
	AMER DRUGGIST CNTR
	BARABAN SECURITIES
	BAY PAC HEALTH PLAN
	BOISE CASCADE CORP
	COASTWISE INDSTRL
	DUN&BRADSTREET MNG
	FIRST CENTRY PRTNRS
	G E COMPANY
	GENL AMERICAN LIFE
	HEFTER WM H CPA
	HELMY HARRY
	HELMY, HARRY
	I G S
	INDIVIDUAL PRACTICE
	LIBERTY MUTL INS CO
	LYON ROBERT EA
	MCCARTY&LIEBERMAN
	MINE WASTE TCHNLGY
	N E T PACIFIC INC
	NORTH LILY MINNG CO
	PAYCHEX INC
	WALLSTREET CAFE
	WANG S Y&ASSOCTS
	WILSON WILLIAM&ASC
1150	B E Z FINANCIAL NTW
	BALBOA TRAVEL INC
	BAY AR TAX CONSLTNT
	CA ST PUC DIST OFC
	I C M S INTERNATL
	KELLEY DUNLOP&GREY
	KELLEY, DUNLOP
	KUDO MORTAGE CORP
	NEW ENGLAND ADVRS
	PENN MUTL LIFE INS

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BAYHILL DR 1992 (Cont'd)

1150	REMAX OPTIMA REALTY
	RESOURCE MKTG INC
	SHELL OIL
	THOMAS TEMPORARIES
	WESTRN CONF TMSTRS
1200	ALPERIN RALPH MD
	BLUE CROSS CA AGENT
	CAFE ON THE LAKE
	CANDIDO ELECTRIC CO
	LAKE AMIR OFC PARK
	MARDOLLA MORTGAGE
	MCNAMARA A D CO INC
	SKYLAWN MEMORIAL PK
	TAC TEMPS
	TRANSAM FNCL SERV
	WESTRN DEVLP GRP
1250	CA ST REHAB BRANCH
	FASTRAC SYSTEMS INC
	GREAT PAC INS
	NATL INS GROUP
	PINNACLE DATA CORP
	SPEIZER MARK A&CO
	US DFNS CNTRCT SPRT

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CHERRY AVE 1992

666	LEWIN, JOANNE M
	WOLLESEN, MARCIA
702	OCHOA, LEON
726	GILBERT, ARTHUR
738	MITCHELL, GEORGE G
740	MCCARTHY, DANIEL
752	GOTELLI, WALTER A
766	KERWIN, DANIEL A
774	POLIVKA, FRANK
788	ASTELLS, CRAIG
	PSAILA, PHILIP G
811	LEASE MOBILE
	PENINSULA BANK CMRC
850	PENINSULA POSTAL UN
851	BENTOYA
	CREATIONS
	CROWN BOOKS
	HIT OR MISS
	LA PETITE BOULNGRIE
	PUDLEYS
899	CARLS JR RESTAURANT
900	GAP THE
1031	CASTRO, S R
	CHERRY AV VILLAS
	GEPPERT, BRIAN
	GEPPERT, WILLIAM F
	KANEKO, M
	MARQUEZ, RICHARD
	PEANUT, N
	STREICH, R G
	WILKES, D
	YEH, C
1125	PENINSULA PLC HMOWN
1126	AFFSA, JOHN K
	AHERN, K
	BOLTON, W B
	BRUNO, C
	GUDAITIS, G J
	GUTIERREZ, EDGAR
	LAHOZ, RAFAEL
	LAI, GEORGE
	LAM, BOWSHAN
	MENDOZA, F
	SPENCER, P D
	T A C TRADING CO
	VENTURA, MANNY
	VROOS, HARRY
	YOUNG, ERIK
1164	A C I
	COLUMBIA SHIPPING

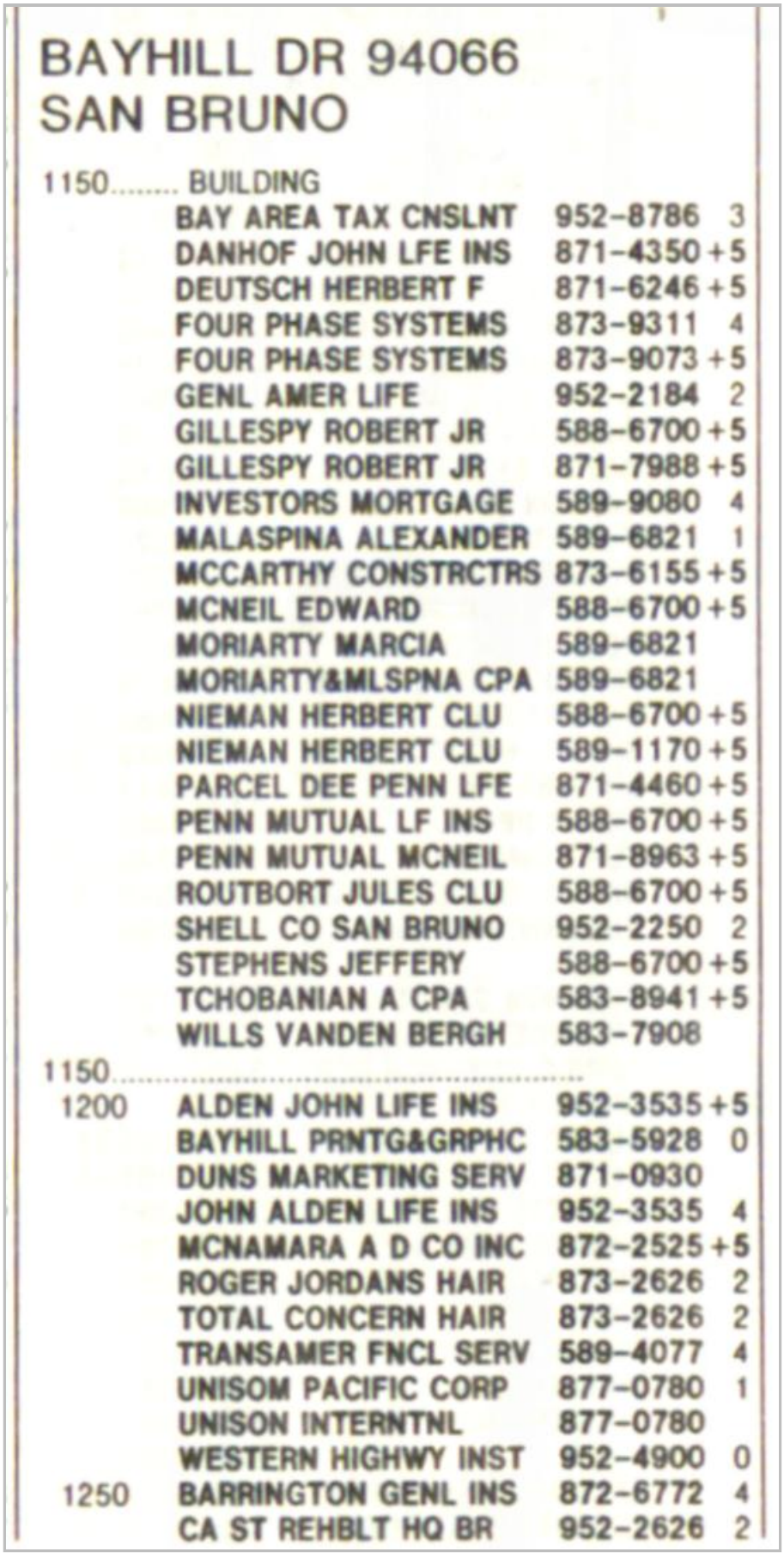
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CHERRY AVE 1992 (Cont'd)

1194 ACCUFLEET

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BAYHILL DR 1985



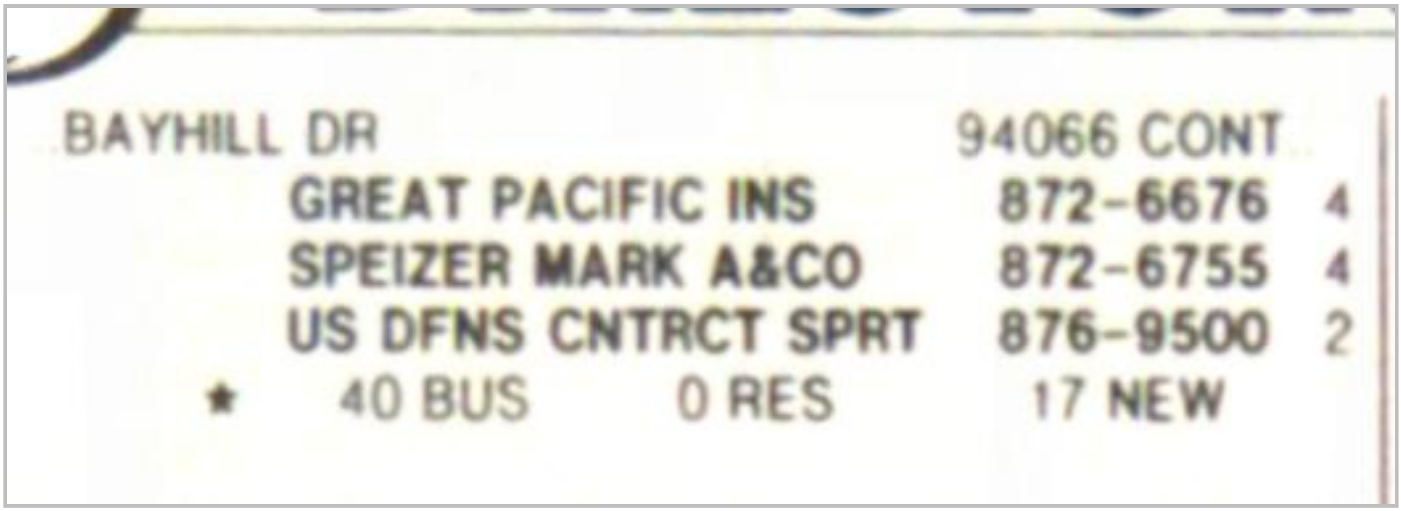
BAYHILL DR 94066
SAN BRUNO

1150	BUILDING		
	BAY AREA TAX CNSLNT	952-8786	3
	DANHOF JOHN LFE INS	871-4350	+5
	DEUTSCH HERBERT F	871-6246	+5
	FOUR PHASE SYSTEMS	873-9311	4
	FOUR PHASE SYSTEMS	873-9073	+5
	GENL AMER LIFE	952-2184	2
	GILLESPY ROBERT JR	588-6700	+5
	GILLESPY ROBERT JR	871-7988	+5
	INVESTORS MORTGAGE	589-9080	4
	MALASPINA ALEXANDER	589-6821	1
	MCCARTHY CONSTRCTRS	873-6155	+5
	MCNEIL EDWARD	588-6700	+5
	MORIARTY MARCIA	589-6821	
	MORIARTY&MLSPNA CPA	589-6821	
	NIEMAN HERBERT CLU	588-6700	+5
	NIEMAN HERBERT CLU	589-1170	+5
	PARCEL DEE PENN LFE	871-4460	+5
	PENN MUTUAL LF INS	588-6700	+5
	PENN MUTUAL MCNEIL	871-8963	+5
	ROUTBORT JULES CLU	588-6700	+5
	SHELL CO SAN BRUNO	952-2250	2
	STEPHENS JEFFERY	588-6700	+5
	TCHOBANIAN A CPA	583-8941	+5
	WILLS VANDEN BERGH	583-7908	
1150			
1200	ALDEN JOHN LIFE INS	952-3535	+5
	BAYHILL PRNTG&GRPHC	583-5928	0
	DUNS MARKETING SERV	871-0930	
	JOHN ALDEN LIFE INS	952-3535	4
	MCNAMARA A D CO INC	872-2525	+5
	ROGER JORDANS HAIR	873-2626	2
	TOTAL CONCERN HAIR	873-2626	2
	TRANSAMER FNCL SERV	589-4077	4
	UNISOM PACIFIC CORP	877-0780	1
	UNISON INTERNTNL	877-0780	
	WESTERN HIGHWY INST	952-4900	0
1250	BARRINGTON GENL INS	872-6772	4
	CA ST REHBLT HQ BR	952-2626	2

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BAYHILL DR 1985



BAYHILL DR 94066 CONT

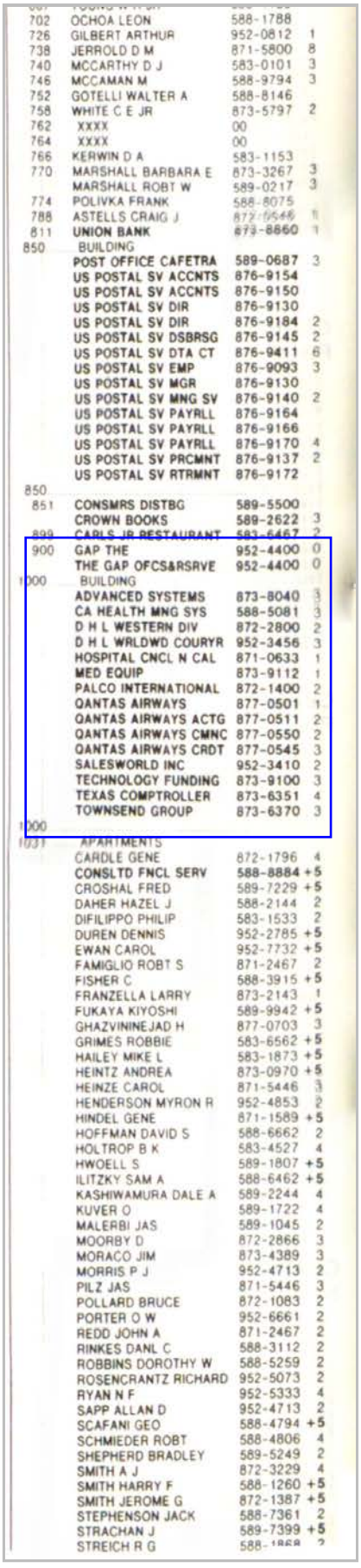
GREAT PACIFIC INS	872-6676	4
SPEIZER MARK A&CO	872-6755	4
US DFNS CNTRCT SPRT	876-9500	2

★ 40 BUS 0 RES 17 NEW

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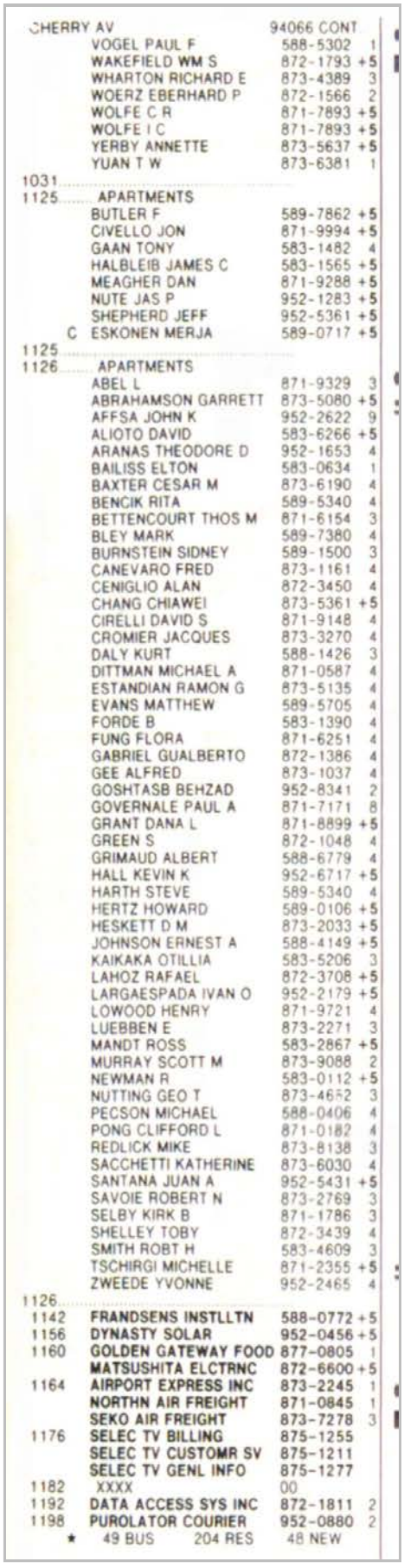


702	OCHOA LEON	588-1788	
726	GILBERT ARTHUR	952-0812	1
738	JERROLD D M	871-5800	8
740	MCCARTHY D J	583-0101	3
746	MCCAMAN M	588-9794	3
752	GOTELLI WALTER A	588-8146	
758	WHITE C E JR	873-5797	2
762	XXXX	00	
764	XXXX	00	
766	KERWIN D A	583-1153	
770	MARSHALL BARBARA E	873-3267	3
	MARSHALL ROBT W	589-0217	3
774	POLIVKA FRANK	588-8075	
788	ASTELLS CRAIG J	872-0546	1
811	UNION BANK	873-8860	1
850	BUILDING		
	POST OFFICE CAFETRA	589-0687	3
	US POSTAL SV ACCNTS	876-9154	
	US POSTAL SV ACCNTS	876-9150	
	US POSTAL SV DIR	876-9130	
	US POSTAL SV DIR	876-9184	2
	US POSTAL SV DSBRSG	876-9145	2
	US POSTAL SV DTA CT	876-9411	6
	US POSTAL SV EMP	876-9093	3
	US POSTAL SV MGR	876-9130	
	US POSTAL SV MNG SV	876-9140	2
	US POSTAL SV PAYRLL	876-9164	
	US POSTAL SV PAYRLL	876-9166	
	US POSTAL SV PAYRLL	876-9170	4
	US POSTAL SV PRCMNT	876-9137	2
	US POSTAL SV RTRMNT	876-9172	
850			
851	CONSMRS DISTBG	589-5500	
	CROWN BOOKS	589-2622	3
899	CARLS JR RESTAURANT	583-6457	2
900	GAP THE	952-4400	0
	THE GAP OFCS&RSRVE	952-4400	0
1000	BUILDING		
	ADVANCED SYSTEMS	873-8040	3
	CA HEALTH MNG SYS	588-5081	3
	D H L WESTERN DIV	872-2800	2
	D H L WRLDWD COURYR	952-3456	3
	HOSPITAL CNCL N CAL	871-0633	1
	MED EQUIP	873-9112	1
	PALCO INTERNATIONAL	872-1400	2
	QANTAS AIRWAYS	877-0501	1
	QANTAS AIRWAYS ACTG	877-0511	2
	QANTAS AIRWAYS CMNC	877-0550	2
	QANTAS AIRWAYS CRDT	877-0545	3
	SALESWORLD INC	952-3410	2
	TECHNOLOGY FUNDING	873-9100	3
	TEXAS COMPTROLLER	873-6351	4
	TOWNSEND GROUP	873-6370	3
1000			
1031	APARTMENTS		
	CARDLE GENE	872-1796	4
	CONSLTD FNCL SERV	588-8884	+5
	CROSHAL FRED	589-7229	+5
	DAHER HAZEL J	588-2144	2
	DIFILIPPO PHILIP	583-1533	2
	DUREN DENNIS	952-2785	+5
	EWAN CAROL	952-7732	+5
	FAMIGLIO ROBT S	871-2467	2
	FISHER C	588-3915	+5
	FRANZELLA LARRY	873-2143	1
	FUKAYA KIYOSHI	589-9942	+5
	GHAZVININEJAD H	877-0703	3
	GRIMES ROBBIE	583-6562	+5
	HAILEY MIKE L	583-1873	+5
	HEINTZ ANDREA	873-0970	+5
	HEINZE CAROL	871-5446	3
	HENDERSON MYRON R	952-4853	2
	HINDEL GENE	871-1589	+5
	HOFFMAN DAVID S	588-6662	2
	HOLTROP B K	583-4527	4
	HWOELL S	589-1807	+5
	ILITZKY SAM A	588-6462	+5
	KASHIWAMURA DALE A	589-2244	4
	KUVER O	589-1722	4
	MALERBI JAS	589-1045	2
	MOORBY D	872-2866	3
	MORACO JIM	873-4389	3
	MORRIS P J	952-4713	2
	PILZ JAS	871-5446	3
	POLLARD BRUCE	872-1083	2
	PORTER O W	952-6661	2
	REDD JOHN A	871-2467	2
	RINKES DANL C	588-3112	2
	ROBBINS DOROTHY W	588-5259	2
	ROSENCRANTZ RICHARD	952-5073	2
	RYAN N F	952-5333	4
	SAPP ALLAN D	952-4713	2
	SCAFANI GEO	588-4794	+5
	SCHMIEDER ROBT	588-4806	4
	SHEPHERD BRADLEY	589-5249	2
	SMITH A J	872-3229	4
	SMITH HARRY F	588-1260	+5
	SMITH JEROME G	872-1387	+5
	STEPHENSON JACK	588-7361	2
	STRACHAN J	589-7399	+5
	STREICH R G	588-1868	2

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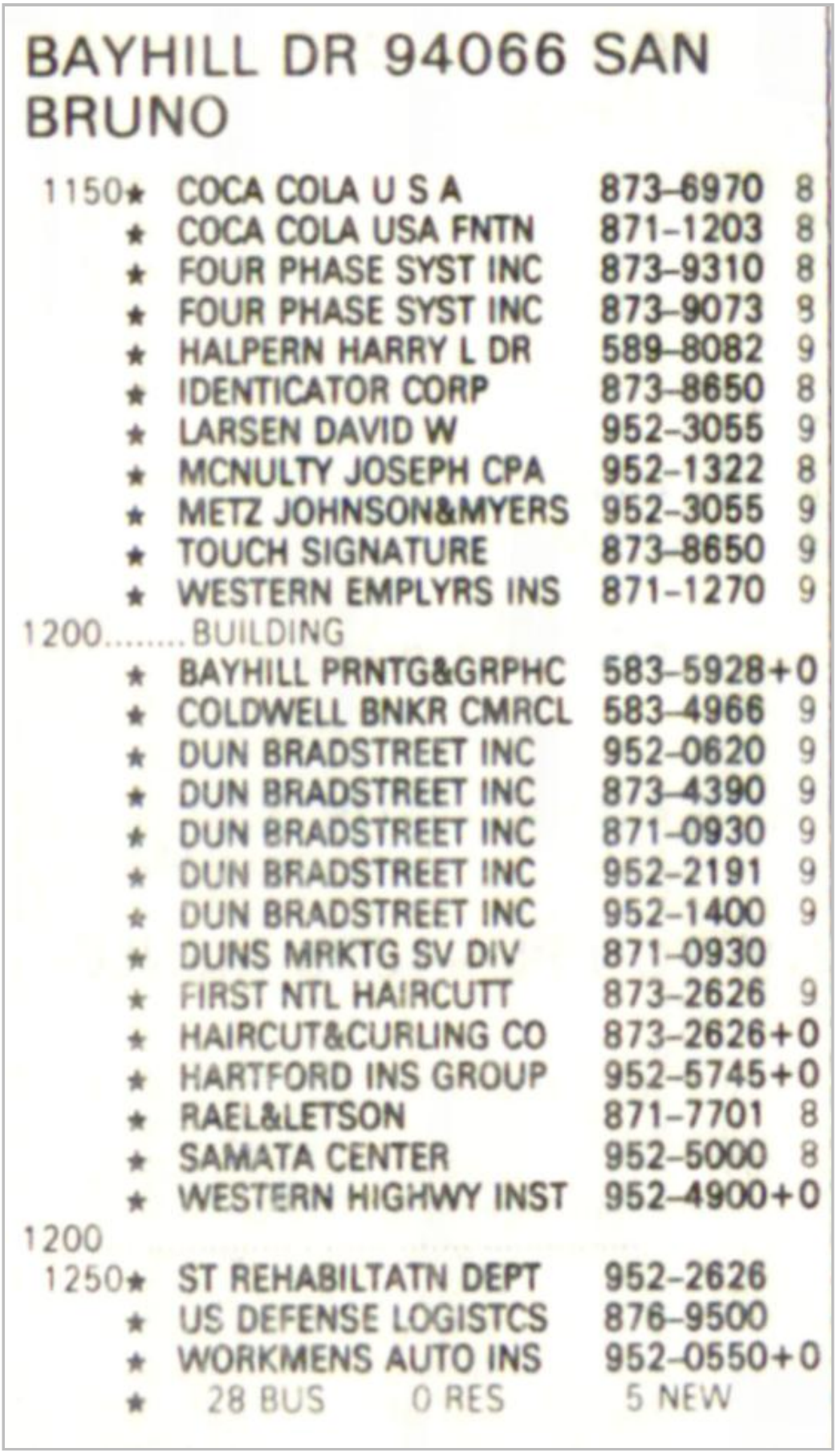
CHERRY AV 94066 CONT

	VOGEL PAUL F	588-5302 1
	WAKEFIELD WM S	872-1793 +5
	WHARTON RICHARD E	873-4389 3
	WOERZ EBERHARD P	872-1566 2
	WOLFE C R	871-7893 +5
	WOLFE I C	871-7893 +5
	YERBY ANNETTE	873-5637 +5
	YUAN T W	873-6381 1
1031		
1125	APARTMENTS	
	BUTLER F	589-7862 +5
	CIVELLO JON	871-9994 +5
	GAAN TONY	583-1482 4
	HALBLEIB JAMES C	583-1565 +5
	MEAGHER DAN	871-9288 +5
	NUTE JAS P	952-1283 +5
	SHEPHERD JEFF	952-5361 +5
C	ESKONEN MERJA	589-0717 +5
1125		
1126	APARTMENTS	
	ABEL L	871-9329 3
	ABRAHAMSON GARRETT	873-5080 +5
	AFFSA JOHN K	952-2622 9
	ALIOTO DAVID	583-6266 +5
	ARANAS THEODORE D	952-1653 4
	BAILISS ELTON	583-0634 1
	BAXTER CESAR M	873-6190 4
	BENCIK RITA	589-5340 4
	BETTENCOURT THOS M	871-6154 3
	BLEY MARK	589-7380 4
	BURNSTEIN SIDNEY	589-1500 3
	CANEVARO FRED	873-1161 4
	CENIGLIO ALAN	872-3450 4
	CHANG CHIAWEI	873-5361 +5
	CIRELLI DAVID S	871-9148 4
	CROMIER JACQUES	873-3270 4
	DALY KURT	588-1426 3
	DITTMAN MICHAEL A	871-0587 4
	ESTANDIAN RAMON G	873-5135 4
	EVANS MATTHEW	589-5705 4
	FORDE B	583-1390 4
	FUNG FLORA	871-6251 4
	GABRIEL GUALBERTO	872-1386 4
	GEE ALFRED	873-1037 4
	GOSHTASB BEHZAD	952-8341 2
	GOVERNALE PAUL A	871-7171 8
	GRANT DANA L	871-8899 +5
	GREEN S	872-1048 4
	GRIMAUD ALBERT	588-6779 4
	HALL KEVIN K	952-6717 +5
	HARTH STEVE	589-5340 4
	HERTZ HOWARD	589-0106 +5
	HESKETT D M	873-2033 +5
	JOHNSON ERNEST A	588-4149 +5
	KAIKAKA OTILLIA	583-5206 3
	LAHOZ RAFAEL	872-3708 +5
	LARGAESPADA IVAN O	952-2179 +5
	LOWOOD HENRY	871-9721 4
	LUEBBEN E	873-2271 3
	MANDT ROSS	583-2867 +5
	MURRAY SCOTT M	873-9088 2
	NEWMAN R	583-0112 +5
	NUTTING GEO T	873-4652 3
	PECSON MICHAEL	588-0406 4
	PONG CLIFFORD L	871-0182 4
	REDLICK MIKE	873-8138 3
	SACCHETTI KATHERINE	873-6030 4
	SANTANA JUAN A	952-5431 +5
	SAVOIE ROBERT N	873-2769 3
	SELBY KIRK B	871-1786 3
	SHELLEY TOBY	872-3439 4
	SMITH ROBT H	583-4609 3
	TSCHIRGI MICHELLE	871-2355 +5
	ZWEEDE YVONNE	952-2465 4
1126		
1142	**FRANDSENS INSTLLTN**	588-0772 +5
1156	**DYNASTY SOLAR**	952-0456 +5
1160	**GOLDEN GATEWAY FOOD**	877-0805 1
	MATSUSHITA ELCTRNC	872-6600 +5
1164	**AIRPORT EXPRESS INC**	873-2245 1
	NORTHN AIR FREIGHT	871-0845 1
	SEKO AIR FREIGHT	873-7278 3
1176	**SELEC TV BILLING**	875-1255
	SELEC TV CUSTOMR SV	875-1211
	SELEC TV GENL INFO	875-1277
1182	XXXX	00
1192	**DATA ACCESS SYS INC**	872-1811 2
1198	**PUROLATOR COURIER**	952-0880 2
*	49 BUS 204 RES	48 NEW

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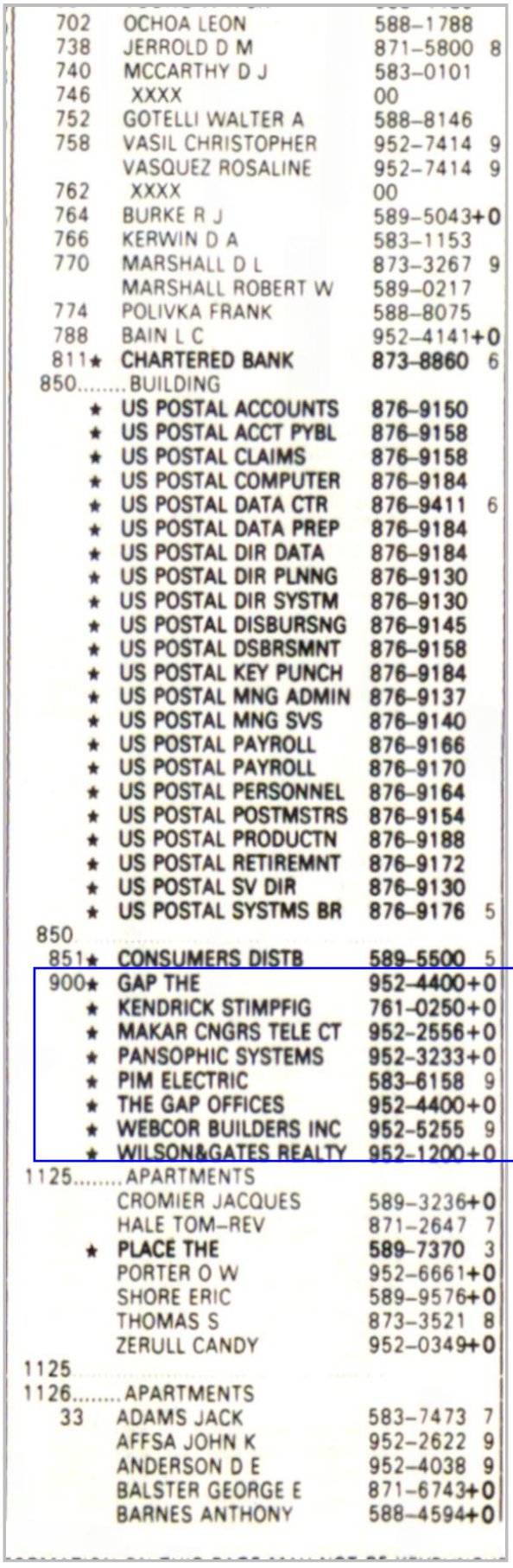
BAYHILL DR 94066 SAN BRUNO

1150	★ COCA COLA U S A	873-6970	8
	★ COCA COLA USA FNTN	871-1203	8
	★ FOUR PHASE SYST INC	873-9310	8
	★ FOUR PHASE SYST INC	873-9073	8
	★ HALPERN HARRY L DR	589-8082	9
	★ IDENTICATOR CORP	873-8650	8
	★ LARSEN DAVID W	952-3055	9
	★ MCNULTY JOSEPH CPA	952-1322	8
	★ METZ JOHNSON&MYERS	952-3055	9
	★ TOUCH SIGNATURE	873-8650	9
	★ WESTERN EMPLYRS INS	871-1270	9
1200.....	BUILDING		
	★ BAYHILL PRNTG&GRPHC	583-5928+0	
	★ COLDWELL BNKR CMRCL	583-4966	9
	★ DUN BRADSTREET INC	952-0620	9
	★ DUN BRADSTREET INC	873-4390	9
	★ DUN BRADSTREET INC	871-0930	9
	★ DUN BRADSTREET INC	952-2191	9
	★ DUN BRADSTREET INC	952-1400	9
	★ DUNS MRKTG SV DIV	871-0930	
	★ FIRST NTL HAIRCUTT	873-2626	9
	★ HAIRCUT&CURLING CO	873-2626+0	
	★ HARTFORD INS GROUP	952-5745+0	
	★ RAEL&LETSON	871-7701	8
	★ SAMATA CENTER	952-5000	8
	★ WESTERN HIGHWY INST	952-4900+0	
1200			
1250	★ ST REHABILTATN DEPT	952-2626	
	★ US DEFENSE LOGISTCS	876-9500	
	★ WORKMENS AUTO INS	952-0550+0	
	★ 28 BUS 0 RES	5 NEW	

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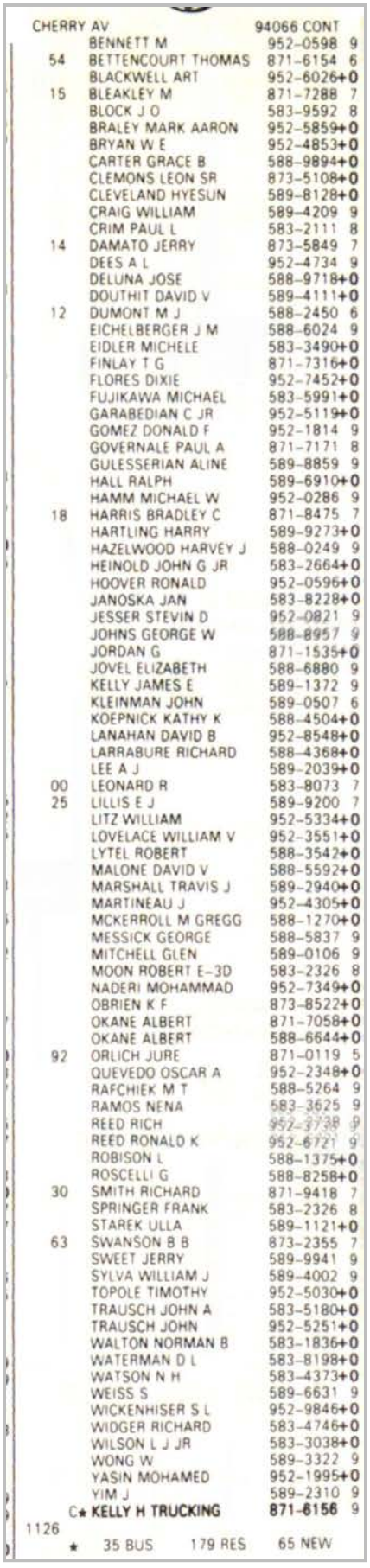


702	OCHOA LEON	588-1788	
738	JERROLD D M	871-5800	8
740	MCCARTHY D J	583-0101	
746	XXXX	00	
752	GOTELLI WALTER A	588-8146	
758	VASIL CHRISTOPHER	952-7414	9
	VASQUEZ ROSALINE	952-7414	9
762	XXXX	00	
764	BURKE R J	589-5043+0	
766	KERWIN D A	583-1153	
770	MARSHALL D L	873-3267	9
	MARSHALL ROBERT W	589-0217	
774	POLIVKA FRANK	588-8075	
788	BAIN L C	952-4141+0	
811★	**CHARTERED BANK**	**873-8860**	6
850.....	BUILDING		
★	**US POSTAL ACCOUNTS**	**876-9150**	
★	**US POSTAL ACCT PYBL**	**876-9158**	
★	**US POSTAL CLAIMS**	**876-9158**	
★	**US POSTAL COMPUTER**	**876-9184**	
★	**US POSTAL DATA CTR**	**876-9411**	6
★	**US POSTAL DATA PREP**	**876-9184**	
★	**US POSTAL DIR DATA**	**876-9184**	
★	**US POSTAL DIR PLNNG**	**876-9130**	
★	**US POSTAL DIR SYSTM**	**876-9130**	
★	**US POSTAL DISBURSNG**	**876-9145**	
★	**US POSTAL DSBRSMNT**	**876-9158**	
★	**US POSTAL KEY PUNCH**	**876-9184**	
★	**US POSTAL MNG ADMIN**	**876-9137**	
★	**US POSTAL MNG SVS**	**876-9140**	
★	**US POSTAL PAYROLL**	**876-9166**	
★	**US POSTAL PAYROLL**	**876-9170**	
★	**US POSTAL PERSONNEL**	**876-9164**	
★	**US POSTAL POSTMSTRS**	**876-9154**	
★	**US POSTAL PRODUCTN**	**876-9188**	
★	**US POSTAL RETIREMNT**	**876-9172**	
★	**US POSTAL SV DIR**	**876-9130**	
★	**US POSTAL SYSTMS BR**	**876-9176**	5
850			
851★	**CONSUMERS DISTB**	**589-5500**	5
900★	**GAP THE**	**952-4400+0**	
★	**KENDRICK STIMPFIG**	**761-0250+0**	
★	**MAKAR CNGRS TELE CT**	**952-2556+0**	
★	**PANSOPHIC SYSTEMS**	**952-3233+0**	
★	**PIM ELECTRIC**	**583-6158**	9
★	**THE GAP OFFICES**	**952-4400+0**	
★	**WEBCOR BUILDERS INC**	**952-5255**	9
★	**WILSON&GATES REALTY**	**952-1200+0**	
1125.....	APARTMENTS		
	CROMIER JACQUES	589-3236+0	
	HALE TOM-REV	871-2647	7
★	**PLACE THE**	**589-7370**	3
	PORTER O W	952-6661+0	
	SHORE ERIC	589-9576+0	
	THOMAS S	873-3521	8
	ZERULL CANDY	952-0349+0	
1125			
1126.....	APARTMENTS		
33	ADAMS JACK	583-7473	7
	AFFSA JOHN K	952-2622	9
	ANDERSON D E	952-4038	9
	BALSTER GEORGE E	871-6743+0	
	BARNES ANTHONY	588-4594+0	

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Target Street	Cross Street	Source
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CHERRY AVE 1980



CHERRY AV 94066 CONT

	BENNETT M	952-0598 9
54	BETTENCOURT THOMAS	871-6154 6
	BLACKWELL ART	952-6026+0
15	BLEAKLEY M	871-7288 7
	BLOCK J O	583-9592 8
	BRALEY MARK AARON	952-5859+0
	BRYAN W E	952-4853+0
	CARTER GRACE B	588-9894+0
	CLEMONS LEON SR	873-5108+0
	CLEVELAND HYESUN	589-8128+0
	CRAIG WILLIAM	589-4209 9
	CRIM PAUL L	583-2111 8
14	DAMATO JERRY	873-5849 7
	DEES A L	952-4734 9
	DELUNA JOSE	588-9718+0
	DOUTHIT DAVID V	589-4111+0
12	DUMONT M J	588-2450 6
	EICHELBERGER J M	588-6024 9
	EIDLER MICHELE	583-3490+0
	FINLAY T G	871-7316+0
	FLORES DIXIE	952-7452+0
	FUJIKAWA MICHAEL	583-5991+0
	GARABEDIAN C JR	952-5119+0
	GOMEZ DONALD F	952-1814 9
	GOVERNALE PAUL A	871-7171 8
	GULESSERIAN ALINE	589-8859 9
	HALL RALPH	589-6910+0
	HAMM MICHAEL W	952-0286 9
18	HARRIS BRADLEY C	871-8475 7
	HARTLING HARRY	589-9273+0
	HAZELWOOD HARVEY J	588-0249 9
	HEINOLD JOHN G JR	583-2664+0
	HOOVER RONALD	952-0596+0
	JANOSKA JAN	583-8228+0
	JESSER STEVIN D	952-0821 9
	JOHNS GEORGE W	588-8957 9
	JORDAN G	871-1535+0
	JOVEL ELIZABETH	588-6880 9
	KELLY JAMES E	589-1372 9
	KLEINMAN JOHN	589-0507 6
	KOEPNICK KATHY K	588-4504+0
	LANAHAN DAVID B	952-8548+0
	LARRABURE RICHARD	588-4368+0
	LEE A J	589-2039+0
00	LEONARD R	583-8073 7
25	LILLIS E J	589-9200 7
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	LOVELACE WILLIAM V	952-3551+0
	LYTEL ROBERT	588-3542+0
	MALONE DAVID V	588-5592+0
	MARSHALL TRAVIS J	589-2940+0
	MARTINEAU J	952-4305+0
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	MESSICK GEORGE	588-5837 9
	MITCHELL GLEN	589-0106 9
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	NADERI MOHAMMAD	952-7349+0
	OBRIEN K F	873-8522+0
	OKANE ALBERT	871-7058+0
	OKANE ALBERT	588-6644+0
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	QUEVEDO OSCAR A	952-2348+0
	RAFCHIEK M T	588-5264 9
	RAMOS NENA	583-3625 9
	REED RICH	952-3738 9
	REED RONALD K	952-6721 9
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	ROSCELLI G	588-8258+0
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	SPRINGER FRANK	583-2326 8
	STAREK ULLA	589-1121+0
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	TRAUSCH JOHN A	583-5180+0
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	WALTON NORMAN B	583-1836+0
	WATERMAN D L	583-8198+0
	WATSON N H	583-4373+0
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	YIM J	589-2310 9
	C★ KELLY H TRUCKING	871-6156 9

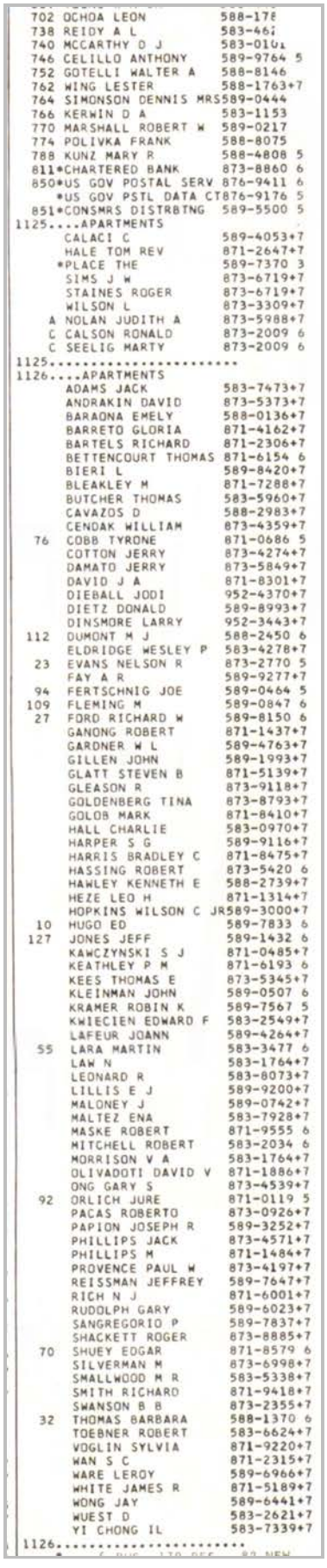
1126

★ 35 BUS 179 RES 65 NEW

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Target Street	Cross Street	Source
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CHERRY AVE 1977

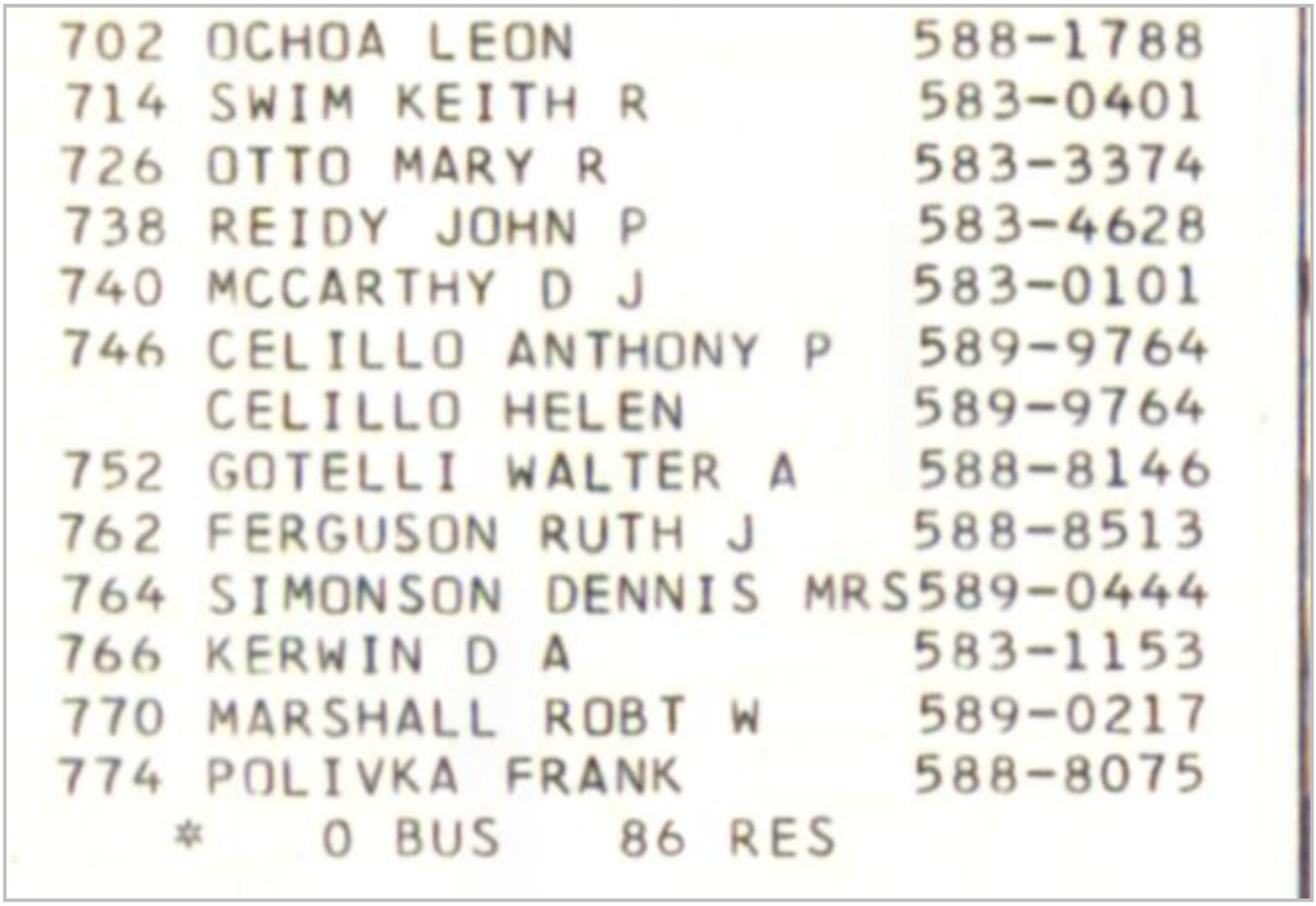


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  740 MCCARTHY D J            583-010?
  746 CELILLO ANTHONY         589-9764 5
  752 GOTELLI WALTER A        588-8146
  762 WING LESTER             588-1763+7
  764 SIMONSON DENNIS MRS     589-0444
  766 KERWIN D A              583-1153
  770 MARSHALL ROBERT W       589-0217
  774 POLIVKA FRANK           588-8075
  788 KUNZ MARY R             588-4808 5
  811*CHARTERED BANK          873-8860 6
  850*US GOV POSTAL SERV      876-9411 6
     *US GOV PSTL DATA CT     876-9176 5
  851*CONSMRS DISTRBTNG       589-5500 5
1125....APARTMENTS
      CALACI C                589-4053+7
      HALE TOM REV            871-2647+7
     *PLACE THE               589-7370 3
      SIMS J W                873-6719+7
      STAINES ROGER           873-6719+7
      WILSON L                873-3309+7
    A NOLAN JUDITH A          873-5988+7
    C CALSON RONALD           873-2009 6
    C SEELIG MARTY            873-2009 6
1125.........................
1126....APARTMENTS
      ADAMS JACK              583-7473+7
      ANDRAKIN DAVID          873-5373+7
      BARAONA EMELY           588-0136+7
      BARRETO GLORIA          871-4162+7
      BARTELS RICHARD         871-2306+7
      BETTENCOURT THOMAS      871-6154 6
      BIERI L                 589-8420+7
      BLEAKLEY M              871-7288+7
      BUTCHER THOMAS          583-5960+7
      CAVAZOS D               588-2983+7
      CENDAK WILLIAM          873-4359+7
   76 COBB TYRONE             871-0686 5
      COTTON JERRY            873-4274+7
      DAMATO JERRY            873-5849+7
      DAVID J A               871-8301+7
      DIEBALL JODI            952-4370+7
      DIETZ DONALD            589-8993+7
      DINSMORE LARRY          952-3443+7
  112 DUMONT M J              588-2450 6
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   23 EVANS NELSON R          873-2770 5
      FAY A R                 589-9277+7
   94 FERTSCHNIG JOE          589-0464 5
  109 FLEMING M               589-0847 6
   27 FORD RICHARD W          589-8150 6
      GANONG ROBERT           871-1437+7
      GARDNER W L             589-4763+7
      GILLEN JOHN             589-1993+7
      GLATT STEVEN B          871-5139+7
      GLEASON R               873-9118+7
      GOLDENBERG TINA         873-8793+7
      GOLOB MARK              871-8410+7
      HALL CHARLIE            583-0970+7
      HARPER S G              589-9116+7
      HARRIS BRADLEY C        871-8475+7
      HASSING ROBERT          873-5420 6
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      HEZE LEO H              871-1314+7
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      KEATHLEY P M            871-6193 6
      KEES THOMAS E           873-5345+7
      KLEINMAN JOHN           589-0507 6
      KRAMER ROBIN K          589-7567 5
      KWIECIEN EDWARD F       583-2549+7
      LAFEUR JOANN            589-4264+7
   55 LARA MARTIN             583-3477 6
      LAW N                   583-1764+7
      LEONARD R               583-8073+7
      LILLIS E J              589-9200+7
      MALONEY J               589-0742+7
      MALTEZ ENA              583-7928+7
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      MITCHELL ROBERT         583-2034 6
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      ONG GARY S              873-4539+7
   92 ORLICH JURE             871-0119 5
      PACAS ROBERTO           873-0926+7
      PAPION JOSEPH R         589-3252+7
      PHILLIPS JACK           873-4571+7
      PHILLIPS M              871-1484+7
      PROVENCE PAUL W         873-4197+7
      REISSMAN JEFFREY        589-7647+7
      RICH N J                871-6001+7
      RUDOLPH GARY            589-6023+7
      SANGREGORIO P           589-7837+7
      SHACKETT ROGER          873-8885+7
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      SMITH RICHARD           871-9418+7
      SWANSON B B             873-2355+7
   32 THOMAS BARBARA          588-1370 6
      TOEBNER ROBERT          583-6624+7
      VOGLIN SYLVIA           871-9220+7
      WAN S C                 871-2315+7
      WARE LEROY              589-6966+7
      WHITE JAMES R           871-5189+7
      WONG JAY                589-6441+7
      WUEST D                 583-2621+7
      YI CHONG IL             583-7339+7
1126.........................
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Target Street	Cross Street	Source
✓	-	Haines Criss-Cross Directory

CHERRY AVE 1970



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702 OCHOA LEON                    588-1788
714 SWIM KEITH R                  583-0401
726 OTTO MARY R                   583-3374
738 REIDY JOHN P                  583-4628
740 MCCARTHY D J                  583-0101
746 CELILLO ANTHONY P             589-9764
    CELILLO HELEN                 589-9764
752 GOTELLI WALTER A              588-8146
762 FERGUSON RUTH J               588-8513
764 SIMONSON DENNIS MRS           589-0444
766 KERWIN D A                    583-1153
770 MARSHALL ROBT W               589-0217
774 POLIVKA FRANK                 588-8075
    *   0 BUS   86 RES
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900 and 1000 Cherry Avenue
900 Cherry Avenue
San Bruno, CA 94066

Inquiry Number: 4342931.3
July 01, 2015

Certified Sanborn® Map Report

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Shelton, Connecticut 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

7/01/15

Site Name:
900 and 1000 Cherry Avenue
900 Cherry Avenue
San Bruno, CA 94066

Client Name:
Iris Environmental
1438 Webster Street
Oakland, CA 94612

EDR Inquiry # 4342931.3

Contact: Karen Smith

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The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Site Name: 900 and 1000 Cherry Avenue
Address: 900 Cherry Avenue
City, State, Zip: San Bruno, CA 94066
Cross Street:
P.O. # NA
Project: 900 and 1000 Cherry Avenue
Certification # 99FC-4284-BBAF

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

Sanborn® Library search results
Certification # 99FC-4284-BBAF

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ✓ Library of Congress
- ✓ University Publications of America
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900 and 1000 Cherry Avenue
900 Cherry Avenue
San Bruno, CA 94066

Inquiry Number: 4342931.4
July 02, 2015

EDR Historical Topographic Map Report

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EDR Historical Topographic Map Report

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Please contact EDR at 1-800-352-0050
with any questions or comments.

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Historical Topographic Map



N	TARGET QUAD NAME: SAN MATEO MAP YEAR: 1899 SERIES: 15 SCALE: 1:62500	SITE NAME: 900 and 1000 Cherry Avenue ADDRESS: 900 Cherry Avenue San Bruno, CA 94066 LAT/LONG: 37.6287 / -122.4254	CLIENT: Iris Environmental CONTACT: Karen Smith INQUIRY#: 4342931.4 RESEARCH DATE: 07/02/2015		

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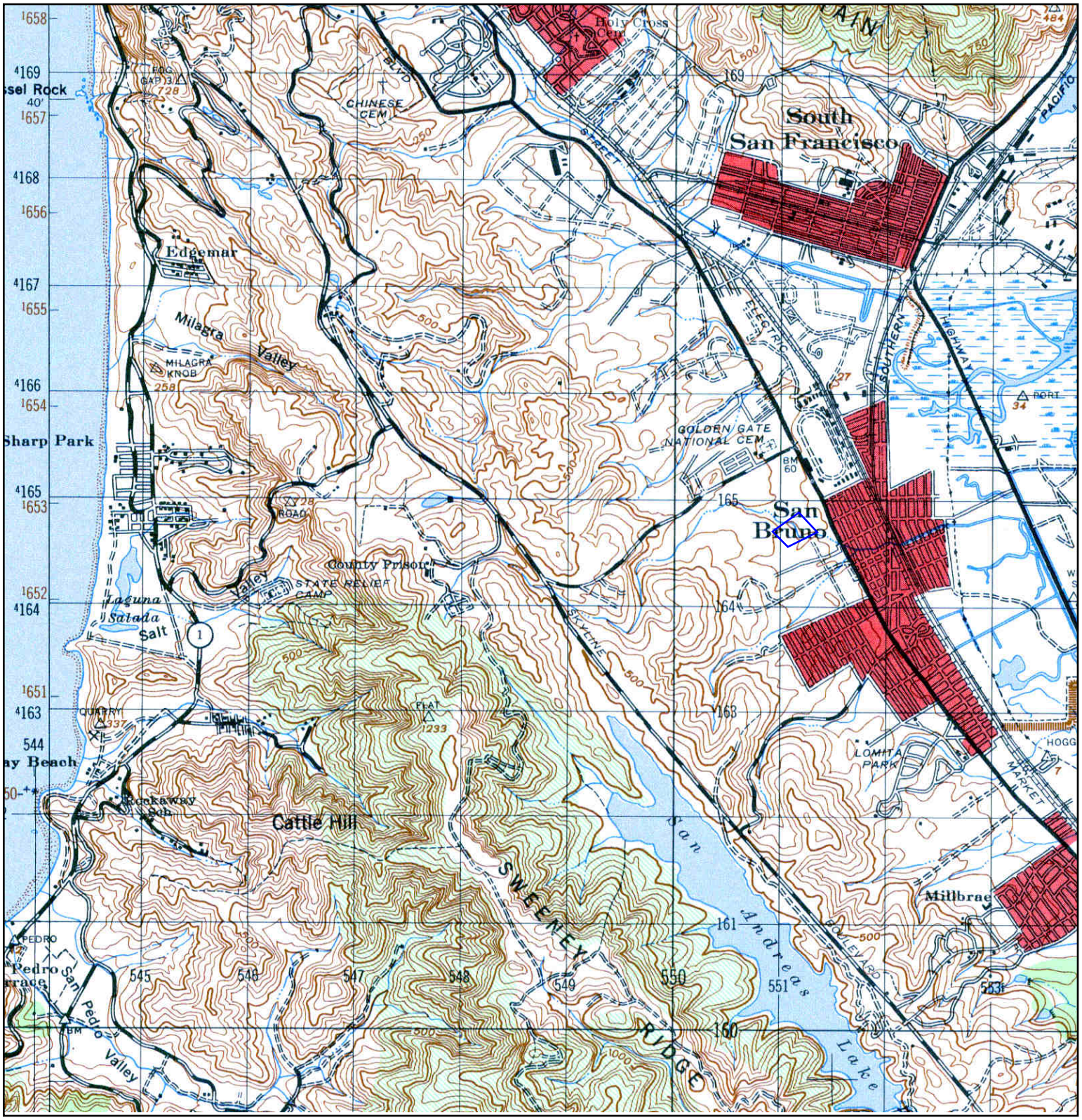
Historical Topographic Map



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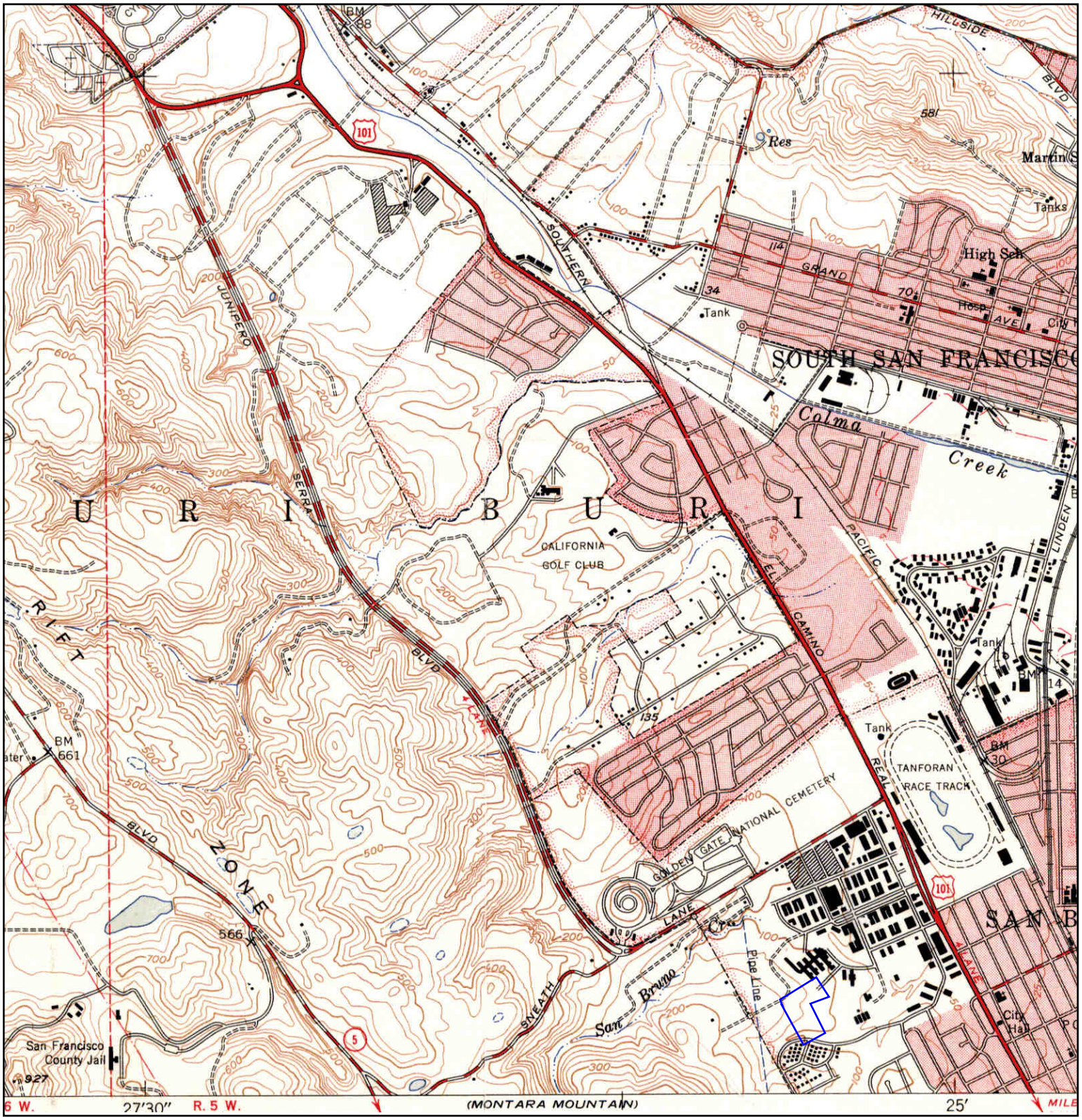
Historical Topographic Map



N	TARGET QUAD		SITE NAME:	900 and 1000 Cherry Avenue	CLIENT: Iris Environmental
	NAME:	SAN MATEO			CONTACT: Karen Smith
	MAP YEAR:	1947	ADDRESS:	900 Cherry Avenue San Bruno, CA 94066	INQUIRY#: 4342931.4
	SERIES:	15	LAT/LONG:	37.6287 / -122.4254	RESEARCH DATE: 07/02/2015
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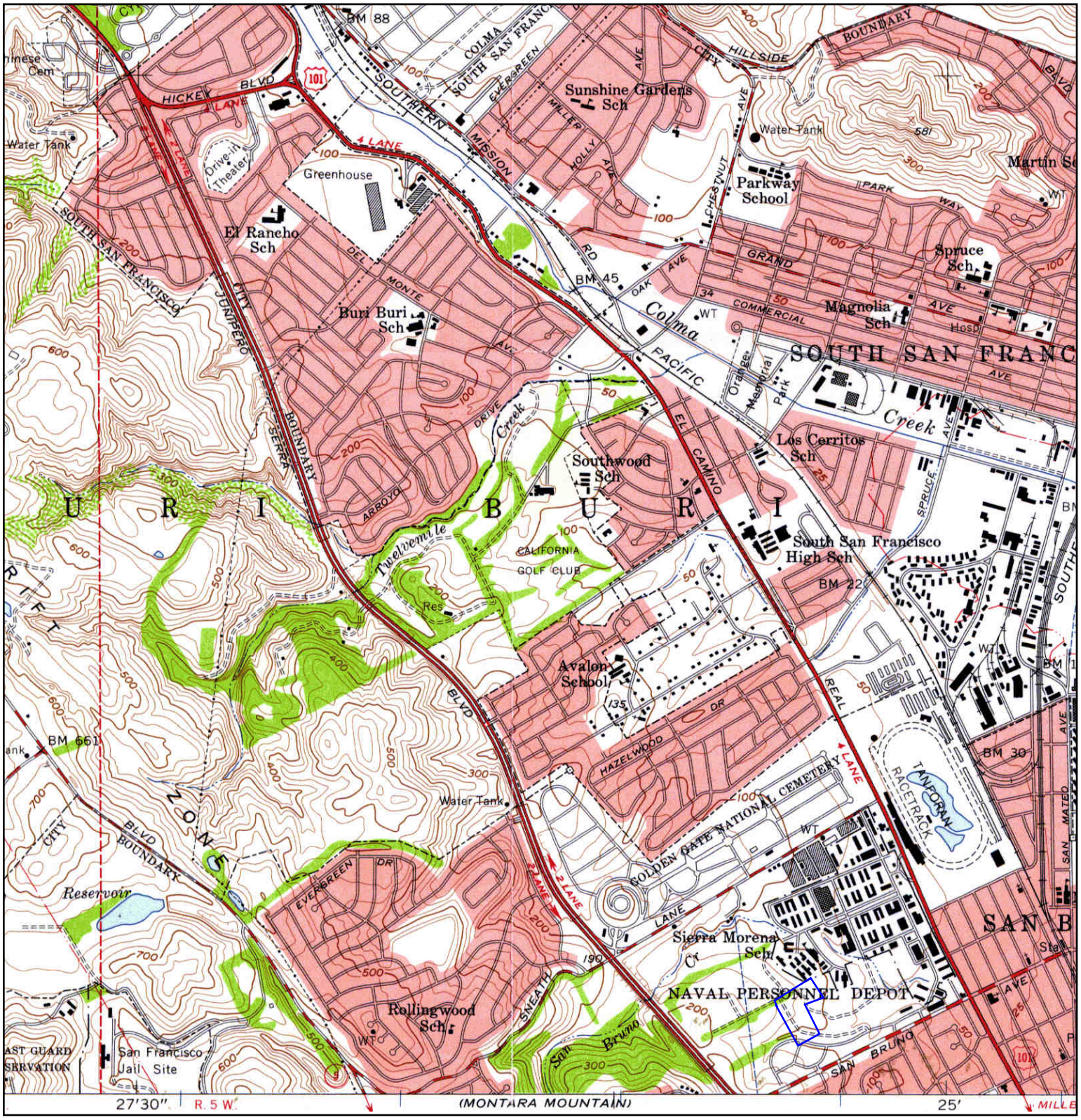
Historical Topographic Map



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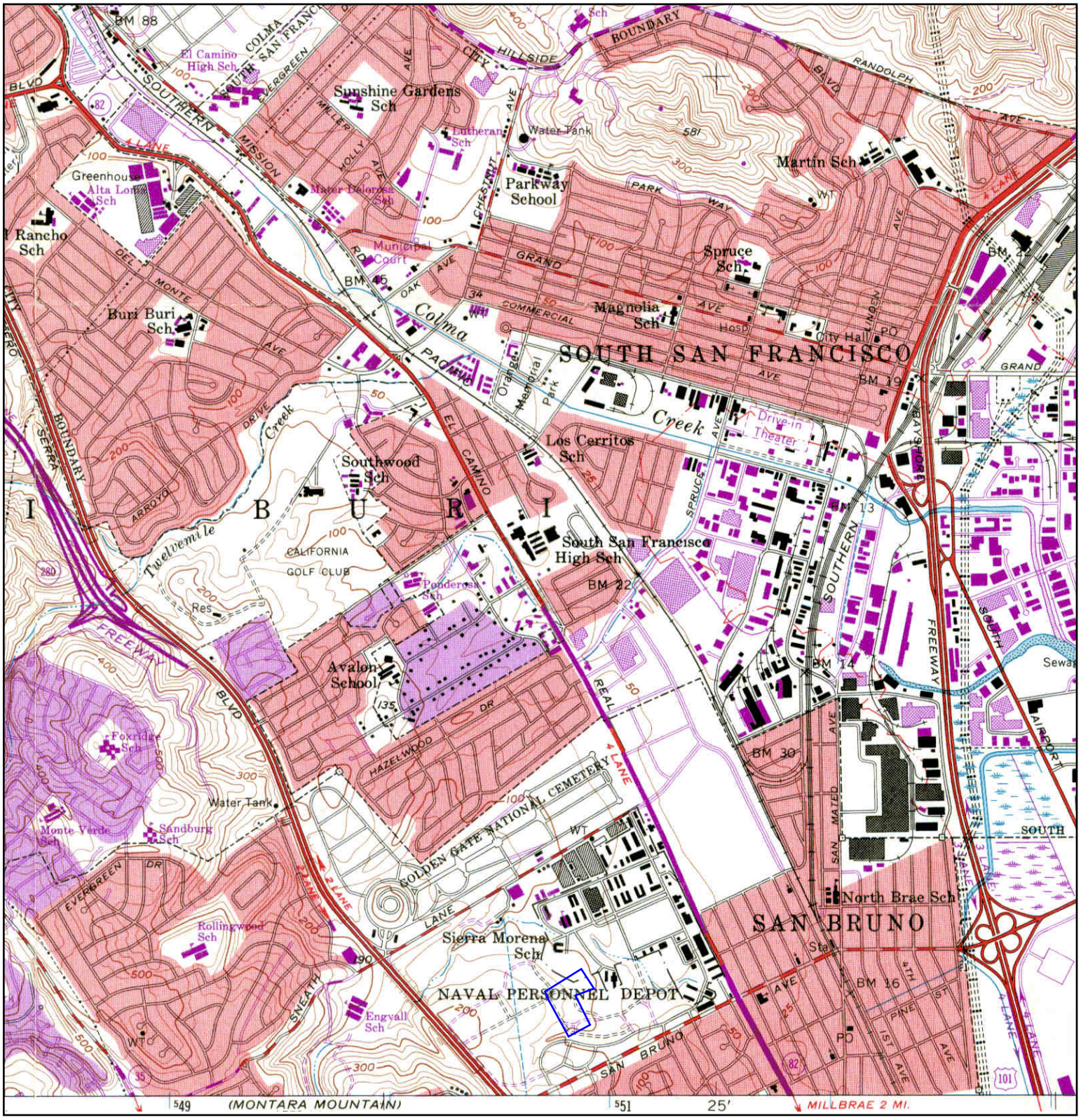
Historical Topographic Map



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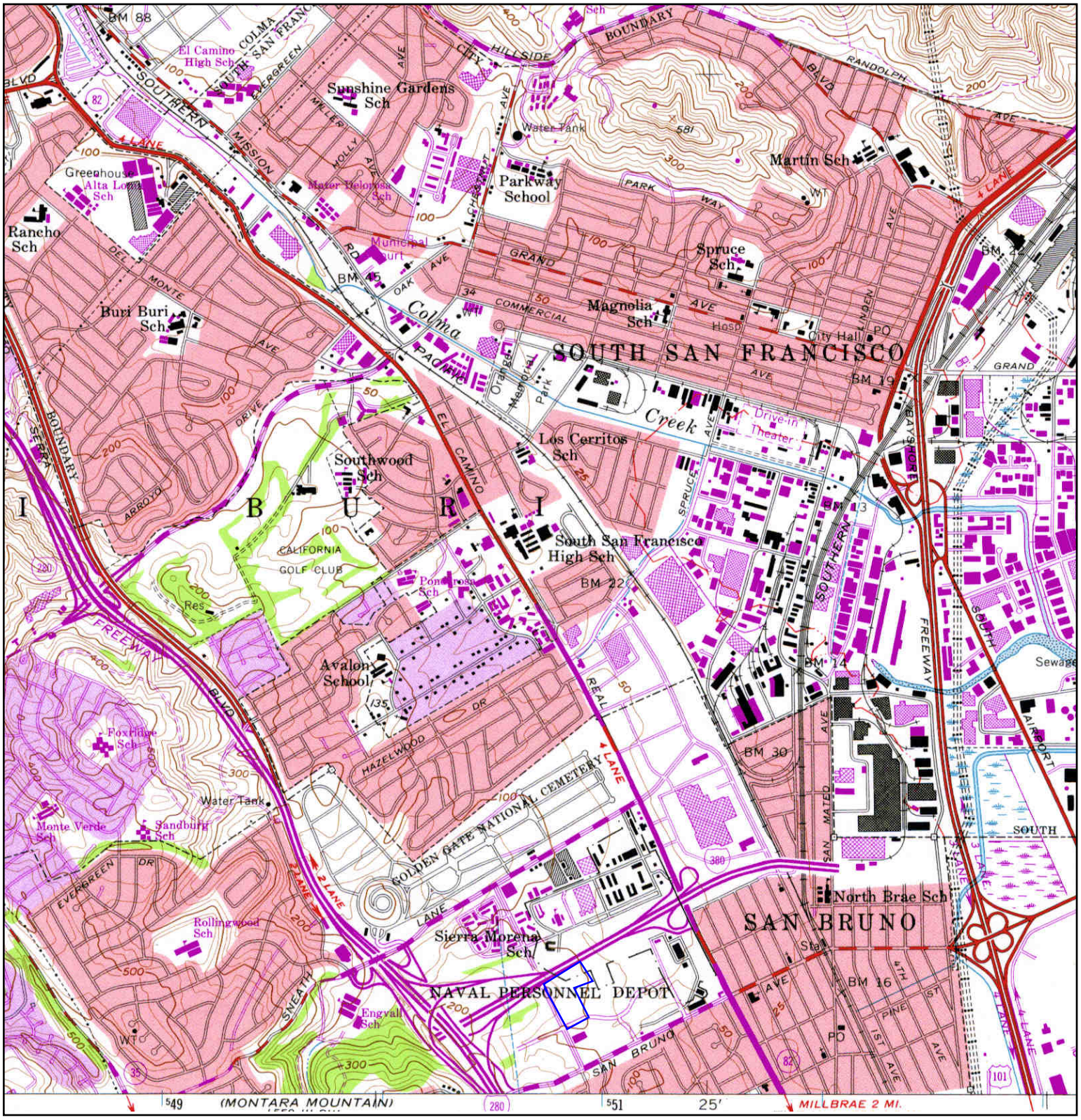
Historical Topographic Map



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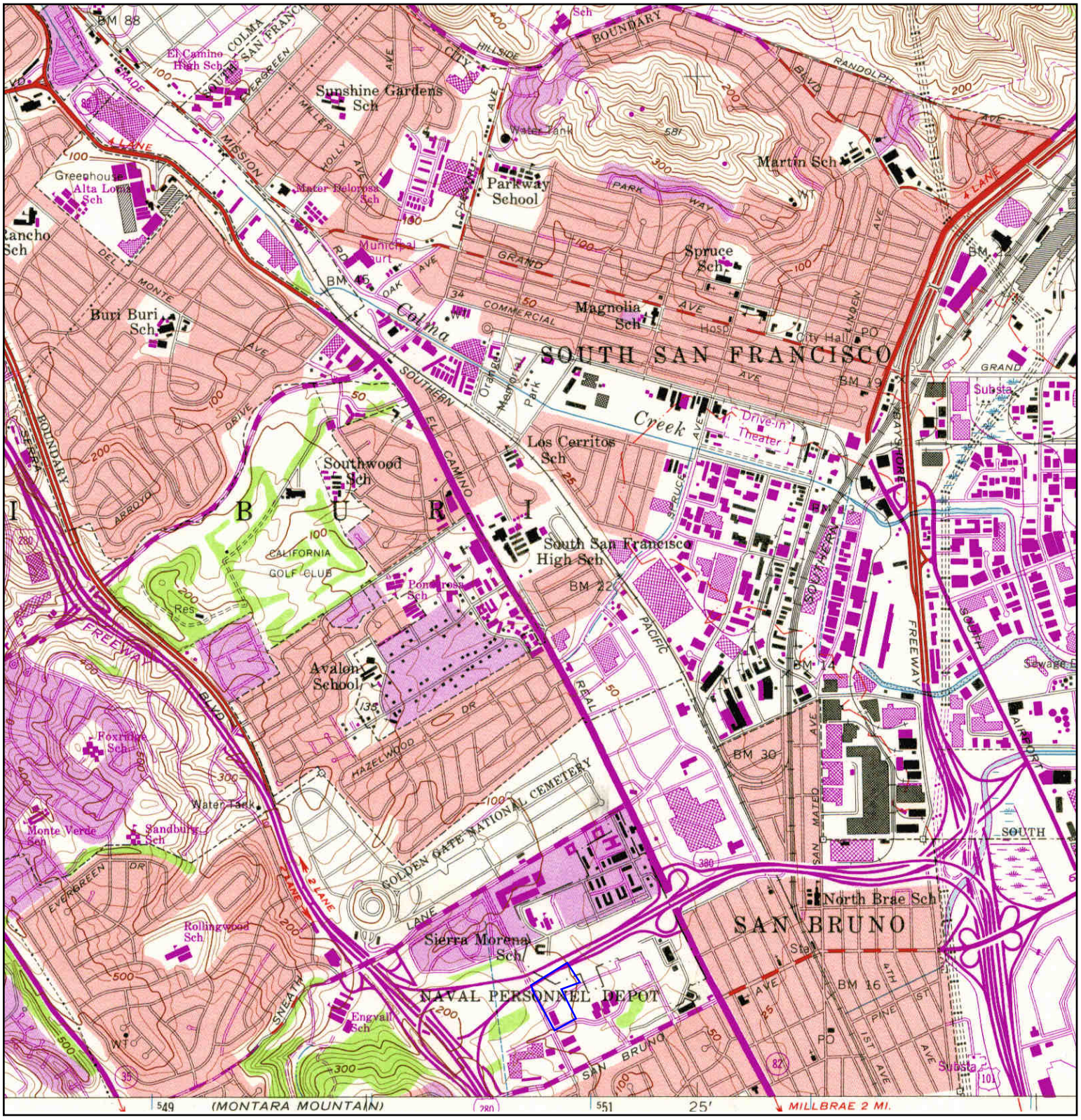
Historical Topographic Map



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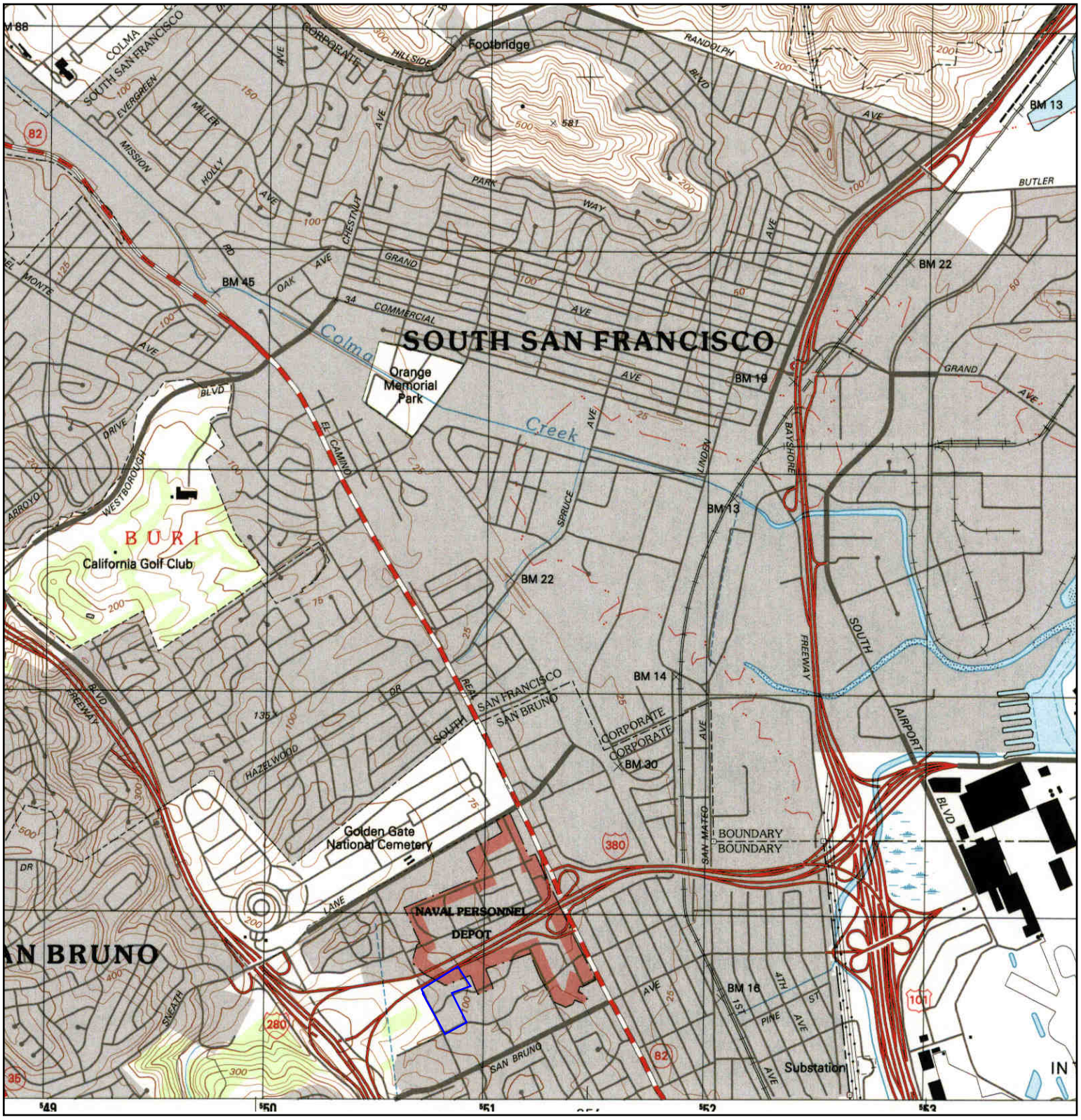
Historical Topographic Map



N	TARGET QUAD NAME: SAN FRANCISCO SOUTH MAP YEAR: 1980 PHOTOREVISED FROM :1956 SERIES: 7.5 SCALE: 1:24000	SITE NAME: 900 and 1000 Cherry Avenue ADDRESS: 900 Cherry Avenue San Bruno, CA 94066 LAT/LONG: 37.6287 / -122.4254	CLIENT: Iris Environmental CONTACT: Karen Smith INQUIRY#: 4342931.4 RESEARCH DATE: 07/02/2015

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Historical Topographic Map



N	TARGET QUAD NAME: SAN FRANCISCO SOUTH MAP YEAR: 1993 SERIES: 7.5 SCALE: 1:24000	SITE NAME: 900 and 1000 Cherry Avenue ADDRESS: 900 Cherry Avenue San Bruno, CA 94066 LAT/LONG: 37.6287 / -122.4254	CLIENT: Iris Environmental CONTACT: Karen Smith INQUIRY#: 4342931.4 RESEARCH DATE: 07/02/2015

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Historical Topographic Map



N	TARGET QUAD NAME: SAN FRANCISCO SOUTH MAP YEAR: 1995 SERIES: 7.5 SCALE: 1:24000	SITE NAME: 900 and 1000 Cherry Avenue ADDRESS: 900 Cherry Avenue San Bruno, CA 94066 LAT/LONG: 37.6287 / -122.4254	CLIENT: Iris Environmental CONTACT: Karen Smith INQUIRY#: 4342931.4 RESEARCH DATE: 07/02/2015

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900 and 1000 Cherry Avenue
900 Cherry Avenue
San Bruno, CA 94066

Inquiry Number: 4342931.7
July 06, 2015

EDR Environmental Lien and AUL Search

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EDR® Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

EDR Environmental Lien and AUL Search

The EDR Environmental Lien and AUL Search Report provides results from a search of available current land title records for environmental cleanup liens and other activity and use limitations, such as engineering controls and institutional controls.

A network of professional, trained researchers, following established procedures, uses client supplied address information to:

- search for parcel information and/or legal description;
- search for ownership information;
- research official land title documents recorded at jurisdictional agencies such as recorders' offices, registries of deeds, county clerks' offices, etc.;
- access a copy of the deed;
- search for environmental encumbering instrument(s) associated with the deed;
- provide a copy of any environmental encumbrance(s) based upon a review of key words in the instrument(s) (title, parties involved, and description); and
- provide a copy of the deed or cite documents reviewed.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EDR Environmental Lien and AUL Search

TARGET PROPERTY INFORMATION

ADDRESS

900 Cherry Avenue
900 and 1000 Cherry Avenue
San Bruno, CA 94066

RESEARCH SOURCE

Source 1:

San Mateo Recorder
San Mateo, CA

PROPERTY INFORMATION

Deed 1:

Type of Deed:	deed
Title is vested in:	CREA San Bruno LLC
Title received from:	Francisco Bay Office Park
Deed Dated	10/1/2007
Deed Recorded:	10/1/2007
Book:	NA
Page:	na
Volume:	na
Instrument:	na
Docket:	NA
Land Record Comments:	
Miscellaneous Comments:	
Legal Description:	See Exhibit
Legal Current Owner:	CREA San Bruno LLC
Parcel # / Property Identifier:	020-011-230, 020-015-020
Comments:	See Exhibit

ENVIRONMENTAL LIEN

Environmental Lien: Found ☐ Not Found ☒

OTHER ACTIVITY AND USE LIMITATIONS (AULs)

AULs: Found ☐ Not Found ☒

Deed Exhibit 1

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First American Title
NCS 295260 SM/KM

2007-144043
01:42pm 10/01/07 DE Fee: 45.00
Count of pages 7 non-dis
Recorded in Official Records
County of San Mateo
Warren Slocum
Assessor-County Clerk-Recorder

RECORDING REQUESTED BY AND
WHEN RECORDED MAIL TO:

CREA-SAN BRUNO, LLC
c/o Cornerstone Real Estate Advisers, LLC
Attention: Trevor Sterry
100 Wilshire Blvd., Suite 700
Santa Monica, CA 90401

SPACE

Mail Tax Statements to:

Same as above.

The undersigned Grantor declares that Documentary Transfer Tax is not part of the public records

See separate Statement attached pursuant to code sections 2920 and 11932

APN: 020-015-020; 020-011-230

GRANT DEED

FOR VALUABLE CONSIDERATION, receipt of which is hereby acknowledged, FRANCISCO BAY OFFICE PARK, a California limited partnership ("Grantor") hereby GRANT(S) to CREA-SAN BRUNO, LLC, a Delaware limited liability company ("Grantee"), that certain real property located 900 Cherry Avenue and 1000 Cherry Avenue in the City of San Bruno, County of San Mateo, State of California, more particularly described as follows: See legal description attached hereto as Exhibit A and made a part hereof.

Such grant is made subject to all matters of record affecting the real property described on Exhibit B.

Dated: October 1, 2007

FRANCISCO BAY OFFICE PARK,
a California limited partnership

By: Pollock Realty II LLC,
a California limited liability company,
General Partner

By: _____
Lincoln Westcott, Manager

Transfer Tax Declared and Paid Pursuant to
Sect. 2920 of Ord. 1987 amended [illegible] 898

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State of California
County of San Mateo

On 9-27-07, before me, Beatrice Morin, Notary Public, personally appeared Lincoln Westcott

☒ personally known to me -OR- ☐ proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and official seal.

SIGNATURE OF NOTARY

CAPACITY CLAIMED BY SIGNER

Though statute does not require the Notary to fill in the data below, doing so may prove invaluable to persons relying on the document.

☐ INDIVIDUAL
☐ CORPORATE OFFICERS(S)

Title(s)

☐ PARTNER(S) ☐ LIMITED ☐ GENERAL
☐ ATTORNEY-IN-FACT
☐ TRUSTEE(S)
☐ GUARDIAN/CONSERVATOR
☒ OTHER: mgr.

SIGNER IS REPRESENTING:
Name of Person(s) or Entity(ies)
Pollock Realty II LLC

BEATRICE MORIN
Commission # 1442032
Notary Public — California
San Mateo County
My Comm. Expires Oct 24, 2007

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EXHIBIT A

LEGAL DESCRIPTION

Real property in the City of San Bruno, County of San Mateo, State of California, described as follows:

PARCEL I:

LOT 2 IN BLOCK 4, AS SHOWN ON THAT CERTAIN MAP ENTITLED "PARCEL MAP CONSISTING OF DIVISION INTO TWO PARCELS OF LOT 2, BLOCK 4, AS SHOWN ON THE PARCEL MAP RECORDED IN VOLUME 27 OF PARCEL MAPS AT PAGE 45 SAN MATEO COUNTY RECORDS AND LOCATED IN THE CITY OF SAN BRUNO, CALIFORNIA", FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN MATEO COUNTY, STATE OF CALIFORNIA, ON MAY 5, 1977 IN BOOK 36 OF PARCEL MAPS AT PAGE(S) 25.

PARCEL II:

PARCEL 1, AS SHOWN ON THAT CERTAIN PARCEL MAP ENTITLED "BAYHILL SUBDIVISION PARCEL MAP", BEING A RESUBDIVISION OF LOT 3, BLOCK 4 OF PARCEL MAPS RECORDED IN BOOK 36 OF PARCEL MAPS AT PAGE 25, SAN MATEO COUNTY RECORDS, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN MATEO COUNTY, STATE OF CALIFORNIA, ON NOVEMBER 29, 1978 IN BOOK 44 OF PARCEL MAPS AT PAGE(S) 35.

APN: 020-015-020 JPN: 020-001-011-17.02 A
020-011-230 020-001-011-17.03 A

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EXHIBIT B

Permitted Exceptions

1. General and special taxes and assessments for the fiscal year 2007-2008.

First Installment: $56,126.73, due November 1, 2007, delinquent after December 10, 2007
Penalty: $0.00
Second Installment: $56,126.73, due February 1, 2008, delinquent after April 10, 2008
Penalty: $0.00
Tax Rate Area: 10-001
A. P. No.: 020-011-230

(Affects Parcel II)

1A: General and special taxes and assessments for the fiscal year 2007-2008.

First Installment: $64,596.66, due November 1, 2007, delinquent after December 10, 2007
Penalty: $0.00
Second Installment: $64,596.66,, due February 1, 2008, delinquent after April 10, 2008
Penalty: $0.00
Tax Rate Area: 10-001
A. P. No.: 020-015-020

(Affects Parcel I)

2. Abutter's rights of ingress and egress to or from U.S. Freeway 380 have been relinquished in the document recorded May 06, 1966 as Instrument No. 63750-Z in Book/Reel 5157, Page/Image 389 of Official Records.

(Affects portions of Parcel II)

3. Abutter's rights of ingress and egress to or from U.S. Freeway #380 have been relinquished in the document recorded November 15, 1966 as Instrument No. 9338-AA in Book/Reel 5238, Page/Image 197 of Official Records.

(Affects a portion of the Northwesterly boundary of Parcel II)

4. Covenants, conditions, restrictions and easements in the document recorded December 20, 1971 as Instrument No. 73645-AE in Book/Reel 6064, Page/Image 710 of Official Records, which provide that a violation thereof shall not defeat or render invalid the lien of any first mortgage or deed of trust made in good faith and for value, but deleting any covenant, condition or restriction indicating a preference, limitation or discrimination

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based on race, color, religion, sex, handicap, familial status, national origin, sexual orientation, marital status, ancestry, source of income or disability, to the extent such covenants, conditions or restrictions violate Title 42, Section 3604(c), of the United States Codes or Section 12955 of the California Government Code. Lawful restrictions under state and federal law on the age of occupants in senior housing or housing for older persons shall not be construed as restrictions based on familial status.

Document(s) declaring modifications thereof recorded February 13, 1996 as Instrument No. 96016416 of Official Records.

Document(s) declaring modifications thereof recorded March 26, 1998 as Instrument No. 98040836 of Official Records.

5. An easement for general utilities and incidental purposes, recorded February 28, 1972 as Instrument No. 92379-AE in Book/Reel 6100, Page/Image 522 of Official Records.

In Favor of: City of San Bruno, a municipal corporation
Affects: The Southwesterly 8 feet, as such easement is depicted on the certain ALTA/ACSM Survey (Job No. 20070102-50) prepared by Brian Kangas Foulk, last revised and updated June 14, 2007

6. An easement shown or dedicated on the map filed or recorded October 11, 1972 as Book 78, Pages 36 to 39 of Parcel Map

For: Public utilities and incidental purposes.

(Affects the Southerly 5 feet of Parcel 1, as such easement is depicted on the certain ALTA/ACSM Survey (Job No. 20070102-50) prepared by Brian Kangas Foulk, last revised and updated June 14, 2007)

7. An easement shown or dedicated on the map filed or recorded May 05, 1977 as Book 36, Page 25 of Parcel Map

For: Public utilities and incidental purposes.

(Affects the Northwesterly 5 feet of Parcel I and the Southeasterly 5 feet of Parcel II, as such easement is depicted on the certain ALTA/ACSM Survey (Job No. 20070102-50) prepared by Brian Kangas Foulk, last revised and updated June 14, 2007)

8. An easement for public utilities and incidental purposes, recorded March 15, 1979 as Instrument No. 83587-AN in Book/Reel 7829, Page/Image 1846 of Official Records.

In Favor of: Pacific Gas and Electric Company, a California corporation

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Affects: The Westerly portion of Parcel II, as such easement is depicted on the certain ALTA/ACSM Survey (Job No. 20070102-50) prepared by Brian Kangas Foulk, last revised and updated June 14, 2007

9. The terms and provisions contained in the document entitled "Maintenance of Landscaping Agreement" recorded March 15, 1979 as Instrument No. 83725-AN in Book/Reel 7829, Page/Image 2093 of Official Records.

10. The terms and provisions contained in the document entitled "Parking Agreement" recorded September 20, 1996 as Instrument No. 96117949 of Official Records.

11. An easement for public utilities and incidental purposes, recorded October 20, 1997 as Instrument No. 97134937 of Official Records.

In Favor of: Pacific Gas and Electric Company, a California corporation

Affects: The Southeasterly portion of Parcel I, as such easement is depicted on the certain ALTA/ACSM Survey (Job No. 20070102-50) prepared by Brian Kangas Foulk, last revised and updated June 14, 2007

12. An easement for public utilities and incidental purposes, recorded December 11, 1997 as Instrument No. 97162797 of Official Records.

In Favor of: City of San Bruno, a California municipal corporation

Affects: The Southeasterly portion of Parcel I, as such easement is depicted on the certain ALTA/ACSM Survey (Job No. 20070102-50) prepared by Brian Kangas Foulk, last revised and updated June 14, 2007

13. An unrecorded lease dated July 01, 1997, executed by Francisco Bay Office Park, a California limited partnership as lessor and GPS Management Services, Inc., a California corporation as lessee, as disclosed by a Memorandum of Lease and Option Agreement recorded December 22, 1998 as Instrument No. 98214963 of Official Records.

(Affects Parcel I)

14. An unrecorded lease dated July 01, 1997, executed by Francisco Bay Office Park, a California limited partnership as lessor and GPS Management Services, Inc., a California corporation as lessee, as disclosed by a Memorandum of Lease and Option Agreement recorded December 22, 1998 as Instrument No. 98214964 of Official Records.

(Affects Parcel II)

15. The following matters disclosed by an ALTA/ACSM survey made by BKF Engineers on last revised and updated June 14, 2007, designated Job No. 2007102-50:

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a. The fact that PARCEL II and adjacent property to the northeast share a common storm drainage line.

b. The fact that stairs across the Northeast line of Parcel II go onto property adjacent to the Northeast.

16. Rights of tenants-in-possession under unrecorded leases.

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Appendix E

Google/User Questionnaire

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USER / CLIENT QUESTIONNAIRE
FOR A PHASE I ENVIRONMENTAL SITE ASSESSMENT (ESA) COMPLIANT WITH ASTM E 1527-13

INTRODUCTION: In order to qualify for one of the Landowner Liability Protections (LLP) offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001, the user (in this case, Google, Inc.), must provide the following information (if available) to Iris Environmental. Failure to provide this information could result in a determination that "all appropriate inquiry" is not complete, and liability protection may be forfeited.

REQUIRED INFORMATION AND USER/CLIENT QUESTIONS

1. **Environmental liens that are filed or recorded against the site.**
   Did a search of recorded land title records (or judicial records where appropriate) identify any environmental liens filed or recorded against the property under federal, tribal, state or local law? No

2. **Activity and use limitations (AULs) that are in place at the site or that have been filed or recorded against the property.**
   Did a search of recorded land title records (or judicial records where appropriate) identify any AULs, such as engineering controls, land use restrictions, or institutional controls that are in place at the property and /or have been filed or recorded against the property under federal, tribal, state or local law? No

3. **Specialized knowledge or experience of the person seeking to qualify for the LLP.**
   Do you have any specialized knowledge or experience related to the property or nearby properties? For example are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business? No

4. **Relationship of the purchase price to the fair market value of the property if it were not contaminated.**
   Does the purchase price being paid for this property reasonable reflect the fair market value of the property? If you conclude that there is a difference, have you considered whether this lower purchase price is because contamination is known or believed to be present at the property? Yes

5. **Commonly known or reasonably ascertainable information about the property.**
   Are you aware of commonly known or reasonable ascertainable information about the property that would help Iris Environmental to identify conditions indicative of releases or threatened releases? For example:
   a. Do you know the past uses of the property? No
   b. Do you know of specific chemicals that are present or once were present at the property? No
   c. Do you know if spills or other chemical releases that have taken place at the property? No
   d. Do you know of any environmental cleanups that have taken place at the property? No

6. **The degree of obviousness of the presence or likely presence of contamination at the property, and the ability to detect the contamination by appropriate investigation.**
   Based on your knowledge and experience related to the property, are there any obvious indicators that point to the presence or likely presence of releases at the property? No

8/11/15	JAY BECHTEL
Signature	Printed Name
Google Project Executive	8/11/15
Affiliation	Date

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Appendix 3.0-4

FAA Review Technical Memorandum

Technical Memorandum

To: City of San Bruno
From: Nick Johnson, Johnson Aviation, Inc.
Date: October 7, 2019

Subject: FAA Review Not Required – Bayhill Specific Plan, YouTube Phase 1 Development

Purpose and Finding

The purpose of this Technical Memorandum is to document that the YouTube Phase 1 Development, comprised of Phase 1 North (adjacent to existing 1000 Cherry Avenue building) and Phase 1 South (adjacent to existing 900 Cherry Avenue building) as part of the Bayhill Specific Plan (Proposed Project), meets the requirements of 14 Code of Federal Regulations (CFR) Part 77.9(e)(1) as required by the City of San Bruno to find the project exempt from notice to the FAA under CFR Part 77, et. seq. Attachment A to this technical memorandum provides the City's signed exemption form. The following information documents and describes the basis of this finding.

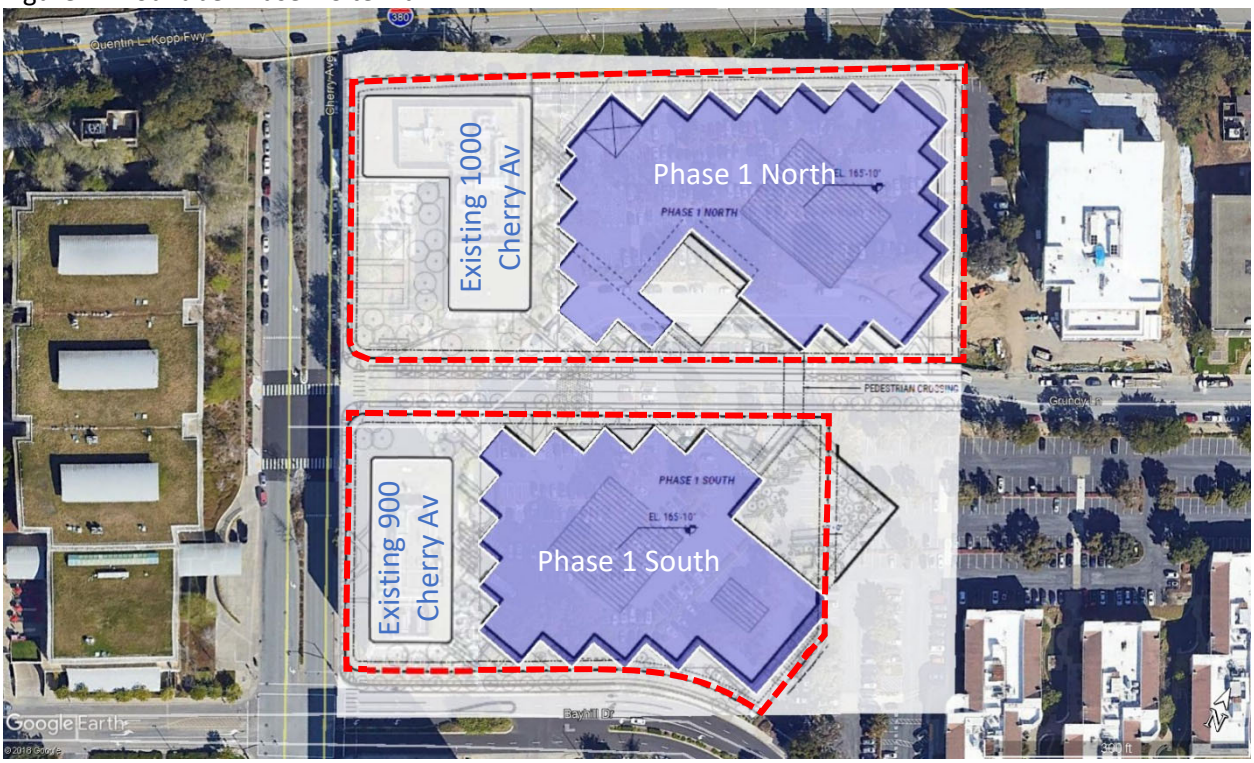
Project Description

The Proposed Project consists of two new buildings generally located south of I-380, west of Elm Avenue, north of Bayhill Drive and east of Cherry Avenue in San Bruno, CA. This site is approximately 1.7 miles northwest of the departure ends of Runways 10L and 10R at San Francisco International Airport (SFO) (See Figure 1). The Project site is an existing urban commercial area with existing three and six-story office buildings surrounding the site (See Figure 2). The site is on an up-sloping area of high terrain that is approximately 107 feet above mean sea level (AMSL) on the east and 124 feet AMSL on the west. In addition to the built environment, the site and surrounding vicinity has tall trees ranging in heights from 60 to over 90 feet.

Figure 1: Project Location



Figure 2: YouTube Phase 1 Site Plan



The proposed building elevations for the Project follow the sloping terrain and are at or below the existing remaining buildings on the west side of the site (See Figure 3). Figure 4 provides the typical elevation of the buildings as related to the sloping site.

Figures 5 through 8 provide a series of three dimensional massings of the proposed buildings on the site and the existing structures of a permanent and substantial nature, the existing terrain and trees of equal or greater height that will shield the Proposed Project such that the shielded structures (Proposed Project) will not adversely affect safety in air navigation.

Qualifications

Nick Johnson is the President/CEO of Johnson Aviation, Inc., an airport and airport land use compatibility planning firm specializing in development on and near airports. Mr. Johnson has over 30 years of airport planning and development experience with large-hub, medium-hub, military base installations and general aviation airports in California and throughout the US. Mr. Johnson works extensively with the Federal Aviation Administration, Obstruction Evaluation Group. He has analyzed and submitted over 600 airspace cases involving development on and near airports.

Figure 3: YouTube Phase 1 Building Heights

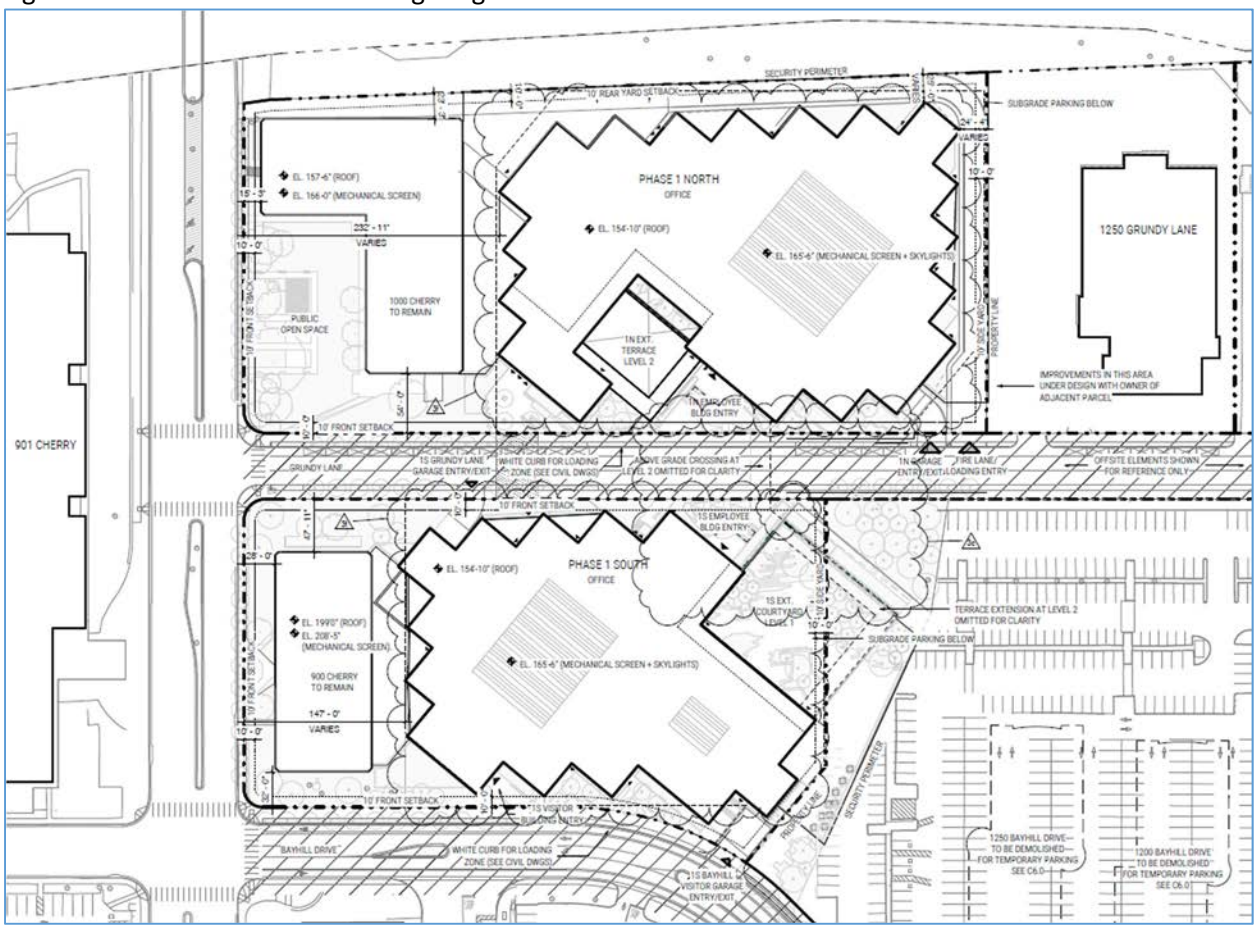


Figure 4: YouTube Phase 1 Building Typical Elevations

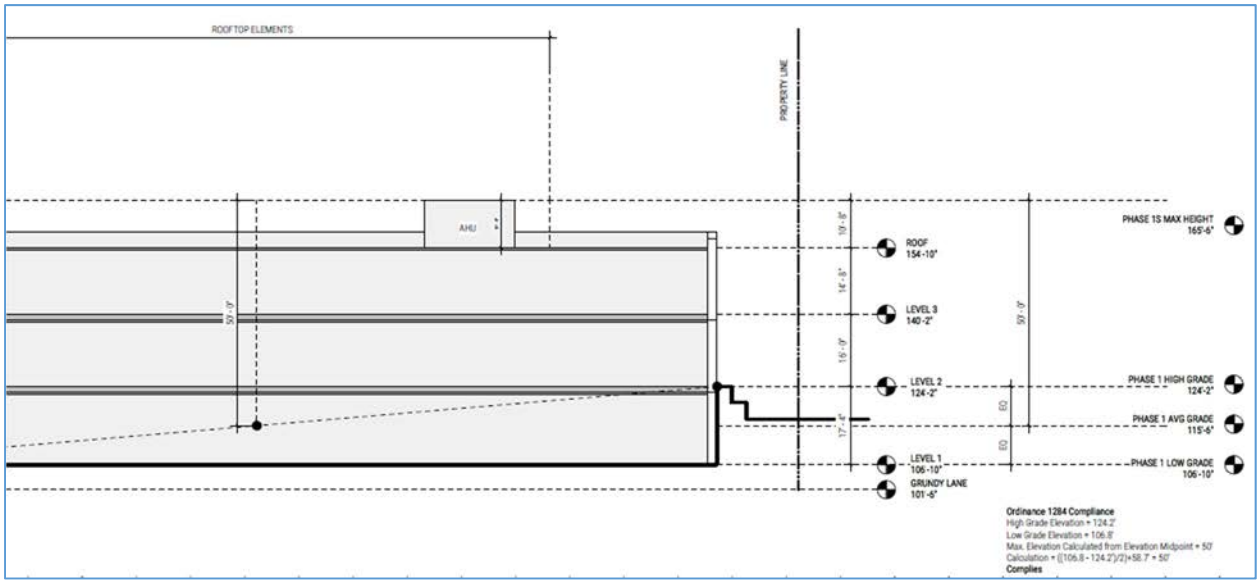


Figure 5: YouTube Phase 1 Building Massings Looking Southeast

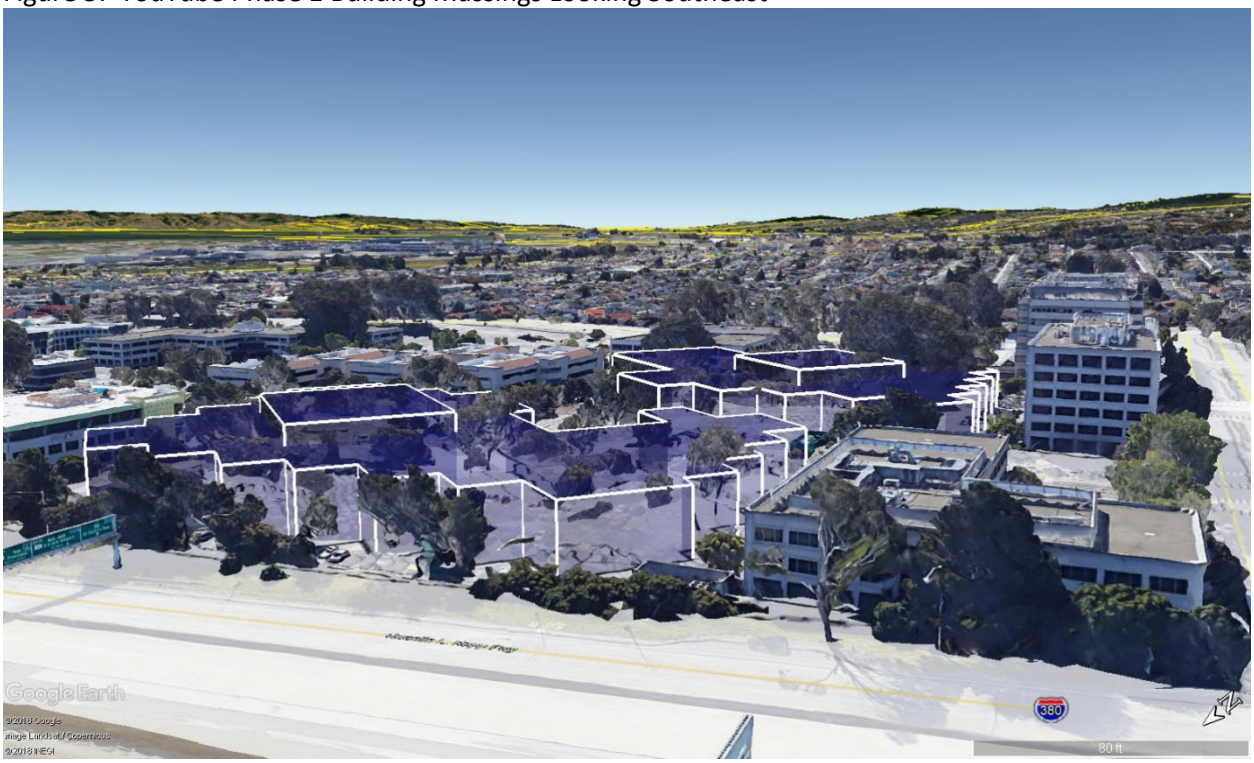


Figure 6: YouTube Phase 1 Building Massings Looking South

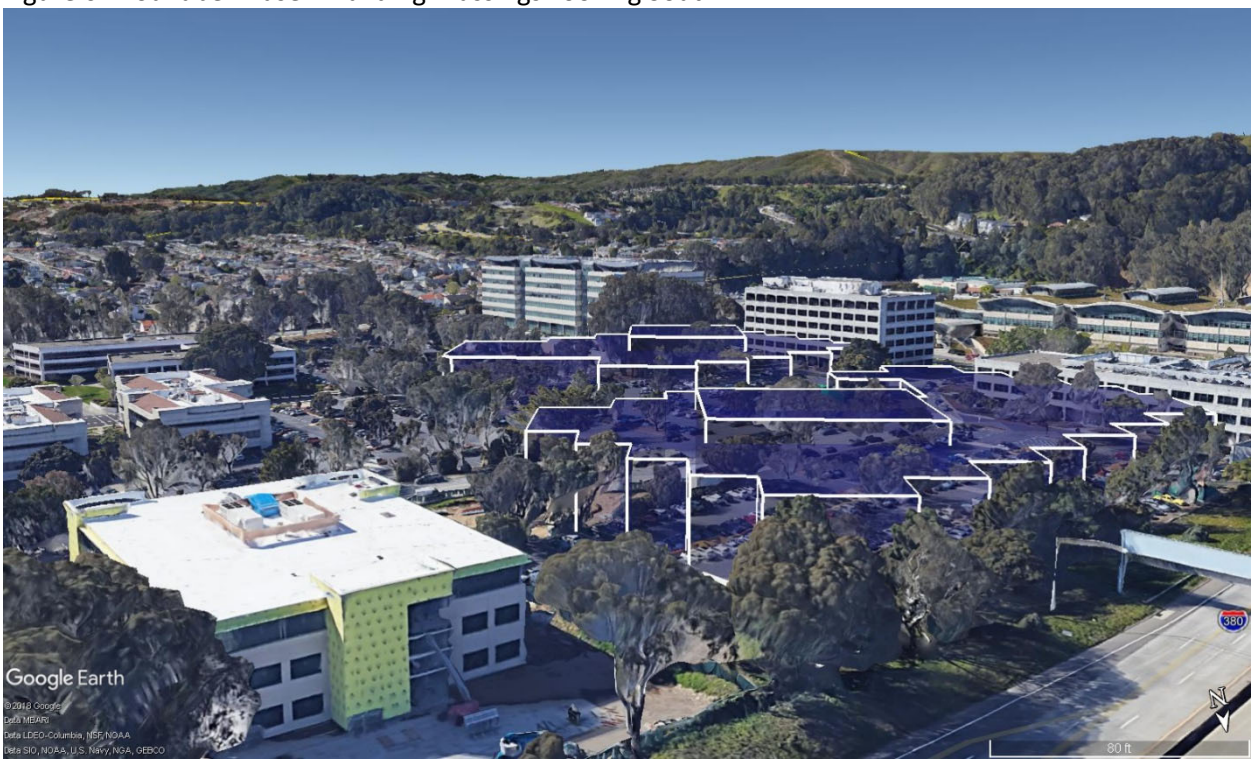


Figure 7: YouTube Phase 1 Building Massings Looking Northwest

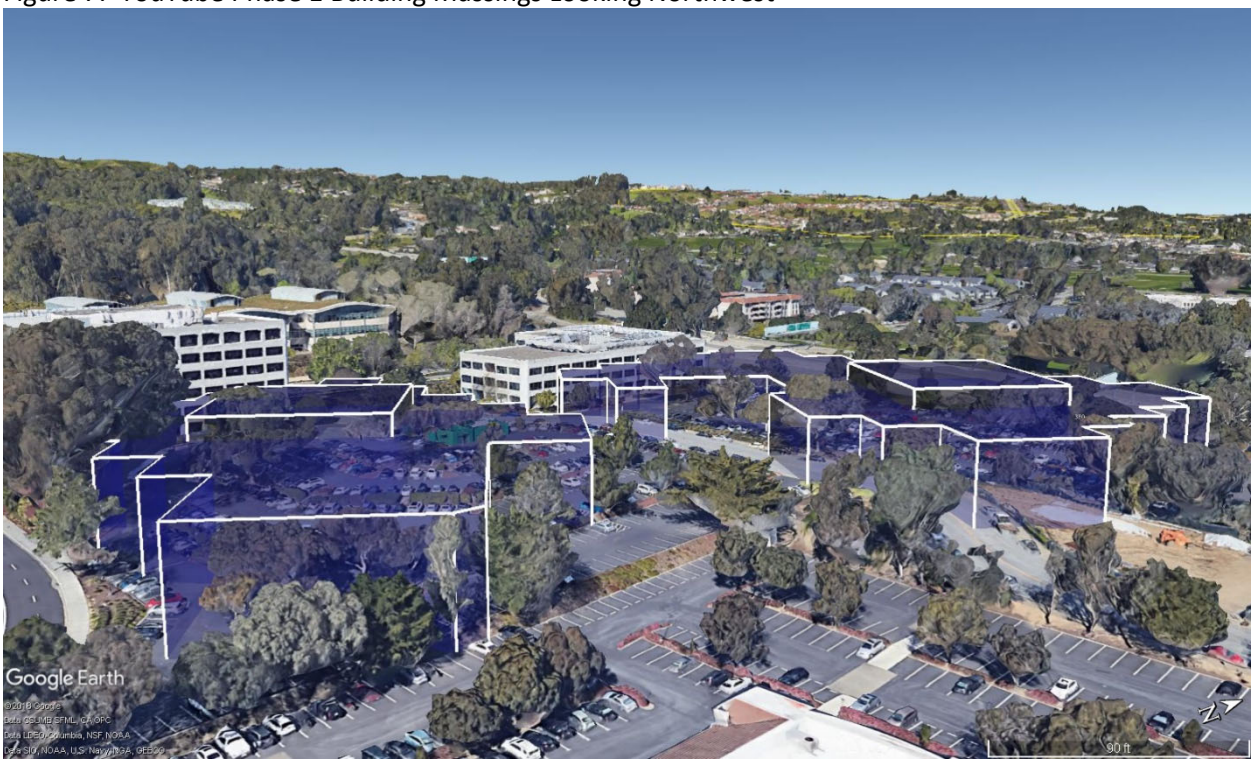


Figure 8: YouTube Phase 1 Building Massings Looking East



Attachment A

CITY OF SAN BRUNO
567 El Camino Real
San Bruno, CA 94066
Voice: (650) 616-7074 Fax: (650) 873-6749
www.sanbruno.ca.gov

Federal Aviation Administration
Review Not Required

This handout provides information regarding when applicants (Architect, Engineer, Building Designer, etc.) and property owners are not required to notify the Federal Aviation Administration (FAA) of their proposed development project. Per section 77.9(e) of Title 14 of the Code of Federal Regulation (CFR) Part 77, no person is required to file notice for construction or alteration involving the following:

(1) Any object that will be shielded by existing structures of a permanent and substantial nature or by natural terrain or topographic features of equal or greater height, and will be located in the congested area of a city town, or settlement where the shielded structure will not adversely affect safety in air navigation;
(2) Any air navigation facility, airport visual approach or landing aid, aircraft arresting device meeting FAA approved siting criteria or an appropriate military service siting criteria on military airports, the location and height of which are fixed by its functional purpose;
(3) Any construction or alteration for which notice is required by any other FAA regulation; or
(4) Any antenna structure of 20 feet or less in height, except one that would increase the height of another antenna structure.

The City will not require notification to the FAA if the applicant (Licensed Architect, Licensed Engineer, Building Designer, etc.) and property owner sign the following statement below:

"I Charles N. Johnson (applicant) & Google, LLC (owner) do hereby certify that the structure(s) or modification to existing structure(s) associated with Building Permit # Phase 1 Development located at 900 & 1000 Cherry Ave, San Bruno, CA* (address) do not require Federal Aviation Administration notification because per Section 77.9(e) of Title 14 of the Code of Federal Regulations CFR Part 77, notification is not required."

The applicant will be required to sign below prior to permit issuance. Should it be subsequently determined by the City, Airport Land Use Commission, State, or the Federal Aviation Administration, or any other government agency that the proposed project is required to notify the Federal Aviation Administration under CFR Part 77, the City assumes no responsibility or liability for any changes required to the submitted construction drawings and documents and to the structures installed on the project site as a result of and to achieve consistency with the FAA's determination of No Hazard to Air Navigation.

Charles N. Johnson, Airport Compatibility Planning Consultant
Applicant (Architect, Engineer, Building Designer, etc.) Name

Applicant (Architect, Engineer, Building Designer, etc.) Signature — Date: 10/3/2019

Google, LLC by Josh Portner
Property Owner Name

Property Owner Signature — Date: 10/3/2019

Revised: December 2013

*Phase 1 North adjacent to existing 1000 Cherry Ave building; Phase 1 South adjacent to existing 900 Cherry Ave building

Appendix 3.2-1

Air Quality, Energy, and Greenhouse Gas Supporting Data

Phase I Construction Assumptions

Project Phase	Start Date	End Date	Work Days for Calculations	Work Days for Model	Work Days/Week
Demolition	1/1/2020	3/10/2020	50	50	5
Site Preparation	3/11/2020	9/14/2020	190	188	7
Foundations	9/15/2020	3/15/2021	180	182	7
Grading	3/1/2022	6/2/2022	90	94	7
Superstructure	12/6/2020	4/20/2021	137	136	7
Building Construction	4/7/2021	6/2/2022	420	422	7
Bus Stop	2/1/2022	5/10/2022	100	99	7
Exterior Façade	7/1/2021	10/30/2021	123	122	7
Paving - Temp Parking Lot	3/12/2020	3/15/2020	3	4	7
Paving - Grundy Lane	5/2/2022	5/7/2022	5	6	7

Project Phase	Equipment	Fuel Type	Quantity	Horsepower	Hours/Day
Demolition	Bulldozer	Diesel	4	130	8
	Excavator	Diesel	6	325	8
	Loader	Diesel	4	200	8
Site Preparation - Shoring and Excavation	Pile Drill	Diesel	1	250	4
	Excavator	Diesel	4	325	8
	Bulldozers	Diesel	4	130	8
	Loader	Diesel	4	200	8
Foundations and Garage Construction	Crane	Diesel	2	450	8
	Concrete Pur	Diesel	2	400	4
Grading	Dozer	Diesel	1	250	8
	Motor grade	Diesel	1	200	8
	Compactor	Diesel	1	100	8
Superstructure	Crane	Diesel	2	450	6
	Concrete Pur	Diesel	2	400	4
	All Terrain Fo	Diesel	2	130	8
Building Construction	All Terrain Fo	Diesel	4	130	8
	Generators	Gas	4	10	8
	200 T Cranes	Diesel	2	400	6
Bus Stop	Generators	Gas	2	20	8
	All Terrain Fo	Diesel	1	130	8
	100 T Cranes	Diesel	1	400	2
Exterior Façade	Cranes	Diesel	1	400	8
Paving - Grundy Lane and Temp Parking Lot	Paver	Diesel	1	175	8
	Compactor	Diesel	2	100	8
	Motor grade	Diesel	1	200	8

Project Phase	Soil Import (cubic yards)	Export (cubic yards)

Demolition	0	1,750
Site Preparation - Shoring and Excavation	6,850	173,000
Foundations and Garage Construction	0	N/A
Grading	3,920	0
Superstructure	0	N/A
Building Construction	0	N/A
Bus Stop	0	N/A
Exterior Façade	0	N/A
Paving - Temp Parking Lot	0	N/A
Paving - Grundy Lane	0	N/A

Project Phase	Total Acres Paved
Demolition	N/A
Site Preparation - Shoring and Excavation	N/A
Foundations and Garage Construction	N/A
Grading	N/A
Superstructure	N/A
Building Construction	N/A
Bus Stop	N/A
Exterior Façade	N/A
Paving - Temp Parking Lot	2
Paving - Grundy Lane	1

Project Phase	Demolition (tons)
Demolition	10,200
Site Preparation - Shoring and Excavation	0
Foundations and Garage Construction	0
Grading	0
Superstructure	0
Building Construction	0
Bus Stop	0
Exterior Façade	0
Paving - Temp Parking Lot	0
Paving - Grundy Lane	2,240

Project Phase	Total Acres Graded	Maxium Per Day
Demolition	0	N/A
Site Preparation - Shoring and Excavation	9	2
Foundations and Garage Construction	0	N/A
Grading	9	2
Superstructure	0	N/A
Building Construction	0	N/A
Bus Stop	0	N/A
Exterior Façade	0	N/A

Paving - Temp Parking Lot	0	N/A
Paving - Grundy Lane	0	N/A

Project Phase	Number of Worker Trips (round trips) per day	Total Miles	Daily Miles	Miles/Trip
Demolition	85	340,000	6,800	80
Site Preparation - Shoring and Excavation	75	1,140,000	6,000	80
Foundations and Garage Construction	250	3,600,000	20,000	80
Grading	30	216,000	2,400	80
Superstructure	260	2,849,600	20,800	80
Building Construction	575	19,320,000	46,000	80
Bus Stop	5	40,000	400	80
Exterior Façade	45	360,000	2,927	65
Paving - Temp Parking Lot	30	7,200	2,400	80
Paving - Grundy Lane	30	12,000	2,400	80

Project Phase	Number of Vendor/Delivery Truck Trips per day	Total Miles	Daily Miles	Miles/Trip	Total Trips/Day (including water trucks)
Demolition	0	0	0	7.3	2
Site Preparation - Shoring and Excavation	6	22,800	120	20	8
Foundations and Garage Construction	21	75,600	420	20	21
Grading	5	4,500	50	10	7
Superstructure	10	123,300	900	90	10
Building Construction	25	157,500	375	15	26
Bus Stop	5	10,000	100	20	6
Exterior Façade	2	504,792	4,104	2,052	2
Paving - Temp Parking Lot	40	2,400	800	20	41
Paving - Grundy Lane	34	3,400	680	20	34

Project Phase	Number of Haul Truck Trips per day	Total Miles	Daily Miles	Miles/Trip	Total Haul Trips
Demolition	4	4,000	80	20	200
Site Preparation - Shoring and Excavation	216	259,200	1,364	6	41,040
Foundations and Garage Construction	0	0	0	N/A	0
Grading	100	25	0	1	9,000
Superstructure	0	0	0	N/A	0
Building Construction	20	150	0	1	8,400
Bus Stop	0	0	0	N/A	0
Exterior Façade	0	0	0	N/A	0
Paving - Temp Parking Lot	0	0	0	N/A	0

Paving - Grundy Lane	0	0	0	N/A	0

Project Phase	Number of Water Trucks per day	Hours of Operation/Day
Demolition	2	8
Site Preparation - Shoring and Excavation	2	8
Foundations and Garage Construction	0	N/A
Grading	2	8
Superstructure	0	N/A
Building Construction	1	8
Bus Stop	1	N/A
Exterior Façade	0	N/A
Paving - Temp Parking Lot	1	N/A
Paving - Grundy Lane	0	N/A

Source: Weber (2019)

	Annual kWh	Annual MWh	CO2 (metric tons)	CH4 (metric tons)	N2O (metric tons)	CO2e (metric tons)
2020	78,000	78	10.3	0.00107	0.00013	10.32450
2021	78,000	78	9.5	0.00100	0.00012	9.52898
2022	78,000	78	8.7	0.00094	0.00011	8.73346

eGrid2016 Emission Factors

527.862 lb CO2/MWh
0.033 lb CH4/MWh
0.004 lb N2O/MWh

2016 CA	%	EF (lb/MWh)		
		CO2	CH4	N2O
Hydro	14.72%	0	0	0
Nuclear	9.08%	0	0	0
Renewable	29.00%	0	0	0
Non-renewable	47.20%	1118	0.070	0.008
Total	100.00%	528	0.033	0.004

2020 (RPS = 33%)	%	EF (lb/MWh)		
		CO2	CH4	N2O
Hydro	14.72%	0	0	0
Nuclear	9.08%	0	0	0
Renewable	33.00%	0	0	0
Non-renewable	43.20%	1118	0.070	0.008
Total	100.00%	483	0.030	0.004

2030 (RPS = 60%)	%	EF (lb/MWh)		
		CO2	CH4	N2O
Hydro	14.72%	0	0	0
Nuclear	9.08%	0	0	0
Renewable	60.00%	0	0	0
Non-renewable	16.20%	1118	0.070	0.008
Total	100.00%	181	0.011	0.001

2045 (RPS =100%)	%	EF (lb/MWh)		
		CO2	CH4	N2O
Hydro	0.00%	0	0	0
Nuclear	0.00%	0	0	0
Renewable	100.00%	0	0	0
Non-renewable	0.00%	1118	0.070	0.008
Total	100.00%	0	0.000	0.000

Year	EF (lb/MWh)		
	CO2	CH4	N2O
2016	528	0.033	0.004
2017	528	0.033	0.004
2018	517	0.033	0.004
2019	505	0.032	0.004
2020	483	0.030	0.004
2021	453	0.028	0.003
2022	423	0.026	0.003
2023	393	0.025	0.003
2024	362	0.023	0.003
2025	332	0.021	0.003
2026	302	0.019	0.002
2027	272	0.017	0.002
2028	242	0.015	0.002
2029	211	0.013	0.002
2030	181	0.011	0.001
2031	169	0.011	0.001
2032	157	0.010	0.001
2033	145	0.009	0.001
2034	133	0.008	0.001
2035	121	0.008	0.001
2036	109	0.007	0.001
2037	97	0.006	0.001
2038	85	0.005	0.001
2039	72	0.005	0.001
2040	60	0.004	0.0005
2041	48	0.003	0.000
2042	36	0.002	0.000
2043	24	0.002	0.000
2044	12	0.001	0.000
2045	0	0.000	0.000

PG&E

427.000 lb CO2/MWh https://www.pge.com/includes/docs/pdfs/shared/environment/calculator/pge_ghg_emission_facto

2013 PG&E	%	EF (lb/MWh)
		CO2
Hydro	10.00%	0
Nuclear	22.00%	0
Renewable	22.00%	0
Non-renewable	46.00%	928
Total	100.00%	427

2020 (RPS = 33%)	%	EF (lb/MWh)
		CO2
Hydro	10.00%	0
Nuclear	22.00%	0
Renewable	33.00%	0
Non-renewable	35.00%	829
Total	100.00%	290

2030 (RPS = 60%)	%	EF (lb/MWh)
		CO2
Hydro	10.00%	0
Nuclear	22.00%	0
Renewable	60.00%	0
Non-renewable	8.00%	829
Total	100.00%	66

2045 (RPS = 100%)	%	EF (lb/MWh)
		CO2
Hydro	0.00%	0
Nuclear	0.00%	0
Renewable	100.00%	0
Non-renewable	0.00%	829
Total	100.00%	0

Year	EF (lb/MWh)
	CO2
2013	427
2014	407
2015	388
2016	368
2017	349
2018	329
2019	310
2020	290
2021	268
2022	245
2023	223
2024	201
2025	178
2026	156
2027	133
2028	111
2029	89
2030	66
2031	62
2032	57
2033	53
2034	49
2035	44
2036	40
2037	35
2038	31
2039	27
2040	22
2041	18
2042	13
2043	9
2044	4
2045	0

kWh-MWh	0.001
lb-ton	0.0004536
CH4 GWP	24
N2O GWP	298

Bayhill Specific Plan - Phase I Construction Analysis

San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Office Park	440.00	1000sqft	5.15	440,000.00	0
Enclosed Parking with Elevator	773.80	1000sqft	0.00	773,800.00	0
Parking Lot	3.00	Acre	3.00	130,680.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity	290	**CH4 Intensity**	0.03	**N2O Intensity**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Adjusted electricity EF for 2020 per SB 100
Land Use - total site acreage, office, temp parking lot and Grundy lane acreage provided by project description and project sponsor; assumed remaining acreage from temporary parking and Grundy to be building acreage
Construction Phase - Start/end dates provided by the project sponsor; adjusted days/week to be consistent with total days or end dates provided by project sponsor (whichever is larger)
Off-road Equipment - Construction equipment unit, hours/day, hp provided by project sponsor
Off-road Equipment - Construction equipment unit, hours/day, hp provided by project sponsor
Off-road Equipment - Construction equipment unit, hours/day, hp provided by project sponsor
Off-road Equipment - No additional equipment for this phase
Off-road Equipment - Construction equipment unit, hours/day, hp provided by project sponsor
Off-road Equipment - Construction equipment unit, hours/day, hp provided by project sponsor
Off-road Equipment - Construction equipment unit, hours/day, hp provided by project sponsor
Off-road Equipment - Construction equipment unit, hours/day, hp provided by project sponsor

Off-road Equipment - No additional equipment for this phase
Off-road Equipment - Construction equipment unit, hours/day, hp provided by project sponsor
Off-road Equipment - Construction equipment unit, hours/day, hp provided by project sponsor
Off-road Equipment - Construction equipment unit, hours/day, hp provided by project sponsor
Trips and VMT - trips and trip lengths provided by project sponsor; vendor trips assumed to also include water trucks; total hauling trucks assumed to be
Demolition - Demoliton tonnage provided by project sponsor
Grading - Grading acreage provided by project sponsor
Vehicle Trips - Operation emissions to be modeled seperately
Energy Use -
Construction Off-road Equipment Mitigation - Tier 4 final assumed for all pieces of equipment

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tblTripsAndVMT	WorkerTripLength	10.80	80.00
tblTripsAndVMT	WorkerTripLength	10.80	80.00
tblTripsAndVMT	WorkerTripLength	10.80	80.00
tblTripsAndVMT	WorkerTripLength	10.80	80.00
tblTripsAndVMT	WorkerTripLength	10.80	80.00
tblTripsAndVMT	WorkerTripLength	10.80	65.00
tblTripsAndVMT	WorkerTripLength	10.80	80.00
tblTripsAndVMT	WorkerTripNumber	35.00	85.00
tblTripsAndVMT	WorkerTripNumber	8.00	30.00
tblTripsAndVMT	WorkerTripNumber	10.00	30.00
tblTripsAndVMT	WorkerTripNumber	33.00	75.00
tblTripsAndVMT	WorkerTripNumber	8.00	30.00
tblTripsAndVMT	WorkerTripNumber	521.00	250.00
tblTripsAndVMT	WorkerTripNumber	521.00	260.00
tblTripsAndVMT	WorkerTripNumber	521.00	575.00
tblTripsAndVMT	WorkerTripNumber	104.00	45.00
tblTripsAndVMT	WorkerTripNumber	521.00	5.00
tblVehicleTrips	ST_TR	1.64	0.00
tblVehicleTrips	SU_TR	0.76	0.00

tblVehicleTrips	WD_TR	11.42	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	1.3482	12.9424	9.6437	0.0363	4.0701	0.3923	4.4624	1.7125	0.3629	2.0754	0	3,363.7875	3,363.79	0.4872	0	3,375.97
2021	4.6852	9.6563	17.6258	0.0740	6.3481	0.2705	6.6187	1.6959	0.2524	1.9483	0.0000	6,811.6126	6,811.61	0.3896	0	6,821.35
2022	0.9264	3.6990	7.1837	0.0282	3.0198	0.1155	3.1353	0.8808	0.1073	0.9881	0.0000	2,553.1967	2,553.20	0.1541	0	2,557.05
Maximum	**4.6852**	**12.9424**	**17.6258**	**0.0740**	**6.3481**	**0.3923**	**6.6187**	**1.7125**	**0.3629**	**2.0754**	**0.0000**	**6,811.6126**	**6,811.6126**	**0.4872**	**0.0000**	**6,821.3533**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.7003	4.9680	11.8666	0.0363	4.0701	0.0441	4.1142	1.7125	0.0429	1.7555	0.0000	3,363.7859	3,363.79	0.4872	0	3,375.97
2021	4.2429	4.7161	17.9430	0.0740	6.3481	0.0592	6.4073	1.6959	0.0561	1.7521	0.0000	6,811.6115	6,811.61	0.3896	0	6,821.35
2022	0.7213	1.5737	7.1817	0.0282	3.0198	0.0218	3.0416	0.8808	0.0206	0.9014	0.0000	2,553.1963	2,553.20	0.1541	0	2,557.05
Maximum	**4.2429**	**4.9680**	**17.9430**	**0.0740**	**6.3481**	**0.0592**	**6.4073**	**1.7125**	**0.0561**	**1.7555**	**0.0000**	**6,811.6115**	**6,811.6115**	**0.4872**	**0.0000**	**6,821.3522**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**18.61**	**57.19**	**-7.37**	**0.00**	**0.00**	**83.93**	**4.59**	**0.00**	**83.45**	**12.03**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2020**	**3-31-2020**	2.9086	0.7881
2	**4-1-2020**	**6-30-2020**	4.5759	2.0420
3	**7-1-2020**	**9-30-2020**	4.2501	1.8639
4	**10-1-2020**	**12-31-2020**	2.5702	0.9885
5	**1-1-2021**	**3-31-2021**	3.2621	1.3541
6	**4-1-2021**	**6-30-2021**	2.2229	1.0941
7	**7-1-2021**	**9-30-2021**	5.5207	4.2413
8	**10-1-2021**	**12-31-2021**	3.3362	2.2700
9	**1-1-2022**	**3-31-2022**	2.4589	1.2819
10	**4-1-2022**	**6-30-2022**	2.2111	1.0578
		Highest	5.5207	4.2413

3.0 Construction Detail

Construction Phase

Phase	Phase Name	Phase Type	Start Date	End Date	Num Days	Num Days	Phase Description
1	Demolition	Demolition	1/1/2020	3/10/2020	5	50	
2	Demolition (Site Preparation	Site Preparation	1/1/2020	3/10/2020	5	50	
3	Site Preparation	Site Preparation	3/11/2020	9/16/2020	7	190	
4	Paving - Temp Parking Lot	Paving	3/12/2020	3/15/2020	7	4	
5	Foundations and Garage	Building Construction	9/15/2020	3/15/2021	7	182	
6	Superstructure	Building Construction	12/6/2020	4/21/2021	7	137	
7	Building Construction	Building Construction	4/7/2021	6/2/2022	7	422	
8	Exterior Facade	Architectural Coating	7/1/2021	10/31/2021	7	123	
9	Bus Stop	Building Construction	2/1/2022	5/11/2022	7	100	
10	Grading	Grading	3/1/2022	6/2/2022	7	94	
11	Paving - Grundy Lane	Demolition	5/2/2022	5/7/2022	7	6	
12	Paving - Grundy Lane	Paving	5/2/2022	5/7/2022	7	6	

Acres of Grading (Site Preparation Phase): 9

Acres of Grading (Grading Phase): 9

Acres of Paving: 3

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 660,000; Non-Residential Outdoor: 220,000; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	0	8.00	158	0.38
Demolition	Excavators	6	8.00	325	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Demolition	Rubber Tired Dozers	4	8.00	130	0.40
Demolition	Tractors/Loaders/Backhoes	4	8.00	200	0.37
Demolition (Site Preparation Only)	Rubber Tired Dozers	0	8.00	247	0.40
Demolition (Site Preparation Only)	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Superstructure	Air Compressors	0	6.00	78	0.48
Superstructure	Cranes	0	7.00	231	0.29
Superstructure	Cranes	2	6.00	450	0.29
Superstructure	Forklifts	0	8.00	89	0.20
Superstructure	Generator Sets	0	8.00	84	0.74
Superstructure	Off-Highway Trucks	2	8.00	130	0.38
Superstructure	Pumps	2	4.00	400	0.74
Superstructure	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Superstructure	Welders	0	8.00	46	0.45
Bus Stop	Cranes	0	7.00	231	0.29
Bus Stop	Cranes	1	2.00	400	0.29
Bus Stop	Forklifts	0	8.00	89	0.20
Bus Stop	Generator Sets	0	8.00	84	0.74
Bus Stop	Generator Sets	2	8.00	20	0.74
Bus Stop	Off-Highway Trucks	1	8.00	130	0.38
Bus Stop	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Bus Stop	Welders	0	8.00	46	0.45
Grading	Excavators	0	8.00	158	0.38
Grading	Graders	0	8.00	187	0.41
Grading	Graders	1	8.00	200	0.41
Grading	Pavers	0	8.00	130	0.42
Grading	Paving Equipment	0	8.00	132	0.36
Grading	Plate Compactors	1	8.00	100	0.43
Grading	Rollers	0	8.00	80	0.38
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	250	0.40

Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Bore/Drill Rigs	1	4.00	250	0.50
Site Preparation	Excavators	0	8.00	158	0.38
Site Preparation	Excavators	4	8.00	325	0.38
Site Preparation	Graders	0	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	4	8.00	130	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	200	0.37
Paving - Temp Parking Lot		1	8.00		
Paving - Temp Parking Lot	Graders	2	8.00	200	0.43
Paving - Temp Parking Lot	Pavers	0	8.00	130	0.42
Paving - Temp Parking Lot	Pavers	1	8.00	100	0.42
Paving - Temp Parking Lot	Paving Equipment	0	8.00	132	0.36
Paving - Temp Parking Lot	Rollers	0	8.00	175	0.38
Building Construction	Cranes	0	7.00	231	0.29
Building Construction	Cranes	2	6.00	400	0.29
Building Construction	Forklifts	0	8.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Building Construction	Generator Sets	4	8.00	10	0.74
Building Construction	Off-Highway Trucks	4	8.00	130	0.38
Building Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Building Construction	Welders	0	8.00	46	0.45
Paving - Grundy Lane (Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Paving - Grundy Lane (Demolition	Excavators	0	8.00	158	0.38
Paving - Grundy Lane (Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Paving - Grundy Lane	Graders	1	8.00	200	0.41
Paving - Grundy Lane	Pavers	0	8.00	130	0.42
Paving - Grundy Lane	Pavers	1	8.00	175	0.42
Paving - Grundy Lane	Paving Equipment	0	8.00	132	0.36
Paving - Grundy Lane	Plate Compactors	2	8.00	100	0.43
Paving - Grundy Lane	Rollers	0	8.00	80	0.38
Exterior Facade	Air Compressors	0	6.00	78	0.48
Exterior Facade	Cranes	1	8.00	400	0.29
Foundations and Garage Construction	Cranes	0	7.00	231	0.29
Foundations and Garage Construction	Cranes	2	8.00	450	0.29
Foundations and Garage Construction	Forklifts	0	8.00	89	0.20
Foundations and Garage Construction	Generator Sets	0	8.00	84	0.74
Foundations and Garage Construction	Pumps	2	4.00	400	0.74
Foundations and Garage Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Foundations and Garage Construction	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment	Worker Trip	Vendor Trip	Hauling Trip	Worker Trip	Vendor Trip	Hauling Trip	Worker Vehicle	Vendor	Hauling
Demolition	14	85.00	2.00	200.00	80.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Demolition (Site Preparation Only)	0	0.00	0.00	0.00	0.00	0.00	0.00	LD_Mix	HDT_Mix	HHDT
Superstructure	6	260.00	10.00	0.00	80.00	90.00	0.00	LD_Mix	HDT_Mix	HHDT
Bus Stop	4	5.00	6.00	0.00	80.00	20.00	0.00	LD_Mix	HDT_Mix	HHDT
Grading	3	30.00	7.00	9,000.00	80.00	10.00	1.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	13	75.00	8.00	41,040.00	80.00	20.00	6.30	LD_Mix	HDT_Mix	HHDT
Paving - Temp	3	30.00	41.00	0.00	80.00	20.00	0.00	LD_Mix	HDT_Mix	HHDT
Building Construction	10	575.00	26.00	8,400.00	80.00	15.00	1.00	LD_Mix	HDT_Mix	HHDT
Paving - Grundy Lane	0	0.00	0.00	0.00	0.00	0.00	0.00	LD_Mix	HDT_Mix	HHDT
Paving - Grundy Lane	4	30.00	34.00	0.00	80.00	20.00	0.00	LD_Mix	HDT_Mix	HHDT
Exterior Facade	1	45.00	2.00	0.00	65.00	2,052.00	0.00	LD_Mix	HDT_Mix	HHDT
Foundations and Garage Construction	4	250.00	21.00	0.00	80.00	20.00	0.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1091	0.0000	0.1091	0.0165	0.0000	0.0165	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1461	1.5299	0.8730	2.6700e-003		0.0663	0.0663		0.0610	0.0610	0.0000	234.4573	234.4573	0.0758	0.0000	236.3531
Total	**0.1461**	**1.5299**	**0.8730**	**2.6700e-003**	**0.1091**	**0.0663**	**0.1754**	**0.0165**	**0.0610**	**0.0775**	**0.0000**	**234.4573**	**234.4573**	**0.0758**	**0.0000**	**236.3531**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	8.9000e-004	0.0323	0.0135	8.0000e-005	1.6700e-003	1.0000e-004	1.7700e-003	4.60E-04	1.00E-04	5.60E-04	0.0000	8.3531	8.3531	1.0400e-003	0.0000	8.3792
Vendor	1.9000e-004	5.8000e-003	2.3100e-003	1.0000e-005	3.3000e-004	3.0000e-005	3.5000e-004	9.00E-05	3.00E-05	1.20E-04	0.0000	1.3250	1.3250	1.2000e-004	0.0000	1.3279
Worker	0.0335	0.0256	0.2525	1.1100e-003	0.1238	7.0000e-004	0.1245	0.0329	6.40E-04	0.0336	0.0000	100.5210	100.5210	1.7700e-003	0.0000	100.5652
Total	**0.0346**	**0.0637**	**0.2683**	**1.2000e-003**	**0.1258**	**8.3000e-004**	**0.1266**	**0.0335**	**7.7000e-004**	**0.0343**	**0.0000**	**110.1991**	**110.1991**	**2.9300e-003**	**0.0000**	**110.2723**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1091	0.0000	0.1091	0.0165	0.0000	0.0165	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0329	0.1427	1.3453	2.6700e-003		4.3900e-003	4.3900e-003		4.3900e-003	4.3900e-003	0.0000	234.4571	234.4571	0.0758	0.0000	236.3528
Total	**0.0329**	**0.1427**	**1.3453**	**2.6700e-003**	**0.1091**	**4.3900e-003**	**0.1135**	**0.0165**	**4.3900e-003**	**0.0209**	**0.0000**	**234.4571**	**234.4571**	**0.0758**	**0.0000**	**236.3528**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.9000e-004	0.0323	0.0135	8.0000e-005	1.6700e-003	1.0000e-004	1.7700e-003	4.60E-04	1.00E-04	5.60E-04	0.0000	8.3531	8.3531	1.0400e-003	0.0000	8.3792
Vendor	1.9000e-004	5.8000e-003	2.3100e-003	1.0000e-005	3.3000e-004	3.0000e-005	3.5000e-004	9.00E-05	3.00E-05	1.20E-04	0.0000	1.3250	1.3250	1.2000e-004	0.0000	1.3279
Worker	0.0335	0.0256	0.2525	1.1100e-003	0.1238	7.0000e-004	0.1245	0.0329	6.40E-04	0.0336	0.0000	100.5210	100.5210	1.7700e-003	0.0000	100.5652
Total	**0.0346**	**0.0637**	**0.2683**	**1.2000e-003**	**0.1258**	**8.3000e-004**	**0.1266**	**0.0335**	**7.7000e-004**	**0.0343**	**0.0000**	**110.1991**	**110.1991**	**2.9300e-003**	**0.0000**	**110.2723**

3.3 Demolition (Site Preparation Only) - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Fugitive Dust					1.0000e-004	0.0000	1.0000e-004	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0000e-004	0.0000	1.0000e-004	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.2793	0.0000	2.2793	1.2467	0.0000	1.2467	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.5067	5.3524	2.9734	8.6400e-003		0.2360	0.2360		0.2171	0.2171	0.0000	758.7194	758.7194	0.2454	0.0000	764.8540
Total	**0.5067**	**5.3524**	**2.9734**	**8.6400e-003**	**2.2793**	**0.2360**	**2.5152**	**1.2467**	**0.2171**	**1.4638**	**0.0000**	**758.7194**	**758.7194**	**0.2454**	**0.0000**	**764.8540**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0820	3.2954	1.2240	6.1900e-003	0.1084	7.5400e-003	0.1160	0.0298	7.22E-03	0.037	0.0000	635.3119	635.3119	0.0786	0.0000	637.2769
Vendor	6.1400e-003	0.1677	0.0680	5.1000e-004	0.0135	1.1400e-003	0.0147	3.9100e-003	1.09E-03	5.00E-03	0.0000	50.2646	50.2646	4.1600e-003	0.0000	50.3688
Worker	0.1125	0.0858	0.8468	3.7200e-003	0.4150	2.3400e-003	0.4174	0.1104	2.16E-03	0.1125	0.0000	337.0409	337.0409	5.9300e-003	0.0000	337.1893
Total	**0.2006**	**3.5488**	**2.1387**	**0.0104**	**0.5370**	**0.0110**	**0.5480**	**0.1441**	**0.0105**	**0.1546**	**0.0000**	**1,022.6175**	**1,022.6175**	**0.0887**	**0.0000**	**1,024.8349**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Fugitive Dust					2.2793	0.0000	2.2793	1.2467	0.0000	1.2467	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1066	0.4620	4.4319	8.6400e-003		0.0142	0.0142		0.0142	0.0142	0.0000	758.7185	758.7185	0.2454	0.0000	764.8531
Total	**0.1066**	**0.4620**	**4.4319**	**8.6400e-003**	**2.2793**	**0.0142**	**2.2935**	**1.2467**	**0.0142**	**1.2609**	**0.0000**	**758.7185**	**758.7185**	**0.2454**	**0.0000**	**764.8531**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0820	3.2954	1.2240	6.1900e-003	0.1084	7.5400e-003	0.1160	0.0298	7.22E-03	0.037	0.0000	635.3119	635.3119	0.0786	0.0000	637.2769
Vendor	6.1400e-003	0.1677	0.0680	5.1000e-004	0.0135	1.1400e-003	0.0147	3.9100e-003	1.09E-03	5.00E-03	0.0000	50.2646	50.2646	4.1600e-003	0.0000	50.3688
Worker	0.1125	0.0858	0.8468	3.7200e-003	0.4150	2.3400e-003	0.4174	0.1104	2.16E-03	0.1125	0.0000	337.0409	337.0409	5.9300e-003	0.0000	337.1893
Total	**0.2006**	**3.5488**	**2.1387**	**0.0104**	**0.5370**	**0.0110**	**0.5480**	**0.1441**	**0.0105**	**0.1546**	**0.0000**	**1,022.6175**	**1,022.6175**	**0.0887**	**0.0000**	**1,024.8349**

3.5 Paving - Temp Parking Lot - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.8300e-003	0.0349	0.0135	4.0000e-005		1.3900e-003	1.3900e-003		1.2800e-003	1.2800e-003	0.0000	3.2476	3.2476	1.0500e-003	0.0000	3.2739
Paving	3.9300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.7600e-003**	**0.0349**	**0.0135**	**4.0000e-005**		**1.3900e-003**	**1.3900e-003**		**1.2800e-003**	**1.2800e-003**	**0.0000**	**3.2476**	**3.2476**	**1.0500e-003**	**0.0000**	**3.2739**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Vendor	6.6000e-004	0.0181	7.3400e-003	5.0000e-005	1.4600e-003	1.2000e-004	1.5800e-003	4.2000e-004	1.20E-04	5.40E-04	0.0000	5.4233	5.4233	4.5000e-004	0.0000	5.4345
Worker	9.5000e-004	7.2000e-004	7.1300e-003	3.0000e-005	3.5000e-003	2.0000e-005	3.5100e-003	9.3000e-004	2.00E-05	9.50E-04	0.0000	2.8382	2.8382	5.0000e-005	0.0000	2.8395
Total	**1.6100e-003**	**0.0188**	**0.0145**	**8.0000e-005**	**4.9600e-003**	**1.4000e-004**	**5.0900e-003**	**1.3500e-003**	**1.4000e-004**	**1.4900e-003**	**0.0000**	**8.2615**	**8.2615**	**5.0000e-004**	**0.0000**	**8.2740**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.5000e-004	1.9600e-003	0.0188	4.0000e-005		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	3.2476	3.2476	1.0500e-003	0.0000	3.2739
Paving	3.9300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.3800e-003**	**1.9600e-003**	**0.0188**	**4.0000e-005**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**3.2476**	**3.2476**	**1.0500e-003**	**0.0000**	**3.2739**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.6000e-004	0.0181	7.3400e-003	5.0000e-005	1.4600e-003	1.2000e-004	1.5800e-003	4.2000e-004	1.20E-04	5.40E-04	0.0000	5.4233	5.4233	4.5000e-004	0.0000	5.4345
Worker	9.5000e-004	7.2000e-004	7.1300e-003	3.0000e-005	3.5000e-003	2.0000e-005	3.5100e-003	9.3000e-004	2.00E-05	9.50E-04	0.0000	2.8382	2.8382	5.0000e-005	0.0000	2.8395
Total	**1.6100e-003**	**0.0188**	**0.0145**	**8.0000e-005**	**4.9600e-003**	**1.4000e-004**	**5.0900e-003**	**1.3500e-003**	**1.4000e-004**	**1.4900e-003**	**0.0000**	**8.2615**	**8.2615**	**5.0000e-004**	**0.0000**	**8.2740**

3.6 Foundations and Garage Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Off-Road	0.1369	1.4791	0.9480	2.6200e-003		0.0546	0.0546		0.0515	0.0515	0.0000	251.9030	251.9030	0.0391	0.0000	252.8797
Total	**0.1369**	**1.4791**	**0.9480**	**2.6200e-003**		**0.0546**	**0.0546**		**0.0515**	**0.0515**	**0.0000**	**251.9030**	**251.9030**	**0.0391**	**0.0000**	**252.8797**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.1600e-003	0.2502	0.1015	7.5000e-004	0.0202	1.7000e-003	0.0219	5.8400e-003	1.63E-03	7.47E-03	0.0000	75.0001	75.0001	6.2100e-003	0.0000	75.1555
Worker	0.2131	0.1625	1.6044	7.0500e-003	0.7864	4.4400e-003	0.7908	0.2092	4.09E-03	0.2132	0.0000	638.6039	638.6039	0.0112	0.0000	638.8849
Total	**0.2222**	**0.4126**	**1.7058**	**7.8000e-003**	**0.8066**	**6.1400e-003**	**0.8127**	**0.2150**	**5.7200e-003**	**0.2207**	**0.0000**	**713.6040**	**713.6040**	**0.0175**	**0.0000**	**714.0404**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0318	0.1379	1.1671	2.6200e-003		4.2400e-003	4.2400e-003		4.2400e-003	4.2400e-003	0.0000	251.9027	251.9027	0.0391	0.0000	252.8794
Total	**0.0318**	**0.1379**	**1.1671**	**2.6200e-003**		**4.2400e-003**	**4.2400e-003**		**4.2400e-003**	**4.2400e-003**	**0.0000**	**251.9027**	**251.9027**	**0.0391**	**0.0000**	**252.8794**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.1600e-003	0.2502	0.1015	7.5000e-004	0.0202	1.7000e-003	0.0219	5.8400e-003	1.63E-03	7.47E-03	0.0000	75.0001	75.0001	6.2100e-003	0.0000	75.1555
Worker	0.2131	0.1625	1.6044	7.0500e-003	0.7864	4.4400e-003	0.7908	0.2092	4.09E-03	0.2132	0.0000	638.6039	638.6039	0.0112	0.0000	638.8849

Total	**0.2222**	**0.4126**	**1.7058**	**7.8000e-003**	**0.8066**	**6.1400e-003**	**0.8127**	**0.2150**	**5.7200e-003**	**0.2207**	**0.0000**	**713.6040**	**713.6040**	**0.0175**	**0.0000**	**714.0404**

3.6 Foundations and Garage Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0868	0.8923	0.6115	1.8000e-003		0.0333	0.0333		0.0314	0.0314	0.0000	172.5842	172.5842	0.0266	0.0000	173.2489
Total	**0.0868**	**0.8923**	**0.6115**	**1.8000e-003**		**0.0333**	**0.0333**		**0.0314**	**0.0314**	**0.0000**	**172.5842**	**172.5842**	**0.0266**	**0.0000**	**173.2489**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.9800e-003	0.1496	0.0672	5.1000e-004	0.0138	4.6000e-004	0.0143	4.0000e-003	4.40E-04	4.44E-03	0.0000	50.7747	50.7747	4.2300e-003	0.0000	50.8805
Worker	0.1377	0.1003	1.0211	4.6600e-003	0.5388	2.9400e-003	0.5418	0.1433	2.71E-03	0.146	0.0000	421.9574	421.9574	6.9400e-003	0.0000	422.1310
Total	**0.1427**	**0.2498**	**1.0884**	**5.1700e-003**	**0.5527**	**3.4000e-003**	**0.5561**	**0.1473**	**3.1500e-003**	**0.1505**	**0.0000**	**472.7321**	**472.7321**	**0.0112**	**0.0000**	**473.0114**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0218	0.0945	0.7997	1.8000e-003		2.9100e-003	2.9100e-003		2.9100e-003	2.9100e-003	0.0000	172.5840	172.5840	0.0266	0.0000	173.2487
Total	**0.0218**	**0.0945**	**0.7997**	**1.8000e-003**		**2.9100e-003**	**2.9100e-003**		**2.9100e-003**	**2.9100e-003**	**0.0000**	**172.5840**	**172.5840**	**0.0266**	**0.0000**	**173.2487**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.9800e-003	0.1496	0.0672	5.1000e-004	0.0138	4.6000e-004	0.0143	4.0000e-003	4.40E-04	4.44E-03	0.0000	50.7747	50.7747	4.2300e-003	0.0000	50.8805
Worker	0.1377	0.1003	1.0211	4.6600e-003	0.5388	2.9400e-003	0.5418	0.1433	2.71E-03	0.146	0.0000	421.9574	421.9574	6.9400e-003	0.0000	422.1310
Total	**0.1427**	**0.2498**	**1.0884**	**5.1700e-003**	**0.5527**	**3.4000e-003**	**0.5561**	**0.1473**	**3.1500e-003**	**0.1505**	**0.0000**	**472.7321**	**472.7321**	**0.0112**	**0.0000**	**473.0114**

3.7 Superstructure - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0352	0.3578	0.2641	6.7000e-004		0.0139	0.0139		0.0131	0.0131	0.0000	63.8904	63.8904	0.0105	0.0000	64.1518
Total	**0.0352**	**0.3578**	**0.2641**	**6.7000e-004**		**0.0139**	**0.0139**		**0.0131**	**0.0131**	**0.0000**	**63.8904**	**63.8904**	**0.0105**	**0.0000**	**64.1518**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0600e-003	0.1037	0.0427	3.7000e-004	0.0104	8.6000e-004	0.0113	3.0100e-003	8.20E-04	3.83E-03	0.0000	37.0002	37.0002	2.9900e-003	0.0000	37.0749
Worker	0.0534	0.0407	0.4017	1.7700e-003	0.1969	1.1100e-003	0.1980	0.0524	1.02E-03	0.0534	0.0000	159.8875	159.8875	2.8100e-003	0.0000	159.9579
Total	**0.0574**	**0.1443**	**0.4444**	**2.1400e-003**	**0.2073**	**1.9700e-003**	**0.2093**	**0.0554**	**1.8400e-003**	**0.0572**	**0.0000**	**196.8876**	**196.8876**	**5.8000e-003**	**0.0000**	**197.0327**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Off-Road	8.1200e-003	0.0352	0.3319	6.7000e-004		1.0800e-003	1.0800e-003		1.0800e-003	1.0800e-003	0.0000	63.8904	63.8904	0.0105	0.0000	64.1518
Total	**8.1200e-003**	**0.0352**	**0.3319**	**6.7000e-004**		**1.0800e-003**	**1.0800e-003**		**1.0800e-003**	**1.0800e-003**	**0.0000**	**63.8904**	**63.8904**	**0.0105**	**0.0000**	**64.1518**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0600e-003	0.1037	0.0427	3.7000e-004	0.0104	8.6000e-004	0.0113	3.0100e-003	8.20E-04	3.83E-03	0.0000	37.0002	37.0002	2.9900e-003	0.0000	37.0749
Worker	0.0534	0.0407	0.4017	1.7700e-003	0.1969	1.1100e-003	0.1980	0.0524	1.02E-03	0.0534	0.0000	159.8875	159.8875	2.8100e-003	0.0000	159.9579
Total	**0.0574**	**0.1443**	**0.4444**	**2.1400e-003**	**0.2073**	**1.9700e-003**	**0.2093**	**0.0554**	**1.8400e-003**	**0.0572**	**0.0000**	**196.8876**	**196.8876**	**5.8000e-003**	**0.0000**	**197.0327**

3.7 Superstructure - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1383	1.3358	1.0824	2.8500e-003		0.0520	0.0520		0.0490	0.0490	0.0000	272.7619	272.7619	0.0444	0.0000	273.8712
Total	**0.1383**	**1.3358**	**1.0824**	**2.8500e-003**		**0.0520**	**0.0520**		**0.0490**	**0.0490**	**0.0000**	**272.7619**	**272.7619**	**0.0444**	**0.0000**	**273.8712**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Vendor	0.0134	0.3771	0.1759	1.5700e-003	0.0444	1.4100e-003	0.0458	0.0128	1.34E-03	0.0142	0.0000	156.1116	156.1116	0.0128	0.0000	156.4305
Worker	0.2148	0.1564	1.5930	7.2700e-003	0.8406	4.5900e-003	0.8452	0.2236	4.23E-03	0.2278	0.0000	658.2535	658.2535	0.0108	0.0000	658.5243
Total	**0.2282**	**0.5335**	**1.7689**	**8.8400e-003**	**0.8850**	**6.0000e-003**	**0.8910**	**0.2364**	**5.5700e-003**	**0.2420**	**0.0000**	**814.3651**	**814.3651**	**0.0236**	**0.0000**	**814.9548**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0347	0.1503	1.4168	2.8500e-003		4.6200e-003	4.6200e-003		4.6200e-003	4.6200e-003	0.0000	272.7615	272.7615	0.0444	0.0000	273.8709
Total	**0.0347**	**0.1503**	**1.4168**	**2.8500e-003**		**4.6200e-003**	**4.6200e-003**		**4.6200e-003**	**4.6200e-003**	**0.0000**	**272.7615**	**272.7615**	**0.0444**	**0.0000**	**273.8709**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0134	0.3771	0.1759	1.5700e-003	0.0444	1.4100e-003	0.0458	0.0128	1.34E-03	0.0142	0.0000	156.1116	156.1116	0.0128	0.0000	156.4305
Worker	0.2148	0.1564	1.5930	7.2700e-003	0.8406	4.5900e-003	0.8452	0.2236	4.23E-03	0.2278	0.0000	658.2535	658.2535	0.0108	0.0000	658.5243
Total	**0.2282**	**0.5335**	**1.7689**	**8.8400e-003**	**0.8850**	**6.0000e-003**	**0.8910**	**0.2364**	**5.5700e-003**	**0.242**	**0.0000**	**814.3651**	**814.3651**	**0.0236**	**0.0000**	**814.9548**

3.8 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2969	2.7857	2.8166	4.8500e-003		0.1243	0.1243		0.1155	0.1155	0.0000	413.0939	413.0939	0.1255	0.0000	416.2321

Total	**0.2969**	**2.7857**	**2.8166**	**4.8500e-003**		**0.1243**	**0.1243**		**0.1155**	**0.1155**	**0.0000**	**413.0939**	**413.0939**	**0.1255**	**0.0000**	**416.2321**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.3500e-003	0.2495	0.0840	2.7000e-004	3.2500e-003	2.9000e-004	3.5400e-003	8.70E-04	2.80E-04	1.15E-03	0.0000	27.9509	27.9509	3.2500e-003	0.0000	28.0322
Vendor	0.0180	0.5515	0.2450	1.7500e-003	0.0467	1.5800e-003	0.0483	0.0135	1.51E-03	0.015	0.0000	174.5814	174.5814	0.0147	0.0000	174.9477
Worker	1.1511	0.8382	8.5376	0.0390	4.5050	0.0246	4.5296	1.1982	0.0227	1.2208	0.0000	3,527.9058	3,527.9058	0.0581	0.0000	3,529.3571
Total	**1.1745**	**1.6392**	**8.8665**	**0.0410**	**4.5550**	**0.0265**	**4.5815**	**1.2126**	**0.0244**	**1.237**	**0.0000**	**3,730.4381**	**3,730.4381**	**0.0760**	**0.0000**	**3,732.3371**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0529	0.2292	2.6424	4.8500e-003		7.0500e-003	7.0500e-003		7.0500e-003	7.0500e-003	0.0000	413.0934	413.0934	0.1255	0.0000	416.2316
Total	**0.0529**	**0.2292**	**2.6424**	**4.8500e-003**		**7.0500e-003**	**7.0500e-003**		**7.0500e-003**	**7.0500e-003**	**0.0000**	**413.0934**	**413.0934**	**0.1255**	**0.0000**	**416.2316**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.3500e-003	0.2495	0.0840	2.7000e-004	3.2500e-003	2.9000e-004	3.5400e-003	8.70E-04	2.80E-04	1.15E-03	0.0000	27.9509	27.9509	3.2500e-003	0.0000	28.0322
Vendor	0.0180	0.5515	0.2450	1.7500e-003	0.0467	1.5800e-003	0.0483	0.0135	1.51E-03	0.015	0.0000	174.5814	174.5814	0.0147	0.0000	174.9477
Worker	1.1511	0.8382	8.5376	0.0390	4.5050	0.0246	4.5296	1.1982	0.0227	1.2208	0.0000	3,527.9058	3,527.9058	0.0581	0.0000	3,529.3571
Total	**1.1745**	**1.6392**	**8.8665**	**0.0410**	**4.5550**	**0.0265**	**4.5815**	**1.2126**	**0.0244**	**1.2370**	**0.0000**	**3,730.4381**	**3,730.4381**	**0.0760**	**0.0000**	**3,732.3371**

3.8 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1505	1.3375	1.5353	2.7600e-003		0.0586	0.0586		0.0546	0.0546	0.0000	234.8720	234.8720	0.0713	0.0000	236.6553
Total	**0.1505**	**1.3375**	**1.5353**	**2.7600e-003**		**0.0586**	**0.0586**		**0.0546**	**0.0546**	**0.0000**	**234.8720**	**234.8720**	**0.0713**	**0.0000**	**236.6553**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.8800e-003	0.1348	0.0492	1.5000e-004	2.9900e-003	1.5000e-004	3.1400e-003	7.7000e-004	1.40E-04	9.10E-04	0.0000	15.6056	15.6056	1.7600e-003	0.0000	15.6496
Vendor	9.6400e-003	0.2923	0.1400	9.8000e-004	0.0266	7.9000e-004	0.0274	7.6900e-003	7.60E-04	8.44E-03	0.0000	98.0577	98.0577	8.3600e-003	0.0000	98.2666
Worker	0.6241	0.4317	4.5434	0.0213	2.5623	0.0137	2.5760	0.6815	0.0126	0.6941	0.0000	1,933.0272	1,933.0272	0.0299	0.0000	1,933.7745
Total	**0.6366**	**0.8588**	**4.7326**	**0.0225**	**2.5919**	**0.0146**	**2.6066**	**0.6900**	**0.0135**	**0.7035**	**0.0000**	**2,046.6905**	**2,046.6905**	**0.0400**	**0.0000**	**2,047.6907**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0301	0.1304	1.5029	2.7600e-003		4.0100e-003	4.0100e-003		4.0100e-003	4.0100e-003	0.0000	234.8717	234.8717	0.0713	0.0000	236.6550
Total	**0.0301**	**0.1304**	**1.5029**	**2.7600e-003**		**4.0100e-003**	**4.0100e-003**		**4.0100e-003**	**4.0100e-003**	**0.0000**	**234.8717**	**234.8717**	**0.0713**	**0.0000**	**236.6550**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	2.8800e-003	0.1348	0.0492	1.5000e-004	2.9900e-003	1.5000e-004	3.1400e-003	7.7000e-004	1.40E-04	9.10E-04	0.0000	15.6056	15.6056	1.7600e-003	0.0000	15.6496
Vendor	9.6400e-003	0.2923	0.1400	9.8000e-004	0.0266	7.9000e-004	0.0274	7.6900e-003	7.60E-04	8.44E-03	0.0000	98.0577	98.0577	8.3600e-003	0.0000	98.2666
Worker	0.6241	0.4317	4.5434	0.0213	2.5623	0.0137	2.5760	0.6815	0.0126	0.6941	0.0000	1,933.0272	1,933.0272	0.0299	0.0000	1,933.7745
Total	**0.6366**	**0.8588**	**4.7326**	**0.0225**	**2.5919**	**0.0146**	**2.6066**	**0.6900**	**0.0135**	**0.7035**	**0.0000**	**2,046.6905**	**2,046.6905**	**0.0400**	**0.0000**	**2,047.6907**

3.9 Exterior Facade - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.4830					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0372	0.4332	0.3081	6.1000e-004		0.0174	0.0174		0.0160	0.0160	0.0000	53.9279	53.9279	0.0174	0.0000	54.3640
Total	**2.5201**	**0.4332**	**0.3081**	**6.1000e-004**		**0.0174**	**0.0174**		**0.0160**	**0.0160**	**0.0000**	**53.9279**	**53.9279**	**0.0174**	**0.0000**	**54.3640**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0640	1.7624	0.8335	7.8200e-003	0.2245	7.0000e-003	0.2315	0.0648	6.70E-03	0.0715	0.0000	779.0370	779.0370	0.0633	0.0000	780.6191
Worker	0.0338	0.0245	0.2501	1.1300e-003	0.1310	7.2000e-004	0.1317	0.0348	6.60E-04	0.0355	0.0000	102.6724	102.6724	1.7000e-003	0.0000	102.7148
Total	**0.0978**	**1.7869**	**1.0835**	**8.9500e-003**	**0.3555**	**7.7200e-003**	**0.3632**	**0.0997**	**7.3600e-003**	**0.107**	**0.0000**	**881.7094**	**881.7094**	**0.0650**	**0.0000**	**883.3339**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.4830					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.5500e-003	0.0327	0.2768	6.1000e-004		1.0100e-003	1.0100e-003		1.0100e-003	1.0100e-003	0.0000	53.9279	53.9279	0.0174	0.0000	54.3639
Total	**2.4905**	**0.0327**	**0.2768**	**6.1000e-004**		**1.0100e-003**	**1.0100e-003**		**1.0100e-003**	**1.0100e-003**	**0.0000**	**53.9279**	**53.9279**	**0.0174**	**0.0000**	**54.3639**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0640	1.7624	0.8335	7.8200e-003	0.2245	7.0000e-003	0.2315	0.0648	6.70E-03	0.0715	0.0000	779.0370	779.0370	0.0633	0.0000	780.6191
Worker	0.0338	0.0245	0.2501	1.1300e-003	0.1310	7.2000e-004	0.1317	0.0348	6.60E-04	0.0355	0.0000	102.6724	102.6724	1.7000e-003	0.0000	102.7148
Total	**0.0978**	**1.7869**	**1.0835**	**8.9500e-003**	**0.3555**	**7.7200e-003**	**0.3632**	**0.0997**	**7.3600e-003**	**0.107**	**0.0000**	**881.7094**	**881.7094**	**0.0650**	**0.0000**	**883.3339**

3.10 Bus Stop - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0356	0.2696	0.2630	5.2000e-004		0.0117	0.0117		0.0112	0.0112	0.0000	42.9935	42.9935	0.0110	0.0000	43.2696
Total	**0.0356**	**0.2696**	**0.2630**	**5.2000e-004**		**0.0117**	**0.0117**		**0.0112**	**0.0112**	**0.0000**	**42.9935**	**42.9935**	**0.0110**	**0.0000**	**43.2696**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8100e-003	0.0536	0.0261	1.9000e-004	5.3400e-003	1.6000e-004	5.5000e-003	1.5400e-003	1.50E-04	1.69E-03	0.0000	19.3613	19.3613	1.6400e-003	0.0000	19.4024
Worker	3.5500e-003	2.4500e-003	0.0258	1.2000e-004	0.0146	8.0000e-005	0.0146	3.8700e-003	7.00E-05	3.94E-03	0.0000	10.9862	10.9862	1.7000e-004	0.0000	10.9905
Total	**5.3600e-003**	**0.0561**	**0.0520**	**3.1000e-004**	**0.0199**	**2.4000e-004**	**0.0201**	**5.4100e-003**	**2.2000e-004**	**5.63E-03**	**0.0000**	**30.3476**	**30.3476**	**1.8100e-003**	**0.0000**	**30.3928**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.1500e-003	0.0180	0.2175	5.2000e-004		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	42.9934	42.9934	0.0110	0.0000	43.2695
Total	**4.1500e-003**	**0.0180**	**0.2175**	**5.2000e-004**		**5.5000e-004**	**5.5000e-004**		**5.5000e-004**	**5.5000e-004**	**0.0000**	**42.9934**	**42.9934**	**0.0110**	**0.0000**	**43.2695**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.8100e-003	0.0536	0.0261	1.9000e-004	5.3400e-003	1.6000e-004	5.5000e-003	1.5400e-003	1.50E-04	1.69E-03	0.0000	19.3613	19.3613	1.6400e-003	0.0000	19.4024
Worker	3.5500e-003	2.4500e-003	0.0258	1.2000e-004	0.0146	8.0000e-005	0.0146	3.8700e-003	7.00E-05	3.94E-03	0.0000	10.9862	10.9862	1.7000e-004	0.0000	10.9905
Total	**5.3600e-003**	**0.0561**	**0.0520**	**3.1000e-004**	**0.0199**	**2.4000e-004**	**0.0201**	**5.4100e-003**	**2.2000e-004**	**5.6300e-003**	**0.0000**	**30.3476**	**30.3476**	**1.8100e-003**	**0.0000**	**30.3928**

3.11 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2880	0.0000	0.2880	0.1561	0.0000	0.1561	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0607	0.6826	0.2570	7.4000e-004		0.0283	0.0283		0.0260	0.0260	0.0000	64.9346	64.9346	0.0210	0.0000	65.4597
Total	**0.0607**	**0.6826**	**0.2570**	**7.4000e-004**	**0.2880**	**0.0283**	**0.3163**	**0.1561**	**0.0260**	**0.1821**	**0.0000**	**64.9346**	**64.9346**	**0.0210**	**0.0000**	**65.4597**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.5200e-003	0.3983	0.1453	4.5000e-004	3.8500e-003	4.3000e-004	4.2900e-003	1.0700e-003	4.10E-04	1.48E-03	0.0000	46.1173	46.1173	5.2000e-003	0.0000	46.2474
Vendor	1.2000e-003	0.0379	0.0177	1.1000e-004	2.9300e-003	9.0000e-005	3.0300e-003	8.5000e-004	9.00E-05	9.40E-04	0.0000	11.2065	11.2065	9.6000e-004	0.0000	11.2306
Worker	0.0200	0.0138	0.1456	6.8000e-004	0.0821	4.4000e-004	0.0826	0.0218	4.00E-04	0.0223	0.0000	61.9623	61.9623	9.6000e-004	0.0000	61.9863
Total	**0.0297**	**0.4500**	**0.3086**	**1.2400e-003**	**0.0889**	**9.6000e-004**	**0.0899**	**0.0238**	**9.0000e-004**	**0.0247**	**0.0000**	**119.2861**	**119.2861**	**7.1200e-003**	**0.0000**	**119.4642**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2880	0.0000	0.2880	0.1561	0.0000	0.1561	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.0500e-003	0.0392	0.3319	7.4000e-004		1.2100e-003	1.2100e-003		1.2100e-003	1.2100e-003	0.0000	64.9346	64.9346	0.0210	0.0000	65.4596
Total	**9.0500e-003**	**0.0392**	**0.3319**	**7.4000e-004**	**0.2880**	**1.2100e-003**	**0.2892**	**0.1561**	**1.2100e-003**	**0.1573**	**0.0000**	**64.9346**	**64.9346**	**0.0210**	**0.0000**	**65.4596**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.5200e-003	0.3983	0.1453	4.5000e-004	3.8500e-003	4.3000e-004	4.2900e-003	1.0700e-003	4.10E-04	1.48E-03	0.0000	46.1173	46.1173	5.2000e-003	0.0000	46.2474
Vendor	1.2000e-003	0.0379	0.0177	1.1000e-004	2.9300e-003	9.0000e-005	3.0300e-003	8.5000e-004	9.00E-05	9.40E-04	0.0000	11.2065	11.2065	9.6000e-004	0.0000	11.2306
Worker	0.0200	0.0138	0.1456	6.8000e-004	0.0821	4.4000e-004	0.0826	0.0218	4.00E-04	0.0223	0.0000	61.9623	61.9623	9.6000e-004	0.0000	61.9863
Total	**0.0297**	**0.4500**	**0.3086**	**1.2400e-003**	**0.0889**	**9.6000e-004**	**0.0899**	**0.0238**	**9.0000e-004**	**0.0247**	**0.0000**	**119.2861**	**119.2861**	**7.1200e-003**	**0.0000**	**119.4642**

3.12 Paving - Grundy Lane (Demolition Only) - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0240	0.0000	0.0240	3.6300e-003	0.0000	3.6300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0240**	**0.0000**	**0.0240**	**3.6300e-003**	**0.0000**	**3.6300e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0240	0.0000	0.0240	3.6300e-003	0.0000	3.6300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0240**	**0.0000**	**0.0240**	**3.6300e-003**	**0.0000**	**3.6300e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.13 Paving - Grundy Lane - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.1700e-003	0.0254	0.0172	4.0000e-005		9.4000e-004	9.4000e-004		8.6000e-004	8.6000e-004	0.0000	3.5345	3.5345	1.1400e-003	0.0000	3.5631
Paving	3.9300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.1000e-003**	**0.0254**	**0.0172**	**4.0000e-005**		**9.4000e-004**	**9.4000e-004**		**8.6000e-004**	**8.6000e-004**	**0.0000**	**3.5345**	**3.5345**	**1.1400e-003**	**0.0000**	**3.5631**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.2000e-004	0.0182	8.8900e-003	7.0000e-005	1.8200e-003	5.0000e-005	1.8700e-003	5.3000e-004	5.00E-05	5.80E-04	0.0000	6.5829	6.5829	5.6000e-004	0.0000	6.5968
Worker	1.2800e-003	8.8000e-004	9.3000e-003	4.0000e-005	5.2400e-003	3.0000e-005	5.2700e-003	1.3900e-003	3.00E-05	1.42E-03	0.0000	3.9550	3.9550	6.0000e-005	0.0000	3.9566
Total	**1.9000e-003**	**0.0191**	**0.0182**	**1.1000e-004**	**7.0600e-003**	**8.0000e-005**	**7.1400e-003**	**1.9200e-003**	**8.0000e-005**	**2.0000e-003**	**0.0000**	**10.5379**	**10.5379**	**6.2000e-004**	**0.0000**	**10.5534**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.9000e-004	2.1400e-003	0.0181	4.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005	0.0000	3.5345	3.5345	1.1400e-003	0.0000	3.5631
Paving	3.9300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.4200e-003**	**2.1400e-003**	**0.0181**	**4.0000e-005**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**	**0.0000**	**3.5345**	**3.5345**	**1.1400e-003**	**0.0000**	**3.5631**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	0	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.2000e-004	0.0182	8.8900e-003	7.0000e-005	1.8200e-003	5.0000e-005	1.8700e-003	5.3000e-004	5.00E-05	5.80E-04	0.0000	6.5829	6.5829	5.6000e-004	0.0000	6.5968
Worker	1.2800e-003	8.8000e-004	9.3000e-003	4.0000e-005	5.2400e-003	3.0000e-005	5.2700e-003	1.3900e-003	3.00E-05	1.42E-03	0.0000	3.9550	3.9550	6.0000e-005	0.0000	3.9566

Total	**1.9000e-003**	**0.0191**	**0.0182**	**1.1000e-004**	**7.0600e-003**	**8.0000e-005**	**7.1400e-003**	**1.9200e-003**	**8.0000e-005**	**2.0000e-003**	**0.0000**	**10.5379**	**10.5379**	**6.2000e-004**	**0.0000**	**10.5534**

Bayhill Specific Plan - Phase I Construction Analysis

San Mateo County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Office Park	440.00	1000sqft	5.15	440,000.00	0
Enclosed Parking with Elevator	773.80	1000sqft	0.00	773,800.00	0
Parking Lot	3.00	Acre	3.00	130,680.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	290	**CH4 Intensity (lb/MWhr)**	0.03	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Adjusted electricity EF for 2020 per SB 100

Land Use - total site acreage, office, temp parking lot and Grundy lane acreage provided by project description and project sponsor; assumed remaining acreage from temporary parking and Grundy to be building acreage

Construction Phase - Start/end dates provided by the project sponsor; adjusted days/week to be consistent with total days or end dates provided by project sponsor (whichever is larger)

Off-road Equipment - Construction equipment unit, hours/day, hp provided by project sponsor

Off-road Equipment - Construction equipment unit, hours/day, hp provided by project sponsor

Off-road Equipment - Construction equipment unit, hours/day, hp provided by project sponsor

Off-road Equipment - No additional equipment for this phase

Off-road Equipment - Construction equipment unit, hours/day, hp provided by project sponsor

Off-road Equipment - Construction equipment unit, hours/day, hp provided by project sponsor

Off-road Equipment - Construction equipment unit, hours/day, hp provided by project sponsor

Off-road Equipment - Construction equipment unit, hours/day, hp provided by project sponsor

Off-road Equipment - No additional equipment for this phase

Off-road Equipment - Construction equipment unit, hours/day, hp provided by project sponsor

Off-road Equipment - Construction equipment unit, hours/day, hp provided by project sponsor

Off-road Equipment - Construction equipment unit, hours/day, hp provided by project sponsor

Trips and VMT - trips and trip lengths provided by project sponsor; vendor trips assumed to also include water trucks; total hauling trucks assumed to be trips/day*schedule days provided by project sponsor

Demolition - Demoliton tonnage provided by project sponsor

Grading - Grading acreage provided by project sponsor

Vehicle Trips - Operation emissions to be modeled seperately

Energy Use -

Construction Off-road Equipment Mitigation - Tier 4 final assumed for all pieces of equipment

Table Name	Column Name	Default Value	New Value
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tblConstEquipMitigation	Tier	No Change	Tier 4 Final
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	2.00
tblOffRoadEquipment	UsageHours	7.00	6.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.03
tblProjectCharacteristics	CO2IntensityFactor	641.35	290
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripLength	20.00	6.30
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripNumber	1,009.00	200.00
tblTripsAndVMT	HaulingTripNumber	490.00	9,000.00
tblTripsAndVMT	HaulingTripNumber	221.00	0.00
tblTripsAndVMT	HaulingTripNumber	219.00	0.00
tblTripsAndVMT	HaulingTripNumber	22,481.00	41,040.00
tblTripsAndVMT	HaulingTripNumber	0.00	8,400.00
tblTripsAndVMT	VendorTripLength	7.30	10.00
tblTripsAndVMT	VendorTripLength	7.30	0.00
tblTripsAndVMT	VendorTripLength	7.30	20.00
tblTripsAndVMT	VendorTripLength	7.30	0.00
tblTripsAndVMT	VendorTripLength	7.30	20.00

tblTripsAndVMT	VendorTripLength	7.30	20.00
tblTripsAndVMT	VendorTripLength	7.30	20.00
tblTripsAndVMT	VendorTripLength	7.30	90.00
tblTripsAndVMT	VendorTripLength	7.30	15.00
tblTripsAndVMT	VendorTripLength	7.30	2,052.00
tblTripsAndVMT	VendorTripLength	7.30	20.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	7.00
tblTripsAndVMT	VendorTripNumber	0.00	34.00
tblTripsAndVMT	VendorTripNumber	0.00	8.00
tblTripsAndVMT	VendorTripNumber	0.00	41.00
tblTripsAndVMT	VendorTripNumber	220.00	21.00
tblTripsAndVMT	VendorTripNumber	220.00	10.00
tblTripsAndVMT	VendorTripNumber	220.00	26.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	220.00	6.00
tblTripsAndVMT	WorkerTripLength	10.80	80.00
tblTripsAndVMT	WorkerTripLength	10.80	80.00
tblTripsAndVMT	WorkerTripLength	10.80	0.00
tblTripsAndVMT	WorkerTripLength	10.80	80.00
tblTripsAndVMT	WorkerTripLength	10.80	0.00
tblTripsAndVMT	WorkerTripLength	10.80	80.00
tblTripsAndVMT	WorkerTripLength	10.80	80.00
tblTripsAndVMT	WorkerTripLength	10.80	80.00
tblTripsAndVMT	WorkerTripLength	10.80	80.00
tblTripsAndVMT	WorkerTripLength	10.80	80.00
tblTripsAndVMT	WorkerTripLength	10.80	65.00
tblTripsAndVMT	WorkerTripLength	10.80	80.00
tblTripsAndVMT	WorkerTripNumber	35.00	85.00
tblTripsAndVMT	WorkerTripNumber	8.00	30.00

tblTripsAndVMT	WorkerTripNumber	10.00	30.00
tblTripsAndVMT	WorkerTripNumber	33.00	75.00
tblTripsAndVMT	WorkerTripNumber	8.00	30.00
tblTripsAndVMT	WorkerTripNumber	521.00	250.00
tblTripsAndVMT	WorkerTripNumber	521.00	260.00
tblTripsAndVMT	WorkerTripNumber	521.00	575.00
tblTripsAndVMT	WorkerTripNumber	104.00	45.00
tblTripsAndVMT	WorkerTripNumber	521.00	5.00
tblVehicleTrips	ST_TR	1.64	0.00
tblVehicleTrips	SU_TR	0.76	0.00
tblVehicleTrips	WD_TR	11.42	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	13.7973	127.761	110.8467	0.4258	45.4672	3.7216	49.1887	18.8388	3.4522	22.291	0	43,496.53	43,496.53	5.0438	0	43,560.77
2021	52.9992	67.0169	149.267	0.5778	51.9713	2.1649	54.1362	13.8047	2.0227	15.8274	0	58,197.50	58,197.50	3.17	0	58,273.89
2022	15.1578	73.2087	119.6833	0.4586	54.3093	2.1575	56.4668	15.2135	2.0025	17.216	0	45,985.36	45,985.36	3.2285	0	46,066.07
Maximum	**52.9992**	**127.7610**	**149.2670**	**0.5778**	**54.3093**	**3.7216**	**56.4668**	**18.8388**	**3.4522**	**22.2910**	**0.0000**	**58,197.4958**	**58,197.4958**	**5.0438**	**0.0000**	**58,273.8927**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	9.3089	51.8346	126.4155	0.4258	45.4672	0.4556	45.9228	18.8388	0.442	19.2808	0	43,496.53	43,496.53	5.0438	0	43,560.77
2021	50.7032	41.4984	153.9977	0.5778	51.9713	0.4402	52.4115	13.8047	0.4175	14.2222	0	58,197.50	58,197.50	3.17	0	58,273.89
2022	11.2992	30.9731	120.2545	0.4586	54.3093	0.3533	54.6626	15.2135	0.3357	15.5492	0	45,985.36	45,985.36	3.2285	0	46,066.07
Maximum	**50.7032**	**51.8346**	**153.9977**	**0.5778**	**54.3093**	**0.4556**	**54.6626**	**18.8388**	**0.4420**	**19.2808**	**0.0000**	**58,197.4957**	**58,197.4957**	**5.0438**	**0.0000**	**58,273.8927**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**12.99**	**53.61**	**-5.50**	**0.00**	**0.00**	**84.47**	**4.25**	**0.00**	**84.02**	**11.35**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	11.1085	1.1400e-003	0.1244	1.0000e-005		4.4000e-004	4.4000e-004		4.4000e-004	4.4000e-004		0.2663	0.2663	7.0000e-004		0.2839
Energy	0.2419	2.1994	1.8475	0.0132		0.1672	0.1672		0.1672	0.1672		2,639.2909	2,639.2909	0.0506	0.0484	2,654.9749
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**11.3504**	**2.2006**	**1.9719**	**0.0132**	**0.0000**	**0.1676**	**0.1676**	**0.0000**	**0.1676**	**0.1676**		**2,639.5572**	**2,639.5572**	**0.0513**	**0.0484**	**2,655.2587**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	11.1085	1.1400e-003	0.1244	1.0000e-005		4.4000e-004	4.4000e-004		4.4000e-004	4.4000e-004		0.2663	0.2663	7.0000e-004		0.2839
Energy	0.2419	2.1994	1.8475	0.0132		0.1672	0.1672		0.1672	0.1672		2,639.2909	2,639.2909	0.0506	0.0484	2,654.9749
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**11.3504**	**2.2006**	**1.9719**	**0.0132**	**0.0000**	**0.1676**	**0.1676**	**0.0000**	**0.1676**	**0.1676**		**2,639.5572**	**2,639.5572**	**0.0513**	**0.0484**	**2,655.2587**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2020	3/10/2020	5	50	
2	Demolition (Site Preparation Only)	Site Preparation	1/1/2020	3/10/2020	5	50	
3	Site Preparation	Site Preparation	3/11/2020	9/16/2020	7	190	
4	Paving - Temp Parking Lot	Paving	3/12/2020	3/15/2020	7	4	
5	Foundations and Garage Construction	Building Construction	9/15/2020	3/15/2021	7	182	
6	Superstructure	Building Construction	12/6/2020	4/21/2021	7	137	
7	Building Construction	Building Construction	4/7/2021	6/2/2022	7	422	
8	Exterior Facade	Architectural Coating	7/1/2021	10/31/2021	7	123	
9	Bus Stop	Building Construction	2/1/2022	5/11/2022	7	100	
10	Grading	Grading	3/1/2022	6/2/2022	7	94	
11	Paving - Grundy Lane (Demolition Only)	Demolition	5/2/2022	5/7/2022	7	6	

12	Paving - Grundy Lane	Paving	5/2/2022	5/7/2022	7	6	

Acres of Grading (Site Preparation Phase): 9

Acres of Grading (Grading Phase): 9

Acres of Paving: 3

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 660,000; Non-Residential Outdoor: 220,000; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	0	8.00	158	0.38
Demolition	Excavators	6	8.00	325	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Demolition	Rubber Tired Dozers	4	8.00	130	0.40
Demolition	Tractors/Loaders/Backhoes	4	8.00	200	0.37
Demolition (Site Preparation Only)	Rubber Tired Dozers	0	8.00	247	0.40
Demolition (Site Preparation Only)	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Superstructure	Air Compressors	0	6.00	78	0.48
Superstructure	Cranes	0	7.00	231	0.29
Superstructure	Cranes	2	6.00	450	0.29
Superstructure	Forklifts	0	8.00	89	0.20
Superstructure	Generator Sets	0	8.00	84	0.74
Superstructure	Off-Highway Trucks	2	8.00	130	0.38
Superstructure	Pumps	2	4.00	400	0.74
Superstructure	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Superstructure	Welders	0	8.00	46	0.45
Bus Stop	Cranes	0	7.00	231	0.29
Bus Stop	Cranes	1	2.00	400	0.29
Bus Stop	Forklifts	0	8.00	89	0.20
Bus Stop	Generator Sets	0	8.00	84	0.74

Bus Stop	Generator Sets	2	8.00	20	0.74
Bus Stop	Off-Highway Trucks	1	8.00	130	0.38
Bus Stop	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Bus Stop	Welders	0	8.00	46	0.45
Grading	Excavators	0	8.00	158	0.38
Grading	Graders	0	8.00	187	0.41
Grading	Graders	1	8.00	200	0.41
Grading	Pavers	0	8.00	130	0.42
Grading	Paving Equipment	0	8.00	132	0.36
Grading	Plate Compactors	1	8.00	100	0.43
Grading	Rollers	0	8.00	80	0.38
Grading	Rubber Tired Dozers	0	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	250	0.40
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Bore/Drill Rigs	1	4.00	250	0.50
Site Preparation	Excavators	0	8.00	158	0.38
Site Preparation	Excavators	4	8.00	325	0.38
Site Preparation	Graders	0	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	0	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	4	8.00	130	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	200	0.37
Paving - Temp Parking Lot		1	8.00		
Paving - Temp Parking Lot	Graders	2	8.00	200	0.43
Paving - Temp Parking Lot	Pavers	0	8.00	130	0.42
Paving - Temp Parking Lot	Pavers	1	8.00	100	0.42
Paving - Temp Parking Lot	Paving Equipment	0	8.00	132	0.36
Paving - Temp Parking Lot	Rollers	0	8.00	175	0.38
Building Construction	Cranes	0	7.00	231	0.29
Building Construction	Cranes	2	6.00	400	0.29

Building Construction	Forklifts	0	8.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Building Construction	Generator Sets	4	8.00	10	0.74
Building Construction	Off-Highway Trucks	4	8.00	130	0.38
Building Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Building Construction	Welders	0	8.00	46	0.45
Paving - Grundy Lane (Demolition Only)	Concrete/Industrial Saws	0	8.00	81	0.73
Paving - Grundy Lane (Demolition Only)	Excavators	0	8.00	158	0.38
Paving - Grundy Lane (Demolition Only)	Rubber Tired Dozers	0	8.00	247	0.40
Paving - Grundy Lane	Graders	1	8.00	200	0.41
Paving - Grundy Lane	Pavers	0	8.00	130	0.42
Paving - Grundy Lane	Pavers	1	8.00	175	0.42
Paving - Grundy Lane	Paving Equipment	0	8.00	132	0.36
Paving - Grundy Lane	Plate Compactors	2	8.00	100	0.43
Paving - Grundy Lane	Rollers	0	8.00	80	0.38
Exterior Facade	Air Compressors	0	6.00	78	0.48
Exterior Facade	Cranes	1	8.00	400	0.29
Foundations and Garage Construction	Cranes	0	7.00	231	0.29
Foundations and Garage Construction	Cranes	2	8.00	450	0.29
Foundations and Garage Construction	Forklifts	0	8.00	89	0.20
Foundations and Garage Construction	Generator Sets	0	8.00	84	0.74
Foundations and Garage Construction	Pumps	2	4.00	400	0.74
Foundations and Garage Construction	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Foundations and Garage Construction	Welders	0	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	14	85.00	2.00	200.00	80.00	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Demolition (Site Preparation Only)	0	0.00	0.00	0.00	0.00	0.00	0.00	LD_Mix	HDT_Mix	HHDT

Superstructure	6	260.00	10.00	0.00	80.00	90.00	0.00	LD_Mix	HDT_Mix	HHDT
Bus Stop	4	5.00	6.00	0.00	80.00	20.00	0.00	LD_Mix	HDT_Mix	HHDT
Grading	3	30.00	7.00	9,000.00	80.00	10.00	1.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	13	75.00	8.00	41,040.00	80.00	20.00	6.30	LD_Mix	HDT_Mix	HHDT
Paving - Temp Parking Lot	3	30.00	41.00	0.00	80.00	20.00	0.00	LD_Mix	HDT_Mix	HHDT
Building Construction	10	575.00	26.00	8,400.00	80.00	15.00	1.00	LD_Mix	HDT_Mix	HHDT
Paving - Grundy Lane (Demolition Only)	0	0.00	0.00	0.00	0.00	0.00	0.00	LD_Mix	HDT_Mix	HHDT
Paving - Grundy Lane	4	30.00	34.00	0.00	80.00	20.00	0.00	LD_Mix	HDT_Mix	HHDT
Exterior Facade	1	45.00	2.00	0.00	65.00	2,052.00	0.00	LD_Mix	HDT_Mix	HHDT
Foundations and Garage Construction	4	250.00	21.00	0.00	80.00	20.00	0.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.3654	0.0000	4.3654	0.6610	0.0000	0.6610			0.0000			0.0000
Off-Road	5.8450	61.1970	34.9212	0.1068		2.6522	2.6522		2.4400	2.4400		10,337.7992	10,337.7992	3.3435		10,421.3856
Total	**5.8450**	**61.1970**	**34.9212**	**0.1068**	**4.3654**	**2.6522**	**7.0176**	**0.6610**	**2.4400**	**3.1010**		**10,337.7992**	**10,337.7992**	**3.3435**		**10,421.3856**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0351	1.2597	0.5344	3.2700e-003	0.0695	3.9700e-003	0.0734	0.0190	3.8000e-003	0.0228		369.9615	369.9615	0.0458		371.1070
Vendor	7.5900e-003	0.2284	0.0886	5.4000e-004	0.0135	1.1400e-003	0.0146	3.8800e-003	1.0900e-003	4.9800e-003		58.8527	58.8527	5.0200e-003		58.9782
Worker	1.2691	0.9018	11.3015	0.0472	5.1669	0.0279	5.1948	1.3698	0.0257	1.3955		4,710.3134	4,710.3134	0.0843		4,712.4204
Total	**1.3119**	**2.3899**	**11.9245**	**0.0510**	**5.2498**	**0.0331**	**5.2829**	**1.3927**	**0.0306**	**1.4233**		**5,139.1275**	**5,139.1275**	**0.1351**		**5,142.5056**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.3654	0.0000	4.3654	0.6610	0.0000	0.6610			0.0000			0.0000
Off-Road	1.3175	5.7091	53.8104	0.1068		0.1757	0.1757		0.1757	0.1757	0.0000	10,337.7992	10,337.7992	3.3435		10,421.3856
Total	**1.3175**	**5.7091**	**53.8104**	**0.1068**	**4.3654**	**0.1757**	**4.5411**	**0.6610**	**0.1757**	**0.8366**	**0.0000**	**10,337.7992**	**10,337.7992**	**3.3435**		**10,421.3856**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0351	1.2597	0.5344	3.2700e-003	0.0695	3.9700e-003	0.0734	0.0190	3.8000e-003	0.0228		369.9615	369.9615	0.0458		371.1070

Vendor	7.5900e-003	0.2284	0.0886	5.4000e-004	0.0135	1.1400e-003	0.0146	3.8800e-003	1.0900e-003	4.9800e-003		58.8527	58.8527	5.0200e-003		58.9782
Worker	1.2691	0.9018	11.3015	0.0472	5.1669	0.0279	5.1948	1.3698	0.0257	1.3955		4,710.3134	4,710.3134	0.0843		4,712.4204
Total	**1.3119**	**2.3899**	**11.9245**	**0.0510**	**5.2498**	**0.0331**	**5.2829**	**1.3927**	**0.0306**	**1.4233**		**5,139.1275**	**5,139.1275**	**0.1351**		**5,142.5056**

3.3 Demolition (Site Preparation Only) - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.9600e-003	0.0000	3.9600e-003	6.0000e-004	0.0000	6.0000e-004			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**3.9600e-003**	**0.0000**	**3.9600e-003**	**6.0000e-004**	**0.0000**	**6.0000e-004**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.9600e-003	0.0000	3.9600e-003	6.0000e-004	0.0000	6.0000e-004			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**3.9600e-003**	**0.0000**	**3.9600e-003**	**6.0000e-004**	**0.0000**	**6.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.4 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					23.9921	0.0000	23.9921	13.1232	0.0000	13.1232			0.0000			0.0000
Off-Road	5.3338	56.3411	31.2992	0.0909		2.4839	2.4839		2.2852	2.2852		8,803.6312	8,803.6312	2.8473		8,874.8131
Total	**5.3338**	**56.3411**	**31.2992**	**0.0909**	**23.9921**	**2.4839**	**26.4760**	**13.1232**	**2.2852**	**15.4084**		**8,803.6312**	**8,803.6312**	**2.8473**		**8,874.8131**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.8433	34.3530	12.3770	0.0659	1.1844	0.0772	1.2616	0.3244	0.0738	0.3982		7,460.8572	7,460.8572	0.9022		7,483.4127
Vendor	0.0640	1.7181	0.7070	5.3300e-003	0.1476	0.0120	0.1595	0.0424	0.0115	0.0539		584.9606	584.9606	0.0482		586.1646
Worker	1.1198	0.7957	9.9720	0.0416	4.5590	0.0247	4.5837	1.2086	0.0227	1.2314		4,156.1588	4,156.1588	0.0744		4,158.0180
Total	**2.0271**	**36.8668**	**23.0559**	**0.1129**	**5.8910**	**0.1138**	**6.0048**	**1.5755**	**0.1080**	**1.6834**		**12,201.9767**	**12,201.9767**	**1.0247**		**12,227.5953**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					23.9921	0.0000	23.9921	13.1232	0.0000	13.1232			0.0000			0.0000

Off-Road	1.1222	4.8630	46.6516	0.0909		0.1496	0.1496		0.1496	0.1496	0.0000	8,803.6312	8,803.6312	2.8473		8,874.8130
Total	**1.1222**	**4.8630**	**46.6516**	**0.0909**	**23.9921**	**0.1496**	**24.1417**	**13.1232**	**0.1496**	**13.2728**	**0.0000**	**8,803.6312**	**8,803.6312**	**2.8473**		**8,874.8130**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.8433	34.3530	12.3770	0.0659	1.1844	0.0772	1.2616	0.3244	0.0738	0.3982		7,460.8572	7,460.8572	0.9022		7,483.4127
Vendor	0.0640	1.7181	0.7070	5.3300e-003	0.1476	0.0120	0.1595	0.0424	0.0115	0.0539		584.9606	584.9606	0.0482		586.1646
Worker	1.1198	0.7957	9.9720	0.0416	4.5590	0.0247	4.5837	1.2086	0.0227	1.2314		4,156.1588	4,156.1588	0.0744		4,158.0180
Total	**2.0271**	**36.8668**	**23.0559**	**0.1129**	**5.8910**	**0.1138**	**6.0048**	**1.5755**	**0.1080**	**1.6834**		**12,201.9767**	**12,201.9767**	**1.0247**		**12,227.5953**

3.5 Paving - Temp Parking Lot - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4154	17.4701	6.7402	0.0185		0.6943	0.6943		0.6388	0.6388		1,789.9289	1,789.9289	0.5789		1,804.4014
Paving	1.9650					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**3.3804**	**17.4701**	**6.7402**	**0.0185**		**0.6943**	**0.6943**		**0.6388**	**0.6388**		**1,789.9289**	**1,789.9289**	**0.5789**		**1,804.4014**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3280	8.8051	3.6232	0.0273	0.7563	0.0614	0.8176	0.2174	0.0587	0.2761		2,997.9233	2,997.9233	0.2468		3,004.0933
Worker	0.4479	0.3183	3.9888	0.0167	1.8236	9.8600e-003	1.8335	0.4835	9.0800e-003	0.4925		1,662.4635	1,662.4635	0.0298		1,663.2072
Total	**0.7760**	**9.1234**	**7.6119**	**0.0440**	**2.5799**	**0.0712**	**2.6511**	**0.7009**	**0.0678**	**0.7686**		**4,660.3868**	**4,660.3868**	**0.2766**		**4,667.3005**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2265	0.9813	9.4146	0.0185		0.0302	0.0302		0.0302	0.0302	0.0000	1,789.9289	1,789.9289	0.5789		1,804.4014
Paving	1.9650					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.1915**	**0.9813**	**9.4146**	**0.0185**		**0.0302**	**0.0302**		**0.0302**	**0.0302**	**0.0000**	**1,789.9289**	**1,789.9289**	**0.5789**		**1,804.4014**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day											lb/day				
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3280	8.8051	3.6232	0.0273	0.7563	0.0614	0.8176	0.2174	0.0587	0.2761		2,997.9233	2,997.9233	0.2468		3,004.0933
Worker	0.4479	0.3183	3.9888	0.0167	1.8236	9.8600e-003	1.8335	0.4835	9.0800e-003	0.4925		1,662.4635	1,662.4635	0.0298		1,663.2072
Total	**0.7760**	**9.1234**	**7.6119**	**0.0440**	**2.5799**	**0.0712**	**2.6511**	**0.7009**	**0.0678**	**0.7686**		**4,660.3868**	**4,660.3868**	**0.2766**		**4,667.3005**

3.6 Foundations and Garage Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Off-Road	2.5356	27.3908	17.5556	0.0486		1.0102	1.0102		0.9532	0.9532		5,142.1396	5,142.1396	0.7975		5,162.0773
Total	**2.5356**	**27.3908**	**17.5556**	**0.0486**		**1.0102**	**1.0102**		**0.9532**	**0.9532**		**5,142.1396**	**5,142.1396**	**0.7975**		**5,162.0773**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1680	4.5099	1.8558	0.0140	0.3874	0.0314	0.4188	0.1114	0.0301	0.1414		1,535.5217	1,535.5217	0.1264		1,538.6820

Worker	3.7328	2.6524	33.2398	0.1388	15.1967	0.0822	15.2789	4.0288	0.0757	4.1045		13,853.8628	13,853.8628	0.2479		13,860.0599
Total	**3.9008**	**7.1623**	**35.0956**	**0.1528**	**15.5841**	**0.1136**	**15.6977**	**4.1402**	**0.1058**	**4.2459**		**15,389.3845**	**15,389.3845**	**0.3743**		**15,398.7418**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5894	2.5542	21.6124	0.0486		0.0786	0.0786		0.0786	0.0786	0.0000	5,142.1396	5,142.1396	0.7975		5,162.0773
Total	**0.5894**	**2.5542**	**21.6124**	**0.0486**		**0.0786**	**0.0786**		**0.0786**	**0.0786**	**0.0000**	**5,142.1396**	**5,142.1396**	**0.7975**		**5,162.0773**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1680	4.5099	1.8558	0.0140	0.3874	0.0314	0.4188	0.1114	0.0301	0.1414		1,535.5217	1,535.5217	0.1264		1,538.6820
Worker	3.7328	2.6524	33.2398	0.1388	15.1967	0.0822	15.2789	4.0288	0.0757	4.1045		13,853.8628	13,853.8628	0.2479		13,860.0599
Total	**3.9008**	**7.1623**	**35.0956**	**0.1528**	**15.5841**	**0.1136**	**15.6977**	**4.1402**	**0.1058**	**4.2459**		**15,389.3845**	**15,389.3845**	**0.3743**		**15,398.7418**

3.6 Foundations and Garage Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3463	24.1162	16.5274	0.0486		0.8986	0.8986		0.8476	0.8476		5,141.6622	5,141.6622	0.7921		5,161.4655
Total	**2.3463**	**24.1162**	**16.5274**	**0.0486**		**0.8986**	**0.8986**		**0.8476**	**0.8476**		**5,141.6622**	**5,141.6622**	**0.7921**		**5,161.4655**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1329	3.9392	1.7955	0.0138	0.3874	0.0123	0.3997	0.1114	0.0118	0.1231		1,517.1473	1,517.1473	0.1256		1,520.2878
Worker	3.5146	2.3891	30.9182	0.1338	15.1967	0.0795	15.2762	4.0288	0.0732	4.1020		13,358.7641	13,358.7641	0.2237		13,364.3555
Total	**3.6475**	**6.3283**	**32.7136**	**0.1476**	**15.5841**	**0.0918**	**15.6759**	**4.1402**	**0.0850**	**4.2252**		**14,875.9114**	**14,875.9114**	**0.3493**		**14,884.6433**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Off-Road	0.5894	2.5542	21.6124	0.0486		0.0786	0.0786		0.0786	0.0786	0.0000	5,141.6622	5,141.6622	0.7921		5,161.4655
Total	**0.5894**	**2.5542**	**21.6124**	**0.0486**		**0.0786**	**0.0786**		**0.0786**	**0.0786**	**0.0000**	**5,141.6622**	**5,141.6622**	**0.7921**		**5,161.4655**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1329	3.9392	1.7955	0.0138	0.3874	0.0123	0.3997	0.1114	0.0118	0.1231		1,517.1473	1,517.1473	0.1256		1,520.2878
Worker	3.5146	2.3891	30.9182	0.1338	15.1967	0.0795	15.2762	4.0288	0.0732	4.1020		13,358.7641	13,358.7641	0.2237		13,364.3555
Total	**3.6475**	**6.3283**	**32.7136**	**0.1476**	**15.5841**	**0.0918**	**15.6759**	**4.1402**	**0.0850**	**4.2252**		**14,875.9114**	**14,875.9114**	**0.3493**		**14,884.6433**

3.7 Superstructure - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.7066	27.5247	20.3120	0.0514		1.0707	1.0707		1.0089	1.0089		5,417.4731	5,417.4731	0.8866		5,439.6370
Total	**2.7066**	**27.5247**	**20.3120**	**0.0514**		**1.0707**	**1.0707**		**1.0089**	**1.0089**		**5,417.4731**	**5,417.4731**	**0.8866**		**5,439.6370**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3117	7.6898	3.3141	0.0286	0.8291	0.0659	0.8951	0.2383	0.0631	0.3013		3,139.5175	3,139.5175	0.2536		3,145.8565
Worker	3.8821	2.7585	34.5694	0.1444	15.8046	0.0855	15.8901	4.1900	0.0787	4.2687		14,408.0173	14,408.0173	0.2578		14,414.4623
Total	**4.1938**	**10.4482**	**37.8835**	**0.1730**	**16.6337**	**0.1514**	**16.7851**	**4.4282**	**0.1418**	**4.5700**		**17,547.5349**	**17,547.5349**	**0.5114**		**17,560.3188**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6249	2.7080	25.5279	0.0514		0.0833	0.0833		0.0833	0.0833	0.0000	5,417.4731	5,417.4731	0.8866		5,439.6370
Total	**0.6249**	**2.7080**	**25.5279**	**0.0514**		**0.0833**	**0.0833**		**0.0833**	**0.0833**	**0.0000**	**5,417.4731**	**5,417.4731**	**0.8866**		**5,439.6370**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3117	7.6898	3.3141	0.0286	0.8291	0.0659	0.8951	0.2383	0.0631	0.3013		3,139.5175	3,139.5175	0.2536		3,145.8565
Worker	3.8821	2.7585	34.5694	0.1444	15.8046	0.0855	15.8901	4.1900	0.0787	4.2687		14,408.0173	14,408.0173	0.2578		14,414.4623
Total	**4.1938**	**10.4482**	**37.8835**	**0.1730**	**16.6337**	**0.1514**	**16.7851**	**4.4282**	**0.1418**	**4.5700**		**17,547.5349**	**17,547.5349**	**0.5114**		**17,560.3188**

3.7 Superstructure - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4915	24.0687	19.5021	0.0514		0.9363	0.9363		0.8823	0.8823		5,417.4503	5,417.4503	0.8813		5,439.4835
Total	**2.4915**	**24.0687**	**19.5021**	**0.0514**		**0.9363**	**0.9363**		**0.8823**	**0.8823**		**5,417.4503**	**5,417.4503**	**0.8813**		**5,439.4835**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2402	6.5544	3.2028	0.0282	0.8292	0.0253	0.8545	0.2383	0.0242	0.2625		3,102.7278	3,102.7278	0.2534		3,109.0638
Worker	3.6552	2.4846	32.1549	0.1392	15.8046	0.0827	15.8873	4.1900	0.0762	4.2661		13,893.1147	13,893.1147	0.2326		13,898.9297
Total	**3.8954**	**9.0390**	**35.3577**	**0.1674**	**16.6338**	**0.1080**	**16.7418**	**4.4282**	**0.1003**	**4.5286**		**16,995.8425**	**16,995.8425**	**0.4860**		**17,007.9935**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6249	2.7080	25.5279	0.0514		0.0833	0.0833		0.0833	0.0833	0.0000	5,417.4503	5,417.4503	0.8813		5,439.4835
Total	**0.6249**	**2.7080**	**25.5279**	**0.0514**		**0.0833**	**0.0833**		**0.0833**	**0.0833**	**0.0000**	**5,417.4503**	**5,417.4503**	**0.8813**		**5,439.4835**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2402	6.5544	3.2028	0.0282	0.8292	0.0253	0.8545	0.2383	0.0242	0.2625		3,102.7278	3,102.7278	0.2534		3,109.0638
Worker	3.6552	2.4846	32.1549	0.1392	15.8046	0.0827	15.8873	4.1900	0.0762	4.2661		13,893.1147	13,893.1147	0.2326		13,898.9297

Total	**3.8954**	**9.0390**	**35.3577**	**0.1674**	**16.6338**	**0.1080**	**16.7418**	**4.4282**	**0.1003**	**4.5286**		**16,995.8425**	**16,995.8425**	**0.4860**		**17,007.9935**

3.8 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2077	20.7114	20.9414	0.0361		0.9242	0.9242		0.8586	0.8586		3,385.5621	3,385.5621	1.0288		3,411.2812
Total	**2.2077**	**20.7114**	**20.9414**	**0.0361**		**0.9242**	**0.9242**		**0.8586**	**0.8586**		**3,385.5621**	**3,385.5621**	**1.0288**		**3,411.2812**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0379	1.8707	0.5672	2.0900e-003	0.0252	1.9800e-003	0.0271	6.7100e-003	1.9000e-003	8.6000e-003		237.1619	237.1619	0.0258		237.8062
Vendor	0.1317	4.0083	1.7869	0.0131	0.3599	0.0116	0.3715	0.1035	0.0111	0.1146		1,436.3214	1,436.3214	0.1196		1,439.3107
Worker	8.0836	5.4948	71.1118	0.3078	34.9525	0.1829	35.1354	9.2663	0.1684	9.4347		30,725.1575	30,725.1575	0.5144		30,738.0176
Total	**8.2532**	**11.3738**	**73.4659**	**0.3229**	**35.3375**	**0.1965**	**35.5340**	**9.3764**	**0.1815**	**9.5579**		**32,398.6408**	**32,398.6408**	**0.6597**		**32,415.1345**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3932	1.7040	19.6462	0.0361		0.0524	0.0524		0.0524	0.0524	0.0000	3,385.5621	3,385.5621	1.0288		3,411.2812
Total	**0.3932**	**1.7040**	**19.6462**	**0.0361**		**0.0524**	**0.0524**		**0.0524**	**0.0524**	**0.0000**	**3,385.5621**	**3,385.5621**	**1.0288**		**3,411.2812**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0379	1.8707	0.5672	2.0900e-003	0.0252	1.9800e-003	0.0271	6.7100e-003	1.9000e-003	8.6000e-003		237.1619	237.1619	0.0258		237.8062
Vendor	0.1317	4.0083	1.7869	0.0131	0.3599	0.0116	0.3715	0.1035	0.0111	0.1146		1,436.3214	1,436.3214	0.1196		1,439.3107
Worker	8.0836	5.4948	71.1118	0.3078	34.9525	0.1829	35.1354	9.2663	0.1684	9.4347		30,725.1575	30,725.1575	0.5144		30,738.0176
Total	**8.2532**	**11.3738**	**73.4659**	**0.3229**	**35.3375**	**0.1965**	**35.5340**	**9.3764**	**0.1815**	**9.5579**		**32,398.6408**	**32,398.6408**	**0.6597**		**32,415.1345**

3.8 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Off-Road	1.9667	17.4832	20.0698	0.0361		0.7664	0.7664		0.7131	0.7131		3,384.3410	3,384.3410	1.0279		3,410.0372
Total	**1.9667**	**17.4832**	**20.0698**	**0.0361**		**0.7664**	**0.7664**		**0.7131**	**0.7131**		**3,384.3410**	**3,384.3410**	**1.0279**		**3,410.0372**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0359	1.7768	0.5852	2.0400e-003	0.0408	1.7500e-003	0.0426	0.0106	1.6700e-003	0.0122		232.8193	232.8193	0.0246		233.4337
Vendor	0.1243	3.7364	1.7980	0.0129	0.3599	0.0102	0.3702	0.1035	9.7900e-003	0.1133		1,418.3747	1,418.3747	0.1199		1,421.3726
Worker	7.6895	4.9769	66.6225	0.2965	34.9525	0.1791	35.1315	9.2663	0.1649	9.4311		29,596.4963	29,596.4963	0.4662		29,608.1505
Total	**7.8497**	**10.4901**	**69.0056**	**0.3114**	**35.3532**	**0.1910**	**35.5442**	**9.3803**	**0.1763**	**9.5566**		**31,247.6904**	**31,247.6904**	**0.6107**		**31,262.9568**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3932	1.7040	19.6462	0.0361		0.0524	0.0524		0.0524	0.0524	0.0000	3,384.3410	3,384.3410	1.0279		3,410.0372
Total	**0.3932**	**1.7040**	**19.6462**	**0.0361**		**0.0524**	**0.0524**		**0.0524**	**0.0524**	**0.0000**	**3,384.3410**	**3,384.3410**	**1.0279**		**3,410.0372**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0359	1.7768	0.5852	2.0400e-003	0.0408	1.7500e-003	0.0426	0.0106	1.6700e-003	0.0122		232.8193	232.8193	0.0246		233.4337
Vendor	0.1243	3.7364	1.7980	0.0129	0.3599	0.0102	0.3702	0.1035	9.7900e-003	0.1133		1,418.3747	1,418.3747	0.1199		1,421.3726
Worker	7.6895	4.9769	66.6225	0.2965	34.9525	0.1791	35.1315	9.2663	0.1649	9.4311		29,596.4963	29,596.4963	0.4662		29,608.1505
Total	**7.8497**	**10.4901**	**69.0056**	**0.3114**	**35.3532**	**0.1910**	**35.5442**	**9.3803**	**0.1763**	**9.5566**		**31,247.6904**	**31,247.6904**	**0.6107**		**31,262.9568**

3.9 Exterior Facade - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	40.3736					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.6043	7.0431	5.0090	9.9800e-003		0.2834	0.2834		0.2607	0.2607		966.5915	966.5915	0.3126		974.4069
Total	**40.9779**	**7.0431**	**5.0090**	**9.9800e-003**		**0.2834**	**0.2834**		**0.2607**	**0.2607**		**966.5915**	**966.5915**	**0.3126**		**974.4069**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.0399	27.5376	13.8017	0.1271	3.7801	0.1139	3.8940	1.0861	0.1089	1.1950		13,963.6969	13,963.6969	1.1361		13,992.0983
Worker	0.5205	0.3511	4.5458	0.0196	2.2226	0.0117	2.2343	0.5893	0.0108	0.6000		1,955.5138	1,955.5138	0.0328		1,956.3346
Total	**1.5604**	**27.8886**	**18.3475**	**0.1467**	**6.0027**	**0.1255**	**6.1282**	**1.6754**	**0.1197**	**1.7950**		**15,919.2107**	**15,919.2107**	**1.1689**		**15,948.4329**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	40.3736					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1228	0.5319	4.5010	9.9800e-003		0.0164	0.0164		0.0164	0.0164	0.0000	966.5915	966.5915	0.3126		974.4069
Total	**40.4964**	**0.5319**	**4.5010**	**9.9800e-003**		**0.0164**	**0.0164**		**0.0164**	**0.0164**	**0.0000**	**966.5915**	**966.5915**	**0.3126**		**974.4069**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	1.0399	27.5376	13.8017	0.1271	3.7801	0.1139	3.8940	1.0861	0.1089	1.1950		13,963.6969	13,963.6969	1.1361		13,992.0983
Worker	0.5205	0.3511	4.5458	0.0196	2.2226	0.0117	2.2343	0.5893	0.0108	0.6000		1,955.5138	1,955.5138	0.0328		1,956.3346
Total	**1.5604**	**27.8886**	**18.3475**	**0.1467**	**6.0027**	**0.1255**	**6.1282**	**1.6754**	**0.1197**	**1.7950**		**15,919.2107**	**15,919.2107**	**1.1689**		**15,948.4329**

3.10 Bus Stop - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7118	5.3914	5.2590	0.0104		0.2346	0.2346		0.2236	0.2236		947.8439	947.8439	0.2435		953.9311
Total	**0.7118**	**5.3914**	**5.2590**	**0.0104**		**0.2346**	**0.2346**		**0.2236**	**0.2236**		**947.8439**	**947.8439**	**0.2435**		**953.9311**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0359	1.0456	0.5171	3.8800e-003	0.1107	3.1000e-003	0.1138	0.0318	2.9600e-003	0.0348		428.0980	428.0980	0.0361		429.0000
Worker	0.0669	0.0433	0.5793	2.5800e-003	0.3039	1.5600e-003	0.3055	0.0806	1.4300e-003	0.0820		257.3608	257.3608	4.0500e-003		257.4622
Total	**0.1027**	**1.0889**	**1.0965**	**6.4600e-003**	**0.4146**	**4.6600e-003**	**0.4193**	**0.1124**	**4.3900e-003**	**0.1168**		**685.4588**	**685.4588**	**0.0401**		**686.4621**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0830	0.3595	4.3489	0.0104		0.0111	0.0111		0.0111	0.0111	0.0000	947.8439	947.8439	0.2435		953.9311
Total	**0.0830**	**0.3595**	**4.3489**	**0.0104**		**0.0111**	**0.0111**		**0.0111**	**0.0111**	**0.0000**	**947.8439**	**947.8439**	**0.2435**		**953.9311**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0359	1.0456	0.5171	3.8800e-003	0.1107	3.1000e-003	0.1138	0.0318	2.9600e-003	0.0348		428.0980	428.0980	0.0361		429.0000
Worker	0.0669	0.0433	0.5793	2.5800e-003	0.3039	1.5600e-003	0.3055	0.0806	1.4300e-003	0.0820		257.3608	257.3608	4.0500e-003		257.4622
Total	**0.1027**	**1.0889**	**1.0965**	**6.4600e-003**	**0.4146**	**4.6600e-003**	**0.4193**	**0.1124**	**4.3900e-003**	**0.1168**		**685.4588**	**685.4588**	**0.0401**		**686.4621**

3.11 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.1283	0.0000	6.1283	3.3219	0.0000	3.3219			0.0000			0.0000
Off-Road	1.2911	14.5236	5.4670	0.0157		0.6013	0.6013		0.5532	0.5532		1,522.9401	1,522.9401	0.4926		1,535.2539
Total	**1.2911**	**14.5236**	**5.4670**	**0.0157**	**6.1283**	**0.6013**	**6.7296**	**3.3219**	**0.5532**	**3.8751**		**1,522.9401**	**1,522.9401**	**0.4926**		**1,535.2539**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1728	8.5464	2.8147	9.8300e-003	0.0850	8.4000e-003	0.0934	0.0234	8.0300e-003	0.0315		1,119.8680	1,119.8680	0.1182		1,122.8232
Vendor	0.0251	0.7920	0.3648	2.3900e-003	0.0647	1.9000e-003	0.0666	0.0186	1.8200e-003	0.0204		264.2926	264.2926	0.0225		264.8545
Worker	0.4012	0.2597	3.4760	0.0155	1.8236	9.3400e-003	1.8330	0.4835	8.6000e-003	0.4921		1,544.1650	1,544.1650	0.0243		1,544.7731
Total	**0.5990**	**9.5981**	**6.6555**	**0.0277**	**1.9733**	**0.0196**	**1.9930**	**0.5255**	**0.0185**	**0.5440**		**2,928.3256**	**2,928.3256**	**0.1650**		**2,932.4508**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.1283	0.0000	6.1283	3.3219	0.0000	3.3219			0.0000			0.0000

Off-Road	0.1926	0.8346	7.0619	0.0157		0.0257	0.0257		0.0257	0.0257	0.0000	1,522.9401	1,522.9401	0.4926		1,535.2539
Total	**0.1926**	**0.8346**	**7.0619**	**0.0157**	**6.1283**	**0.0257**	**6.1540**	**3.3219**	**0.0257**	**3.3476**	**0.0000**	**1,522.9401**	**1,522.9401**	**0.4926**		**1,535.2539**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1728	8.5464	2.8147	9.8300e-003	0.0850	8.4000e-003	0.0934	0.0234	8.0300e-003	0.0315		1,119.8680	1,119.8680	0.1182		1,122.8232
Vendor	0.0251	0.7920	0.3648	2.3900e-003	0.0647	1.9000e-003	0.0666	0.0186	1.8200e-003	0.0204		264.2926	264.2926	0.0225		264.8545
Worker	0.4012	0.2597	3.4760	0.0155	1.8236	9.3400e-003	1.8330	0.4835	8.6000e-003	0.4921		1,544.1650	1,544.1650	0.0243		1,544.7731
Total	**0.5990**	**9.5981**	**6.6555**	**0.0277**	**1.9733**	**0.0196**	**1.9930**	**0.5255**	**0.0185**	**0.5440**		**2,928.3256**	**2,928.3256**	**0.1650**		**2,932.4508**

3.12 Paving - Grundy Lane (Demolition Only) - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.9890	0.0000	7.9890	1.2096	0.0000	1.2096			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**7.9890**	**0.0000**	**7.9890**	**1.2096**	**0.0000**	**1.2096**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.9890	0.0000	7.9890	1.2096	0.0000	1.2096			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**7.9890**	**0.0000**	**7.9890**	**1.2096**	**0.0000**	**1.2096**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day											lb/day				
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.13 Paving - Grundy Lane - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Off-Road	0.7224	8.4485	5.7236	0.0134		0.3131	0.3131		0.2880	0.2880		1,298.7070	1,298.7070	0.4200		1,309.2078
Paving	1.3100					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.0324**	**8.4485**	**5.7236**	**0.0134**		**0.3131**	**0.3131**		**0.2880**	**0.2880**		**1,298.7070**	**1,298.7070**	**0.4200**		**1,309.2078**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2033	5.9253	2.9304	0.0220	0.6273	0.0175	0.6448	0.1803	0.0168	0.1971		2,425.8887	2,425.8887	0.2044		2,430.9998

Worker	0.4012	0.2597	3.4760	0.0155	1.8236	9.3400e-003	1.8330	0.4835	8.6000e-003	0.4921		1,544.1650	1,544.1650	0.0243		1,544.7731
Total	**0.6044**	**6.1850**	**6.4064**	**0.0375**	**2.4509**	**0.0269**	**2.4778**	**0.6638**	**0.0254**	**0.6892**		**3,970.0537**	**3,970.0537**	**0.2288**		**3,975.7728**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1646	0.7131	6.0336	0.0134		0.0219	0.0219		0.0219	0.0219	0.0000	1,298.7070	1,298.7070	0.4200		1,309.2078
Paving	1.3100					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.4746**	**0.7131**	**6.0336**	**0.0134**		**0.0219**	**0.0219**		**0.0219**	**0.0219**	**0.0000**	**1,298.7070**	**1,298.7070**	**0.4200**		**1,309.2078**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2033	5.9253	2.9304	0.0220	0.6273	0.0175	0.6448	0.1803	0.0168	0.1971		2,425.8887	2,425.8887	0.2044		2,430.9998
Worker	0.4012	0.2597	3.4760	0.0155	1.8236	9.3400e-003	1.8330	0.4835	8.6000e-003	0.4921		1,544.1650	1,544.1650	0.0243		1,544.7731
Total	**0.6044**	**6.1850**	**6.4064**	**0.0375**	**2.4509**	**0.0269**	**2.4778**	**0.6638**	**0.0254**	**0.6892**		**3,970.0537**	**3,970.0537**	**0.2288**		**3,975.7728**

Bayhill Specific Plan - Existing Specific Plan Area (2017) - San Mateo County, Annual

Bayhill Specific Plan - Existing Specific Plan Area (2017)

San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Office Park	1,557.85	1000sqft	92.20	1,557,847.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2017
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	349	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Adjusted PG&E EFs to 2017 per SB 100

Land Use - revised to include project specific information; as there are no changes in retail or hotel sf under 2040 No Project Conditions from existing conditions, only office use is modeled in this model

Construction Phase - Operational analysis only

Off-road Equipment - Operational analysis only

Off-road Equipment - Operational analysis only

Off-road Equipment - Operational analysis only

Off-road Equipment - Operational analysis only

Off-road Equipment - Operational analysis only

Off-road Equipment - Operational analysis only

Trips and VMT - Operational analysis only

Grading - Operational analysis only

Architectural Coating - Operational analysis only

Vehicle Trips - Mobile emissions to be calculated separately

Energy Use - Using historical data; assumes no changes in building type therefore less efficient buildings at baseline

Stationary Sources - Emergency Generators and Fire Pumps - Emergency Generators and Fire Pumps - Back up generator information provided by project sponsor and assumed to apply to existing

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	778,924.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	2,336,771.00	0.00
tblConstructionPhase	NumDays	100.00	0.00
tblConstructionPhase	NumDays	60.00	0.00
tblConstructionPhase	NumDays	155.00	0.00
tblConstructionPhase	NumDays	1,550.00	0.00
tblConstructionPhase	NumDays	110.00	0.00
tblConstructionPhase	NumDays	110.00	0.00
tblConstructionPhase	PhaseEndDate	5/19/2016	12/31/2015
tblConstructionPhase	PhaseEndDate	8/11/2016	5/19/2016
tblConstructionPhase	PhaseEndDate	3/16/2017	8/11/2016
tblConstructionPhase	PhaseEndDate	2/23/2023	3/16/2017
tblConstructionPhase	PhaseEndDate	7/27/2023	2/23/2023
tblConstructionPhase	PhaseEndDate	12/28/2023	7/27/2023
tblLandUse	LandUseSquareFeet	1,557,850.00	1,557,847.00
tblLandUse	LotAcreage	35.76	92.20
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.033
tblProjectCharacteristics	CO2IntensityFactor	641.35	349
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	760.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	12.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	3.00
tblTripsAndVMT	VendorTripNumber	255.00	0.00
tblTripsAndVMT	WorkerTripNumber	499.00	0.00
tblTripsAndVMT	WorkerTripNumber	100.00	0.00
tblVehicleTrips	ST_TR	1.64	0.00
tblVehicleTrips	SU_TR	0.76	0.00
tblVehicleTrips	WD_TR	11.42	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.8979	1.4000e-004	0.0146	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0	0.0278	0.0278	8.00E-05	0	0.0298
Energy	0.1903	1.7297	1.4529	0.0104		0.1315	0.1315		0.1315	0.1315	0	5,500.77	5,500.77	0.3782	0.076	5,532.87
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	0	0	0	0	0
Stationary	0.0225	0.1004	0.0572	1.1000e-004		3.3000e-003	3.3000e-003		3.3000e-003	3.3000e-003	0	10.4186	10.4186	1.46E-03	0	10.4551
Waste						0.0000	0.0000		0.0000	0.0000	294.0933	0	294.0933	17.3804	0	728.6037
Water						0.0000	0.0000		0.0000	0.0000	87.8421	331.1982	419.0402	9.0535	0.2168	709.994
Total	**7.1106**	**1.8302**	**1.5248**	**0.0105**	**0.0000**	**0.1348**	**0.1348**	**0.0000**	**0.1348**	**0.1348**	**381.9354**	**5,842.41**	**6,224.35**	**26.8137**	**0.2928**	**6,981.95**

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3,617.8127	3,617.8127	0.3421	0.0415	3,638.7214
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	3,617.8127	3,617.8127	0.3421	0.0415	3,638.7214
NaturalGas Mitigated	0.1903	1.7297	1.4529	0.0104		0.1315	0.1315		0.1315	0.1315	0.0000	1,882.9545	1,882.9545	0.0361	0.0345	1,894.1440
NaturalGas Unmitigated	0.1903	1.7297	1.4529	0.0104		0.1315	0.1315		0.1315	0.1315	0.0000	1,882.9545	1,882.9545	0.0361	0.0345	1,894.1440

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Office Park	3.52852e+007	0.1903	1.7297	1.4529	0.0104		0.1315	0.1315		0.1315	0.1315	0.0000	1,882.9545	1,882.9545	0.0361	0.0345	1,894.1440
Total		**0.1903**	**1.7297**	**1.4529**	**0.0104**		**0.1315**	**0.1315**		**0.1315**	**0.1315**	**0.0000**	**1,882.9545**	**1,882.9545**	**0.0361**	**0.0345**	**1,894.1440**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			

Office Park	2.29E+07	3,617.8127	0.3421	0.0415	3,638.7214
Total		**3,617.8127**	**0.3421**	**0.0415**	**3,638.7214**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	6.8979	1.4000e-004	0.0146	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.0278	0.0278	8.0000e-005	0.0000	0.0298
Unmitigated	6.8979	1.4000e-004	0.0146	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.0278	0.0278	8.0000e-005	0.0000	0.0298

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.8123					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	6.0842					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.4100e-003	1.4000e-004	0.0146	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005	0.0000	0.0278	0.0278	8.0000e-005	0.0000	0.0298
Total	**6.8979**	**1.4000e-004**	**0.0146**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0278**	**0.0278**	**8.0000e-005**	**0.0000**	**0.0298**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e

Category	MT/yr			
Mitigated	419.0402	9.0535	0.2168	709.9940
Unmitigated	419.0402	9.0535	0.2168	709.9940

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Office Park	276.883 / 169.702	419.0402	9.0535	0.2168	709.9940
Total		**419.0402**	**9.0535**	**0.2168**	**709.9940**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	294.0933	17.3804	0.0000	728.6037
Unmitigated	294.0933	17.3804	0.0000	728.6037

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Office Park	1448.8	294.0933	17.3804	0.0000	728.6037

Total		**294.0933**	**17.3804**	**0.0000**	**728.6037**

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (750 - 9999 HP)	0.0225	0.1004	0.0572	1.1000e-004		3.3000e-003	3.3000e-003		3.3000e-003	3.3000e-003	0.0000	10.4186	10.4186	1.4600e-003	0.0000	10.4551
Total	**0.0225**	**0.1004**	**0.0572**	**1.1000e-004**		**3.3000e-003**	**3.3000e-003**		**3.3000e-003**	**3.3000e-003**	**0.0000**	**10.4186**	**10.4186**	**1.4600e-003**	**0.0000**	**10.4551**

Specific Plan - Existing (2017) - San Mateo County, Annual

Specific Plan - Existing (2017)
San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Office Park	1,557.85	1000sqft	81.70	1,557,847.00	0
Hotel	133.00	Room	4.10	79,152.00	0
Regional Shopping Center	121.85	1000sqft	6.40	121,846.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2017
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity	349	**CH4 Intensity**	0.033	**N2O Intensity**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - EFs adjusted per SB 100
Land Use - sf, rooms, and acreage per pd; acreage scaled per sf
Construction Phase - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Grading - operational analysis only
Trips and VMT - operational analysis only
Architectural Coating - operational analysis only
Vehicle Trips - operational analysis only - mobile source emissions modeled separately
Energy Use - existing buildings so historical data can apply

Stationary Sources - Emergency Generators and Fire Pumps - existing generators per BAAQMD 2017 permitted sources data; assumed hp, testing

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tblArchitecturalCoating	ConstArea_Nonresidential_Interior	2,638,268.00	0.00
tblEnergyUse	LightingElect	3.82	3.13
tblEnergyUse	LightingElect	4.21	3.47
tblEnergyUse	LightingElect	5.88	4.88
tblEnergyUse	T24E	2.95	2.19
tblEnergyUse	T24E	5.65	4.27
tblEnergyUse	T24E	2.90	2.24
tblEnergyUse	T24NG	31.80	29.38
tblEnergyUse	T24NG	21.48	17.44
tblEnergyUse	T24NG	4.68	3.90
tblLandUse	LandUseSquareFeet	1,557,850.00	1,557,847.00
tblLandUse	LandUseSquareFeet	193,116.00	79,152.00
tblLandUse	LotAcreage	35.76	81.70
tblLandUse	LotAcreage	4.43	4.10
tblLandUse	LotAcreage	2.80	6.40
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.033
tblProjectCharacteristics	CO2IntensityFactor	641.35	349
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003

tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	760.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	12.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	3.00
tblTripsAndVMT	VendorTripNumber	288.00	0.00
tblTripsAndVMT	WorkerTripNumber	571.00	0.00
tblTripsAndVMT	WorkerTripNumber	114.00	0.00
tblVehicleTrips	ST_TR	8.19	0.00
tblVehicleTrips	ST_TR	1.64	0.00
tblVehicleTrips	ST_TR	49.97	0.00
tblVehicleTrips	SU_TR	5.95	0.00
tblVehicleTrips	SU_TR	0.76	0.00
tblVehicleTrips	SU_TR	25.24	0.00
tblVehicleTrips	WD_TR	8.17	0.00
tblVehicleTrips	WD_TR	11.42	0.00
tblVehicleTrips	WD_TR	42.70	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	7.7879	1.6000e-	0.0170	0.0000		6.0000e-	6.0000e-		6.0000e-	6.0000e-	0	0.0324	0.0324	9.00E-05	0	0.0346
Energy	0.1749	1.5903	1.3358	9.5400e-		0.1209	0.1209		0.1209	0.1209	0	5,130.73	5,130.73	0.3546	0.0707	5,160.67
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	0	0	0	0	0
Stationary	0.0225	0.1004	0.0572	1.1000e-		3.3000e-	3.3000e-		3.3000e-	3.3000e-	0	10.4186	10.4186	1.46E-03	0	10.4551
Waste						0.0000	0.0000		0.0000	0.0000	334.8458	0	334.8458	19.7888	0	829.5662
Water						0.0000	0.0000		0.0000	0.0000	91.7758	345.0921	436.8679	9.4589	0.2265	740.846
Total	**7.9853**	**1.6908**	**1.4101**	**9.6500e-**	**0.0000**	**0.1242**	**0.1242**	**0.0000**	**0.1242**	**0.1242**	**426.6216**	**5,486.273**	**5,912.8952**	**29.6039**	**0.2972**	**6,741.567**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	7.7879	1.6000e-	0.0170	0.0000		6.0000e-	6.0000e-		6.0000e-	6.0000e-	0.0000	0.0324	0.0324	9.0000e-	0.0000	0.0346
Energy	0.1749	1.5903	1.3358	9.5400e-		0.1209	0.1209		0.1209	0.1209	0.0000	5,130.730	5,130.7305	0.3546	0.0707	5,160.665
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Stationary	0.0225	0.1004	0.0572	1.1000e-		3.3000e-	3.3000e-		3.3000e-	3.3000e-	0.0000	10.4186	10.4186	1.4600e-	0.0000	10.4551
Waste						0.0000	0.0000		0.0000	0.0000	334.8458	0.0000	334.8458	19.7888	0.0000	829.5662
Water						0.0000	0.0000		0.0000	0.0000	91.7758	345.0921	436.8679	9.4589	0.2265	740.8460

Total	**7.9853**	**1.6908**	**1.4101**	**9.6500e-**	**0.0000**	**0.1242**	**0.1242**	**0.0000**	**0.1242**	**0.1242**	**426.6216**	**5,486.273**	**5,912.8952**	**29.6039**	**0.2972**	**6,741.567**

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-CO2	Total	CH4	N20	CO2e
Percent	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity						0.0000	0.0000		0.0000	0.0000	0.0000	3,399.509	3,399.5091	0.3214	0.0390	3,419.156
Electricity						0.0000	0.0000		0.0000	0.0000	0.0000	3,399.509	3,399.5091	0.3214	0.0390	3,419.156
NaturalGas	0.1749	1.5903	1.3358	9.5400e-		0.1209	0.1209		0.1209	0.1209	0.0000	1,731.221	1,731.2214	0.0332	0.0317	1,741.509
NaturalGas	0.1749	1.5903	1.3358	9.5400e-		0.1209	0.1209		0.1209	0.1209	0.0000	1,731.221	1,731.2214	0.0332	0.0317	1,741.509

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGa	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Hotel	2.89E+06	0.0156	0.1417	0.1190	8.5000e-		0.0108	0.0108		0.0108	0.0108	0.0000	154.2128	154.2128	2.9600e-	2.8300e-	155.1293
Office Park	2.90E+07	0.1563	1.4212	1.1938	8.5300e-		0.1080	0.1080		0.1080	0.1080	0.0000	1,547.0986	1,547.098	0.0297	0.0284	1,556.292
Regional	560492	3.0200e-	0.0275	0.0231	1.6000e-		2.0900e-	2.0900e-		2.0900e-	2.0900e-	0.0000	29.9100	29.9100	5.7000e-	5.5000e-	30.0877
Total	**3.2E+07**	**0.1749**	**1.5903**	**1.3358**	**9.5400e-**		**0.1209**	**0.1209**		**0.1209**	**0.1209**	**0.0000**	**1,731.2214**	**1,731.221**	**0.0332**	**0.0317**	**1,741.509**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Hotel	646672	102.3706	9.6800e-	1.1700e-	102.9622
Office Park	1.96E+07	3,094.9932	0.2927	0.0355	3,112.880
Regional	1.28E+06	202.1453	0.0191	2.3200e-	203.3136
Total	**2.1E+07**	**3,399.5091**	**0.3214**	**0.0390**	**3,419.156**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	7.7879	1.6000e-00	0.0170	0.0000		6.0000e-00	6.0000e-00		6.0000e-00	6.0000e-00	0.0000	0.0324	0.0324	9.0000e-00	0.0000	0.0346
Unmitigated	7.7879	1.6000e-00	0.0170	0.0000		6.0000e-00	6.0000e-00		6.0000e-00	6.0000e-00	0.0000	0.0324	0.0324	9.0000e-00	0.0000	0.0346

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural	0.9171					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer	6.8692					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.6400e-00	1.6000e-00	0.0170	0.0000		6.0000e-00	6.0000e-00		6.0000e-00	6.0000e-00	0.0000	0.0324	0.0324	9.0000e-00	0.0000	0.0346
Total	**7.7879**	**1.6000e-00**	**0.0170**	**0.0000**		**6.0000e-00**	**6.0000e-00**		**6.0000e-00**	**6.0000e-00**	**0.0000**	**0.0324**	**0.0324**	**9.0000e-00**	**0.0000**	**0.0346**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	436.8679	9.4589	0.2265	740.8460
Unmitigated	436.8679	9.4589	0.2265	740.8460

7.2 Water by Land Use

Unmitigated

	Indoor/Out	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Hotel	3.37378 / 0.374864	4.1680	0.1102	2.6300e-003	7.7078
Office Park	276.883 / 169.702	419.0402	9.0535	0.2168	709.9940
Regional Shopping Center	9.02574 / 5.5319	13.6598	0.2951	7.0700e-003	23.1442
Total		**436.8679**	**9.4589**	**0.2265**	**740.8460**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	334.8458	19.7888	0.0000	829.5662
Unmitigated	334.8458	19.7888	0.0000	829.5662

8.2 Waste by Land Use

Unmitigated

	Waste	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Hotel	72.82	14.7818	0.8736	0.0000	36.6213
Office Park	1448.8	294.0933	17.3804	0.0000	728.6037
Regional	127.94	25.9707	1.5348	0.0000	64.3412
Total		**334.8458**	**19.7888**	**0.0000**	**829.5662**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	3	1	12	760	0.73	diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency	0.0225	0.1004	0.0572	1.1000e-		3.3000e-	3.3000e-		3.3000e-	3.3000e-	0.0000	10.4186	10.4186	1.4600e-	0.0000	10.4551
Total	**0.0225**	**0.1004**	**0.0572**	**1.1000e-**		**3.3000e-**	**3.3000e-**		**3.3000e-**	**3.3000e-**	**0.0000**	**10.4186**	**10.4186**	**1.4600e-**	**0.0000**	**10.4551**

11.0 Vegetation

Specific Plan - Existing (2017) - San Mateo County, Summer

Specific Plan - Existing (2017)
San Mateo County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Office Park	1,557.85	1000sqft	81.70	1,557,847.00	0
Hotel	133.00	Room	4.10	79,152.00	0
Regional Shopping Center	121.85	1000sqft	6.40	121,846.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2017
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity	349	**CH4 Intensity**	0.033	**N2O Intensity**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - EFs adjusted per SB 100
Land Use - sf, rooms, and acreage per pd; acreage scaled per sf
Construction Phase - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Grading - operational analysis only
Trips and VMT - operational analysis only
Architectural Coating - operational analysis only
Vehicle Trips - operational analysis only - mobile source emissions modeled separately
Energy Use - existing buildings so historical data can apply

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tblArchitecturalCoating	ConstArea_Nonresidential_Interior	2,638,268.00	0.00
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tblEnergyUse	LightingElect	4.21	3.47
tblEnergyUse	LightingElect	5.88	4.88
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tblEnergyUse	T24E	5.65	4.27
tblEnergyUse	T24E	2.90	2.24
tblEnergyUse	T24NG	31.80	29.38
tblEnergyUse	T24NG	21.48	17.44
tblEnergyUse	T24NG	4.68	3.90
tblLandUse	LandUseSquareFeet	1,557,850.00	1,557,847.00
tblLandUse	LandUseSquareFeet	193,116.00	79,152.00
tblLandUse	LotAcreage	35.76	81.70
tblLandUse	LotAcreage	4.43	4.10
tblLandUse	LotAcreage	2.80	6.40
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.033
tblProjectCharacteristics	CO2IntensityFactor	641.35	349
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003

tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	760.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	12.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	3.00
tblTripsAndVMT	VendorTripNumber	288.00	0.00
tblTripsAndVMT	WorkerTripNumber	571.00	0.00
tblTripsAndVMT	WorkerTripNumber	114.00	0.00
tblVehicleTrips	ST_TR	8.19	0.00
tblVehicleTrips	ST_TR	1.64	0.00
tblVehicleTrips	ST_TR	49.97	0.00
tblVehicleTrips	SU_TR	5.95	0.00
tblVehicleTrips	SU_TR	0.76	0.00
tblVehicleTrips	SU_TR	25.24	0.00
tblVehicleTrips	WD_TR	8.17	0.00
tblVehicleTrips	WD_TR	11.42	0.00
tblVehicleTrips	WD_TR	42.70	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	42.6829	1.79E-03	0.1886	1.00E-05		6.80E-04	6.80E-04		6.80E-04	6.80E-04		0.3967	0.3967	1.1000e-		0.4243
Energy	0.9585	8.7139	7.3197	0.0523		0.6623	0.6623		0.6623	0.6623		10,456.68	10,456.684	0.2004	0.1917	10,518.82
Mobile	0	0	0	0	0	0	0	0	0	0		0.0000	0.0000	0.0000		0.0000
Stationary	3.7411	16.7323	9.5404	0.018		0.5504	0.5504		0.5504	0.5504		1,914.092	1,914.0922	0.2684		1,920.801
Total	**47.3825**	**25.4480**	**17.0486**	**0.0703**	**0.0000**	**1.2134**	**1.2134**	**0.0000**	**1.2134**	**1.2134**		**12,371.17**	**12,371.173**	**0.4699**	**0.1917**	**12,440.04**

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas	0.9585	8.7139	7.3197	0.0523		0.6623	0.6623		0.6623	0.6623		10,456.68	10,456.684	0.2004	0.1917	10,518.82
NaturalGas	0.9585	8.7139	7.3197	0.0523		0.6623	0.6623		0.6623	0.6623		10,456.68	10,456.684	0.2004	0.1917	10,518.82

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGa	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hotel	7917.37	0.0854	0.7762	0.6520	4.6600e-		0.0590	0.0590		0.0590	0.0590		931.4551	931.4551	0.0179	0.0171	936.9903
Office Park	79428.9	0.8566	7.7871	6.5412	0.0467		0.5918	0.5918		0.5918	0.5918		9,344.5714	9,344.571	0.1791	0.1713	9,400.101
Regional	1535.59	0.0166	0.1506	0.1265	9.0000e-		0.0114	0.0114		0.0114	0.0114		180.6581	180.6581	3.4600e-	3.3100e-	181.7316
Total		**0.9585**	**8.7139**	**7.3197**	**0.0523**		**0.6623**	**0.6623**		**0.6623**	**0.6623**		**10,456.684**	**10,456.68**	**0.2004**	**0.1917**	**10,518.82**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	42.6829	1.7900e-	0.1886	1.0000e-		6.8000e-	6.8000e-		6.8000e-	6.8000e-		0.3967	0.3967	1.1000e-		0.4243
Unmitigated	42.6829	1.7900e-	0.1886	1.0000e-		6.8000e-	6.8000e-		6.8000e-	6.8000e-		0.3967	0.3967	1.1000e-		0.4243

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural	5.0254					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer	37.6393					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0182	1.7900e-	0.1886	1.0000e-		6.8000e-	6.8000e-		6.8000e-	6.8000e-		0.3967	0.3967	1.1000e-		0.4243
Total	**42.6829**	**1.7900e-**	**0.1886**	**1.0000e-**		**6.8000e-**	**6.8000e-**		**6.8000e-**	**6.8000e-**		**0.3967**	**0.3967**	**1.1000e-**		**0.4243**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	3	1	12	760	0.73	diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources
Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency	3.7411	16.7323	9.5404	0.0180		0.5504	0.5504		0.5504	0.5504		1,914.092	1,914.0922	0.2684		1,920.801
Total	**3.7411**	**16.7323**	**9.5404**	**0.0180**		**0.5504**	**0.5504**		**0.5504**	**0.5504**		**1,914.092**	**1,914.0922**	**0.2684**		**1,920.801**

11.0 Vegetation

Specific Plan - No Project (2040) - San Mateo County, Annual

Specific Plan - No Project (2040)
San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Office Park	1,557.85	1000sqft	81.70	1,557,847.00	0
Hotel	133.00	Room	4.10	79,152.00	0
Regional Shopping Center	121.85	1000sqft	6.40	121,846.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2040
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity	22	**CH4 Intensity**	0.004	**N2O Intensity**	0.001

1.3 User Entered Comments & Non-Default Data

Project Characteristics - EFs adjusted per SB 100
Land Use - sf, rooms, and acreage per pd; acreage scaled per sf
Construction Phase - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Grading - operational analysis only
Trips and VMT - operational analysis only
Architectural Coating - operational analysis only
Vehicle Trips - operational analysis only - mobile source emissions modeled separately
Energy Use - existing buildings so historical data can apply

Stationary Sources - Emergency Generators and Fire Pumps - existing generators per BAAQMD 2017 permitted sources data; assumed hp, testing

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	879,423.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	2,638,268.00	0.00
tblEnergyUse	LightingElect	3.82	3.13
tblEnergyUse	LightingElect	4.21	3.47
tblEnergyUse	LightingElect	5.88	4.88
tblEnergyUse	T24E	2.95	2.19
tblEnergyUse	T24E	5.65	4.27
tblEnergyUse	T24E	2.90	2.24
tblEnergyUse	T24NG	31.80	29.38
tblEnergyUse	T24NG	21.48	17.44
tblEnergyUse	T24NG	4.68	3.90
tblLandUse	LandUseSquareFeet	1,557,850.00	1,557,847.00
tblLandUse	LandUseSquareFeet	193,116.00	79,152.00
tblLandUse	LandUseSquareFeet	121,850.00	121,846.00
tblLandUse	LotAcreage	35.76	81.70
tblLandUse	LotAcreage	4.43	4.10
tblLandUse	LotAcreage	2.80	6.40
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.004
tblProjectCharacteristics	CO2IntensityFactor	641.35	22
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.001
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07

tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	760.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	12.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	3.00
tblTripsAndVMT	VendorTripNumber	288.00	0.00
tblTripsAndVMT	WorkerTripNumber	571.00	0.00
tblTripsAndVMT	WorkerTripNumber	114.00	0.00
tblVehicleTrips	ST_TR	8.19	0.00
tblVehicleTrips	ST_TR	1.64	0.00
tblVehicleTrips	ST_TR	49.97	0.00
tblVehicleTrips	SU_TR	5.95	0.00
tblVehicleTrips	SU_TR	0.76	0.00
tblVehicleTrips	SU_TR	25.24	0.00
tblVehicleTrips	WD_TR	8.17	0.00
tblVehicleTrips	WD_TR	11.42	0.00
tblVehicleTrips	WD_TR	42.70	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	7.7878	1.5000e-	0.0166	0.0000		6.0000e-	6.0000e-		6.0000e-	6.0000e-	0	0.0324	0.0324	8.00E-05	0	0.0345
Energy	0.1749	1.5900	1.3356	9.5400e-		0.1208	0.1208		0.1208	0.1208	0	1,945.26	1,945.26	0.0722	0.0415	1,959.42
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	0	0	0	0	0
Stationary	0.0225	0.1004	0.0572	1.1000e-		3.3000e-	3.3000e-		3.3000e-	3.3000e-	0	10.4186	10.4186	1.46E-03	0	10.4551
Waste						0.0000	0.0000		0.0000	0.0000	334.8458	0	334.8458	19.7888	0	829.5662
Water						0.0000	0.0000		0.0000	0.0000	91.7758	21.7537	113.5295	9.4302	0.2236	415.9067
Total	**7.9852**	**1.6906**	**1.4094**	**9.6500e-**	**0.0000**	**0.1242**	**0.1242**	**0.0000**	**0.1242**	**0.1242**	**426.6216**	**1,977.461**	**2,404.0830**	**29.2927**	**0.2650**	**3,215.382**

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity						0.0000	0.0000		0.0000	0.0000	0.0000	214.3381	214.3381	0.0390	9.7400e-	218.2156

Electricity						0.0000	0.0000		0.0000	0.0000	0.0000	214.3381	214.3381	0.0390	9.7400e-	218.2156	
NaturalGas	0.1749	1.5900	1.3356	9.5400e-		0.1208	0.1208		0.1208	0.1208	0.0000	1,730.918	1,730.9187	0.0332	0.0317	1,741.204	
NaturalGas	0.1749	1.5900	1.3356	9.5400e-		0.1208	0.1208		0.1208	0.1208	0.0000	1,730.918	1,730.9187	0.0332	0.0317	1,741.204	

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGa	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Hotel	2.89E+06	0.0156	0.1417	0.1190	8.5000e-		0.0108	0.0108		0.0108	0.0108	0.0000	154.2169	154.2169	2.9600e-	2.8300e-	155.1333
Office Park	2.90E+07	0.1563	1.4209	1.1936	8.5300e-		0.1080	0.1080		0.1080	0.1080	0.0000	1,546.8183	1,546.818	0.0297	0.0284	1,556.010
Regional	559995	3.0200e-	0.0275	0.0231	1.6000e-		2.0900e-	2.0900e-		2.0900e-	2.0900e-	0.0000	29.8835	29.8835	5.7000e-	5.5000e-	30.0610
Total	**32436215**	**0.1749**	**1.5900**	**1.3356**	**9.5400e-**		**0.1209**	**0.1209**		**0.1209**	**0.1209**	**0.0000**	**1,730.9187**	**1,730.918**	**0.0332**	**0.0317**	**1,741.204**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Hotel	646314	6.4496	1.1700e-	2.9000e-	6.5663
Office Park	1.96E+07	195.1424	0.0355	8.8700e-	198.6727
Regional	1.28E+06	12.7461	2.3200e-	5.8000e-	12.9767
Total	**21478794**	**214.3381**	**0.0390**	**9.7400e-**	**218.2156**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	7.7878	1.5000e-	0.0166	0.0000		6.0000e-	6.0000e-		6.0000e-	6.0000e-	0.0000	0.0324	0.0324	8.0000e-	0.0000	0.0345
Unmitigated	7.7878	1.5000e-	0.0166	0.0000		6.0000e-	6.0000e-		6.0000e-	6.0000e-	0.0000	0.0324	0.0324	8.0000e-	0.0000	0.0345

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural	0.9171					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Consumer	6.8692					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.5100e-	1.5000e-	0.0166	0.0000		6.0000e-	6.0000e-		6.0000e-	6.0000e-	0.0000	0.0324	0.0324	8.0000e-	0.0000	0.0345
Total	**7.7878**	**1.5000e-**	**0.0166**	**0.0000**		**6.0000e-**	**6.0000e-**		**6.0000e-**	**6.0000e-**	**0.0000**	**0.0324**	**0.0324**	**8.0000e-**	**0.0000**	**0.0345**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	113.5295	9.4302	0.2236	415.9067
Unmitigated	113.5295	9.4302	0.2236	415.9067

7.2 Water by Land Use
Unmitigated

	Indoor/Out	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Hotel	3.37378 / 0.374864	1.2656	0.1100	2.6000e-003	4.7911
Office Park	276.883 / 169.702	108.7199	9.0260	0.2140	398.1373
Regional Shopping Center	9.02574 / 5.5319	3.5440	0.2942	6.9800e-003	12.9784
Total		**113.5295**	**9.4302**	**0.2236**	**415.9067**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	334.8458	19.7888	0.0000	829.5662
Unmitigated	334.8458	19.7888	0.0000	829.5662

8.2 Waste by Land Use
Unmitigated

	Waste	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			

Hotel	72.82	14.7818	0.8736	0.0000	36.6213
Office Park	1448.8	294.0933	17.3804	0.0000	728.6037
Regional	127.94	25.9707	1.5348	0.0000	64.3412
Total		**334.8458**	**19.7888**	**0.0000**	**829.5662**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	3	1	12	760	0.73	diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources
Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency	0.0225	0.1004	0.0572	1.1000e-		3.3000e-	3.3000e-		3.3000e-	3.3000e-	0.0000	10.4186	10.4186	1.4600e-	0.0000	10.4551
Total	**0.0225**	**0.1004**	**0.0572**	**1.1000e-**		**3.3000e-**	**3.3000e-**		**3.3000e-**	**3.3000e-**	**0.0000**	**10.4186**	**10.4186**	**1.4600e-**	**0.0000**	**10.4551**

11.0 Vegetation

Specific Plan - No Project (2040) - San Mateo County, Summer

Specific Plan - No Project (2040)
San Mateo County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Office Park	1,557.85	1000sqft	81.70	1,557,847.00	0
Hotel	133.00	Room	4.10	79,152.00	0
Regional Shopping Center	121.85	1000sqft	6.40	121,846.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2040
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity	22	**CH4 Intensity**	0.004	**N2O Intensity**	0.001

1.3 User Entered Comments & Non-Default Data

Project Characteristics - EFs adjusted per SB 100
Land Use - sf, rooms, and acreage per pd; acreage scaled per sf
Construction Phase - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Grading - operational analysis only
Trips and VMT - operational analysis only
Architectural Coating - operational analysis only
Vehicle Trips - operational analysis only - mobile source emissions modeled separately
Energy Use - existing buildings so historical data can apply

Stationary Sources - Emergency Generators and Fire Pumps - existing generators per BAAQMD 2017 permitted sources data; assumed hp, testing hours

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	879,423.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	2,638,268.00	0.00
tblEnergyUse	LightingElect	3.82	3.13
tblEnergyUse	LightingElect	4.21	3.47
tblEnergyUse	LightingElect	5.88	4.88
tblEnergyUse	T24E	2.95	2.19
tblEnergyUse	T24E	5.65	4.27
tblEnergyUse	T24E	2.90	2.24
tblEnergyUse	T24NG	31.80	29.38
tblEnergyUse	T24NG	21.48	17.44
tblEnergyUse	T24NG	4.68	3.90
tblLandUse	LandUseSquareFeet	1,557,850.00	1,557,847.00
tblLandUse	LandUseSquareFeet	193,116.00	79,152.00
tblLandUse	LandUseSquareFeet	121,850.00	121,846.00
tblLandUse	LotAcreage	35.76	81.70
tblLandUse	LotAcreage	4.43	4.10
tblLandUse	LotAcreage	2.80	6.40
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.004
tblProjectCharacteristics	CO2IntensityFactor	641.35	22
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.001
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07

tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	760.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	12.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	3.00
tblTripsAndVMT	VendorTripNumber	288.00	0.00
tblTripsAndVMT	WorkerTripNumber	571.00	0.00
tblTripsAndVMT	WorkerTripNumber	114.00	0.00
tblVehicleTrips	ST_TR	8.19	0.00
tblVehicleTrips	ST_TR	1.64	0.00
tblVehicleTrips	ST_TR	49.97	0.00
tblVehicleTrips	SU_TR	5.95	0.00
tblVehicleTrips	SU_TR	0.76	0.00
tblVehicleTrips	SU_TR	25.24	0.00
tblVehicleTrips	WD_TR	8.17	0.00
tblVehicleTrips	WD_TR	11.42	0.00
tblVehicleTrips	WD_TR	42.70	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Area	42.6815	1.65E-03	0.1839	1.00E-05		6.50E-04	6.50E-04		6.50E-04	6.50E-04		0.3967	0.3967	1.0200e-		0.4223
Energy	0.9584	8.7124	7.3184	0.0523		0.6621	0.6621		0.6621	0.6621		10,454.85	10,454.856	0.2004	0.1917	10,516.98
Mobile	0	0	0	0	0	0	0	0	0	0		0.0000	0.0000	0.0000		0.0000
Stationary	3.7411	16.7323	9.5404	0.018		0.5504	0.5504		0.5504	0.5504		1,914.092	1,914.0922	0.2684		1,920.801
Total	**47.3810**	**25.4464**	**17.0427**	**0.0703**	**0.0000**	**1.2132**	**1.2132**	**0.0000**	**1.2132**	**1.2132**		**12,369.34**	**12,369.344**	**0.4698**	**0.1917**	**12,438.20**

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
NaturalGas	0.9584	8.7124	7.3184	0.0523		0.6621	0.6621		0.6621	0.6621		10,454.85	10,454.856	0.2004	0.1917	10,516.98
NaturalGas	0.9584	8.7124	7.3184	0.0523		0.6621	0.6621		0.6621	0.6621		10,454.85	10,454.856	0.2004	0.1917	10,516.98

5.2 Energy by Land Use - NaturalGas
Unmitigated

	NaturalGa	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hotel	7917.58	0.0854	0.7762	0.6520	4.6600e-		0.0590	0.0590		0.0590	0.0590		931.4795	931.4795	0.0179	0.0171	937.0149
Office Park	79414.5	0.8564	7.7857	6.5400	0.0467		0.5917	0.5917		0.5917	0.5917		9,342.8786	9,342.878	0.1791	0.1713	9,398.398
Regional	1534.23	0.0166	0.1504	0.1264	9.0000e-		0.0114	0.0114		0.0114	0.0114		180.4979	180.4979	3.4600e-	3.3100e-	181.5705
Total		**0.9584**	**8.7124**	**7.3184**	**0.0523**		**0.6621**	**0.6621**		**0.6621**	**0.6621**		**10,454.856**	**10,454.85**	**0.2004**	**0.1917**	**10,516.98**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	42.6815	1.6500e-	0.1839	1.0000e-		6.5000e-	6.5000e-		6.5000e-	6.5000e-		0.3967	0.3967	1.0200e-		0.4223
Unmitigated	42.6815	1.6500e-	0.1839	1.0000e-		6.5000e-	6.5000e-		6.5000e-	6.5000e-		0.3967	0.3967	1.0200e-		0.4223

6.2 Area by SubCategory
Unmitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural	5.0254					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer	37.6393					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0168	1.6500e-	0.1839	1.0000e-		6.5000e-	6.5000e-		6.5000e-	6.5000e-		0.3967	0.3967	1.0200e-		0.4223
Total	**42.6815**	**1.6500e-**	**0.1839**	**1.0000e-**		**6.5000e-**	**6.5000e-**		**6.5000e-**	**6.5000e-**		**0.3967**	**0.3967**	**1.0200e-**		**0.4223**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	3	1	12	760	0.73	diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources
Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency	3.7411	16.7323	9.5404	0.0180		0.5504	0.5504		0.5504	0.5504		1,914.092	1,914.0922	0.2684		1,920.801
Total	**3.7411**	**16.7323**	**9.5404**	**0.0180**		**0.5504**	**0.5504**		**0.5504**	**0.5504**		**1,914.092**	**1,914.0922**	**0.2684**		**1,920.801**

11.0 Vegetation

Specific Plan - With Project (2040) - San Mateo County, Annual

Specific Plan - With Project (2040)
San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Office Park	4,017.69	1000sqft	87.80	4,017,694.00	0
Hotel	133.00	Room	1.70	79,152.00	0
Regional Shopping Center	121.85	1000sqft	2.70	121,846.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2040
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity	22	**CH4 Intensity**	0.004	**N2O Intensity**	0.001

1.3 User Entered Comments & Non-Default Data

Project Characteristics - EFs adjusted per SB 100
Land Use - sf, rooms, and acreage per pd; acreage scaled per sf
Construction Phase - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Grading - operational analysis only
Trips and VMT - operational analysis only
Architectural Coating - operational analysis only
Vehicle Trips - operational analysis only - mobile source emissions modeled separately
Energy Use - existing buildings so historical data can apply

Stationary Sources - Emergency Generators and Fire Pumps - existing generators per BAAQMD 2017 permitted sources data; assumed hp, testing
Area Mitigation -
Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	2,109,346.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	6,328,038.00	0.00
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	110.00	0.00
tblConstructionPhase	NumDays	1,550.00	0.00
tblConstructionPhase	NumDays	100.00	0.00
tblConstructionPhase	NumDays	155.00	0.00
tblConstructionPhase	NumDays	110.00	0.00
tblConstructionPhase	NumDays	60.00	0.00
tblConstructionPhase	PhaseEndDate	12/28/2023	7/27/2023
tblConstructionPhase	PhaseEndDate	2/23/2023	3/16/2017
tblConstructionPhase	PhaseEndDate	5/19/2016	12/31/2015
tblConstructionPhase	PhaseEndDate	3/16/2017	8/11/2016
tblConstructionPhase	PhaseEndDate	7/27/2023	2/23/2023
tblConstructionPhase	PhaseEndDate	8/11/2016	5/19/2016
tblLandUse	LandUseSquareFeet	4,017,690.00	4,017,694.00
tblLandUse	LandUseSquareFeet	193,116.00	79,152.00
tblLandUse	LandUseSquareFeet	121,850.00	121,846.00
tblLandUse	LotAcreage	92.23	87.80
tblLandUse	LotAcreage	4.43	1.70
tblLandUse	LotAcreage	2.80	2.70
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.004
tblProjectCharacteristics	CO2IntensityFactor	641.35	22
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.001
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	760.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	12.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	5.00
tblTripsAndVMT	VendorTripNumber	691.00	0.00
tblTripsAndVMT	WorkerTripNumber	1,358.00	0.00
tblTripsAndVMT	WorkerTripNumber	272.00	0.00
tblVehicleTrips	ST_TR	8.19	0.00
tblVehicleTrips	ST_TR	1.64	0.00
tblVehicleTrips	ST_TR	49.97	0.00
tblVehicleTrips	SU_TR	5.95	0.00
tblVehicleTrips	SU_TR	0.76	0.00
tblVehicleTrips	SU_TR	25.24	0.00
tblVehicleTrips	WD_TR	8.17	0.00
tblVehicleTrips	WD_TR	11.42	0.00
tblVehicleTrips	WD_TR	42.70	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	18.6795	3.5000e-	0.0390	0.0000		1.4000e-	1.4000e-		1.4000e-	1.4000e-	0.0000	0.0763	0.0763	2.0000e-	0.0000	0.0813
Energy	0.4218	3.8343	3.2208	0.0230		0.2914	0.2914		0.2914	0.2914	0.0000	4,696.455	4,696.4558	0.1750	0.1003	4,730.710
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Stationary	0.0374	0.1673	0.0954	1.8000e-		5.5000e-	5.5000e-		5.5000e-	5.5000e-	0.0000	17.3644	17.3644	2.4300e-	0.0000	17.4252
Waste						0.0000	0.0000		0.0000	0.0000	799.2181	0.0000	799.2181	47.2324	0.0000	1,980.028
Water						0.0000	0.0000		0.0000	0.0000	230.4782	54.7197	285.1978	23.6823	0.5614	1,044.564
Total	**19.1386**	**4.0020**	**3.3552**	**0.0232**	**0.0000**	**0.2971**	**0.2971**	**0.0000**	**0.2971**	**0.2971**	**1,029.696**	**4,768.616**	**5,798.3124**	**71.0923**	**0.6617**	**7,772.809**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Area	17.4476	3.5000e-	0.0390	0.0000		1.4000e-	1.4000e-		1.4000e-	1.4000e-	0.0000	0.0763	0.0763	2.00E-04	0	0.0813
Energy	0.4218	3.8343	3.2208	0.0230		0.2914	0.2914		0.2914	0.2914	0.0000	4,696.455	4,696.46	0.175	0.1003	4,730.71
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	0	0	0
Stationary	0.0374	0.1673	0.0954	1.8000e-		5.5000e-	5.5000e-		5.5000e-	5.5000e-	0.0000	17.3644	17.3644	2.43E-03	0	17.4252
Waste						0.0000	0.0000		0.0000	0.0000	799.2181	0.0000	799.2181	47.2324	0	1,980.03
Water						0.0000	0.0000		0.0000	0.0000	184.3825	46.8742	231.2567	18.9464	0.4493	838.8058
Total	**17.9068**	**4.0020**	**3.3552**	**0.0232**	**0.0000**	**0.2971**	**0.2971**	**0.0000**	**0.2971**	**0.2971**	**983.6006**	**4,760.770**	**5,744.3713**	**66.3564**	**0.5496**	**7,567.051**

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-CO2	Total	CH4	N20	CO2e
Percent	**6.44**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**4.48**	**0.16**	**0.93**	**6.66**	**16.95**	**2.65**

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity						0.0000	0.0000		0.0000	0.0000	0.0000	522.3592	522.3592	0.0950	0.0237	531.8092
Electricity						0.0000	0.0000		0.0000	0.0000	0.0000	522.3592	522.3592	0.0950	0.0237	531.8092
NaturalGas	0.4218	3.8343	3.2208	0.0230		0.2914	0.2914		0.2914	0.2914	0.0000	4,174.096	4,174.0966	0.0800	0.0765	4,198.901
NaturalGas	0.4218	3.8343	3.2208	0.0230		0.2914	0.2914		0.2914	0.2914	0.0000	4,174.096	4,174.0966	0.0800	0.0765	4,198.901

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGa	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Hotel	2.88984e+	0.0156	0.1417	0.1190	8.5000e-		0.0108	0.0108		0.0108	0.0108	0.0000	154.2128	154.2128	2.9600e-	2.8300e-	155.1293
Office Park	7.47693e+	0.4032	3.6652	3.0787	0.0220		0.2786	0.2786		0.2786	0.2786	0.0000	3,989.9738	3,989.973	0.0765	0.0732	4,013.684
Regional	560492	3.0200e-	0.0275	0.0231	1.6000e-		2.0900e-	2.0900e-		2.0900e-	2.0900e-	0.0000	29.9100	29.9100	5.7000e-	5.5000e-	30.0877
Total		**0.4218**	**3.8343**	**3.2208**	**0.0230**		**0.2914**	**0.2914**		**0.2914**	**0.2914**	**0.0000**	**4,174.0966**	**4,174.096**	**0.0800**	**0.0765**	**4,198.901**

Mitigated

	NaturalGa	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					

Hotel	2.89E+06	0.0156	0.1417	0.1190	8.5000e-		0.0108	0.0108		0.0108	0.0108	0.0000	154.2128	154.2128	2.9600e-	2.8300e-	155.1293
Office Park	7.48E+07	0.4032	3.6652	3.0787	0.0220		0.2786	0.2786		0.2786	0.2786	0.0000	3,989.9738	3,989.973	0.0765	0.0732	4,013.684
Regional	560492	3.0200e-	0.0275	0.0231	1.6000e-		2.0900e-	2.0900e-		2.0900e-	2.0900e-	0.0000	29.9100	29.9100	5.7000e-	5.5000e-	30.0877
Total	**78219632**	**0.4218**	**3.8343**	**3.2208**	**0.0230**		**0.2914**	**0.2914**		**0.2914**	**0.2914**	**0.0000**	**4,174.0966**	**4,174.096**	**0.0800**	**0.0765**	**4,198.901**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Hotel	646672	6.4532	1.1700e-003	2.9000e-004	6.5699
Office Park	5.04221e+007	503.1634	0.0915	0.0229	512.2660
Regional Shopping Center	1.27695e+006	12.7427	2.3200e-003	5.8000e-004	12.9732
Total		**522.3592**	**0.0950**	**0.0237**	**531.8092**

Mitigated

	Electricity	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Hotel	646672	6.4532	1.1700e-	2.9000e-	6.5699
Office Park	5.04E+07	503.1634	0.0915	0.0229	512.2660
Regional	1.28E+06	12.7427	2.3200e-	5.8000e-	12.9732
Total	**52345722**	**522.3592**	**0.0950**	**0.0237**	**531.8092**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior
Use Low VOC Paint - Residential Exterior
Use Low VOC Paint - Non-Residential Interior
Use Low VOC Paint - Non-Residential Exterior
No Hearths Installed
Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	17.4476	3.5000e-	0.0390	0.0000		1.4000e-	1.4000e-		1.4000e-	1.4000e-	0.0000	0.0763	0.0763	2.0000e-	0.0000	0.0813

Unmitigated	18.6795	3.5000e-	0.0390	0.0000		1.4000e-	1.4000e-		1.4000e-	1.4000e-	0.0000	0.0763	0.0763	2.0000e-	0.0000	0.0813

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural	2.1998					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer	16.4761					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.5700e-	3.5000e-	0.0390	0.0000		1.4000e-	1.4000e-		1.4000e-	1.4000e-	0.0000	0.0763	0.0763	2.0000e-	0.0000	0.0813
Total	**18.6795**	**3.5000e-**	**0.0390**	**0.0000**		**1.4000e-**	**1.4000e-**		**1.4000e-**	**1.4000e-**	**0.0000**	**0.0763**	**0.0763**	**2.0000e-**	**0.0000**	**0.0813**

Mitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural	2.1998					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer	15.2442					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.5700e-	3.5000e-	0.0390	0.0000		1.4000e-	1.4000e-		1.4000e-	1.4000e-	0.0000	0.0763	0.0763	2.0000e-	0.0000	0.0813
Total	**17.4476**	**3.5000e-**	**0.0390**	**0.0000**		**1.4000e-**	**1.4000e-**		**1.4000e-**	**1.4000e-**	**0.0000**	**0.0763**	**0.0763**	**2.0000e-**	**0.0000**	**0.0813**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet
Install Low Flow Kitchen Faucet
Install Low Flow Toilet
Install Low Flow Shower

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	231.2567	18.9464	0.4493	838.8058
Unmitigated	285.1978	23.6823	0.5614	1,044.5641

7.2 Water by Land Use

Unmitigated

	Indoor/Out	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Hotel	3.37378 / 0.374864	1.2656	0.1100	2.6000e-003	4.7911
Office Park	714.079 / 437.661	280.3882	23.2781	0.5519	1,026.7947

Regional Shopping Center	9.02574 / 5.5319	3.5440	0.2942	6.9800e-003	12.9784
Total		**285.1978**	**23.6823**	**0.5614**	**1,044.564**

Mitigated

	Indoor/Out	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Hotel	2.69902 / 0.374864	1.0151	0.0880	2.0800e-003	3.8355
Office Park	571.263 / 437.661	227.3678	18.6230	0.4416	824.5483
Regional Shopping Center	7.22059 / 5.5319	2.8739	0.2354	5.5800e-003	10.4220
Total		**231.2567**	**18.9464**	**0.4493**	**838.8058**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	799.2181	47.2324	0.0000	1,980.0289
Unmitigated	799.2181	47.2324	0.0000	1,980.0289

8.2 Waste by Land Use

Unmitigated

	Waste	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Hotel	72.82	14.7818	0.8736	0.0000	36.6213
Office Park	3736.45	758.4656	44.8240	0.0000	1,879.066
Regional	127.94	25.9707	1.5348	0.0000	64.3412
Total		**799.2180**	**47.2324**	**0.0000**	**1,980.028**

Mitigated

	Waste	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Hotel	72.82	14.7818	0.8736	0.0000	36.6213
Office Park	3736.45	758.4656	44.8240	0.0000	1,879.066

Regional	127.94	25.9707	1.5348	0.0000	64.3412
Total		**799.2180**	**47.2324**	**0.0000**	**1,980.028**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	5	1	12	760	0.73	diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources
Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency	0.0374	0.1673	0.0954	1.8000e-		5.5000e-	5.5000e-		5.5000e-	5.5000e-	0.0000	17.3644	17.3644	2.4300e-	0.0000	17.4252
Total	**0.0374**	**0.1673**	**0.0954**	**1.8000e-**		**5.5000e-**	**5.5000e-**		**5.5000e-**	**5.5000e-**	**0.0000**	**17.3644**	**17.3644**	**2.4300e-**	**0.0000**	**17.4252**

11.0 Vegetation

Specific Plan - With Project (2040) - San Mateo County, Summer

Specific Plan - With Project (2040)
San Mateo County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Office Park	4,017.69	1000sqft	87.80	4,017,694.00	0
Hotel	133.00	Room	1.70	79,152.00	0
Regional Shopping Center	121.85	1000sqft	2.70	121,846.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2040
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity	22	**CH4 Intensity**	0.004	**N2O Intensity**	0.001

1.3 User Entered Comments & Non-Default Data

Project Characteristics - EFs adjusted per SB 100
Land Use - sf, rooms, and acreage per pd; acreage scaled per sf
Construction Phase - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Grading - operational analysis only
Trips and VMT - operational analysis only
Architectural Coating - operational analysis only
Vehicle Trips - operational analysis only - mobile source emissions modeled separately
Energy Use - existing buildings so historical data can apply

Stationary Sources - Emergency Generators and Fire Pumps - existing generators per BAAQMD 2017 permitted sources data; assumed hp, testing hours
Area Mitigation -
Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	2,109,346.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	6,328,038.00	0.00
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	110.00	0.00
tblConstructionPhase	NumDays	1,550.00	0.00
tblConstructionPhase	NumDays	100.00	0.00
tblConstructionPhase	NumDays	155.00	0.00
tblConstructionPhase	NumDays	110.00	0.00
tblConstructionPhase	NumDays	60.00	0.00
tblConstructionPhase	PhaseEndDate	12/28/2023	7/27/2023
tblConstructionPhase	PhaseEndDate	2/23/2023	3/16/2017
tblConstructionPhase	PhaseEndDate	5/19/2016	12/31/2015
tblConstructionPhase	PhaseEndDate	3/16/2017	8/11/2016
tblConstructionPhase	PhaseEndDate	7/27/2023	2/23/2023
tblConstructionPhase	PhaseEndDate	8/11/2016	5/19/2016
tblLandUse	LandUseSquareFeet	4,017,690.00	4,017,694.00
tblLandUse	LandUseSquareFeet	193,116.00	79,152.00
tblLandUse	LandUseSquareFeet	121,850.00	121,846.00
tblLandUse	LotAcreage	92.23	87.80
tblLandUse	LotAcreage	4.43	1.70
tblLandUse	LotAcreage	2.80	2.70
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.004
tblProjectCharacteristics	CO2IntensityFactor	641.35	22
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.001
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	760.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	12.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	5.00
tblTripsAndVMT	VendorTripNumber	691.00	0.00
tblTripsAndVMT	WorkerTripNumber	1,358.00	0.00
tblTripsAndVMT	WorkerTripNumber	272.00	0.00
tblVehicleTrips	ST_TR	8.19	0.00
tblVehicleTrips	ST_TR	1.64	0.00
tblVehicleTrips	ST_TR	49.97	0.00
tblVehicleTrips	SU_TR	5.95	0.00
tblVehicleTrips	SU_TR	0.76	0.00
tblVehicleTrips	SU_TR	25.24	0.00
tblVehicleTrips	WD_TR	8.17	0.00
tblVehicleTrips	WD_TR	11.42	0.00
tblVehicleTrips	WD_TR	42.70	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	102.3733	3.8900e-	0.4334	3.0000e-		1.5400e-	1.5400e-		1.5400e-	1.5400e-		0.9351	0.9351	2.4100e-		0.9953
Energy	2.3111	21.0098	17.6483	0.1261		1.5968	1.5968		1.5968	1.5968		25,211.80	25,211.802	0.4832	0.4622	25,361.62
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Stationary	6.2352	27.8872	15.9006	0.0300		0.9173	0.9173		0.9173	0.9173		3,190.153	3,190.1537	0.4473		3,201.335
Total	**110.9196**	**48.9010**	**33.9823**	**0.1561**	**0.0000**	**2.5156**	**2.5156**	**0.0000**	**2.5156**	**2.5156**		**28,402.89**	**28,402.891**	**0.9329**	**0.4622**	**28,563.95**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day				
Area	95.6234	3.89E-03	0.4334	3.00E-05		1.54E-03	1.54E-03		1.54E-03	1.54E-03	0.9351	0.9351	2.4100e-		0.9953
Energy	2.3111	21.0098	17.6483	0.1261		1.5968	1.5968		1.5968	1.5968	25,211.80	25,211.802	0.4832	0.4622	25,361.62
Mobile	0	0	0	0	0	0	0	0	0	0	0.0000	0.0000	0.0000		0.0000
Stationary	6.2352	27.8872	15.9006	0.03		0.9173	0.9173		0.9173	0.9173	3,190.153	3,190.1537	0.4473		3,201.335
Total	**104.1697**	**48.9010**	**33.9823**	**0.1561**	**0.0000**	**2.5156**	**2.5156**	**0.0000**	**2.5156**	**2.5156**	**28,402.89**	**28,402.891**	**0.9329**	**0.4622**	**28,563.95**

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-CO2	Total	CH4	N20	CO2e
Percent	**6.09**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas	2.3111	21.0098	17.6483	0.1261		1.5968	1.5968		1.5968	1.5968		25,211.80	25,211.802	0.4832	0.4622	25,361.62
NaturalGas	2.3111	21.0098	17.6483	0.1261		1.5968	1.5968		1.5968	1.5968		25,211.80	25,211.802	0.4832	0.4622	25,361.62

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGa	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hotel	7917.37	0.0854	0.7762	0.6520	4.6600e-		0.0590	0.0590		0.0590	0.0590		931.4551	931.4551	0.0179	0.0171	936.9903
Office Park	204847	2.2091	20.0831	16.8698	0.1205		1.5263	1.5263		1.5263	1.5263		24,099.689	24,099.68	0.4619	0.4418	24,242.90
Regional	1535.59	0.0166	0.1506	0.1265	9.0000e-		0.0114	0.0114		0.0114	0.0114		180.6581	180.6581	3.4600e-	3.3100e-	181.7316
Total		**2.3111**	**21.0098**	**17.6483**	**0.1261**		**1.5967**	**1.5967**		**1.5967**	**1.5967**		**25,211.802**	**25,211.80**	**0.4832**	**0.4622**	**25,361.62**

Mitigated

	NaturalGa	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hotel	7.91737	0.0854	0.7762	0.6520	4.6600e-		0.0590	0.0590		0.0590	0.0590		931.4551	931.4551	0.0179	0.0171	936.9903
Office Park	204.847	2.2091	20.0831	16.8698	0.1205		1.5263	1.5263		1.5263	1.5263		24,099.689	24,099.68	0.4619	0.4418	24,242.90
Regional	1.53559	0.0166	0.1506	0.1265	9.0000e-		0.0114	0.0114		0.0114	0.0114		180.6581	180.6581	3.4600e-	3.3100e-	181.7316
Total		**2.3111**	**21.0098**	**17.6483**	**0.1261**		**1.5967**	**1.5967**		**1.5967**	**1.5967**		**25,211.802**	**25,211.80**	**0.4832**	**0.4622**	**25,361.62**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior
Use Low VOC Paint - Residential Exterior
Use Low VOC Paint - Non-Residential Interior
Use Low VOC Paint - Non-Residential Exterior
No Hearths Installed
Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	95.6234	3.8900e-	0.4334	3.0000e-		1.5400e-	1.5400e-		1.5400e-	1.5400e-		0.9351	0.9351	2.4100e-		0.9953
Unmitigated	102.3733	3.8900e-	0.4334	3.0000e-		1.5400e-	1.5400e-		1.5400e-	1.5400e-		0.9351	0.9351	2.4100e-		0.9953

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural	12.0536					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer	90.2800					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0397	3.8900e-	0.4334	3.0000e-		1.5400e-	1.5400e-		1.5400e-	1.5400e-		0.9351	0.9351	2.4100e-		0.9953
Total	**102.3733**	**3.8900e-**	**0.4334**	**3.0000e-**		**1.5400e-**	**1.5400e-**		**1.5400e-**	**1.5400e-**		**0.9351**	**0.9351**	**2.4100e-**		**0.9953**

Mitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural	12.0536					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer	83.5301					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0397	3.8900e-	0.4334	3.0000e-		1.5400e-	1.5400e-		1.5400e-	1.5400e-		0.9351	0.9351	2.4100e-		0.9953
Total	**95.6234**	**3.8900e-**	**0.4334**	**3.0000e-**		**1.5400e-**	**1.5400e-**		**1.5400e-**	**1.5400e-**		**0.9351**	**0.9351**	**2.4100e-**		**0.9953**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet
Install Low Flow Kitchen Faucet
Install Low Flow Toilet
Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	5	1	12	760	0.73	diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources
Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency	6.2352	27.8872	15.9006	0.0300		0.9173	0.9173		0.9173	0.9173		3,190.153	3,190.1537	0.4473		3,201.335
Total	**6.2352**	**27.8872**	**15.9006**	**0.0300**		**0.9173**	**0.9173**		**0.9173**	**0.9173**		**3,190.153**	**3,190.1537**	**0.4473**		**3,201.335**

11.0 Vegetation

Specific Plan - With Project (2040) - Height (Office) - San Mateo County, Annual

Specific Plan - With Project (2040) - Height (Office)
San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Office Park	4,017.69	1000sqft	87.20	4,017,694.00	0
Hotel	186.00	Room	2.40	110,813.00	0
Regional Shopping Center	121.85	1000sqft	2.60	121,846.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2040
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity	22	**CH4 Intensity**	0.004	**N2O Intensity**	0.001

1.3 User Entered Comments & Non-Default Data

Project Characteristics - EFs adjusted per SB 100
Land Use - sf, rooms, and acreage per pd; acreage scaled per sf; assumed 1,100 sf per DU
Construction Phase - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Trips and VMT - operational analysis only
Grading - operational analysis only
Architectural Coating - operational analysis only
Vehicle Trips - operational analysis only - mobile source emissions modeled separately
Area Coating -

Energy Use - existing buildings so historical data can apply
Area Mitigation -
Water Mitigation -
Stationary Sources - Emergency Generators and Fire Pumps - existing generators per BAAQMD 2017 permitted sources data and phase 1 generator;

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	2,125,177.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	6,375,530.00	0.00
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	100.00	0.00
tblConstructionPhase	NumDays	60.00	0.00
tblConstructionPhase	NumDays	155.00	0.00
tblConstructionPhase	NumDays	1,550.00	0.00
tblConstructionPhase	NumDays	110.00	0.00
tblConstructionPhase	NumDays	110.00	0.00
tblConstructionPhase	PhaseEndDate	3/13/2020	10/27/2019
tblConstructionPhase	PhaseEndDate	6/5/2020	3/13/2020
tblConstructionPhase	PhaseEndDate	1/8/2021	6/5/2020
tblConstructionPhase	PhaseEndDate	12/18/2026	1/8/2021
tblConstructionPhase	PhaseEndDate	5/21/2027	12/18/2026
tblConstructionPhase	PhaseEndDate	10/22/2027	5/21/2027
tblLandUse	LandUseSquareFeet	4,017,690.00	4,017,694.00
tblLandUse	LandUseSquareFeet	270,072.00	110,813.00
tblLandUse	LandUseSquareFeet	121,850.00	121,846.00
tblLandUse	LotAcreage	92.23	87.20
tblLandUse	LotAcreage	6.20	2.40
tblLandUse	LotAcreage	2.80	2.60
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.004
tblProjectCharacteristics	CO2IntensityFactor	641.35	22
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.001
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	760.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	12.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	5.00
tblTripsAndVMT	VendorTripNumber	697.00	0.00
tblTripsAndVMT	WorkerTripNumber	1,371.00	0.00
tblTripsAndVMT	WorkerTripNumber	274.00	0.00
tblVehicleTrips	ST_TR	8.19	0.00
tblVehicleTrips	ST_TR	1.64	0.00
tblVehicleTrips	ST_TR	49.97	0.00
tblVehicleTrips	SU_TR	5.95	0.00
tblVehicleTrips	SU_TR	0.76	0.00
tblVehicleTrips	SU_TR	25.24	0.00
tblVehicleTrips	WD_TR	8.17	0.00
tblVehicleTrips	WD_TR	11.42	0.00
tblVehicleTrips	WD_TR	42.70	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	18.8197	3.5000e-004	0.0395	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	0.0773	0.0773	2.00E-04	0	0.0823
Energy	0.4280	3.8910	3.2684	0.0234		0.2957	0.2957		0.2957	0.2957	0.0000	4,760.722	4,760.72	0.1766	0.1015	4,795.39
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	0	0	0
Stationary	0.0374	0.1673	0.0954	1.8000e-		5.5000e-	5.5000e-		5.5000e-	5.5000e-	0.0000	17.3644	17.3644	2.43E-03	0	17.4252
Waste						0.0000	0.0000		0.0000	0.0000	805.1068	0.0000	805.1068	47.5805	0	1,994.62
Water						0.0000	0.0000		0.0000	0.0000	230.9047	54.7975	285.7022	23.7261	0.5625	1,046.47
Total	**19.2851**	**4.0586**	**3.4033**	**0.0235**	**0.0000**	**0.3014**	**0.3014**	**0.0000**	**0.3014**	**0.3014**	**1,036.011**	**4,832.961**	**5,868.9732**	**71.4858**	**0.6640**	**7,853.989**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	17.5786	3.5000e-004	0.0395	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	0.0773	0.0773	2.00E-04	0	0.0823
Energy	0.4280	3.8910	3.2684	0.0234		0.2957	0.2957		0.2957	0.2957	0.0000	4,760.722	4,760.72	0.1766	0.1015	4,795.39
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	0	0	0
Stationary	0.0374	0.1673	0.0954	1.8000e-004		5.5000e-004	5.5000e-004		5.5000e-004	5.5000e-004	0.0000	17.3644	17.3644	2.43E-03	0	17.4252
Waste						0.0000	0.0000		0.0000	0.0000	805.1068	0.0000	805.1068	47.5805	0	1,994.62
Water						0.0000	0.0000		0.0000	0.0000	184.7237	46.9375	231.6612	18.9814	0.4501	840.3343
Total	**18.0440**	**4.0586**	**3.4033**	**0.0235**	**0.0000**	**0.3014**	**0.3014**	**0.0000**	**0.3014**	**0.3014**	**989.8306**	**4,825.101**	**5,814.9323**	**66.7411**	**0.5516**	**7,647.850**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**6.44**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**4.46**	**0.16**	**0.92**	**6.64**	**16.92**	**2.62**

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity						0.0000	0.0000		0.0000	0.0000	0.0000	524.9405	524.9405	0.0954	0.0239	534.4371
Electricity						0.0000	0.0000		0.0000	0.0000	0.0000	524.9405	524.9405	0.0954	0.0239	534.4371
NaturalGas	0.4280	3.8910	3.2684	0.0234		0.2957	0.2957		0.2957	0.2957	0.0000	4,235.782	4,235.7821	0.0812	0.0777	4,260.953
NaturalGas	0.4280	3.8910	3.2684	0.0234		0.2957	0.2957		0.2957	0.2957	0.0000	4,235.782	4,235.7821	0.0812	0.0777	4,260.953

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGa	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Hotel	4.05E+06	0.0218	0.1983	0.1666	1.1900e-003		0.0151	0.0151		0.0151	0.0151	0.0000	215.8984	215.8984	4.1400e-003	3.9600e-003	217.1813
Office Park	7.48E+07	0.4032	3.6652	3.0787	0.0220		0.2786	0.2786		0.2786	0.2786	0.0000	3,989.9738	3,989.973	0.0765	0.0732	4,013.684
Regional	560492	3.0200e-003	0.0275	0.0231	1.6000e-004		2.0900e-003	2.0900e-003		2.0900e-003	2.0900e-003	0.0000	29.9100	29.9100	5.7000e-004	5.5000e-004	30.0877
Total		**0.4280**	**3.8910**	**3.2684**	**0.0233**		**0.2957**	**0.2957**		**0.2957**	**0.2957**	**0.0000**	**4,235.7821**	**4,235.782**	**0.0812**	**0.0777**	**4,260.953**

Mitigated

	NaturalGa	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Hotel	4.04578e+	0.0218	0.1983	0.1666	1.1900e-		0.0151	0.0151		0.0151	0.0151	0.0000	215.8984	215.8984	4.1400e-	3.9600e-	217.1813
Office Park	7.47693e+	0.4032	3.6652	3.0787	0.0220		0.2786	0.2786		0.2786	0.2786	0.0000	3,989.9738	3,989.973	0.0765	0.0732	4,013.684
Regional	560492	3.0200e-	0.0275	0.0231	1.6000e-		2.0900e-	2.0900e-		2.0900e-	2.0900e-	0.0000	29.9100	29.9100	5.7000e-	5.5000e-	30.0877
Total		**0.4280**	**3.8910**	**3.2684**	**0.0233**		**0.2957**	**0.2957**		**0.2957**	**0.2957**	**0.0000**	**4,235.7821**	**4,235.782**	**0.0812**	**0.0777**	**4,260.953**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Hotel	905342	9.0344	1.6400e-	4.1000e-	9.1979
Office Park	5.04221e+	503.1634	0.0915	0.0229	512.2660
Regional	1.27695e+	12.7427	2.3200e-	5.8000e-	12.9732
Total		**524.9405**	**0.0954**	**0.0239**	**534.4371**

Mitigated

	Electricity	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Hotel	905342	9.0344	1.6400e-	4.1000e-	9.1979
Office Park	5.04E+07	503.1634	0.0915	0.0229	512.2660
Regional	1.28E+06	12.7427	2.3200e-	5.8000e-	12.9732
Total		**524.9405**	**0.0954**	**0.0239**	**534.4371**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior
Use Low VOC Paint - Residential Exterior
Use Low VOC Paint - Non-Residential Interior
Use Low VOC Paint - Non-Residential Exterior
No Hearths Installed
Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Mitigated	17.5786	3.5000e-	0.0395	0.0000		1.4000e-	1.4000e-		1.4000e-	1.4000e-	0.0000	0.0773	0.0773	2.0000e-	0.0000	0.0823
Unmitigated	18.8197	3.5000e-	0.0395	0.0000		1.4000e-	1.4000e-		1.4000e-	1.4000e-	0.0000	0.0773	0.0773	2.0000e-	0.0000	0.0823

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural	2.2163					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer	16.5998					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.6100e-	3.5000e-	0.0395	0.0000		1.4000e-	1.4000e-		1.4000e-	1.4000e-	0.0000	0.0773	0.0773	2.0000e-	0.0000	0.0823
Total	**18.8197**	**3.5000e-**	**0.0395**	**0.0000**		**1.4000e-**	**1.4000e-**		**1.4000e-**	**1.4000e-**	**0.0000**	**0.0773**	**0.0773**	**2.0000e-**	**0.0000**	**0.0823**

Mitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural	2.2163					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer	15.3587					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.6100e-	3.5000e-	0.0395	0.0000		1.4000e-	1.4000e-		1.4000e-	1.4000e-	0.0000	0.0773	0.0773	2.0000e-	0.0000	0.0823
Total	**17.5786**	**3.5000e-**	**0.0395**	**0.0000**		**1.4000e-**	**1.4000e-**		**1.4000e-**	**1.4000e-**	**0.0000**	**0.0773**	**0.0773**	**2.0000e-**	**0.0000**	**0.0823**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet
Install Low Flow Kitchen Faucet
Install Low Flow Toilet
Install Low Flow Shower

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	231.6612	18.9814	0.4501	840.3343
Unmitigated	285.7022	23.7261	0.5625	1,046.4734

7.2 Water by Land Use

Unmitigated

	Indoor/Out	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Hotel	4.71822 /	1.7700	0.1538	3.6400e-	6.7003

Office Park	714.079 /	280.3882	23.2781	0.5519	1,026.794
Regional	9.02574 /	3.5440	0.2942	6.9800e-	12.9784
Total		**285.7022**	**23.7261**	**0.5625**	**1,046.473**

Mitigated

	Indoor/Out	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Hotel	3.77458 /	1.4196	0.1230	2.9100e-	5.3640
Office Park	571.263 /	227.3678	18.6230	0.4416	824.5483
Regional	7.22059 /	2.8739	0.2354	5.5800e-	10.4220
Total		**231.6612**	**18.9814**	**0.4501**	**840.3343**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	805.1068	47.5805	0.0000	1,994.6181
Unmitigated	805.1068	47.5805	0.0000	1,994.6181

8.2 Waste by Land Use

Unmitigated

	Waste	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Hotel	101.83	20.6706	1.2216	0.0000	51.2105
Office Park	3736.45	758.4656	44.8240	0.0000	1,879.066
Regional	127.94	25.9707	1.5348	0.0000	64.3412
Total		**805.1068**	**47.5805**	**0.0000**	**1,994.618**

Mitigated

	Waste	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Hotel	101.83	20.6706	1.2216	0.0000	51.2105
Office Park	3736.45	758.4656	44.8240	0.0000	1,879.066
Regional	127.94	25.9707	1.5348	0.0000	64.3412

Total		**805.1068**	**47.5805**	**0.0000**	**1,994.618**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency	0.0374	0.1673	0.0954	1.8000e-		5.5000e-	5.5000e-		5.5000e-	5.5000e-	0.0000	17.3644	17.3644	2.4300e-	0.0000	17.4252
Total	**0.0374**	**0.1673**	**0.0954**	**1.8000e-**		**5.5000e-**	**5.5000e-**		**5.5000e-**	**5.5000e-**	**0.0000**	**17.3644**	**17.3644**	**2.4300e-**	**0.0000**	**17.4252**

11.0 Vegetation

Specific Plan - With Project (2040) - Height (Office) - San Mateo County, Summer

Specific Plan - With Project (2040) - Height (Office)
San Mateo County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Office Park	4,017.69	1000sqft	87.20	4,017,694.00	0
Hotel	186.00	Room	2.40	110,813.00	0
Regional Shopping Center	121.85	1000sqft	2.60	121,846.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2040
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity	22	**CH4 Intensity**	0.004	**N2O Intensity**	0.001

1.3 User Entered Comments & Non-Default Data

Project Characteristics - EFs adjusted per SB 100
Land Use - sf, rooms, and acreage per pd; acreage scaled per sf; assumed 1,100 sf per DU
Construction Phase - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Trips and VMT - operational analysis only
Grading - operational analysis only
Architectural Coating - operational analysis only
Vehicle Trips - operational analysis only - mobile source emissions modeled separately
Area Coating -

Energy Use - existing buildings so historical data can apply
Area Mitigation -
Water Mitigation -
Stationary Sources - Emergency Generators and Fire Pumps - existing generators per BAAQMD 2017 permitted sources data and phase 1 generator;

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	2,125,177.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	6,375,530.00	0.00
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	110.00	0.00
tblConstructionPhase	NumDays	1,550.00	0.00
tblConstructionPhase	NumDays	100.00	0.00
tblConstructionPhase	NumDays	155.00	0.00
tblConstructionPhase	NumDays	110.00	0.00
tblConstructionPhase	NumDays	60.00	0.00
tblLandUse	LandUseSquareFeet	4,017,690.00	4,017,694.00
tblLandUse	LandUseSquareFeet	270,072.00	110,813.00
tblLandUse	LandUseSquareFeet	121,850.00	121,846.00
tblLandUse	LotAcreage	92.23	87.20
tblLandUse	LotAcreage	6.20	2.40
tblLandUse	LotAcreage	2.80	2.60
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.004
tblProjectCharacteristics	CO2IntensityFactor	641.35	22
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.001

tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	760.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	12.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	5.00
tblTripsAndVMT	VendorTripNumber	697.00	0.00
tblTripsAndVMT	WorkerTripNumber	1,371.00	0.00
tblTripsAndVMT	WorkerTripNumber	274.00	0.00
tblVehicleTrips	ST_TR	8.19	0.00
tblVehicleTrips	ST_TR	1.64	0.00
tblVehicleTrips	ST_TR	49.97	0.00
tblVehicleTrips	SU_TR	5.95	0.00
tblVehicleTrips	SU_TR	0.76	0.00
tblVehicleTrips	SU_TR	25.24	0.00
tblVehicleTrips	WD_TR	8.17	0.00
tblVehicleTrips	WD_TR	11.42	0.00
tblVehicleTrips	WD_TR	42.70	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	103.1418	3.9400e-	0.4388	3.0000e-		1.5600e-	1.5600e-		1.5600e-	1.5600e-		0.9467	0.9467	2.4400e-		1.0076
Energy	2.3452	21.3203	17.9091	0.1279		1.6203	1.6203		1.6203	1.6203		25,584.38	25,584.386	0.4904	0.4691	25,736.42
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Stationary	6.2361	27.8872	15.9006	0.0300		0.9173	0.9173		0.9173	0.9173		3,190.153	3,190.1537	0.4473		3,201.335
Total	**111.7231**	**49.2115**	**34.2485**	**0.1579**	**0.0000**	**2.5392**	**2.5392**	**0.0000**	**2.5392**	**2.5392**		**28,775.48**	**28,775.487**	**0.9401**	**0.4691**	**28,938.76**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	96.3412	3.94E-03	0.4388	3.00E-05		1.56E-03	1.56E-03		1.56E-03	1.56E-03		0.9467	0.9467	2.44E-03		1.0076
Energy	2.3452	21.3203	17.9091	0.1279		1.6203	1.6203		1.6203	1.6203		25,584.39	25,584.39	0.4904	0.4691	25,736.42
Mobile	0	0	0	0	0	0	0	0	0	0		0	0	0		0
Stationary	6.2361	27.8872	15.9006	0.03		0.9173	0.9173		0.9173	0.9173		3,190.15	3,190.15	0.4473		3,201.34
Total	**104.9225**	**49.2115**	**34.2485**	**0.1579**	**0.0000**	**2.5392**	**2.5392**	**0.0000**	**2.5392**	**2.5392**		**28,775.48**	**28,775.487**	**0.9401**	**0.4691**	**28,938.76**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**6.09**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas	2.3452	21.3203	17.9091	0.1279		1.6203	1.6203		1.6203	1.6203		25,584.38	25,584.386	0.4904	0.4691	25,736.42
NaturalGas	2.3452	21.3203	17.9091	0.1279		1.6203	1.6203		1.6203	1.6203		25,584.38	25,584.386	0.4904	0.4691	25,736.42

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGa	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hotel	11084.3	0.1195	1.0867	0.9128	6.5200e-		0.0826	0.0826		0.0826	0.0826		1,304.0395	1,304.039	0.0250	0.0239	1,311.788
Office Park	204847	2.2091	20.0831	16.8698	0.1205		1.5263	1.5263		1.5263	1.5263		24,099.689	24,099.68	0.4619	0.4418	24,242.90
Regional	1535.59	0.0166	0.1506	0.1265	9.0000e-		0.0114	0.0114		0.0114	0.0114		180.6581	180.6581	3.4600e-	3.3100e-	181.7316
Total		**2.3452**	**21.3203**	**17.9091**	**0.1279**		**1.6203**	**1.6203**		**1.6203**	**1.6203**		**25,584.386**	**25,584.38**	**0.4904**	**0.4691**	**25,736.42**

Mitigated

	NaturalGa	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Hotel	11.0843	0.1195	1.0867	0.9128	6.5200e-		0.0826	0.0826		0.0826	0.0826		1,304.0395	1,304.039	0.0250	0.0239	1,311.788
Office Park	204.847	2.2091	20.0831	16.8698	0.1205		1.5263	1.5263		1.5263	1.5263		24,099.689	24,099.68	0.4619	0.4418	24,242.90
Regional	1.53559	0.0166	0.1506	0.1265	9.0000e-		0.0114	0.0114		0.0114	0.0114		180.6581	180.6581	3.4600e-	3.3100e-	181.7316
Total		**2.3452**	**21.3203**	**17.9091**	**0.1279**		**1.6203**	**1.6203**		**1.6203**	**1.6203**		**25,584.386**	**25,584.38**	**0.4904**	**0.4691**	**25,736.42**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior
Use Low VOC Paint - Residential Exterior
Use Low VOC Paint - Non-Residential Interior
Use Low VOC Paint - Non-Residential Exterior

No Hearths Installed
Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	96.3412	3.9400e-	0.4388	3.0000e-		1.5600e-	1.5600e-		1.5600e-	1.5600e-		0.9467	0.9467	2.4400e-		1.0076
Unmitigated	103.1418	3.9400e-	0.4388	3.0000e-		1.5600e-	1.5600e-		1.5600e-	1.5600e-		0.9467	0.9467	2.4400e-		1.0076

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural	12.1441					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer	90.9576					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0402	3.9400e-	0.4388	3.0000e-		1.5600e-	1.5600e-		1.5600e-	1.5600e-		0.9467	0.9467	2.4400e-		1.0076
Total	**103.1418**	**3.9400e-**	**0.4388**	**3.0000e-**		**1.5600e-**	**1.5600e-**		**1.5600e-**	**1.5600e-**		**0.9467**	**0.9467**	**2.4400e-**		**1.0076**

Mitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural	12.1441					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer	84.1570					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0402	3.9400e-	0.4388	3.0000e-		1.5600e-	1.5600e-		1.5600e-	1.5600e-		0.9467	0.9467	2.4400e-		1.0076
Total	**96.3412**	**3.9400e-**	**0.4388**	**3.0000e-**		**1.5600e-**	**1.5600e-**		**1.5600e-**	**1.5600e-**		**0.9467**	**0.9467**	**2.4400e-**		**1.0076**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet
Install Low Flow Kitchen Faucet
Install Low Flow Toilet
Install Low Flow Shower

10.0 Stationary Equipment

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency	6.2361	27.8872	15.9006	0.0300		0.9173	0.9173		0.9173	0.9173		3,190.153	3,190.1537	0.4473		3,201.335
Total	**6.2361**	**27.8872**	**15.9006**	**0.0300**		**0.9173**	**0.9173**		**0.9173**	**0.9173**		**3,190.153**	**3,190.1537**	**0.4473**		**3,201.335**

11.0 Vegetation

Phase I Development - Existing (2017) - San Mateo County, Annual

Phase I Development - Existing (2017)
San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Office Park	335.24	1000sqft	8.15	335,241.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2017
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity	349	**CH4 Intensity**	0.033	**N2O Intensity**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - EF adjusted per SB 100
Land Use - office sf and site acreage per project description
Construction Phase - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Grading - operational analysis only
Trips and VMT - operational analysis only
Architectural Coating - operational analysis only
Vehicle Trips - operational analysis only - mobile source emissions modeled separately
Energy Use - existing buildings, historical data is applicable

Stationary Sources - Emergency Generators and Fire Pumps - generator per BAAQMD 2017 permitted sources; assumed testing once a month for 1 hour

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	167,621.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	502,862.00	0.00
tblEnergyUse	LightingElect	4.21	3.47
tblEnergyUse	T24E	5.65	4.27
tblEnergyUse	T24NG	21.48	17.44
tblLandUse	LotAcreage	7.70	8.15
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.033
tblProjectCharacteristics	CO2IntensityFactor	641.35	349
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	760.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	12.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	VendorTripNumber	55.00	0.00
tblTripsAndVMT	WorkerTripNumber	107.00	0.00
tblTripsAndVMT	WorkerTripNumber	21.00	0.00
tblVehicleTrips	ST_TR	1.64	0.00
tblVehicleTrips	SU_TR	0.76	0.00

tblVehicleTrips	WD_TR	11.42	0.00

2.0 Emissions Summary
2.2 Overall Operational
Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.4844	3.0000e-	3.1400e-	0.0000		1.0000e-	1.0000e-		1.0000e-	1.0000e-	0.0000	5.9900e-	5.99E-03	2.00E-05	0	6.41E-03
Energy	0.0336	0.3058	0.2569	1.8300e-		0.0232	0.0232		0.0232	0.0232	0.0000	998.9553	998.9553	0.0694	0.0137	1,004.78
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	0	0	0
Stationary	7.4800e-	0.0335	0.0191	4.0000e-		1.1000e-	1.1000e-		1.1000e-	1.1000e-	0.0000	3.4729	3.4729	4.90E-04	0	3.485
Waste						0.0000	0.0000		0.0000	0.0000	63.2865	0.0000	63.2865	3.7401	0	156.7896
Water						0.0000	0.0000		0.0000	0.0000	18.9031	71.2719	90.175	1.9483	0.0467	152.7865
Total	**1.5255**	**0.3393**	**0.2791**	**1.8700e-**	**0.0000**	**0.0244**	**0.0244**	**0.0000**	**0.0244**	**0.0244**	**82.1896**	**1,073.706**	**1,155.8956**	**5.7583**	**0.0604**	**1,317.850**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.4844	3.0000e-	3.1400e-	0.0000		1.0000e-	1.0000e-		1.0000e-	1.0000e-	0.0000	5.9900e-	5.9900e-	2.0000e-	0.0000	6.4100e-
Energy	0.0336	0.3058	0.2569	1.8300e-		0.0232	0.0232		0.0232	0.0232	0.0000	998.9553	998.9553	0.0694	0.0137	1,004.782
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Stationary	7.4800e-	0.0335	0.0191	4.0000e-		1.1000e-	1.1000e-		1.1000e-	1.1000e-	0.0000	3.4729	3.4729	4.9000e-	0.0000	3.4850
Waste						0.0000	0.0000		0.0000	0.0000	63.2865	0.0000	63.2865	3.7401	0.0000	156.7896
Water						0.0000	0.0000		0.0000	0.0000	18.9031	71.2719	90.1750	1.9483	0.0467	152.7865
Total	**1.5255**	**0.3393**	**0.2791**	**1.8700e-**	**0.0000**	**0.0244**	**0.0244**	**0.0000**	**0.0244**	**0.0244**	**82.1896**	**1,073.706**	**1,155.8956**	**5.7583**	**0.0604**	**1,317.850**

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-CO2	Total	CH4	N20	CO2e
Percent	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Electricity						0.0000	0.0000		0.0000	0.0000	0.0000	666.0273	666.0273	0.0630	7.6300e-	669.8765
Electricity						0.0000	0.0000		0.0000	0.0000	0.0000	666.0273	666.0273	0.0630	7.6300e-	669.8765
NaturalGas	0.0336	0.3058	0.2569	1.8300e-		0.0232	0.0232		0.0232	0.0232	0.0000	332.9280	332.9280	6.3800e-	6.1000e-	334.9064
NaturalGas	0.0336	0.3058	0.2569	1.8300e-		0.0232	0.0232		0.0232	0.0232	0.0000	332.9280	332.9280	6.3800e-	6.1000e-	334.9064

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGa	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Office Park	6.24E+06	0.0336	0.3058	0.2569	1.8300e-		0.0232	0.0232		0.0232	0.0232	0.0000	332.9280	332.9280	6.3800e-	6.1000e-	334.9064
Total		**0.0336**	**0.3058**	**0.2569**	**1.8300e-**		**0.0232**	**0.0232**		**0.0232**	**0.0232**	**0.0000**	**332.9280**	**332.9280**	**6.3800e-**	**6.1000e-**	**334.9064**

Mitigated

	NaturalGa	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Office Park	6.23884e+	0.0336	0.3058	0.2569	1.8300e-		0.0232	0.0232		0.0232	0.0232	0.0000	332.9280	332.9280	6.3800e-	6.1000e-	334.9064
Total		**0.0336**	**0.3058**	**0.2569**	**1.8300e-**		**0.0232**	**0.0232**		**0.0232**	**0.0232**	**0.0000**	**332.9280**	**332.9280**	**6.3800e-**	**6.1000e-**	**334.9064**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Office Park	4.21E+06	666.0273	0.0630	7.6300e-	669.8765
Total		**666.0273**	**0.0630**	**7.6300e-**	**669.8765**

Mitigated

	Electricity	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Office Park	4.20727e+	666.0273	0.0630	7.6300e-	669.8765
Total		**666.0273**	**0.0630**	**7.6300e-**	**669.8765**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.4844	3.0000e-	3.1400e-	0.0000		1.0000e-	1.0000e-		1.0000e-	1.0000e-	0.0000	5.9900e-	5.9900e-	2.0000e-	0.0000	6.4100e-
Unmitigated	1.4844	3.0000e-	3.1400e-	0.0000		1.0000e-	1.0000e-		1.0000e-	1.0000e-	0.0000	5.9900e-	5.9900e-	2.0000e-	0.0000	6.4100e-

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural	0.1748					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer	1.3093					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-	3.0000e-	3.1400e-	0.0000		1.0000e-	1.0000e-		1.0000e-	1.0000e-	0.0000	5.9900e-	5.9900e-	2.0000e-	0.0000	6.4100e-
Total	**1.4844**	**3.0000e-**	**3.1400e-**	**0.0000**		**1.0000e-**	**1.0000e-**		**1.0000e-**	**1.0000e-**	**0.0000**	**5.9900e-**	**5.9900e-**	**2.0000e-**	**0.0000**	**6.4100e-**

Mitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural	0.1748					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer	1.3093					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.0000e-	3.0000e-	3.1400e-	0.0000		1.0000e-	1.0000e-		1.0000e-	1.0000e-	0.0000	5.9900e-	5.9900e-	2.0000e-	0.0000	6.4100e-
Total	**1.4844**	**3.0000e-**	**3.1400e-**	**0.0000**		**1.0000e-**	**1.0000e-**		**1.0000e-**	**1.0000e-**	**0.0000**	**5.9900e-**	**5.9900e-**	**2.0000e-**	**0.0000**	**6.4100e-**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	90.1750	1.9483	0.0467	152.7865
Unmitigated	90.1750	1.9483	0.0467	152.7865

7.2 Water by Land Use

Unmitigated

	Indoor/Out	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Office Park	59.5835 / 36.5189	90.1750	1.9483	0.0467	152.7865
Total		**90.1750**	**1.9483**	**0.0467**	**152.7865**

Mitigated

	Indoor/Out	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Office Park	59.5835 / 36.5189	90.1750	1.9483	0.0467	152.7865
Total		**90.1750**	**1.9483**	**0.0467**	**152.7865**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	63.2865	3.7401	0.0000	156.7896
Unmitigated	63.2865	3.7401	0.0000	156.7896

8.2 Waste by Land Use

Unmitigated

	Waste	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Office Park	311.77	63.2865	3.7401	0.0000	156.7896
Total		**63.2865**	**3.7401**	**0.0000**	**156.7896**

Mitigated

	Waste	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Office Park	311.77	63.2865	3.7401	0.0000	156.7896
Total		**63.2865**	**3.7401**	**0.0000**	**156.7896**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency	7.4800e-	0.0335	0.0191	4.0000e-		1.1000e-	1.1000e-		1.1000e-	1.1000e-	0.0000	3.4729	3.4729	4.9000e-	0.0000	3.4850
Total	**7.4800e-**	**0.0335**	**0.0191**	**4.0000e-**		**1.1000e-**	**1.1000e-**		**1.1000e-**	**1.1000e-**	**0.0000**	**3.4729**	**3.4729**	**4.9000e-**	**0.0000**	**3.4850**

11.0 Vegetation

Phase I Development - Existing (2017) - San Mateo County, Summer

Phase I Development - Existing (2017)
San Mateo County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Office Park	335.24	1000sqft	8.15	335,241.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2017
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity	349	**CH4 Intensity**	0.033	**N2O Intensity**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - EF adjusted per SB 100
Land Use - office sf and site acreage per project description
Construction Phase - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Grading - operational analysis only
Trips and VMT - operational analysis only
Architectural Coating - operational analysis only
Vehicle Trips - operational analysis only - mobile source emissions modeled separately
Energy Use - existing buildings, historical data is applicable
Stationary Sources - Emergency Generators and Fire Pumps - generator per BAAQMD 2017 permitted sources; assumed testing once a month for 1 hour

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	167,621.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	502,862.00	0.00
tblEnergyUse	LightingElect	4.21	3.47
tblEnergyUse	T24E	5.65	4.27
tblEnergyUse	T24NG	21.48	17.44
tblLandUse	LotAcreage	7.70	8.15
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.033
tblProjectCharacteristics	CO2IntensityFactor	641.35	349
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.004
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	760.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	12.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	VendorTripNumber	55.00	0.00
tblTripsAndVMT	WorkerTripNumber	107.00	0.00
tblTripsAndVMT	WorkerTripNumber	21.00	0.00
tblVehicleTrips	ST_TR	1.64	0.00
tblVehicleTrips	SU_TR	0.76	0.00
tblVehicleTrips	WD_TR	11.42	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	8.1354	3.30E-04	0.0349	0		1.30E-04	1.30E-04		1.30E-04	1.30E-04		0.0734	0.0734	2.00E-04		0.0785
Energy	0.1843	1.6758	1.4076	0.0101		0.1274	0.1274		0.1274	0.1274		2,010.905	2,010.91	0.0385	0.0369	2,022.86
Mobile	0	0	0	0	0	0	0	0	0	0		0.0000	0	0		0
Stationary	1.247	5.5775	3.1801	5.99E-03		0.1835	0.1835		0.1835	0.1835		638.0307	638.0307	0.0895		640.267
Total	**9.5667**	**7.2535**	**4.6226**	**0.0160**	**0.0000**	**0.3110**	**0.3110**	**0.0000**	**0.3110**	**0.3110**		**2,649.009**	**2,649.01**	**0.1282**	**0.0369**	**2,663.20**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	8.1354	3.3000e-	0.0349	0.0000		1.3000e-	1.3000e-		1.3000e-	1.3000e-		0.0734	0.0734	2.0000e-		0.0785
Energy	0.1843	1.6758	1.4076	0.0101		0.1274	0.1274		0.1274	0.1274		2,010.905	2,010.9057	0.0385	0.0369	2,022.855
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Stationary	1.2470	5.5775	3.1801	5.9900e-		0.1835	0.1835		0.1835	0.1835		638.0307	638.0307	0.0895		640.2670
Total	**9.5667**	**7.2535**	**4.6226**	**0.0160**	**0.0000**	**0.3110**	**0.3110**	**0.0000**	**0.3110**	**0.3110**		**2,649.009**	**2,649.0098**	**0.1282**	**0.0369**	**2,663.201**

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-CO2	Total	CH4	N20	CO2e
Percent	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas	0.1843	1.6758	1.4076	0.0101		0.1274	0.1274		0.1274	0.1274		2,010.905	2,010.9057	0.0385	0.0369	2,022.855
NaturalGas	0.1843	1.6758	1.4076	0.0101		0.1274	0.1274		0.1274	0.1274		2,010.905	2,010.9057	0.0385	0.0369	2,022.855

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGa	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Office Park	17092.7	0.1843	1.6758	1.4076	0.0101		0.1274	0.1274		0.1274	0.1274		2,010.9057	2,010.905	0.0385	0.0369	2,022.855
Total		**0.1843**	**1.6758**	**1.4076**	**0.0101**		**0.1274**	**0.1274**		**0.1274**	**0.1274**		**2,010.9057**	**2,010.905**	**0.0385**	**0.0369**	**2,022.855**

Mitigated

	NaturalGa	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Office Park	17.0927	0.1843	1.6758	1.4076	0.0101		0.1274	0.1274		0.1274	0.1274		2,010.9057	2,010.905	0.0385	0.0369	2,022.855
Total		**0.1843**	**1.6758**	**1.4076**	**0.0101**		**0.1274**	**0.1274**		**0.1274**	**0.1274**		**2,010.9057**	**2,010.905**	**0.0385**	**0.0369**	**2,022.855**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	8.1354	3.3000e-	0.0349	0.0000		1.3000e-	1.3000e-		1.3000e-	1.3000e-		0.0734	0.0734	2.0000e-		0.0785
Unmitigated	8.1354	3.3000e-	0.0349	0.0000		1.3000e-	1.3000e-		1.3000e-	1.3000e-		0.0734	0.0734	2.0000e-		0.0785

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural	0.9579					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer	7.1742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.3700e-	3.3000e-	0.0349	0.0000		1.3000e-	1.3000e-		1.3000e-	1.3000e-		0.0734	0.0734	2.0000e-		0.0785
Total	**8.1354**	**3.3000e-**	**0.0349**	**0.0000**		**1.3000e-**	**1.3000e-**		**1.3000e-**	**1.3000e-**		**0.0734**	**0.0734**	**2.0000e-**		**0.0785**

Mitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural	0.9579					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer	7.1742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.3700e-	3.3000e-	0.0349	0.0000		1.3000e-	1.3000e-		1.3000e-	1.3000e-		0.0734	0.0734	2.0000e-		0.0785
Total	**8.1354**	**3.3000e-**	**0.0349**	**0.0000**		**1.3000e-**	**1.3000e-**		**1.3000e-**	**1.3000e-**		**0.0734**	**0.0734**	**2.0000e-**		**0.0785**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

10.1 Stationary Sources
Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency	1.2470	5.5775	3.1801	5.9900e-		0.1835	0.1835		0.1835	0.1835		638.0307	638.0307	0.0895		640.2670
Total	**1.2470**	**5.5775**	**3.1801**	**5.9900e-**		**0.1835**	**0.1835**		**0.1835**	**0.1835**		**638.0307**	**638.0307**	**0.0895**		**640.2670**

11.0 Vegetation

Phase I Development - 2022 - No Project - San Mateo County, Annual

Phase I Development - 2022 - No Project
San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Office Park	335.24	1000sqft	8.15	335,241.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity	245	**CH4 Intensity**	0.026	**N2O Intensity**	0.003

1.3 User Entered Comments & Non-Default Data

Project Characteristics - EF adjusted per SB 100
Land Use - office sf and site acreage per project description
Construction Phase - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Trips and VMT - operational analysis only
Grading - operational analysis only
Architectural Coating - operational analysis only
Vehicle Trips - operational analysis only - mobile source emissions modeled separately
Energy Use - existing buildings, historical data is applicable
Stationary Sources - Emergency Generators and Fire Pumps - generator per BAAQMD 2017 permitted sources; assumed testing once a month for 1 hour

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	167,621.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	502,862.00	0.00
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	230.00	0.00
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	10.00	0.00
tblEnergyUse	LightingElect	4.21	3.47
tblEnergyUse	T24E	5.65	4.27
tblEnergyUse	T24NG	21.48	17.44
tblLandUse	LandUseSquareFeet	335,240.00	335,241.00
tblLandUse	LotAcreage	7.70	8.15
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.026
tblProjectCharacteristics	CO2IntensityFactor	641.35	245
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.003
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	760.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	12.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	VendorTripNumber	55.00	0.00

tblTripsAndVMT	WorkerTripNumber	107.00	0.00
tblTripsAndVMT	WorkerTripNumber	21.00	0.00
tblVehicleTrips	ST_TR	1.64	0.00
tblVehicleTrips	SU_TR	0.76	0.00
tblVehicleTrips	WD_TR	11.42	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.4844	3.0000e-	3.0900e-	0.0000		1.0000e-	1.0000e-		1.0000e-	1.0000e-	0.0000	5.9900e-	5.99E-03	2.00E-05	0	6.39E-03
Energy	0.0336	0.3058	0.2569	1.8300e-		0.0232	0.0232		0.0232	0.0232	0.0000	800.4830	800.483	0.056	0.0118	805.4079
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	0	0	0
Stationary	7.4800e-	0.0335	0.0191	4.0000e-		1.1000e-	1.1000e-		1.1000e-	1.1000e-	0.0000	3.4729	3.4729	4.90E-04	0	3.485
Waste						0.0000	0.0000		0.0000	0.0000	63.2865	0.0000	63.2865	3.7401	0	156.7896
Water						0.0000	0.0000		0.0000	0.0000	18.9031	50.0333	68.9363	1.9468	0.0465	131.4513
Total	**1.5255**	**0.3393**	**0.2791**	**1.8700e-**	**0.0000**	**0.0244**	**0.0244**	**0.0000**	**0.0244**	**0.0244**	**82.1896**	**853.9951**	**936.1847**	**5.7435**	**0.0583**	**1,097.140**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.4844	3.0000e-	3.0900e-	0.0000		1.0000e-	1.0000e-		1.0000e-	1.0000e-	0.0000	5.9900e-	5.9900e-	2.0000e-	0.0000	6.3900e-
Energy	0.0336	0.3058	0.2569	1.8300e-		0.0232	0.0232		0.0232	0.0232	0.0000	800.4830	800.4830	0.0560	0.0118	805.4079
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Stationary	7.4800e-	0.0335	0.0191	4.0000e-		1.1000e-	1.1000e-		1.1000e-	1.1000e-	0.0000	3.4729	3.4729	4.9000e-	0.0000	3.4850
Waste						0.0000	0.0000		0.0000	0.0000	63.2865	0.0000	63.2865	3.7401	0.0000	156.7896
Water						0.0000	0.0000		0.0000	0.0000	18.9031	50.0333	68.9363	1.9468	0.0465	131.4513
Total	**1.5255**	**0.3393**	**0.2791**	**1.8700e-**	**0.0000**	**0.0244**	**0.0244**	**0.0000**	**0.0244**	**0.0244**	**82.1896**	**853.9951**	**936.1847**	**5.7435**	**0.0583**	**1,097.140**

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-CO2	Total	CH4	N20	CO2e
Percent	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity						0.0000	0.0000		0.0000	0.0000	0.0000	467.5550	467.5550	0.0496	5.7300e-	470.5015
Electricity						0.0000	0.0000		0.0000	0.0000	0.0000	467.5550	467.5550	0.0496	5.7300e-	470.5015
NaturalGas	0.0336	0.3058	0.2569	1.8300e-		0.0232	0.0232		0.0232	0.0232	0.0000	332.9280	332.9280	6.3800e-	6.1000e-	334.9064
NaturalGas	0.0336	0.3058	0.2569	1.8300e-		0.0232	0.0232		0.0232	0.0232	0.0000	332.9280	332.9280	6.3800e-	6.1000e-	334.9064

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGa	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Office Park	6.24E+06	0.0336	0.3058	0.2569	1.8300e-		0.0232	0.0232		0.0232	0.0232	0.0000	332.9280	332.9280	6.3800e-	6.1000e-	334.9064
Total		**0.0336**	**0.3058**	**0.2569**	**1.8300e-**		**0.0232**	**0.0232**		**0.0232**	**0.0232**	**0.0000**	**332.9280**	**332.9280**	**6.3800e-**	**6.1000e-**	**334.9064**

Mitigated

	NaturalGa	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Office Park	6.23884e+006	0.0336	0.3058	0.2569	1.8300e-003		0.0232	0.0232		0.0232	0.0232	0.0000	332.9280	332.9280	6.3800e-003	6.1000e-003	334.9064
Total		**0.0336**	**0.3058**	**0.2569**	**1.8300e-**		**0.0232**	**0.0232**		**0.0232**	**0.0232**	**0.0000**	**332.9280**	**332.9280**	**6.3800e-**	**6.1000e-**	**334.9064**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Office Park	4.21E+06	467.5550	0.0496	5.7300e-	470.5015
Total		**467.5550**	**0.0496**	**5.7300e-**	**470.5015**

Mitigated

	Electricity	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Office Park	4.21E+06	467.5550	0.0496	5.7300e-003	470.5015
Total		**467.5550**	**0.0496**	**5.7300e-**	**470.5015**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.4844	3.0000e-	3.0900e-	0.0000		1.0000e-	1.0000e-		1.0000e-	1.0000e-	0.0000	5.9900e-	5.9900e-	2.0000e-	0.0000	6.3900e-
Unmitigated	1.4844	3.0000e-	3.0900e-	0.0000		1.0000e-	1.0000e-		1.0000e-	1.0000e-	0.0000	5.9900e-	5.9900e-	2.0000e-	0.0000	6.3900e-

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural	0.1748					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer	1.3093					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.9000e-	3.0000e-	3.0900e-	0.0000		1.0000e-	1.0000e-		1.0000e-	1.0000e-	0.0000	5.9900e-	5.9900e-	2.0000e-	0.0000	6.3900e-
Total	**1.4844**	**3.0000e-**	**3.0900e-**	**0.0000**		**1.0000e-**	**1.0000e-**		**1.0000e-**	**1.0000e-**	**0.0000**	**5.9900e-**	**5.9900e-**	**2.0000e-**	**0.0000**	**6.3900e-**

Mitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural	0.1748					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer	1.3093					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.9000e-	3.0000e-	3.0900e-	0.0000		1.0000e-	1.0000e-		1.0000e-	1.0000e-	0.0000	5.9900e-	5.9900e-	2.0000e-	0.0000	6.3900e-
Total	**1.4844**	**3.0000e-**	**3.0900e-**	**0.0000**		**1.0000e-**	**1.0000e-**		**1.0000e-**	**1.0000e-**	**0.0000**	**5.9900e-**	**5.9900e-**	**2.0000e-**	**0.0000**	**6.3900e-**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	68.9363	1.9468	0.0465	131.4513
Unmitigated	68.9363	1.9468	0.0465	131.4513

7.2 Water by Land Use

Unmitigated

	Indoor/Out	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			

Office Park	59.5835 / 36.5189	68.9363	1.9468	0.0465	131.4513
Total		**68.9363**	**1.9468**	**0.0465**	**131.4513**

Mitigated

	Indoor/Out	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Office Park	59.5835 / 36.5189	68.9363	1.9468	0.0465	131.4513
Total		**68.9363**	**1.9468**	**0.0465**	**131.4513**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	63.2865	3.7401	0.0000	156.7896
Unmitigated	63.2865	3.7401	0.0000	156.7896

8.2 Waste by Land Use

Unmitigated

	Waste	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Office Park	311.77	63.2865	3.7401	0.0000	156.7896
Total		**63.2865**	**3.7401**	**0.0000**	**156.7896**

Mitigated

	Waste	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Office Park	311.77	63.2865	3.7401	0.0000	156.7896
Total		**63.2865**	**3.7401**	**0.0000**	**156.7896**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

10.1 Stationary Sources
Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency	7.4800e-	0.0335	0.0191	4.0000e-		1.1000e-	1.1000e-		1.1000e-	1.1000e-	0.0000	3.4729	3.4729	4.9000e-	0.0000	3.4850
Total	**7.4800e-**	**0.0335**	**0.0191**	**4.0000e-**		**1.1000e-**	**1.1000e-**		**1.1000e-**	**1.1000e-**	**0.0000**	**3.4729**	**3.4729**	**4.9000e-**	**0.0000**	**3.4850**

11.0 Vegetation

Phase I Development - 2022 - No Project
San Mateo County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Office Park	335.24	1000sqft	8.15	335,241.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity	245	**CH4 Intensity**	0.026	**N2O Intensity**	0.003

1.3 User Entered Comments & Non-Default Data

Project Characteristics - EF adjusted per SB 100
Land Use - office sf and site acreage per project description
Construction Phase - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Trips and VMT - operational analysis only
Grading - operational analysis only
Architectural Coating - operational analysis only
Vehicle Trips - operational analysis only - mobile source emissions modeled separately
Energy Use - existing buildings, historical data is applicable

Stationary Sources - Emergency Generators and Fire Pumps - generator per BAAQMD 2017 permitted sources; assumed testing once a month for 1 hour

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	167,621.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	502,862.00	0.00
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	230.00	0.00
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	10.00	0.00
tblEnergyUse	LightingElect	4.21	3.47
tblEnergyUse	T24E	5.65	4.27
tblEnergyUse	T24NG	21.48	17.44
tblLandUse	LandUseSquareFeet	335,240.00	335,241.00
tblLandUse	LotAcreage	7.70	8.15
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.026
tblProjectCharacteristics	CO2IntensityFactor	641.35	245
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.003
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	760.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00

tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	12.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblTripsAndVMT	VendorTripNumber	55.00	0.00
tblTripsAndVMT	WorkerTripNumber	107.00	0.00
tblTripsAndVMT	WorkerTripNumber	21.00	0.00
tblVehicleTrips	ST_TR	1.64	0.00
tblVehicleTrips	SU_TR	0.76	0.00
tblVehicleTrips	WD_TR	11.42	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	8.1352	3.10E-04	0.0343	0		1.20E-04	1.20E-04		1.20E-04	1.20E-04		0.0734	0.0734	1.9000e-		0.0782
Energy	0.1843	1.6758	1.4076	0.0101		0.1274	0.1274		0.1274	0.1274		2,010.905	2,010.9057	0.0385	0.0369	2,022.855
Mobile	0	0	0	0	0	0	0	0	0	0		0.0000	0.0000	0.0000		0.0000
Stationary	1.247	5.5775	3.1801	5.99E-03		0.1835	0.1835		0.1835	0.1835		638.0307	638.0307	0.0895		640.2670
Total	**9.5666**	**7.2535**	**4.6220**	**0.0160**	**0.0000**	**0.3110**	**0.3110**	**0.0000**	**0.3110**	**0.3110**		**2,649.009**	**2,649.0098**	**0.1282**	**0.0369**	**2,663.200**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	8.1352	3.1000e-	0.0343	0.0000		1.2000e-	1.2000e-		1.2000e-	1.2000e-		0.0734	0.0734	1.9000e-		0.0782
Energy	0.1843	1.6758	1.4076	0.0101		0.1274	0.1274		0.1274	0.1274		2,010.905	2,010.9057	0.0385	0.0369	2,022.855
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Stationary	1.2470	5.5775	3.1801	5.9900e-		0.1835	0.1835		0.1835	0.1835		638.0307	638.0307	0.0895		640.2670
Total	**9.5666**	**7.2535**	**4.6220**	**0.0160**	**0.0000**	**0.3110**	**0.3110**	**0.0000**	**0.3110**	**0.3110**		**2,649.009**	**2,649.0098**	**0.1282**	**0.0369**	**2,663.200**

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-CO2	Total	CH4	N20	CO2e
Percent	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

5.0 Energy Detail

Historical Energy Use: Y

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas	0.1843	1.6758	1.4076	0.0101		0.1274	0.1274		0.1274	0.1274		2,010.905	2,010.9057	0.0385	0.0369	2,022.855
NaturalGas	0.1843	1.6758	1.4076	0.0101		0.1274	0.1274		0.1274	0.1274		2,010.905	2,010.9057	0.0385	0.0369	2,022.855

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGa	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Office Park	17092.7	0.1843	1.6758	1.4076	0.0101		0.1274	0.1274		0.1274	0.1274		2,010.9057	2,010.905	0.0385	0.0369	2,022.855
Total		**0.1843**	**1.6758**	**1.4076**	**0.0101**		**0.1274**	**0.1274**		**0.1274**	**0.1274**		**2,010.9057**	**2,010.905**	**0.0385**	**0.0369**	**2,022.855**

Mitigated

	NaturalGa	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Office Park	17.0927	0.1843	1.6758	1.4076	0.0101		0.1274	0.1274		0.1274	0.1274		2,010.9057	2,010.905	0.0385	0.0369	2,022.855
Total		**0.1843**	**1.6758**	**1.4076**	**0.0101**		**0.1274**	**0.1274**		**0.1274**	**0.1274**		**2,010.9057**	**2,010.905**	**0.0385**	**0.0369**	**2,022.855**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	8.1352	3.1000e-	0.0343	0.0000		1.2000e-	1.2000e-		1.2000e-	1.2000e-		0.0734	0.0734	1.9000e-		0.0782
Unmitigated	8.1352	3.1000e-	0.0343	0.0000		1.2000e-	1.2000e-		1.2000e-	1.2000e-		0.0734	0.0734	1.9000e-		0.0782

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural	0.9579					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer	7.1742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.1900e-	3.1000e-	0.0343	0.0000		1.2000e-	1.2000e-		1.2000e-	1.2000e-		0.0734	0.0734	1.9000e-		0.0782
Total	**8.1352**	**3.1000e-**	**0.0343**	**0.0000**		**1.2000e-**	**1.2000e-**		**1.2000e-**	**1.2000e-**		**0.0734**	**0.0734**	**1.9000e-**		**0.0782**

Mitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural	0.9579					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer	7.1742					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.1900e-	3.1000e-	0.0343	0.0000		1.2000e-	1.2000e-		1.2000e-	1.2000e-		0.0734	0.0734	1.9000e-		0.0782
Total	**8.1352**	**3.1000e-**	**0.0343**	**0.0000**		**1.2000e-**	**1.2000e-**		**1.2000e-**	**1.2000e-**		**0.0734**	**0.0734**	**1.9000e-**		**0.0782**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

10.1 Stationary Sources
Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency	1.2470	5.5775	3.1801	5.9900e-		0.1835	0.1835		0.1835	0.1835		638.0307	638.0307	0.0895		640.2670
Total	**1.2470**	**5.5775**	**3.1801**	**5.9900e-**		**0.1835**	**0.1835**		**0.1835**	**0.1835**		**638.0307**	**638.0307**	**0.0895**		**640.2670**

11.0 Vegetation

Phase I Development - With Project (2022) - San Mateo County, Annual

Phase I Development - With Project (2022)
San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Office Park	636.72	1000sqft	8.15	636,717.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity	245	**CH4 Intensity**	0.026	**N2O Intensity**	0.003

1.3 User Entered Comments & Non-Default Data

Project Characteristics - EF adjusted per SB 100
Land Use - sf and acreage per PD
Construction Phase - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Trips and VMT - operational analysis only
Grading - operational analysis only
Architectural Coating - operational analysis only
Vehicle Trips - operational analysis only - mobile source emissions modeled separately
Energy Use -
Area Mitigation - per applicant
Energy Mitigation - per applicant

Water Mitigation - per applicant

Stationary Sources - Emergency Generators and Fire Pumps - 1 generator per applicant, 1 existig generator; assumed 1 hour testing once a month

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	318,359.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	955,076.00	0.00
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	10.00	0.00
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	230.00	0.00
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	20.00	0.00
tblLandUse	LandUseSquareFeet	636,720.00	636,717.00
tblLandUse	LotAcreage	14.62	8.15
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.026
tblProjectCharacteristics	CO2IntensityFactor	641.35	245
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.003
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	760.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	12.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	3.00
tblTripsAndVMT	VendorTripNumber	104.00	0.00

tblTripsAndVMT	WorkerTripNumber	204.00	0.00
tblTripsAndVMT	WorkerTripNumber	41.00	0.00
tblVehicleTrips	ST_TR	1.64	0.00
tblVehicleTrips	SU_TR	0.76	0.00
tblVehicleTrips	WD_TR	11.42	0.00

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.6333	5.0000e-	5.8600e-	0.0000		2.0000e-	2.0000e-		2.0000e-	2.0000e-	0.0000	0.0114	0.0114	3.00E-05	0	0.0121
Energy	0.0543	0.4938	0.4148	2.9600e-		0.0375	0.0375		0.0375	0.0375	0.0000	1,377.189	1,377.19	0.0994	0.0201	1,385.67
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0	0	0	0
Stationary	0.0225	0.1004	0.0572	1.1000e-		3.3000e-	3.3000e-		3.3000e-	3.3000e-	0.0000	10.4186	10.4186	1.46E-03	0	10.4551
Waste						0.0000	0.0000		0.0000	0.0000	120.2011	0.0000	120.2011	7.1037	0	297.7931
Water						0.0000	0.0000		0.0000	0.0000	26.9269	78.0155	104.9424	2.7739	0.0663	194.0357
Total	**2.7101**	**0.5942**	**0.4779**	**3.0700e-**	**0.0000**	**0.0409**	**0.0409**	**0.0000**	**0.0409**	**0.0409**	**147.1280**	**1,465.634**	**1,612.7625**	**9.9785**	**0.0864**	**1,887.970**

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity						0.0000	0.0000		0.0000	0.0000	0.0000	839.6763	839.6763	0.0891	0.0103	844.9680
Electricity						0.0000	0.0000		0.0000	0.0000	0.0000	888.0185	888.0185	0.0942	0.0109	893.6148
NaturalGas	0.0543	0.4938	0.4148	2.9600e-		0.0375	0.0375		0.0375	0.0375	0.0000	537.5127	537.5127	0.0103	9.8500e-	540.7069
NaturalGas	0.0639	0.5809	0.4879	3.4900e-		0.0441	0.0441		0.0441	0.0441	0.0000	632.3240	632.3240	0.0121	0.0116	636.0815

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGa	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Office Park	1.01E+07	0.0543	0.4938	0.4148	2.9600e-		0.0375	0.0375		0.0375	0.0375	0.0000	537.5127	537.5127	0.0103	9.8500e-	540.7069
Total		**0.0543**	**0.4938**	**0.4148**	**2.9600e-**		**0.0375**	**0.0375**		**0.0375**	**0.0375**	**0.0000**	**537.5127**	**537.5127**	**0.0103**	**9.8500e-**	**540.7069**

5.3 Energy by Land Use - Electricity
Mitigated

	Electricity	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Office Park	7.56E+06	839.6763	0.0891	0.0103	844.9680
Total		**839.6763**	**0.0891**	**0.0103**	**844.9680**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior
Use Low VOC Paint - Residential Exterior
Use Low VOC Paint - Non-Residential Interior
Use Low VOC Paint - Non-Residential Exterior
No Hearths Installed
Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.6333	5.0000e-	5.8600e-	0.0000		2.0000e-	2.0000e-		2.0000e-	2.0000e-	0.0000	0.0114	0.0114	3.0000e-	0.0000	0.0121
Unmitigated	2.8193	5.0000e-	5.8600e-	0.0000		2.0000e-	2.0000e-		2.0000e-	2.0000e-	0.0000	0.0114	0.0114	3.0000e-	0.0000	0.0121

6.2 Area by SubCategory
Mitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural	0.3320					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer	2.3008					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	5.5000e-	5.0000e-	5.8600e-	0.0000		2.0000e-	2.0000e-		2.0000e-	2.0000e-	0.0000	0.0114	0.0114	3.0000e-	0.0000	0.0121
Total	**2.6333**	**5.0000e-005**	**5.8600e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0114**	**0.0114**	**3.0000e-005**	**0.0000**	**0.0121**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	104.9424	2.7739	0.0663	194.0357
Unmitigated	130.9305	3.6976	0.0882	249.6649

7.2 Water by Land Use
Mitigated

	Indoor/Out door	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Office Park	84.875 / 69.3602	104.9424	2.7739	0.0663	194.0357
Total		**104.9424**	**2.7739**	**0.0663**	**194.0357**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	120.2011	7.1037	0.0000	297.7931
Unmitigated	120.2011	7.1037	0.0000	297.7931

8.2 Waste by Land Use
Mitigated

	Waste	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Office Park	592.15	120.2011	7.1037	0.0000	297.7931
Total		**120.2011**	**7.1037**	**0.0000**	**297.7931**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	3	1	12	760	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources
Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency	0.0225	0.1004	0.0572	1.1000e-		3.3000e-	3.3000e-		3.3000e-	3.3000e-	0.0000	10.4186	10.4186	1.4600e-	0.0000	10.4551
Total	**0.0225**	**0.1004**	**0.0572**	**1.1000e-**		**3.3000e-**	**3.3000e-**		**3.3000e-**	**3.3000e-**	**0.0000**	**10.4186**	**10.4186**	**1.4600e-**	**0.0000**	**10.4551**

11.0 Vegetation

Phase I Development - With Project (2022) - San Mateo County, Summer

Phase I Development - With Project (2022)
San Mateo County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Office Park	636.72	1000sqft	8.15	636,717.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity	245	**CH4 Intensity**	0.026	**N2O Intensity**	0.003

1.3 User Entered Comments & Non-Default Data

Project Characteristics - EF adjusted per SB 100
Land Use - sf and acreage per PD
Construction Phase - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Off-road Equipment - operational analysis only
Trips and VMT - operational analysis only
Grading - operational analysis only
Architectural Coating - operational analysis only
Vehicle Trips - operational analysis only - mobile source emissions modeled separately
Energy Use -
Area Mitigation - per applicant
Energy Mitigation - per applicant

Water Mitigation - per applicant

Stationary Sources - Emergency Generators and Fire Pumps - 1 generator per applicant, 1 existig generator; assumed 1 hour testing once a month

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	318,359.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	955,076.00	0.00
tblAreaMitigation	UseLowVOCPaintParkingCheck	False	True
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	10.00	0.00
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	230.00	0.00
tblConstructionPhase	NumDays	20.00	0.00
tblConstructionPhase	NumDays	20.00	0.00
tblLandUse	LandUseSquareFeet	636,720.00	636,717.00
tblLandUse	LotAcreage	14.62	8.15
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.026
tblProjectCharacteristics	CO2IntensityFactor	641.35	245
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.003
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsEF	ROG_EF	2.2480e-003	2.2477e-003
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	760.00
tblStationaryGeneratorsPumpsUse	HoursPerDay	0.00	1.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	12.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	3.00
tblTripsAndVMT	VendorTripNumber	104.00	0.00

tblTripsAndVMT	WorkerTripNumber	204.00	0.00
tblTripsAndVMT	WorkerTripNumber	41.00	0.00
tblVehicleTrips	ST_TR	1.64	0.00
tblVehicleTrips	SU_TR	0.76	0.00
tblVehicleTrips	WD_TR	11.42	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	14.4323	5.90E-04	0.0651	0		2.30E-04	2.30E-04		2.30E-04	2.30E-04		0.1394	0.1394	3.7000e-		0.1485
Energy	0.2976	2.7055	2.2726	0.0162		0.2056	0.2056		0.2056	0.2056		3,246.610	3,246.6102	0.0622	0.0595	3,265.903
Mobile	0	0	0	0	0	0	0	0	0	0		0.0000	0.0000	0.0000		0.0000
Stationary	3.7411	16.7323	9.5404	0.018		0.5504	0.5504		0.5504	0.5504		1,914.092	1,914.0922	0.2684		1,920.801
Total	**18.4710**	**19.4384**	**11.8781**	**0.0342**	**0.0000**	**0.7563**	**0.7563**	**0.0000**	**0.7563**	**0.7563**		**5,160.841**	**5,160.8418**	**0.3310**	**0.0595**	**5,186.852**

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas	0.2976	2.7055	2.2726	0.0162		0.2056	0.2056		0.2056	0.2056		3,246.610	3,246.6102	0.0622	0.0595	3,265.903
NaturalGas	0.3501	3.1827	2.6735	0.0191		0.2419	0.2419		0.2419	0.2419		3,819.275	3,819.2759	0.0732	0.0700	3,841.971

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGa	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Office Park	27.5962	0.2976	2.7055	2.2726	0.0162		0.2056	0.2056		0.2056	0.2056		3,246.6102	3,246.6102	0.0622	0.0595	3,265.9032

Total		**0.2976**	**2.7055**	**2.2726**	**0.0162**		**0.2056**	**0.2056**		**0.2056**	**0.2056**		**3,246.6102**	**3,246.610**	**0.0622**	**0.0595**	**3,265.903**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior
Use Low VOC Paint - Residential Exterior
Use Low VOC Paint - Non-Residential Interior
Use Low VOC Paint - Non-Residential Exterior
No Hearths Installed
Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	14.4323	5.9000e-	0.0651	0.0000		2.3000e-	2.3000e-		2.3000e-	2.3000e-		0.1394	0.1394	3.7000e-		0.1485
Unmitigated	15.4510	5.9000e-	0.0651	0.0000		2.3000e-	2.3000e-		2.3000e-	2.3000e-		0.1394	0.1394	3.7000e-		0.1485

Mitigated

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio-	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural	1.8192					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer	12.6070					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	6.0600e-	5.9000e-	0.0651	0.0000		2.3000e-	2.3000e-		2.3000e-	2.3000e-		0.1394	0.1394	3.7000e-		0.1485
Total	**14.4323**	**5.9000e-**	**0.0651**	**0.0000**		**2.3000e-**	**2.3000e-**		**2.3000e-**	**2.3000e-**		**0.1394**	**0.1394**	**3.7000e-**		**0.1485**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Unmitigated

	Pounds per Day					Metric Tons per Year				Gallons per year	
Condition	ROG	NOx	CO	PM10	PM2.5	CO2	CH4	N2O	CO2e	Gasoline	Diesel
Existing	23	61	322	188	32	13,583	2	1	13,982	1,295,519	124,011
2022 No Project	15	32	190	197	33	11,920	1	1	12,212	1,112,042	135,376
2022 With Phase I	31	53	311	313	52	19,311	3	2	19,882	1,769,551	214,838
2040 No Project	9	18	127	206	34	8,760	1	1	8,953	791,581	128,055
2040 With Specific Plan	32	65	454	739	121	31,409	2	2	32,099	2,837,104	458,726
2040 With Alternative	32	65	455	740	121	31,469	2	2	32,160	2,843,539	459,785

Mitigated

	Pounds per Day					Metric Tons per Year				Gallons per year	
	ROG	NOx	CO	PM10	PM2.5	CO2	CH4	N2O	CO2e	Gasoline	Diesel
Condition											
Existing	23	61	322	188	32	13,583	2	1	13,982	1,295,519	124,011
2022 No Project	15	32	190	197	33	11,920	1	1	12,212	1,112,042	135,376
2022 With Phase I	29	44	263	254	42	16,048	3	2	16,582	1,433,896	174,079
2040 No Project	9	18	127	206	34	8,760	1	1	8,953	791,581	128,055
2040 With Specific Plan	30	57	403	643	105	27,660	2	2	28,303	2,468,288	399,093
2040 With Alternative	30	57	404	644	105	27,712	2	2	28,355	2,473,888	400,014

Daily VMT

	2013	2022		2040		
Speed	Existing (2017)	2022 No Project	2022 With Phase I	Build Out No Project (2040)	Build Out - Specific Plan (2040)	Build Out - Height Alternative (2040)
0-5	172	172	295	173	603	591
5-10	63	79	92	111	454	512
10-15	469	576	667	790	2,638	2,621
15-20	7,477	7,653	11,596	8,005	26,877	27,253
20-25	6,606	6,592	10,265	6,564	24,531	24,346
25-30	8,214	8,368	13,078	8,676	30,696	31,044
30-35	5,691	6,886	8,867	9,277	32,970	33,104
35-40	3,262	4,680	5,699	7,517	25,734	25,193
40-45	10,073	9,381	15,190	7,998	31,251	31,171
45-50	8,016	7,792	13,603	7,345	20,327	21,223
50-55	11,062	11,612	16,181	12,711	47,739	47,204
55-60	22,076	20,667	34,919	17,850	67,348	67,637
60-65	13,809	11,594	22,301	7,165	26,473	26,386
65+	172	156	285	123	608	611
Total Daily	**97,163**	**96,210**	**153,039**	**94,305**	**338,248**	**338,898**

Source: Chan (2019)
2022 With Project VMT presents VMT from the Existing + Phase I condition. F&P has indicated this is a conservative analysis of 2022 With Phase I.

Annual VMT

Speed	Existing (2017)	2022 No Project	2022 With Phase I	Build Out No Project (2040)	Build Out - Specific Plan (2040)	Build Out - Height Alternative (2040)
0-5	59,684	59,800	102,365	60,031	209,241	205,077
5-10	21,861	27,413	31,924	38,517	157,538	177,664
10-15	162,743	199,872	231,449	274,130	915,386	909,487
15-20	2,594,519	2,655,591	4,023,812	2,777,735	9,326,319	9,456,791
20-25	2,292,282	2,287,424	3,561,955	2,277,708	8,512,257	8,448,062
25-30	2,850,258	2,903,696	4,538,066	3,010,572	10,651,512	10,772,268
30-35	1,974,777	2,389,558	3,076,849	3,219,119	11,440,590	11,487,088
35-40	1,131,914	1,624,076	1,977,553	2,608,399	8,929,698	8,741,971
40-45	3,495,331	3,255,323	5,270,930	2,775,306	10,844,097	10,816,337
45-50	2,781,552	2,703,940	4,720,241	2,548,715	7,053,469	7,364,381
50-55	3,838,514	4,029,248	5,614,807	4,410,717	16,565,433	16,379,788
55-60	7,660,372	7,171,565	12,116,893	6,193,950	23,369,756	23,470,039
60-65	4,791,723	4,023,234	7,738,447	2,486,255	9,186,131	9,155,942
65+	59,684	54,016	98,895	42,681	210,976	212,017
Total Annual	**33,715,214**	**33,384,754**	**53,104,186**	**32,723,835**	**117,372,403**	**117,596,912**

Condition	**Daily VMT**
Existing	97,163
Existing + Phase I	153,039
Build Out	94,305
Build Out + Specific P	338,248
Build Out - Height Alt	338,898
Phase I Comparision to Existing Conditions	
	55,876
Speciifc Plan Comparison to Existing Conditions	
	241,085
Alternative Comparison to Existing Conditions	
	244,593

Mitigated Daily VMT

Speed	Existing (2017)	2022 No Project	2022 With Phase I	Build Out No Project (2040)	Build Out - Specific Plan (2040)	Build Out - Height Alternative (2040)
0-5	172	172	231	173	525	514
5-10	63	79	77	111	395	446
10-15	469	576	564	790	2,295	2,281
15-20	7,477	7,653	9,454	8,005	23,383	23,710
20-25	6,606	6,592	8,362	6,564	21,342	21,181
25-30	8,214	8,368	10,549	8,676	26,705	27,008
30-35	5,691	6,886	7,216	9,277	28,684	28,800
35-40	3,262	4,680	4,432	7,517	22,389	21,918
40-45	10,073	9,381	12,529	7,998	27,188	27,119
45-50	8,016	7,792	10,698	7,345	17,685	18,464
50-55	11,062	11,612	13,519	12,711	41,533	41,068
55-60	22,076	20,667	28,240	17,850	58,593	58,844
60-65	13,809	11,594	17,885	7,165	23,031	22,956
65+	172	156	226	123	529	531
Total Daily	**97,163**	**96,210**	**123,984**	**94,305**	**294,276**	**294,841**

Source: Chan (2019)

Mitigated Annual VMT

Speed	Existing (2017)	2022 No Project	2022 With Phase I	Build Out No Project (2040)	Build Out - Specific Plan (2040)	Build Out - Height Alternative (2040)
0-5	59,684	59,800	80,157	60,031	182,175	178,358
5-10	21,861	27,413	26,719	38,517	137,065	154,762
10-15	162,743	199,872	195,708	274,130	796,365	791,507
15-20	2,594,519	2,655,591	3,280,538	2,777,735	8,113,901	8,227,370
20-25	2,292,282	2,287,424	2,901,614	2,277,708	7,405,674	7,349,807
25-30	2,850,258	2,903,696	3,660,503	3,010,572	9,266,635	9,371,776
30-35	1,974,777	2,389,558	2,503,952	3,219,119	9,953,348	9,993,600
35-40	1,131,914	1,624,076	1,537,904	2,608,399	7,768,983	7,605,546
40-45	3,495,331	3,255,323	4,347,563	2,775,306	9,434,236	9,410,293
45-50	2,781,552	2,703,940	3,712,206	2,548,715	6,136,695	6,407,008
50-55	3,838,514	4,029,248	4,691,093	4,410,717	14,411,951	14,250,596
55-60	7,660,372	7,171,565	9,799,280	6,193,950	20,331,771	20,418,868
60-65	4,791,723	4,023,234	6,206,095	2,486,255	7,991,757	7,965,732
65+	59,684	54,016	78,422	42,681	183,563	184,257
Total Annual	**33,715,214**	**33,384,754**	**43,021,754**	**32,723,835**	**102,114,119**	**102,309,480**

Condition	Daily VMT
Existing	97,163
2022 With Phase I	123,984
Build Out	94,305
Build Out + Specific P	294,276
Build Out - Height Alt	294,841
Phase I Comparision to Existing Conditions	
	26,821
Speciifc Plan Comparison to Existing Conditions	
	197,113
Alternative Comparison to Existing Conditions	
	200,536

File Name: San Mateo (SF) - 2017 - Annual.EF
CT-EMFAC2017 Ver 1.0.2.27401
Run Date: 4/25/2019 8:43
Area: San Mateo (SF)
Analysis Year: 2017
Season: Annual

==========

Vehicle Category	VMT Fraction Across Category	Diesel VMT Within Cate	Gas VMT Fraction Within Category
Truck 1	3%	37%	63%
Truck 2	2%	88%	11%
Non-Truck	95%	1%	98%

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Road Type: Local Urban
Silt Loading Fact CARB 0.32 g/m2
Precipitation Corre User-Defined P = 60 days N = 365 days

==========

Fleet Average Running Exhaust Emission Factors (grams/veh-mile)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Pollutant Name	*<= 5 mph*	*10 mph*	*15 mph*	*20 mph*	*25 mph*	*30 mph*	*35 mph*	*40 mph*	*45 mph*	*50 mph*	*55 mph*	*60 mph*	*65 mph*	*70 mph*	*75 mph*
PM2.5	0.163113	0.15779	0.153231	0.150275	0.148784	0.147901	0.147346	0.147054	0.146988	0.147129	0.147473	0.147799	0.148031	0.148169	0.148169
PM10	0.895737	0.890023	0.885172	0.882031	0.880441	0.879498	0.878906	0.878593	0.87852	0.878665	0.879026	0.879369	0.879619	0.879767	0.879767
NOx	0.568341	0.480276	0.382617	0.325474	0.29595	0.275014	0.259665	0.249359	0.243763	0.2427	0.24613	0.253611	0.264762	0.269265	0.269265
CO	2.631228	2.262088	1.963854	1.737084	1.564823	1.426181	1.312234	1.218866	1.143724	1.085913	1.046056	1.026618	1.032692	1.048247	1.048448
ROG	0.300113	0.201664	0.130662	0.088323	0.06656	0.053199	0.044495	0.039006	0.035919	0.034817	0.035559	0.038119	0.042674	0.045951	0.045971
CO2	851.772087	695.60024	566.51654	471.94173	404.90361	359.98639	333.75468	322.01181	321.49923	329.52832	342.05085	355.50878	366.99046	370.1865	370.1865
N2O	0.029485	0.025484	0.02124	0.01868	0.016911	0.015481	0.014572	0.013914	0.013502	0.013332	0.013497	0.013872	0.014468	0.014468	0.014468
CH4	0.048628	0.034037	0.023877	0.017511	0.013665	0.011146	0.009462	0.008367	0.007715	0.007427	0.00747	0.007867	0.008653	0.009213	0.009214

Fleet Average Fuel Consumption (gallons/veh-mile)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Fuel Type	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph
Gasoline	0.090333	0.073311	0.060038	0.049925	0.042659	0.037878	0.035101	0.033951	0.034047	0.03502	0.036449	0.037895	0.038981	0.038981	0.038981
Diesel	0.008609	0.007388	0.005808	0.004969	0.004397	0.003972	0.003689	0.003467	0.00332	0.003281	0.003318	0.003408	0.003569	0.003569	0.003569

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Fleet Average Tire Wear Factors (grams/veh-mile)

Pollutant Name	Emission Factor
PM2.5	0.002074
PM10	0.008297

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Fleet Average Brake Wear Factors (grams/veh-mile)

Pollutant Name	Emission Factor
PM2.5	0.017247
PM10	0.040242

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Fleet Average Road Dust Factors (grams/veh-mile)

Pollutant Name	Emission Factor
PM2.5	0.1239
PM10	0.825997

==========END==========

File Name: San Mateo (SF) - 2022 - Annual.EF
CT-EMFAC2017 Ver 1.0.2.27401
Run Date: 4/25/2019 8:43
Area: San Mateo (SF)
Analysis Year: 7/14/1905 0:00
Season: Annual

==========

Vehicle Category	VMT Fraction Across Category	Diesel VMT Within Cate	Gas VMT Fraction Within Category
Truck 1	0.035	0.472	0.528
Truck 2	3%	87%	11%
Non-Truck	94%	2%	96%

==========

Road Type:	Local Urban	
Silt Loading Fact	CARB	0.32 g/m2
Precipitation Corre	User-Defined	P = 60 days N = 365 days

==========

Fleet Average Running Exhaust Emission Factors (grams/veh-mile)

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*
Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph	
PM2.5	0.161645	0.158201	0.15605	0.154728	0.153939	0.153461	0.153179	0.153035	0.152997	0.153051	0.153189	0.153374	0.153604	0.153713	0.153713	
PM10	0.93743	0.933698	0.931373	0.929947	0.929095	0.928578	0.928272	0.928115	0.928072	0.928127	0.928271	0.928468	0.928714	0.928832	0.928832	
NOx	0.368352	0.301616	0.235739	0.198725	0.172801	0.151907	0.135934	0.124565	0.117609	0.114959	0.116574	0.122536	0.132748	0.134787	0.134787	
CO	1.67805	1.434398	1.233317	1.085028	0.976538	0.889983	0.818977	0.760806	0.713957	0.677876	0.652996	0.641162	0.645864	0.656398	0.656912	
ROG	0.19145	0.126274	0.083194	0.057526	0.043257	0.03444	0.0288	0.025295	0.023346	0.022656	0.023128	0.024869	0.028119	0.030465	0.030518	
CO2	765.842388	624.92242	507.2589	423.10514	363.03386	322.33124	298.52786	287.5773	286.73603	293.86847	305.25135	317.7042	328.85508	331.66562	331.66562	
N2O	0.02519	0.021511	0.01746	0.015284	0.013709	0.012419	0.011598	0.01099	0.010613	0.010511	0.010689	0.011048	0.011628	0.011628	0.011628	
CH4	0.034845	0.024657	0.017536	0.013045	0.010224	0.00835	0.007084	0.006247	0.005729	0.005471	0.005446	0.005685	0.006209	0.006578	0.00658	

Fleet Average Fuel Consumption (gallons/veh-mile)

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*
Fuel Type	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph	
Gasoline	0.078387	0.063615	0.052089	0.043312	0.037005	0.032856	0.030448	0.029454	0.029541	0.03039	0.031634	0.032884	0.033824	0.033824	0.033824	
Diesel	0.009901	0.008342	0.006442	0.005531	0.004862	0.004332	0.00399	0.003727	0.003561	0.003543	0.003626	0.003777	0.004028	0.004028	0.004028	

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Fleet Average Tire Wear Factors (grams/veh-mile)

Pollutant Name	Emission Factor
PM2.5	0.002085
PM10	0.008339

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Fleet Average Brake Wear Factors (grams/veh-mile)

Pollutant Name	Emission Factor
PM2.5	0.017556
PM10	0.040963

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Fleet Average Road Dust Factors (grams/veh-mile)

Pollutant Name	Emission Factor
PM2.5	0.131522
PM10	0.876813

==========END==========

File Name: San Mateo (SF) - 2040 - Annual.EF
CT-EMFAC2017 Ver 1.0.2.27401
Run Date: 4/25/2019 8:45
Area: San Mateo (SF)
Analysis Year: 8/1/1905 0:00
Season: Annual

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Vehicle Category	VMT Fraction Across Category	Diesel VMT Within Cate	Gas VMT Fraction Within Category
Truck 1	0.041	0.543	0.457
Truck 2	4%	88%	11%
Non-Truck	92%	2%	93%

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Road Type: Local Urban
Silt Loading Fact CARB 0.32 g/m2
Precipitation Corre User-Defined P = 60 days N = 365 days

==========

Fleet Average Running Exhaust Emission Factors (grams/veh-mile)

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*
Pollutant Name	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph	
PM2.5	0.165108	0.163778	0.162959	0.162455	0.162143	0.16196	0.161861	0.161822	0.16183	0.161879	0.161964	0.162092	0.162265	0.162305	0.162305	
PM10	0.994079	0.992636	0.99175	0.991204	0.990868	0.99067	0.990562	0.990518	0.990525	0.990575	0.990665	0.9908	0.990983	0.991027	0.991027	
NOx	0.342251	0.264681	0.193097	0.156365	0.126777	0.100981	0.080583	0.065437	0.055453	0.050581	0.050795	0.05613	0.066586	0.06724	0.06724	
CO	1.21605	1.021522	0.853887	0.737094	0.659422	0.599651	0.551412	0.51253	0.481863	0.459069	0.4446	0.440213	0.44885	0.459802	0.460755	
ROG	0.149176	0.098189	0.064023	0.04371	0.032671	0.025974	0.021737	0.019137	0.017723	0.017265	0.017693	0.0191	0.021698	0.023599	0.023698	
CO2	585.349125	477.66608	386.10124	322.35859	276.73681	245.52524	227.23255	218.52362	217.51237	222.84643	231.59436	241.33432	250.47685	252.51847	252.51847	
N2O	0.021719	0.018392	0.014632	0.01273	0.011344	0.010208	0.009487	0.008945	0.008615	0.008568	0.008754	0.009093	0.009637	0.009637	0.009637	
CH4	0.028604	0.020818	0.015156	0.011549	0.009231	0.00766	0.006571	0.005823	0.005329	0.00504	0.004932	0.005037	0.005363	0.005582	0.005586	

Fleet Average Fuel Consumption (gallons/veh-mile)

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*
Fuel Type	<= 5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph	70 mph	75 mph	
Gasoline	0.057045	0.046293	0.037901	0.031513	0.026924	0.023904	0.022153	0.021431	0.021496	0.022114	0.023021	0.023922	0.024601	0.024601	0.024601	
Diesel	0.009817	0.008198	0.006246	0.005341	0.004673	0.004136	0.003796	0.003535	0.003378	0.003382	0.003489	0.003665	0.003947	0.003947	0.003947	

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Fleet Average Tire Wear Factors (grams/veh-mile)

Pollutant Name	Emission Factor
PM2.5	0.002101
PM10	0.008402

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Fleet Average Brake Wear Factors (grams/veh-mile)

Pollutant Name	Emission Factor
PM2.5	0.018056
PM10	0.042131

==========

Fleet Average Road Dust Factors (grams/veh-mile)

Pollutant Name	Emission Factor
PM2.5	0.140871
PM10	0.939138

==========END==========

Emission Factor Summary (Process Emissions)

		Trips/Day	Process (IDLEX, STREX, TOTEX, DIURN, HTSK, RUNLS, RESTL) grams per trip (EMFAC 2017)									lbs/day						Metric Tons Per Year			
Year	Condition		ROG	NOx	CO	PM10 Ex	PM2.5 Ex	SO2	CO2	CH4	N2O	ROG	NOx	CO	PM10 Ex	PM2.5 Ex	SO2	CO2	CH4	N2O	CO2e
2013	No Project	9,868	0.62	0.21	1.73	0.00	0.00	0.00	40	0.05	0.02	13	5	38	0	0	0	1,366	2	1	1,609
2013	Project	15,246	0.62	0.21	1.73	0.00	0.00	0.00	40	0.05	0.02	21	7	58	0	0	0	2,110	3	1	2,486
2022	No Project	9,791	0.40	0.14	1.37	0.00	0.00	0.00	33	0.03	0.01	9	3	30	0	0	0	1,119	1	0	1,290
2040	No Project	9,636	0.20	0.09	0.87	0.00	0.00	0.00	22	0.01	0.01	4	2	19	0	0	0	734	0	0	829
2040	Project	33,715	0.20	0.09	0.87	0.00	0.00	0.00	22	0.01	0.01	15	7	65	0	0	0	2,568	1	1	2,901
2040	Project - Alt	33,650	0.20	0.09	0.87	0.00	0.00	0.00	22	0.01	0.01	15	7	65	0	0	0	2,563	1	1	2,895

Conversions

347	Days/year
0.00453592	Lbs to MT
0.00220462	Grams to Lbs
25	CH4
298	N20

Phase I 2040 14900

Emission Factor Summary S02 (With Mitigated VMT)

Year	Condition	Trips/Day	Mitigated VMT	Running (g/mi)	HTSK, RUNL	lbs/day
				SO2	SO2	SO2
2013	No Project	9,868	97,163	0	0.00	0.4286
2013	Project	15,246	123,984	0	0.00	0.5492
2022	No Project	9,791	96,210	0	0.00	0.3527
2040	No Project	9,636	94,305	0	0.00	0.3434
2040	Project	33,650	294,276	0	0.00	0.7605
2040	Project - Alt	33,715	294,841	0	0.00	0.7620

Conversions

347	Days/year
0.00453592	Lbs to MT
0.00220462	Grams to Lbs
25	CH4
298	N20

Project-Level Mitigated MEI Cancer and Non-Cancer (HI) during Construction

Receptor	Increased Cancer Risk (per million)	Non-Cancer (HI)
Residential	1.1	0.002
BAAQMD Threshold	10	1
Exceed BAAQMD Threshold?	No	No

					1	2	3	4	5	6	7	8	9	10	11
Period	ID	X	Y	*concat*	Concentration [ug/m^3]	PHASE 1	Concentration [ug/m^3]	Haul1	Concentration [ug/m^3]	Haul2	Concentration [ug/m^3]	Building	Concentration [ug/m^3]	Building
ANNUAL	R1	550876.81	4164331.7	*550876.814164331.7*	0.0571	PHASE 1	0.0523	HAUL1	0.02961	HAUL2				
ANNUAL	R2	550896.81	4164351.7	*550896.814164351.7*	0.0615	PHASE 1	0.0574	HAUL1	0.03305	HAUL2				
ANNUAL	R3	550876.81	4164371.7	*550876.814164371.7*	0.0690	PHASE 1	0.0625	HAUL1	0.03564	HAUL2				
ANNUAL	R4	550936.81	4164371.7	*550936.814164371.7*	0.0658	PHASE 1	0.0637	HAUL1	0.03759	HAUL2				
ANNUAL	R5	550876.81	4164391.7	*550876.814164391.7*	0.0764	PHASE 1	0.0691	HAUL1	0.03946	HAUL2				
ANNUAL	R6	550916.81	4164391.7	*550916.814164391.7*	0.0743	PHASE 1	0.0703	HAUL1	0.0409	HAUL2				
ANNUAL	R7	550956.81	4164391.7	*550956.814164391.7*	0.0725	PHASE 1	0.0709	HAUL1	0.04188	HAUL2				
ANNUAL	R8	550996.81	4164391.7	*550996.814164391.7*	0.0713	PHASE 1	0.0710	HAUL1	0.04238	HAUL2				
ANNUAL	R9	551036.81	4164391.7	*551036.814164391.7*	0.0710	PHASE 1	0.0709	HAUL1	0.04247	HAUL2				
ANNUAL	R10	550896.81	4164411.7	*550896.814164411.7*	0.0842	PHASE 1	0.0779	HAUL1	0.04475	HAUL2				
ANNUAL	R11	550936.81	4164411.7	*550936.814164411.7*	0.0822	PHASE 1	0.0791	HAUL1	0.04585	HAUL2				
ANNUAL	R12	550976.81	4164411.7	*550976.814164411.7*	0.0806	PHASE 1	0.0795	HAUL1	0.04635	HAUL2				
ANNUAL	R13	551016.81	4164411.7	*551016.814164411.7*	0.0798	PHASE 1	0.0794	HAUL1	0.04631	HAUL2				
ANNUAL	R14	551056.81	4164411.7	*551056.814164411.7*	0.0798	PHASE 1	0.0791	HAUL1	0.04586	HAUL2				
ANNUAL	R15	550876.81	4164431.7	*550876.814164431.7*	0.0958	PHASE 1	0.0866	HAUL1	0.0493	HAUL2				
ANNUAL	R16	550916.81	4164431.7	*550916.814164431.7*	0.0939	PHASE 1	0.0887	HAUL1	0.05056	HAUL2				
ANNUAL	R17	550956.81	4164431.7	*550956.814164431.7*	0.0919	PHASE 1	0.0896	HAUL1	0.05101	HAUL2				
ANNUAL	R18	550996.81	4164431.7	*550996.814164431.7*	0.0905	PHASE 1	0.0896	HAUL1	0.0508	HAUL2				
ANNUAL	R19	551036.81	4164431.7	*551036.814164431.7*	0.0899	PHASE 1	0.0892	HAUL1	0.05009	HAUL2				
ANNUAL	R20	551076.81	4164431.7	*551076.814164431.7*	0.0901	PHASE 1	0.0884	HAUL1	0.04903	HAUL2				
ANNUAL	R21	551116.81	4164431.7	*551116.814164431.7*	0.0905	PHASE 1	0.0871	HAUL1	0.04773	HAUL2				
ANNUAL	R22	550896.81	4164451.7	*550896.814164451.7*	0.1077	PHASE 1	0.1001	HAUL1	0.05621	HAUL2				
ANNUAL	R23	550936.81	4164451.7	*550936.814164451.7*	0.1056	PHASE 1	0.1019	HAUL1	0.05657	HAUL2				
ANNUAL	R24	550976.81	4164451.7	*550976.814164451.7*	0.1036	PHASE 1	0.1021	HAUL1	0.05609	HAUL2				
ANNUAL	R25	551016.81	4164451.7	*551016.814164451.7*	0.1023	PHASE 1	0.1016	HAUL1	0.05502	HAUL2				
ANNUAL	R26	551056.81	4164451.7	*551056.814164451.7*	0.1018	PHASE 1	0.1005	HAUL1	0.05356	HAUL2				
ANNUAL	R27	551096.81	4164451.7	*551096.814164451.7*	0.1017	PHASE 1	0.0989	HAUL1	0.05186	HAUL2				
ANNUAL	R28	551136.81	4164451.7	*551136.814164451.7*	0.1016	PHASE 1	0.0966	HAUL1	0.05006	HAUL2				
ANNUAL	R29	550876.81	4164471.7	*550876.814164471.7*	0.1241	PHASE 1	0.1134	HAUL1	0.06313	HAUL2				
ANNUAL	R30	550936.81	4164471.7	*550936.814164471.7*	0.1211	PHASE 1	0.1174	HAUL1	0.06297	HAUL2				
ANNUAL	R31	550976.81	4164471.7	*550976.814164471.7*	0.1186	PHASE 1	0.1174	HAUL1	0.06168	HAUL2				
ANNUAL	R32	551036.81	4164471.7	*551036.814164471.7*	0.1161	PHASE 1	0.1154	HAUL1	0.05882	HAUL2				
ANNUAL	R33	551076.81	4164471.7	*551076.814164471.7*	0.1153	PHASE 1	0.1132	HAUL1	0.0566	HAUL2				
ANNUAL	R34	551116.81	4164471.7	*551116.814164471.7*	0.1145	PHASE 1	0.1103	HAUL1	0.0543	HAUL2				
ANNUAL	R35	551156.81	4164471.7	*551156.814164471.7*	0.1134	PHASE 1	0.1064	HAUL1	0.05201	HAUL2				
ANNUAL	R36	550916.81	4164491.7	*550916.814164491.7*	0.1414	PHASE 1	0.1364	HAUL1	0.07101	HAUL2				
ANNUAL	R37	550976.81	4164491.7	*550976.814164491.7*	0.1367	PHASE 1	0.1364	HAUL1	0.06773	HAUL2				
ANNUAL	R38	551016.81	4164491.7	*551016.814164491.7*	0.1340	PHASE 1	0.1342	HAUL1	0.06497	HAUL2				
ANNUAL	R39	551096.81	4164491.7	*551096.814164491.7*	0.1302	PHASE 1	0.1271	HAUL1	0.05913	HAUL2				
ANNUAL	R40	551136.81	4164491.7	*551136.814164491.7*	0.1281	PHASE 1	0.1222	HAUL1	0.05629	HAUL2				
ANNUAL	R41	550876.81	4164351.7	*550876.814164351.7*	0.0626	PHASE 1	0.0570	HAUL1	0.03239	HAUL2				
ANNUAL	R42	550936.81	4164351.7	*550936.814164351.7*	0.0594	PHASE 1	0.0578	HAUL1	0.03423	HAUL2				
ANNUAL	R43	550896.81	4164371.7	*550896.814164371.7*	0.0678	PHASE 1	0.0630	HAUL1	0.03636	HAUL2				
ANNUAL	R44	550956.81	4164371.7	*550956.814164371.7*	0.0650	PHASE 1	0.0638	HAUL1	0.03808	HAUL2				
ANNUAL	R45	550896.81	4164391.7	*550896.814164391.7*	0.0753	PHASE 1	0.0698	HAUL1	0.04023	HAUL2				
ANNUAL	R46	550936.81	4164391.7	*550936.814164391.7*	0.0733	PHASE 1	0.0707	HAUL1	0.04145	HAUL2				
ANNUAL	R47	550976.81	4164391.7	*550976.814164391.7*	0.0718	PHASE 1	0.0710	HAUL1	0.04219	HAUL2				
ANNUAL	R48	551016.81	4164391.7	*551016.814164391.7*	0.0711	PHASE 1	0.0710	HAUL1	0.04247	HAUL2				
ANNUAL	R49	550876.81	4164411.7	*550876.814164411.7*	0.0853	PHASE 1	0.0770	HAUL1	0.04396	HAUL2				
ANNUAL	R50	550916.81	4164411.7	*550916.814164411.7*	0.0832	PHASE 1	0.0786	HAUL1	0.04538	HAUL2				
ANNUAL	R51	550956.81	4164411.7	*550956.814164411.7*	0.0813	PHASE 1	0.0794	HAUL1	0.04617	HAUL2				
ANNUAL	R52	550996.81	4164411.7	*550996.814164411.7*	0.0801	PHASE 1	0.0795	HAUL1	0.04639	HAUL2				
ANNUAL	R53	551036.81	4164411.7	*551036.814164411.7*	0.0797	PHASE 1	0.0793	HAUL1	0.04613	HAUL2				
ANNUAL	R54	551076.81	4164411.7	*551076.814164411.7*	0.0801	PHASE 1	0.0788	HAUL1	0.04551	HAUL2				
ANNUAL	R55	550896.81	4164431.7	*550896.814164431.7*	0.0949	PHASE 1	0.0878	HAUL1	0.05003	HAUL2				
ANNUAL	R56	550936.81	4164431.7	*550936.814164431.7*	0.0928	PHASE 1	0.0893	HAUL1	0.05088	HAUL2				
ANNUAL	R57	550976.81	4164431.7	*550976.814164431.7*	0.0911	PHASE 1	0.0897	HAUL1	0.05098	HAUL2				
ANNUAL	R58	551016.81	4164431.7	*551016.814164431.7*	0.0901	PHASE 1	0.0895	HAUL1	0.0505	HAUL2				
ANNUAL	R59	551056.81	4164431.7	*551056.814164431.7*	0.0899	PHASE 1	0.0889	HAUL1	0.0496	HAUL2				
ANNUAL	R60	551096.81	4164431.7	*551096.814164431.7*	0.0903	PHASE 1	0.0879	HAUL1	0.0484	HAUL2				
ANNUAL	R61	550876.81	4164451.7	*550876.814164451.7*	0.1085	PHASE 1	0.0985	HAUL1	0.05563	HAUL2				
ANNUAL	R62	550916.81	4164451.7	*550916.814164451.7*	0.1067	PHASE 1	0.1012	HAUL1	0.05651	HAUL2				
ANNUAL	R63	550956.81	4164451.7	*550956.814164451.7*	0.1045	PHASE 1	0.1022	HAUL1	0.05642	HAUL2				
ANNUAL	R64	550996.81	4164451.7	*550996.814164451.7*	0.1028	PHASE 1	0.1019	HAUL1	0.05562	HAUL2				
ANNUAL	R65	551036.81	4164451.7	*551036.814164451.7*	0.1019	PHASE 1	0.1011	HAUL1	0.05433	HAUL2				
ANNUAL	R66	551076.81	4164451.7	*551076.814164451.7*	0.1017	PHASE 1	0.0998	HAUL1	0.05274	HAUL2				
ANNUAL	R67	551116.81	4164451.7	*551116.814164451.7*	0.1017	PHASE 1	0.0979	HAUL1	0.05097	HAUL2				
ANNUAL	R68	551156.81	4164451.7	*551156.814164451.7*	0.1015	PHASE 1	0.0951	HAUL1	0.04913	HAUL2				
ANNUAL	R69	550916.81	4164471.7	*550916.814164471.7*	0.1223	PHASE 1	0.1168	HAUL1	0.06331	HAUL2				
ANNUAL	R70	550956.81	4164471.7	*550956.814164471.7*	0.1198	PHASE 1	0.1177	HAUL1	0.06242	HAUL2				
ANNUAL	R71	550996.81	4164471.7	*550996.814164471.7*	0.1176	PHASE 1	0.1169	HAUL1	0.06082	HAUL2				
ANNUAL	R72	551056.81	4164471.7	*551056.814164471.7*	0.1157	PHASE 1	0.1144	HAUL1	0.05773	HAUL2				
ANNUAL	R73	551096.81	4164471.7	*551096.814164471.7*	0.1149	PHASE 1	0.1119	HAUL1	0.05545	HAUL2				
ANNUAL	R74	551136.81	4164471.7	*551136.814164471.7*	0.1140	PHASE 1	0.1085	HAUL1	0.05315	HAUL2				
ANNUAL	R75	551176.81	4164471.7	*551176.814164471.7*	0.1125	PHASE 1	0.1041	HAUL1	0.05087	HAUL2				
ANNUAL	R76	550956.81	4164491.7	*550956.814164491.7*	0.1383	PHASE 1	0.1370	HAUL1	0.06898	HAUL2				
ANNUAL	R77	550996.81	4164491.7	*550996.814164491.7*	0.1353	PHASE 1	0.1354	HAUL1	0.06638	HAUL2				
ANNUAL	R78	551076.81	4164491.7	*551076.814164491.7*	0.1311	PHASE 1	0.1292	HAUL1	0.06059	HAUL2				
ANNUAL	R79	551116.81	4164491.7	*551116.814164491.7*	0.1292	PHASE 1	0.1248	HAUL1	0.05769	HAUL2				
ANNUAL	R80	551156.81	4164491.7	*551156.814164491.7*	0.1268	PHASE 1	0.1194	HAUL1	0.05491	HAUL2				
ANNUAL	R81	551176.81	4164491.7	*551176.814164491.7*	0.1253	PHASE 1	0.1163	HAUL1	0.05356	HAUL2				
ANNUAL	R82	550956.81	4164511.7	*550956.814164511.7*	0.1610	PHASE 1	0.1614	HAUL1	0.07607	HAUL2				
ANNUAL	R83	550996.81	4164511.7	*550996.814164511.7*	0.1566	PHASE 1	0.1583	HAUL1	0.07224	HAUL2				
ANNUAL	R84	551036.81	4164511.7	*551036.814164511.7*	0.1529	PHASE 1	0.1537	HAUL1	0.06839	HAUL2				
ANNUAL	R85	551116.81	4164511.7	*551116.814164511.7*	0.1461	PHASE 1	0.1417	HAUL1	0.06112	HAUL2				
ANNUAL	R86	551156.81	4164511.7	*551156.814164511.7*	0.1419	PHASE 1	0.1342	HAUL1	0.05781	HAUL2				
ANNUAL	R87	551216.81	4164511.7	*551216.814164511.7*	0.1338	PHASE 1	0.1214	HAUL1	0.05322	HAUL2				
ANNUAL	R88	551256.81	4164511.7	*551256.814164511.7*	0.1275	PHASE 1	0.1127	HAUL1	0.0504	HAUL2				
ANNUAL	R89	551016.81	4164531.7	*551016.814164531.7*	0.1795	PHASE 1	0.1836	HAUL1	0.07579	HAUL2				
ANNUAL	R90	551056.81	4164531.7	*551056.814164531.7*	0.1740	PHASE 1	0.1752	HAUL1	0.071	HAUL2				
ANNUAL	R91	551096.81	4164531.7	*551096.814164531.7*	0.1683	PHASE 1	0.1661	HAUL1	0.06659	HAUL2				
ANNUAL	R92	551196.81	4164531.7	*551196.814164531.7*	0.1514	PHASE 1	0.1401	HAUL1	0.05714	HAUL2				
ANNUAL	R93	551236.81	4164531.7	*551236.814164531.7*	0.1431	PHASE 1	0.1291	HAUL1	0.05386	HAUL2				
ANNUAL	R94	551016.81	4164551.7	*551016.814164551.7*	0.2097	PHASE 1	0.2180	HAUL1	0.08133	HAUL2				
ANNUAL	R95	551056.81	4164551.7	*551056.814164551.7*	0.2009	PHASE 1	0.2046	HAUL1	0.0755	HAUL2				
ANNUAL	R96	551096.81	4164551.7	*551096.814164551.7*	0.1920	PHASE 1	0.1910	HAUL1	0.07029	HAUL2				
ANNUAL	R97	551136.81	4164551.7	*551136.814164551.7*	0.1826	PHASE 1	0.1772	HAUL1	0.06564	HAUL2				
ANNUAL	R98	551216.81	4164551.7	*551216.814164551.7*	0.1618	PHASE 1	0.1491	HAUL1	0.05765	HAUL2				
ANNUAL	R99	551276.81	4164551.7	*551276.814164551.7*	0.1456	PHASE 1	0.1297	HAUL1	0.05257	HAUL2				
ANNUAL	R100	551096.81	4164571.7	*551096.814164571.7*	0.2193	PHASE 1	0.2204	HAUL1	0.07389	HAUL2				
ANNUAL	R101	551136.81	4164571.7	*551136.814164571.7*	0.2055	PHASE 1	0.2011	HAUL1	0.06862	HAUL2				
ANNUAL	R102	551196.81	4164571.7	*551196.814164571.7*	0.1844	PHASE 1	0.1737	HAUL1	0.06179	HAUL2				
ANNUAL	R103	551256.81	4164571.7	*551256.814164571.7*	0.1635	PHASE 1	0.1490	HAUL1	0.05595	HAUL2				
ANNUAL	R104	551116.81	4164591.7	*551116.814164591.7*	0.2407	PHASE 1	0.2414	HAUL1	0.0743	HAUL2				
ANNUAL	R105	551196.81	4164591.7	*551196.814164591.7*	0.2027	PHASE 1	0.1931	HAUL1	0.06395	HAUL2				
ANNUAL	R106	551236.81	4164591.7	*551236.814164591.7*	0.1849	PHASE 1	0.1725	HAUL1	0.05961	HAUL2				
ANNUAL	R107	551276.81	4164591.7	*551276.814164591.7*	0.1686	PHASE 1	0.1546	HAUL1	0.05574	HAUL2				
ANNUAL	R108	551176.81	4164611.7	*551176.814164611.7*	0.2341	PHASE 1	0.2284	HAUL1	0.06853	HAUL2				
ANNUAL	R109	551236.81	4164611.7	*551236.814164611.7*	0.2000	PHASE 1	0.1897	HAUL1	0.06131	HAUL2				
ANNUAL	R110	551276.81	4164611.7	*551276.814164611.7*	0.1804	PHASE 1	0.1686	HAUL1	0.05717	HAUL2				
ANNUAL	R111	551196.81	4164631.7	*551196.814164631.7*	0.2424	PHASE 1	0.2381	HAUL1	0.06784	HAUL2				
ANNUAL	R112	551256.81	4164631.7	*551256.814164631.7*	0.2032	PHASE 1	0.1956	HAUL1	0.0606	HAUL2				
ANNUAL	R113	551256.81	4164651.7	*551256.814164651.7*	0.2165	PHASE 1	0.2141	HAUL1	0.06189	HAUL2				
ANNUAL	R114	551256.81	4164671.7	*551256.814164671.7*	0.2292	PHASE 1	0.2345	HAUL1	0.06302	HAUL2				
ANNUAL	R115	550384.79	4164931.52	*550384.794164931.52*	0.0571	PHASE 1	0.0238	HAUL1	0.24851	HAUL2				
ANNUAL	R116	550405.01	4165011.9	*550405.014165011.9*	0.0600	PHASE 1	0.0247	HAUL1	0.37606	HAUL2				
ANNUAL	R117	550445.01	4165031.9	*550445.014165031.9*	0.0713	PHASE 1	0.0277	HAUL1	0.56204	HAUL2				
ANNUAL	R118	550485.01	4165031.9	*550485.014165031.9*	0.0871	PHASE 1	0.0315	HAUL1	1.08375	HAUL2				
ANNUAL	R119	550585.01	4165031.9	*550585.014165031.9*	0.1489	PHASE 1	0.0439	HAUL1	0.87758	HAUL2				
ANNUAL	R120	550625.01	4165031.9	*550625.014165031.9*	0.1817	PHASE 1	0.0501	HAUL1	0.56032	HAUL2				
ANNUAL	R121	550916.81	4164511.7	*550916.814164511.7*	0.1651	PHASE 1	0.1615	HAUL1	0.0796	HAUL2				
ANNUAL	R122	550976.81	4164511.7	*550976.814164511.7*	0.1587	PHASE 1	0.1601	HAUL1	0.07417	HAUL2				
ANNUAL	R123	551016.81	4164511.7	*551016.814164511.7*	0.1547	PHASE 1	0.1562	HAUL1	0.07031	HAUL2				
ANNUAL	R124	551056.81	4164511.7	*551056.814164511.7*	0.1512	PHASE 1	0.1510	HAUL1	0.0665	HAUL2				
ANNUAL	R125	551136.81	4164511.7	*551136.814164511.7*	0.1441	PHASE 1	0.1380	HAUL1	0.05944	HAUL2				
ANNUAL	R126	551196.81	4164511.7	*551196.814164511.7*	0.1368	PHASE 1	0.1259	HAUL1	0.05471	HAUL2				
ANNUAL	R127	551236.81	4164511.7	*551236.814164511.7*	0.1307	PHASE 1	0.1170	HAUL1	0.05179	HAUL2				
ANNUAL	R128	550996.81	4164531.7	*550996.814164531.7*	0.1825	PHASE 1	0.1872	HAUL1	0.07832	HAUL2				
ANNUAL	R129	551036.81	4164531.7	*551036.814164531.7*	0.1767	PHASE 1	0.1795	HAUL1	0.07335	HAUL2				
ANNUAL	R130	551076.81	4164531.7	*551076.814164531.7*	0.1712	PHASE 1	0.1708	HAUL1	0.06875	HAUL2				
ANNUAL	R131	551156.81	4164531.7	*551156.814164531.7*	0.1588	PHASE 1	0.1510	HAUL1	0.06069	HAUL2				
ANNUAL	R132	551216.81	4164531.7	*551216.814164531.7*	0.1473	PHASE 1	0.1346	HAUL1	0.05547	HAUL2				
ANNUAL	R133	551276.81	4164531.7	*551276.814164531.7*	0.1347	PHASE 1	0.1186	HAUL1	0.05086	HAUL2				
ANNUAL	R134	551036.81	4164551.7	*551036.814164551.7*	0.2053	PHASE 1	0.2114	HAUL1	0.07833	HAUL2				
ANNUAL	R135	551076.81	4164551.7	*551076.814164551.7*	0.1965	PHASE 1	0.1979	HAUL1	0.07282	HAUL2				
ANNUAL	R136	551116.81	4164551.7	*551116.814164551.7*	0.1874	PHASE 1	0.1842	HAUL1	0.0679	HAUL2				
ANNUAL	R137	551196.81	4164551.7	*551196.814164551.7*	0.1672	PHASE 1	0.1560	HAUL1	0.05951	HAUL2				

ANNUAL	R138	551236.81	4164551.7	*551236.814164551.7*	0.1563	PHASE 1	0.1423	HAUL1	0.05587	HAUL2
ANNUAL	R139	551076.81	4164571.7	*551076.814164571.7*	0.2261	PHASE 1	0.2304	HAUL1	0.0768	HAUL2
ANNUAL	R140	551116.81	4164571.7	*551116.814164571.7*	0.2124	PHASE 1	0.2107	HAUL1	0.07117	HAUL2
ANNUAL	R141	551176.81	4164571.7	*551176.814164571.7*	0.1915	PHASE 1	0.1826	HAUL1	0.06395	HAUL2
ANNUAL	R142	551216.81	4164571.7	*551216.814164571.7*	0.1773	PHASE 1	0.1650	HAUL1	0.05974	HAUL2
ANNUAL	R143	551276.81	4164571.7	*551276.814164571.7*	0.1570	PHASE 1	0.1416	HAUL1	0.05421	HAUL2
ANNUAL	R144	551176.81	4164591.7	*551176.814164591.7*	0.2121	PHASE 1	0.2043	HAUL1	0.06632	HAUL2
ANNUAL	R145	551216.81	4164591.7	*551216.814164591.7*	0.1937	PHASE 1	0.1825	HAUL1	0.06172	HAUL2
ANNUAL	R146	551256.81	4164591.7	*551256.814164591.7*	0.1765	PHASE 1	0.1632	HAUL1	0.05762	HAUL2
ANNUAL	R147	551156.81	4164611.7	*551156.814164611.7*	0.2464	PHASE 1	0.2434	HAUL1	0.07124	HAUL2
ANNUAL	R148	551196.81	4164611.7	*551196.814164611.7*	0.2222	PHASE 1	0.2146	HAUL1	0.06597	HAUL2
ANNUAL	R149	551256.81	4164611.7	*551256.814164611.7*	0.1899	PHASE 1	0.1787	HAUL1	0.05918	HAUL2
ANNUAL	R150	551176.81	4164631.7	*551176.814164631.7*	0.2574	PHASE 1	0.2550	HAUL1	0.07057	HAUL2
ANNUAL	R151	551236.81	4164631.7	*551236.814164631.7*	0.2154	PHASE 1	0.2085	HAUL1	0.06286	HAUL2
ANNUAL	R152	551276.81	4164631.7	*551276.814164631.7*	0.1921	PHASE 1	0.1839	HAUL1	0.05848	HAUL2
ANNUAL	R153	551276.81	4164651.7	*551276.814164651.7*	0.2035	PHASE 1	0.2006	HAUL1	0.05966	HAUL2
ANNUAL	R154	550384.79	4164911.52	*550384.794164911.52*	0.0577	PHASE 1	0.0239	HAUL1	0.23009	HAUL2
ANNUAL	R155	550164.79	4164951.52	*550164.794164951.52*	0.0245	PHASE 1	0.0131	HAUL1	0.28728	HAUL2
ANNUAL	R156	550405.01	4165031.9	*550405.014165031.9*	0.0591	PHASE 1	0.0245	HAUL1	0.41312	HAUL2
ANNUAL	R157	550465.01	4165031.9	*550465.014165031.9*	0.0786	PHASE 1	0.0295	HAUL1	0.72657	HAUL2
ANNUAL	R158	550545.01	4165031.9	*550545.014165031.9*	0.1201	PHASE 1	0.0384	HAUL1	2.22488	HAUL2
ANNUAL	R159	550605.01	4165031.9	*550605.014165031.9*	0.1650	PHASE 1	0.0469	HAUL1	0.68248	HAUL2
ANNUAL	R160	550645.01	4165031.9	*550645.014165031.9*	0.1986	PHASE 1	0.0535	HAUL1	0.47512	HAUL2
ANNUAL	R161	550665.01	4165031.9	*550665.014165031.9*	0.2152	PHASE 1	0.0569	HAUL1	0.41111	HAUL2
ANNUAL	R162	550705.01	4165031.9	*550705.014165031.9*	0.2453	PHASE 1	0.0642	HAUL1	0.32044	HAUL2
ANNUAL	R163	550405.01	4165051.9	*550405.014165051.9*	0.0581	PHASE 1	0.0243	HAUL1	0.45625	HAUL2
ANNUAL	R164	550465.01	4165051.9	*550465.014165051.9*	0.0765	PHASE 1	0.0291	HAUL1	0.87658	HAUL2
ANNUAL	R165	550545.01	4165051.9	*550545.014165051.9*	0.1136	PHASE 1	0.0375	HAUL1	1.60752	HAUL2
ANNUAL	R166	550585.01	4165051.9	*550585.014165051.9*	0.1383	PHASE 1	0.0427	HAUL1	0.77403	HAUL2
ANNUAL	R167	550665.01	4165051.9	*550665.014165051.9*	0.1924	PHASE 1	0.0548	HAUL1	0.38766	HAUL2
ANNUAL	R168	550705.01	4165051.9	*550705.014165051.9*	0.2157	PHASE 1	0.0615	HAUL1	0.30509	HAUL2
ANNUAL	R169	550745.01	4165051.9	*550745.014165051.9*	0.2324	PHASE 1	0.0686	HAUL1	0.24847	HAUL2
ANNUAL	R170	550545.01	4165071.9	*550545.014165071.9*	0.1076	PHASE 1	0.0367	HAUL1	1.26849	HAUL2
ANNUAL	R171	550585.01	4165071.9	*550585.014165071.9*	0.1288	PHASE 1	0.0416	HAUL1	0.69455	HAUL2
ANNUAL	R172	550685.01	4165071.9	*550685.014165071.9*	0.1832	PHASE 1	0.0560	HAUL1	0.32449	HAUL2
ANNUAL	R173	550725.01	4165071.9	*550725.014165071.9*	0.1990	PHASE 1	0.0624	HAUL1	0.26186	HAUL2
ANNUAL	R174	550525.01	4165091.9	*550525.014165091.9*	0.0935	PHASE 1	0.0339	HAUL1	1.64006	HAUL2
ANNUAL	R175	550565.01	4165091.9	*550565.014165091.9*	0.1109	PHASE 1	0.0382	HAUL1	0.78735	HAUL2
ANNUAL	R176	550725.01	4165091.9	*550725.014165091.9*	0.1777	PHASE 1	0.0599	HAUL1	0.24959	HAUL2
ANNUAL	R177	550525.01	4165111.9	*550525.014165111.9*	0.0891	PHASE 1	0.0332	HAUL1	1.2922	HAUL2
ANNUAL	R178	550565.01	4165111.9	*550565.014165111.9*	0.1044	PHASE 1	0.0373	HAUL1	0.70539	HAUL2
ANNUAL	R179	550505.01	4165131.9	*550505.014165131.9*	0.0787	PHASE 1	0.0308	HAUL1	1.66919	HAUL2
ANNUAL	R180	550545.01	4165131.9	*550545.014165131.9*	0.0916	PHASE 1	0.0345	HAUL1	0.79911	HAUL2
ANNUAL	R181	550585.01	4165131.9	*550585.014165131.9*	0.1054	PHASE 1	0.0386	HAUL1	0.53169	HAUL2
ANNUAL	R182	550625.01	4165131.9	*550625.014165131.9*	0.1193	PHASE 1	0.0430	HAUL1	0.39366	HAUL2
ANNUAL	R183	550705.01	4165131.9	*550705.014165131.9*	0.1417	PHASE 1	0.0529	HAUL1	0.24813	HAUL2
ANNUAL	R184	550505.01	4165151.9	*550505.014165151.9*	0.0755	PHASE 1	0.0303	HAUL1	1.31582	HAUL2
ANNUAL	R185	550545.01	4165151.9	*550545.014165151.9*	0.0869	PHASE 1	0.0338	HAUL1	0.7135	HAUL2
ANNUAL	R186	550605.01	4165151.9	*550605.014165151.9*	0.1050	PHASE 1	0.0397	HAUL1	0.42117	HAUL2
ANNUAL	R187	550665.01	4165151.9	*550665.014165151.9*	0.1215	PHASE 1	0.0464	HAUL1	0.28852	HAUL2
ANNUAL	R188	550705.01	4165151.9	*550705.014165151.9*	0.1297	PHASE 1	0.0512	HAUL1	0.23426	HAUL2
ANNUAL	R189	550505.01	4165171.9	*550505.014165171.9*	0.0723	PHASE 1	0.0298	HAUL1	1.09069	HAUL2
ANNUAL	R190	550545.01	4165171.9	*550545.014165171.9*	0.0825	PHASE 1	0.0331	HAUL1	0.64183	HAUL2
ANNUAL	R191	550605.01	4165171.9	*550605.014165171.9*	0.0984	PHASE 1	0.0387	HAUL1	0.39005	HAUL2
ANNUAL	R192	550665.01	4165171.9	*550665.014165171.9*	0.1124	PHASE 1	0.0450	HAUL1	0.27011	HAUL2
ANNUAL	R193	550705.01	4165171.9	*550705.014165171.9*	0.1193	PHASE 1	0.0495	HAUL1	0.22039	HAUL2
ANNUAL	R194	550545.01	4165191.9	*550545.014165191.9*	0.0785	PHASE 1	0.0324	HAUL1	0.57868	HAUL2
ANNUAL	R195	550605.01	4165191.9	*550605.014165191.9*	0.0923	PHASE 1	0.0378	HAUL1	0.35974	HAUL2
ANNUAL	R196	550645.01	4165191.9	*550645.014165191.9*	0.1007	PHASE 1	0.0416	HAUL1	0.281	HAUL2
ANNUAL	R197	550685.01	4165191.9	*550685.014165191.9*	0.1075	PHASE 1	0.0458	HAUL1	0.2273	HAUL2
ANNUAL	R198	550585.01	4165211.9	*550585.014165211.9*	0.0829	PHASE 1	0.0351	HAUL1	0.37808	HAUL2
ANNUAL	R199	550625.01	4165211.9	*550625.014165211.9*	0.0906	PHASE 1	0.0386	HAUL1	0.29137	HAUL2
ANNUAL	R200	550665.01	4165211.9	*550665.014165211.9*	0.0972	PHASE 1	0.0424	HAUL1	0.23358	HAUL2
ANNUAL	R201	550685.01	4165031.9	*550685.014165031.9*	0.2309	PHASE 1	0.0605	HAUL1	0.3609	HAUL2
ANNUAL	R202	550725.01	4165031.9	*550725.014165031.9*	0.2578	PHASE 1	0.0680	HAUL1	0.28719	HAUL2
ANNUAL	R203	550445.01	4165051.9	*550445.014165051.9*	0.0696	PHASE 1	0.0274	HAUL1	0.64461	HAUL2
ANNUAL	R204	550485.01	4165051.9	*550485.014165051.9*	0.0842	PHASE 1	0.0310	HAUL1	1.47456	HAUL2
ANNUAL	R205	550565.01	4165051.9	*550565.014165051.9*	0.1255	PHASE 1	0.0400	HAUL1	1.03698	HAUL2
ANNUAL	R206	550645.01	4165051.9	*550645.014165051.9*	0.1792	PHASE 1	0.0516	HAUL1	0.44477	HAUL2
ANNUAL	R207	550685.01	4165051.9	*550685.014165051.9*	0.2047	PHASE 1	0.0581	HAUL1	0.34216	HAUL2
ANNUAL	R208	550725.01	4165051.9	*550725.014165051.9*	0.2251	PHASE 1	0.0650	HAUL1	0.27434	HAUL2
ANNUAL	R209	550525.01	4165071.9	*550525.014165071.9*	0.0980	PHASE 1	0.0345	HAUL1	2.26722	HAUL2
ANNUAL	R210	550565.01	4165071.9	*550565.014165071.9*	0.1179	PHASE 1	0.0391	HAUL1	0.89303	HAUL2
ANNUAL	R211	550605.01	4165071.9	*550605.014165071.9*	0.1401	PHASE 1	0.0442	HAUL1	0.56996	HAUL2
ANNUAL	R212	550705.01	4165071.9	*550705.014165071.9*	0.1918	PHASE 1	0.0591	HAUL1	0.29037	HAUL2
ANNUAL	R213	550745.01	4165071.9	*550745.014165071.9*	0.2045	PHASE 1	0.0657	HAUL1	0.23771	HAUL2
ANNUAL	R214	550545.01	4165091.9	*550545.014165091.9*	0.1019	PHASE 1	0.0360	HAUL1	1.05595	HAUL2
ANNUAL	R215	550585.01	4165091.9	*550585.014165091.9*	0.1202	PHASE 1	0.0406	HAUL1	0.63086	HAUL2
ANNUAL	R216	550505.01	4165111.9	*550505.014165111.9*	0.0821	PHASE 1	0.0314	HAUL1	2.31272	HAUL2
ANNUAL	R217	550545.01	4165111.9	*550545.014165111.9*	0.0966	PHASE 1	0.0352	HAUL1	0.9083	HAUL2
ANNUAL	R218	550585.01	4165111.9	*550585.014165111.9*	0.1125	PHASE 1	0.0395	HAUL1	0.57777	HAUL2
ANNUAL	R219	550525.01	4165131.9	*550525.014165131.9*	0.0850	PHASE 1	0.0326	HAUL1	1.07378	HAUL2
ANNUAL	R220	550565.01	4165131.9	*550565.014165131.9*	0.0984	PHASE 1	0.0365	HAUL1	0.63873	HAUL2
ANNUAL	R221	550605.01	4165131.9	*550605.014165131.9*	0.1124	PHASE 1	0.0408	HAUL1	0.4537	HAUL2
ANNUAL	R222	550685.01	4165131.9	*550685.014165131.9*	0.1371	PHASE 1	0.0503	HAUL1	0.27504	HAUL2
ANNUAL	R223	550485.01	4165151.9	*550485.014165151.9*	0.0702	PHASE 1	0.0287	HAUL1	2.36716	HAUL2
ANNUAL	R224	550525.01	4165151.9	*550525.014165151.9*	0.0811	PHASE 1	0.0320	HAUL1	0.92217	HAUL2
ANNUAL	R225	550565.01	4165151.9	*550565.014165151.9*	0.0929	PHASE 1	0.0357	HAUL1	0.58202	HAUL2
ANNUAL	R226	550625.01	4165151.9	*550625.014165151.9*	0.1109	PHASE 1	0.0419	HAUL1	0.36724	HAUL2
ANNUAL	R227	550685.01	4165151.9	*550685.014165151.9*	0.1259	PHASE 1	0.0487	HAUL1	0.25907	HAUL2
ANNUAL	R228	550485.01	4165171.9	*550485.014165171.9*	0.0675	PHASE 1	0.0282	HAUL1	1.70262	HAUL2
ANNUAL	R229	550525.01	4165171.9	*550525.014165171.9*	0.0773	PHASE 1	0.0314	HAUL1	0.80777	HAUL2
ANNUAL	R230	550585.01	4165171.9	*550585.014165171.9*	0.0932	PHASE 1	0.0368	HAUL1	0.45136	HAUL2
ANNUAL	R231	550625.01	4165171.9	*550625.014165171.9*	0.1034	PHASE 1	0.0407	HAUL1	0.34156	HAUL2
ANNUAL	R232	550685.01	4165171.9	*550685.014165171.9*	0.1161	PHASE 1	0.0472	HAUL1	0.24317	HAUL2
ANNUAL	R233	550525.01	4165191.9	*550525.014165191.9*	0.0738	PHASE 1	0.0308	HAUL1	0.71446	HAUL2
ANNUAL	R234	550585.01	4165191.9	*550585.014165191.9*	0.0878	PHASE 1	0.0359	HAUL1	0.41423	HAUL2
ANNUAL	R235	550625.01	4165191.9	*550625.014165191.9*	0.0967	PHASE 1	0.0397	HAUL1	0.31632	HAUL2
ANNUAL	R236	550665.01	4165191.9	*550665.014165191.9*	0.1043	PHASE 1	0.0437	HAUL1	0.25179	HAUL2
ANNUAL	R237	550705.01	4165191.9	*550705.014165191.9*	0.1102	PHASE 1	0.0480	HAUL1	0.20652	HAUL2
ANNUAL	R238	550605.01	4165211.9	*550605.014165211.9*	0.0868	PHASE 1	0.0368	HAUL1	0.32997	HAUL2
ANNUAL	R239	550645.01	4165211.9	*550645.014165211.9*	0.0941	PHASE 1	0.0405	HAUL1	0.2598	HAUL2
ANNUAL	R240	550685.01	4165211.9	*550685.014165211.9*	0.0999	PHASE 1	0.0445	HAUL1	0.21149	HAUL2
ANNUAL	R241	550605.01	4165231.9	*550605.014165231.9*	0.0818	PHASE 1	0.0359	HAUL1	0.30065	HAUL2
ANNUAL	R242	550645.01	4165231.9	*550645.014165231.9*	0.0881	PHASE 1	0.0394	HAUL1	0.23883	HAUL2
ANNUAL	R243	550685.01	4165231.9	*550685.014165231.9*	0.0931	PHASE 1	0.0432	HAUL1	0.1958	HAUL2
ANNUAL	R244	550665.01	4165251.9	*550665.014165251.9*	0.0850	PHASE 1	0.0401	HAUL1	0.19776	HAUL2
ANNUAL	R245	550425.01	4165291.9	*550425.014165291.9*	0.0460	PHASE 1	0.0224	HAUL1	1.3954	HAUL2
ANNUAL	R246	550945.45	4165192.15	*550945.454165192.15*	0.1122	PHASE 1	0.0882	HAUL1	0.08903	HAUL2
ANNUAL	R247	550985.45	4165192.15	*550985.454165192.15*	0.1092	PHASE 1	0.1017	HAUL1	0.08015	HAUL2
ANNUAL	R248	550925.45	4165212.15	*550925.454165212.15*	0.1035	PHASE 1	0.0800	HAUL1	0.08949	HAUL2
ANNUAL	R249	550965.45	4165212.15	*550965.454165212.15*	0.1010	PHASE 1	0.0913	HAUL1	0.08047	HAUL2
ANNUAL	R250	551005.45	4165212.15	*551005.454165212.15*	0.0966	PHASE 1	0.1068	HAUL1	0.07283	HAUL2
ANNUAL	R251	550885.45	4165232.15	*550885.454165232.15*	0.0970	PHASE 1	0.0688	HAUL1	0.09489	HAUL2
ANNUAL	R252	550925.45	4165232.15	*550925.454165232.15*	0.0952	PHASE 1	0.0773	HAUL1	0.08492	HAUL2
ANNUAL	R253	550965.45	4165232.15	*550965.454165232.15*	0.0924	PHASE 1	0.0883	HAUL1	0.07655	HAUL2
ANNUAL	R254	551025.45	4165232.15	*551025.454165232.15*	0.0852	PHASE 1	0.1139	HAUL1	0.06627	HAUL2
ANNUAL	R255	551065.45	4165232.15	*551065.454165232.15*	0.0785	PHASE 1	0.1424	HAUL1	0.06063	HAUL2
ANNUAL	R256	550905.45	4165252.15	*550905.454165252.15*	0.0889	PHASE 1	0.0704	HAUL1	0.08477	HAUL2
ANNUAL	R257	550945.45	4165252.15	*550945.454165252.15*	0.0865	PHASE 1	0.0797	HAUL1	0.07637	HAUL2
ANNUAL	R258	551025.45	4165252.15	*551025.454165252.15*	0.0780	PHASE 1	0.1108	HAUL1	0.06313	HAUL2
ANNUAL	R259	551065.45	4165252.15	*551065.454165252.15*	0.0720	PHASE 1	0.1399	HAUL1	0.05787	HAUL2
ANNUAL	R260	551105.45	4165252.15	*551105.454165252.15*	0.0655	PHASE 1	0.1909	HAUL1	0.0533	HAUL2
ANNUAL	R261	550905.45	4165272.15	*550905.454165272.15*	0.0824	PHASE 1	0.0682	HAUL1	0.07994	HAUL2
ANNUAL	R262	550945.45	4165272.15	*550945.454165272.15*	0.0800	PHASE 1	0.0772	HAUL1	0.07224	HAUL2
ANNUAL	R263	551045.45	4165272.15	*551045.454165272.15*	0.0691	PHASE 1	0.1207	HAUL1	0.0575	HAUL2
ANNUAL	R264	551085.45	4165272.15	*551085.454165272.15*	0.0634	PHASE 1	0.1593	HAUL1	0.05295	HAUL2
ANNUAL	R265	550865.45	4165292.15	*550865.454165292.15*	0.0784	PHASE 1	0.0593	HAUL1	0.08351	HAUL2
ANNUAL	R266	550905.45	4165292.15	*550905.454165292.15*	0.0767	PHASE 1	0.0660	HAUL1	0.07522	HAUL2
ANNUAL	R267	550945.45	4165292.15	*550945.454165292.15*	0.0742	PHASE 1	0.0748	HAUL1	0.0682	HAUL2
ANNUAL	R268	551045.45	4165292.15	*551045.454165292.15*	0.0640	PHASE 1	0.1175	HAUL1	0.05465	HAUL2
ANNUAL	R269	551085.45	4165292.15	*551085.454165292.15*	0.0589	PHASE 1	0.1565	HAUL1	0.05044	HAUL2
ANNUAL	R270	550885.45	4165312.15	*550885.454165312.15*	0.0724	PHASE 1	0.0604	HAUL1	0.07423	HAUL2
ANNUAL	R271	550925.45	4165312.15	*550925.454165312.15*	0.0704	PHASE 1	0.0679	HAUL1	0.06734	HAUL2
ANNUAL	R272	551025.45	4165312.15	*551025.454165312.15*	0.0617	PHASE 1	0.1016	HAUL1	0.05401	HAUL2
ANNUAL	R273	550865.45	4165332.15	*550865.454165332.15*	0.0685	PHASE 1	0.0557	HAUL1	0.07293	HAUL2
ANNUAL	R274	550905.45	4165332.15	*550905.454165332.15*	0.0668	PHASE 1	0.0620	HAUL1	0.06623	HAUL2
ANNUAL	R275	550985.45	4165332.15	*550985.454165332.15*	0.0613	PHASE 1	0.0815	HAUL1	0.05549	HAUL2
ANNUAL	R276	550925.45	4165352.15	*550925.454165352.15*	0.0616	PHASE 1	0.0638	HAUL1	0.05932	HAUL2

ANNUAL	R277	550865.45	4165372.15	*550865.454165372.15*	0.0605	PHASE 1	0.0524	HAUL1	0.0633	HAUL2
ANNUAL	R278	550405.6	4164911.75	*550405.64164911.75*	0.0641	PHASE 1	0.0256	HAUL1	0.24757	HAUL2
ANNUAL	R279	550405.6	4164931.75	*550405.64164931.75*	0.0634	PHASE 1	0.0255	HAUL1	0.26805	HAUL2
ANNUAL	R280	550465.6	4164931.75	*550465.64164931.75*	0.0890	PHASE 1	0.0314	HAUL1	0.38145	HAUL2
ANNUAL	R281	550625.01	4165231.9	*550625.014165231.9*	0.0851	PHASE 1	0.0376	HAUL1	0.26673	HAUL2
ANNUAL	R282	550665.01	4165231.9	*550665.014165231.9*	0.0908	PHASE 1	0.0413	HAUL1	0.21552	HAUL2
ANNUAL	R283	550645.01	4165251.9	*550645.014165251.9*	0.0827	PHASE 1	0.0384	HAUL1	0.21822	HAUL2
ANNUAL	R284	550685.01	4165251.9	*550685.014165251.9*	0.0870	PHASE 1	0.0420	HAUL1	0.18035	HAUL2
ANNUAL	R285	550925.45	4165192.15	*550925.454165192.15*	0.1130	PHASE 1	0.0829	HAUL1	0.09408	HAUL2
ANNUAL	R286	550965.45	4165192.15	*550965.454165192.15*	0.1109	PHASE 1	0.0945	HAUL1	0.08441	HAUL2
ANNUAL	R287	550905.45	4165212.15	*550905.454165212.15*	0.1044	PHASE 1	0.0754	HAUL1	0.09463	HAUL2
ANNUAL	R288	550945.45	4165212.15	*550945.454165212.15*	0.1024	PHASE 1	0.0852	HAUL1	0.08479	HAUL2
ANNUAL	R289	550985.45	4165212.15	*550985.454165212.15*	0.0991	PHASE 1	0.0984	HAUL1	0.07649	HAUL2
ANNUAL	R290	551045.45	4165212.15	*551045.454165212.15*	0.0902	PHASE 1	0.1295	HAUL1	0.06631	HAUL2
ANNUAL	R291	550905.45	4165232.15	*550905.454165232.15*	0.0962	PHASE 1	0.0728	HAUL1	0.08967	HAUL2
ANNUAL	R292	550945.45	4165232.15	*550945.454165232.15*	0.0939	PHASE 1	0.0824	HAUL1	0.08056	HAUL2
ANNUAL	R293	550985.45	4165232.15	*550985.454165232.15*	0.0904	PHASE 1	0.0953	HAUL1	0.07285	HAUL2
ANNUAL	R294	551045.45	4165232.15	*551045.454165232.15*	0.0820	PHASE 1	0.1266	HAUL1	0.06334	HAUL2
ANNUAL	R295	550885.45	4165252.15	*550885.454165252.15*	0.0898	PHASE 1	0.0666	HAUL1	0.08955	HAUL2
ANNUAL	R296	550925.45	4165252.15	*550925.454165252.15*	0.0878	PHASE 1	0.0748	HAUL1	0.08039	HAUL2
ANNUAL	R297	550965.45	4165252.15	*550965.454165252.15*	0.0849	PHASE 1	0.0855	HAUL1	0.07266	HAUL2
ANNUAL	R298	551045.45	4165252.15	*551045.454165252.15*	0.0751	PHASE 1	0.1237	HAUL1	0.0604	HAUL2
ANNUAL	R299	551085.45	4165252.15	*551085.454165252.15*	0.0687	PHASE 1	0.1614	HAUL1	0.05551	HAUL2
ANNUAL	R300	550885.45	4165272.15	*550885.454165272.15*	0.0834	PHASE 1	0.0644	HAUL1	0.08431	HAUL2
ANNUAL	R301	550925.45	4165272.15	*550925.454165272.15*	0.0813	PHASE 1	0.0724	HAUL1	0.07593	HAUL2
ANNUAL	R302	551025.45	4165272.15	*551025.454165272.15*	0.0718	PHASE 1	0.1078	HAUL1	0.06003	HAUL2
ANNUAL	R303	551065.45	4165272.15	*551065.454165272.15*	0.0663	PHASE 1	0.1371	HAUL1	0.05515	HAUL2
ANNUAL	R304	551105.45	4165272.15	*551105.454165272.15*	0.0606	PHASE 1	0.1907	HAUL1	0.0509	HAUL2
ANNUAL	R305	550885.45	4165292.15	*550885.454165292.15*	0.0776	PHASE 1	0.0624	HAUL1	0.07919	HAUL2
ANNUAL	R306	550925.45	4165292.15	*550925.454165292.15*	0.0755	PHASE 1	0.0701	HAUL1	0.07157	HAUL2
ANNUAL	R307	551025.45	4165292.15	*551025.454165292.15*	0.0664	PHASE 1	0.1047	HAUL1	0.05698	HAUL2
ANNUAL	R308	551065.45	4165292.15	*551065.454165292.15*	0.0615	PHASE 1	0.1339	HAUL1	0.05248	HAUL2
ANNUAL	R309	550865.45	4165312.15	*550865.454165312.15*	0.0732	PHASE 1	0.0574	HAUL1	0.07811	HAUL2
ANNUAL	R310	550905.45	4165312.15	*550905.454165312.15*	0.0715	PHASE 1	0.0640	HAUL1	0.07064	HAUL2
ANNUAL	R311	550945.45	4165312.15	*550945.454165312.15*	0.0690	PHASE 1	0.0725	HAUL1	0.06428	HAUL2
ANNUAL	R312	551045.45	4165312.15	*551045.454165312.15*	0.0595	PHASE 1	0.1143	HAUL1	0.05187	HAUL2
ANNUAL	R313	550885.45	4165332.15	*550885.454165332.15*	0.0678	PHASE 1	0.0586	HAUL1	0.06945	HAUL2
ANNUAL	R314	550925.45	4165332.15	*550925.454165332.15*	0.0657	PHASE 1	0.0658	HAUL1	0.06325	HAUL2
ANNUAL	R315	551005.45	4165332.15	*551005.454165332.15*	0.0595	PHASE 1	0.0890	HAUL1	0.05323	HAUL2
ANNUAL	R316	550945.45	4165352.15	*550945.454165352.15*	0.0603	PHASE 1	0.0679	HAUL1	0.05683	HAUL2
ANNUAL	R317	550885.45	4165372.15	*550885.454165372.15*	0.0597	PHASE 1	0.0551	HAUL1	0.06055	HAUL2
ANNUAL	R318	550425.6	4164911.75	*550425.64164911.75*	0.0715	PHASE 1	0.0274	HAUL1	0.27014	HAUL2
ANNUAL	R319	550425.6	4164931.75	*550425.64164931.75*	0.0705	PHASE 1	0.0272	HAUL1	0.29376	HAUL2
ANNUAL	R320	550485.6	4164931.75	*550485.64164931.75*	0.1012	PHASE 1	0.0338	HAUL1	0.46001	HAUL2
ANNUAL	R321	550505.6	4164931.75	*550505.64164931.75*	0.1161	PHASE 1	0.0365	HAUL1	0.58991	HAUL2
ANNUAL	R322	550425.6	4164951.75	*550425.64164951.75*	0.0695	PHASE 1	0.0270	HAUL1	0.32027	HAUL2
ANNUAL	R323	550525.6	4164951.75	*550525.64164951.75*	0.1293	PHASE 1	0.0388	HAUL1	1.07699	HAUL2
ANNUAL	R324	550505.6	4164971.75	*550505.64164971.75*	0.1086	PHASE 1	0.0354	HAUL1	0.85091	HAUL2
ANNUAL	R325	550585.6	4164971.75	*550585.64164971.75*	0.1901	PHASE 1	0.0479	HAUL1	1.53006	HAUL2
ANNUAL	R326	550625.6	4164971.75	*550625.64164971.75*	0.2525	PHASE 1	0.0559	HAUL1	0.74118	HAUL2
ANNUAL	R327	550505.6	4164991.75	*550505.64164991.75*	0.1048	PHASE 1	0.0348	HAUL1	1.08584	HAUL2
ANNUAL	R328	550585.6	4164991.75	*550585.64164991.75*	0.1748	PHASE 1	0.0465	HAUL1	1.21115	HAUL2
ANNUAL	R329	550625.6	4164991.75	*550625.64164991.75*	0.2245	PHASE 1	0.0538	HAUL1	0.66597	HAUL2
ANNUAL	R330	550665.6	4164991.75	*550665.64164991.75*	0.2790	PHASE 1	0.0620	HAUL1	0.46402	HAUL2
ANNUAL	R331	550585.6	4165011.75	*550585.64165011.75*	0.1614	PHASE 1	0.0452	HAUL1	1.01008	HAUL2
ANNUAL	R332	550625.6	4165011.75	*550625.64165011.75*	0.2015	PHASE 1	0.0520	HAUL1	0.60639	HAUL2
ANNUAL	R333	550665.6	4165011.75	*550665.64165011.75*	0.2439	PHASE 1	0.0594	HAUL1	0.43528	HAUL2
ANNUAL	R334	550705.6	4165011.75	*550705.64165011.75*	0.2836	PHASE 1	0.0673	HAUL1	0.33563	HAUL2
ANNUAL	R335	551378.51	4165172.16	*551378.514165172.16*	0.0534	PHASE 1	0.6486	HAUL1	0.03814	HAUL2
ANNUAL	R336	551418.51	4165172.16	*551418.514165172.16*	0.0498	PHASE 1	0.4331	HAUL1	0.03582	HAUL2
ANNUAL	R337	551338.51	4165192.16	*551338.514165192.16*	0.0524	PHASE 1	1.0191	HAUL1	0.03939	HAUL2
ANNUAL	R338	551378.51	4165192.16	*551378.514165192.16*	0.0490	PHASE 1	0.5784	HAUL1	0.03695	HAUL2
ANNUAL	R339	551418.51	4165192.16	*551418.514165192.16*	0.0459	PHASE 1	0.3960	HAUL1	0.03474	HAUL2
ANNUAL	R340	551338.51	4165212.16	*551338.514165212.16*	0.0481	PHASE 1	0.8615	HAUL1	0.03808	HAUL2
ANNUAL	R341	551378.51	4165212.16	*551378.514165212.16*	0.0451	PHASE 1	0.5183	HAUL1	0.03576	HAUL2
ANNUAL	R342	551418.51	4165212.16	*551418.514165212.16*	0.0424	PHASE 1	0.3619	HAUL1	0.03365	HAUL2
ANNUAL	R343	551358.51	4165232.16	*551358.514165232.16*	0.0430	PHASE 1	0.5734	HAUL1	0.03564	HAUL2
ANNUAL	R344	551398.51	4165232.16	*551398.514165232.16*	0.0405	PHASE 1	0.3880	HAUL1	0.03355	HAUL2
ANNUAL	R345	551378.51	4165252.16	*551378.514165252.16*	0.0387	PHASE 1	0.4167	HAUL1	0.03338	HAUL2
ANNUAL	R346	551378.51	4165272.16	*551378.514165272.16*	0.0361	PHASE 1	0.3720	HAUL1	0.0322	HAUL2
ANNUAL	R347	551498.28	4164852.3	*551498.284164852.3*	0.1089	PHASE 1	0.2273	HAUL1	0.04235	HAUL2
ANNUAL	R348	551538.28	4164852.3	*551538.284164852.3*	0.0971	PHASE 1	0.2001	HAUL1	0.03978	HAUL2
ANNUAL	R349	551458.28	4164872.3	*551458.284164872.3*	0.1199	PHASE 1	0.2847	HAUL1	0.0449	HAUL2
ANNUAL	R350	551498.28	4164872.3	*551498.284164872.3*	0.1059	PHASE 1	0.2453	HAUL1	0.04206	HAUL2
ANNUAL	R351	551538.28	4164872.3	*551538.284164872.3*	0.0945	PHASE 1	0.2129	HAUL1	0.0395	HAUL2
ANNUAL	R352	551458.28	4164892.3	*551458.284164892.3*	0.1160	PHASE 1	0.3133	HAUL1	0.04451	HAUL2
ANNUAL	R353	551498.28	4164892.3	*551498.284164892.3*	0.1026	PHASE 1	0.2648	HAUL1	0.0417	HAUL2
ANNUAL	R354	551538.28	4164892.3	*551538.284164892.3*	0.0916	PHASE 1	0.2260	HAUL1	0.03917	HAUL2
ANNUAL	R355	551458.28	4164912.3	*551458.284164912.3*	0.1116	PHASE 1	0.3460	HAUL1	0.04405	HAUL2
ANNUAL	R356	551498.28	4164912.3	*551498.284164912.3*	0.0988	PHASE 1	0.2853	HAUL1	0.04128	HAUL2
ANNUAL	R357	551538.28	4164912.3	*551538.284164912.3*	0.0883	PHASE 1	0.2389	HAUL1	0.03878	HAUL2
ANNUAL	R358	551458.28	4164932.3	*551458.284164932.3*	0.1068	PHASE 1	0.3824	HAUL1	0.04353	HAUL2
ANNUAL	R359	551498.28	4164932.3	*551498.284164932.3*	0.0947	PHASE 1	0.3059	HAUL1	0.0408	HAUL2
ANNUAL	R360	551538.28	4164932.3	*551538.284164932.3*	0.0848	PHASE 1	0.2510	HAUL1	0.03833	HAUL2
ANNUAL	R361	550405.6	4164951.75	*550405.64164951.75*	0.0627	PHASE 1	0.0253	HAUL1	0.29073	HAUL2
ANNUAL	R362	550465.6	4164951.75	*550465.64164951.75*	0.0871	PHASE 1	0.0311	HAUL1	0.42503	HAUL2
ANNUAL	R363	550485.6	4164971.75	*550485.64164971.75*	0.0959	PHASE 1	0.0329	HAUL1	0.60524	HAUL2
ANNUAL	R364	550525.6	4164971.75	*550525.64164971.75*	0.1239	PHASE 1	0.0381	HAUL1	1.49118	HAUL2
ANNUAL	R365	550605.6	4164971.75	*550605.64164971.75*	0.2197	PHASE 1	0.0517	HAUL1	0.99222	HAUL2
ANNUAL	R366	550405.6	4164991.75	*550405.64164991.75*	0.0611	PHASE 1	0.0250	HAUL1	0.34455	HAUL2
ANNUAL	R367	550565.6	4164991.75	*550565.64164991.75*	0.1534	PHASE 1	0.0432	HAUL1	2.13871	HAUL2
ANNUAL	R368	550605.6	4164991.75	*550605.64164991.75*	0.1987	PHASE 1	0.0501	HAUL1	0.85555	HAUL2
ANNUAL	R369	550645.6	4164991.75	*550645.64164991.75*	0.2515	PHASE 1	0.0578	HAUL1	0.54701	HAUL2
ANNUAL	R370	550565.6	4165011.75	*550565.64165011.75*	0.1435	PHASE 1	0.0422	HAUL1	1.55596	HAUL2
ANNUAL	R371	550605.6	4165011.75	*550605.64165011.75*	0.1809	PHASE 1	0.0485	HAUL1	0.75535	HAUL2
ANNUAL	R372	550645.6	4165011.75	*550645.64165011.75*	0.2227	PHASE 1	0.0556	HAUL1	0.50734	HAUL2
ANNUAL	R373	550685.6	4165011.75	*550685.64165011.75*	0.2644	PHASE 1	0.0633	HAUL1	0.3798	HAUL2
ANNUAL	R374	551318.51	4165172.16	*551318.514165172.16*	0.0595	PHASE 1	2.2167	HAUL1	0.04208	HAUL2
ANNUAL	R375	551398.51	4165172.16	*551398.514165172.16*	0.0515	PHASE 1	0.5211	HAUL1	0.03695	HAUL2
ANNUAL	R376	551318.51	4165192.16	*551318.514165192.16*	0.0542	PHASE 1	1.6155	HAUL1	0.04071	HAUL2
ANNUAL	R377	551358.51	4165192.16	*551358.514165192.16*	0.0506	PHASE 1	0.7403	HAUL1	0.03814	HAUL2
ANNUAL	R378	551398.51	4165192.16	*551398.514165192.16*	0.0474	PHASE 1	0.4721	HAUL1	0.03582	HAUL2
ANNUAL	R379	551318.51	4165212.16	*551318.514165212.16*	0.0497	PHASE 1	1.2627	HAUL1	0.03934	HAUL2
ANNUAL	R380	551358.51	4165212.16	*551358.514165212.16*	0.0466	PHASE 1	0.6495	HAUL1	0.03689	HAUL2
ANNUAL	R381	551398.51	4165212.16	*551398.514165212.16*	0.0437	PHASE 1	0.4282	HAUL1	0.03469	HAUL2
ANNUAL	R382	551338.51	4165232.16	*551338.514165232.16*	0.0443	PHASE 1	0.7397	HAUL1	0.03677	HAUL2
ANNUAL	R383	551378.51	4165232.16	*551378.514165232.16*	0.0417	PHASE 1	0.4651	HAUL1	0.03457	HAUL2
ANNUAL	R384	551358.51	4165252.16	*551358.514165252.16*	0.0399	PHASE 1	0.5073	HAUL1	0.0344	HAUL2
ANNUAL	R385	551398.51	4165252.16	*551398.514165252.16*	0.0376	PHASE 1	0.3505	HAUL1	0.03241	HAUL2
ANNUAL	R386	551478.28	4164852.3	*551478.284164852.3*	0.1156	PHASE 1	0.2427	HAUL1	0.04374	HAUL2
ANNUAL	R387	551518.28	4164852.3	*551518.284164852.3*	0.1027	PHASE 1	0.2131	HAUL1	0.04104	HAUL2
ANNUAL	R388	551558.28	4164852.3	*551558.284164852.3*	0.0919	PHASE 1	0.1879	HAUL1	0.03858	HAUL2
ANNUAL	R389	551478.28	4164872.3	*551478.284164872.3*	0.1125	PHASE 1	0.2639	HAUL1	0.04343	HAUL2
ANNUAL	R390	551518.28	4164872.3	*551518.284164872.3*	0.0999	PHASE 1	0.2284	HAUL1	0.04075	HAUL2
ANNUAL	R391	551558.28	4164872.3	*551558.284164872.3*	0.0895	PHASE 1	0.1987	HAUL1	0.03831	HAUL2
ANNUAL	R392	551478.28	4164892.3	*551478.284164892.3*	0.1089	PHASE 1	0.2876	HAUL1	0.04306	HAUL2
ANNUAL	R393	551518.28	4164892.3	*551518.284164892.3*	0.0968	PHASE 1	0.2443	HAUL1	0.0404	HAUL2
ANNUAL	R394	551558.28	4164892.3	*551558.284164892.3*	0.0867	PHASE 1	0.2095	HAUL1	0.03799	HAUL2
ANNUAL	R395	551478.28	4164912.3	*551478.284164912.3*	0.1048	PHASE 1	0.3134	HAUL1	0.04262	HAUL2
ANNUAL	R396	551518.28	4164912.3	*551518.284164912.3*	0.0933	PHASE 1	0.2606	HAUL1	0.04	HAUL2
ANNUAL	R397	551438.28	4164932.3	*551438.284164932.3*	0.1139	PHASE 1	0.4317	HAUL1	0.04502	HAUL2
ANNUAL	R398	551478.28	4164932.3	*551478.284164932.3*	0.1004	PHASE 1	0.3407	HAUL1	0.04212	HAUL2
ANNUAL	R399	551518.28	4164932.3	*551518.284164932.3*	0.0896	PHASE 1	0.2763	HAUL1	0.03954	HAUL2
ANNUAL	R400	551438.28	4164952.3	*551438.284164952.3*	0.1082	PHASE 1	0.4875	HAUL1	0.04441	HAUL2
ANNUAL	R401	551458.28	4164952.3	*551458.284164952.3*	0.1016	PHASE 1	0.4210	HAUL1	0.04295	HAUL2
ANNUAL	R402	551498.28	4164952.3	*551498.284164952.3*	0.0904	PHASE 1	0.3254	HAUL1	0.04026	HAUL2
ANNUAL	R403	551538.28	4164952.3	*551538.284164952.3*	0.0812	PHASE 1	0.2616	HAUL1	0.03784	HAUL2
ANNUAL	R404	551438.28	4164972.3	*551438.284164972.3*	0.1023	PHASE 1	0.5468	HAUL1	0.04374	HAUL2
ANNUAL	R405	551478.28	4164972.3	*551478.284164972.3*	0.0908	PHASE 1	0.3924	HAUL1	0.04095	HAUL2
ANNUAL	R406	551518.28	4164972.3	*551518.284164972.3*	0.0814	PHASE 1	0.3022	HAUL1	0.03846	HAUL2
ANNUAL	R407	551318.28	4164992.3	*551318.284164992.3*	0.1470	PHASE 1	3.8259	HAUL1	0.05315	HAUL2
ANNUAL	R408	551438.28	4164992.3	*551438.284164992.3*	0.0962	PHASE 1	0.6010	HAUL1	0.04302	HAUL2
ANNUAL	R409	551478.28	4164992.3	*551478.284164992.3*	0.0857	PHASE 1	0.4112	HAUL1	0.04029	HAUL2
ANNUAL	R410	551458.28	4165012.3	*551458.284165012.3*	0.0851	PHASE 1	0.5074	HAUL1	0.04087	HAUL2
ANNUAL	R411	551498.28	4165012.3	*551498.284165012.3*	0.0765	PHASE 1	0.3602	HAUL1	0.03836	HAUL2
ANNUAL	R412	551438.28	4165032.3	*551438.284165032.3*	0.0839	PHASE 1	0.6426	HAUL1	0.04142	HAUL2
ANNUAL	R413	551498.28	4165032.3	*551498.284165032.3*	0.0718	PHASE 1	0.3595	HAUL1	0.03765	HAUL2
ANNUAL	R414	551418.28	4165052.3	*551418.284165052.3*	0.0821	PHASE 1	0.8141	HAUL1	0.04191	HAUL2
ANNUAL	R415	551458.28	4165052.3	*551458.284165052.3*	0.0740	PHASE 1	0.4956	HAUL1	0.03926	HAUL2

ANNUAL	R416	551358.28	4165072.3	*551358.284165072.3*	0.0890	PHASE 1	3.0291	HAUL1	0.04533	HAUL2
ANNUAL	R417	551398.28	4165072.3	*551398.284165072.3*	0.0798	PHASE 1	0.9762	HAUL1	0.04235	HAUL2
ANNUAL	R418	551438.28	4165072.3	*551438.284165072.3*	0.0721	PHASE 1	0.5735	HAUL1	0.03965	HAUL2
ANNUAL	R419	551358.28	4165092.3	*551358.284165092.3*	0.0808	PHASE 1	2.0353	HAUL1	0.0442	HAUL2
ANNUAL	R420	551398.28	4165092.3	*551398.284165092.3*	0.0732	PHASE 1	0.8337	HAUL1	0.04133	HAUL2
ANNUAL	R421	551438.28	4165092.3	*551438.284165092.3*	0.0666	PHASE 1	0.5241	HAUL1	0.03872	HAUL2
ANNUAL	R422	551338.28	4165112.3	*551338.284165112.3*	0.0770	PHASE 1	3.1266	HAUL1	0.04452	HAUL2
ANNUAL	R423	551378.28	4165112.3	*551378.284165112.3*	0.0701	PHASE 1	0.9843	HAUL1	0.04161	HAUL2
ANNUAL	R424	551418.28	4165112.3	*551418.284165112.3*	0.0641	PHASE 1	0.5779	HAUL1	0.03898	HAUL2
ANNUAL	R425	551458.28	4165112.3	*551458.284165112.3*	0.0588	PHASE 1	0.4048	HAUL1	0.03659	HAUL2
ANNUAL	R426	551358.28	4165132.3	*551358.284165132.3*	0.0666	PHASE 1	1.2097	HAUL1	0.04184	HAUL2
ANNUAL	R427	551398.28	4165132.3	*551398.284165132.3*	0.0613	PHASE 1	0.6454	HAUL1	0.03918	HAUL2
ANNUAL	R428	551438.28	4165132.3	*551438.284165132.3*	0.0566	PHASE 1	0.4373	HAUL1	0.03677	HAUL2
ANNUAL	R429	551338.28	4165152.3	*551338.284165152.3*	0.0630	PHASE 1	1.5691	HAUL1	0.042	HAUL2
ANNUAL	R430	551378.28	4165152.3	*551378.284165152.3*	0.0583	PHASE 1	0.7352	HAUL1	0.03932	HAUL2
ANNUAL	R431	551418.28	4165152.3	*551418.284165152.3*	0.0541	PHASE 1	0.4751	HAUL1	0.03689	HAUL2
ANNUAL	R432	551338.28	4165172.3	*551338.284165172.3*	0.0573	PHASE 1	1.2404	HAUL1	0.0407	HAUL2
ANNUAL	R433	551378.28	4165172.3	*551378.284165172.3*	0.0534	PHASE 1	0.6499	HAUL1	0.03815	HAUL2
ANNUAL	R434	551298.14	4164530.93	*551298.144164530.93*	0.1298	PHASE 1	0.1130	HAUL1	0.04929	HAUL2
ANNUAL	R435	551318.14	4164550.93	*551318.144164550.93*	0.1346	PHASE 1	0.1177	HAUL1	0.04941	HAUL2
ANNUAL	R436	551298.14	4164570.93	*551298.144164570.93*	0.1498	PHASE 1	0.1339	HAUL1	0.05238	HAUL2
ANNUAL	R437	551338.14	4164570.93	*551338.144164570.93*	0.1377	PHASE 1	0.1218	HAUL1	0.04928	HAUL2
ANNUAL	R438	551298.14	4164590.93	*551298.144164590.93*	0.1601	PHASE 1	0.1456	HAUL1	0.05379	HAUL2
ANNUAL	R439	551338.14	4164590.93	*551338.144164590.93*	0.1459	PHASE 1	0.1316	HAUL1	0.05049	HAUL2
ANNUAL	R440	551378.14	4164590.93	*551378.144164590.93*	0.1329	PHASE 1	0.1198	HAUL1	0.04745	HAUL2
ANNUAL	R441	551478.28	4164952.3	*551478.284164952.3*	0.0957	PHASE 1	0.3679	HAUL1	0.04156	HAUL2
ANNUAL	R442	551518.28	4164952.3	*551518.284164952.3*	0.0856	PHASE 1	0.2905	HAUL1	0.03902	HAUL2
ANNUAL	R443	551418.28	4164972.3	*551418.284164972.3*	0.1091	PHASE 1	0.6697	HAUL1	0.04526	HAUL2
ANNUAL	R444	551458.28	4164972.3	*551458.284164972.3*	0.0962	PHASE 1	0.4582	HAUL1	0.04231	HAUL2
ANNUAL	R445	551498.28	4164972.3	*551498.284164972.3*	0.0859	PHASE 1	0.3420	HAUL1	0.03968	HAUL2
ANNUAL	R446	551538.28	4164972.3	*551538.284164972.3*	0.0773	PHASE 1	0.2699	HAUL1	0.0373	HAUL2
ANNUAL	R447	551418.28	4164992.3	*551418.284164992.3*	0.1024	PHASE 1	0.7756	HAUL1	0.0445	HAUL2
ANNUAL	R448	551458.28	4164992.3	*551458.284164992.3*	0.0907	PHASE 1	0.4890	HAUL1	0.04162	HAUL2
ANNUAL	R449	551498.28	4164992.3	*551498.284164992.3*	0.0812	PHASE 1	0.3542	HAUL1	0.03904	HAUL2
ANNUAL	R450	551478.28	4165012.3	*551478.284165012.3*	0.0806	PHASE 1	0.4216	HAUL1	0.03958	HAUL2
ANNUAL	R451	551418.28	4165032.3	*551418.284165032.3*	0.0888	PHASE 1	0.8710	HAUL1	0.04282	HAUL2
ANNUAL	R452	551478.28	4165032.3	*551478.284165032.3*	0.0755	PHASE 1	0.4219	HAUL1	0.03883	HAUL2
ANNUAL	R453	551378.28	4165052.3	*551378.284165052.3*	0.0920	PHASE 1	1.9834	HAUL1	0.04484	HAUL2
ANNUAL	R454	551438.28	4165052.3	*551438.284165052.3*	0.0779	PHASE 1	0.6178	HAUL1	0.04056	HAUL2
ANNUAL	R455	551478.28	4165052.3	*551478.284165052.3*	0.0705	PHASE 1	0.4124	HAUL1	0.03804	HAUL2
ANNUAL	R456	551378.28	4165072.3	*551378.284165072.3*	0.0842	PHASE 1	1.4784	HAUL1	0.0438	HAUL2
ANNUAL	R457	551418.28	4165072.3	*551418.284165072.3*	0.0758	PHASE 1	0.7267	HAUL1	0.04097	HAUL2
ANNUAL	R458	551458.28	4165072.3	*551458.284165072.3*	0.0687	PHASE 1	0.4697	HAUL1	0.0384	HAUL2
ANNUAL	R459	551378.28	4165092.3	*551378.284165092.3*	0.0768	PHASE 1	1.1814	HAUL1	0.04272	HAUL2
ANNUAL	R460	551418.28	4165092.3	*551418.284165092.3*	0.0697	PHASE 1	0.6451	HAUL1	0.03999	HAUL2
ANNUAL	R461	551458.28	4165092.3	*551458.284165092.3*	0.0636	PHASE 1	0.4377	HAUL1	0.03751	HAUL2
ANNUAL	R462	551358.28	4165112.3	*551358.284165112.3*	0.0734	PHASE 1	1.5193	HAUL1	0.04303	HAUL2
ANNUAL	R463	551398.28	4165112.3	*551398.284165112.3*	0.0670	PHASE 1	0.7279	HAUL1	0.04027	HAUL2
ANNUAL	R464	551438.28	4165112.3	*551438.284165112.3*	0.0614	PHASE 1	0.4780	HAUL1	0.03775	HAUL2
ANNUAL	R465	551338.28	4165132.3	*551338.284165132.3*	0.0696	PHASE 1	2.1228	HAUL1	0.04327	HAUL2
ANNUAL	R466	551378.28	4165132.3	*551378.284165132.3*	0.0639	PHASE 1	0.8427	HAUL1	0.04048	HAUL2
ANNUAL	R467	551418.28	4165132.3	*551418.284165132.3*	0.0589	PHASE 1	0.5224	HAUL1	0.03795	HAUL2
ANNUAL	R468	551458.28	4165132.3	*551458.284165132.3*	0.0544	PHASE 1	0.3738	HAUL1	0.03565	HAUL2
ANNUAL	R469	551358.28	4165152.3	*551358.284165152.3*	0.0606	PHASE 1	1.0033	HAUL1	0.04062	HAUL2
ANNUAL	R470	551398.28	4165152.3	*551398.284165152.3*	0.0562	PHASE 1	0.5784	HAUL1	0.03808	HAUL2
ANNUAL	R471	551318.28	4165172.3	*551318.284165172.3*	0.0595	PHASE 1	2.2309	HAUL1	0.04209	HAUL2
ANNUAL	R472	551358.28	4165172.3	*551358.284165172.3*	0.0553	PHASE 1	0.8551	HAUL1	0.03939	HAUL2
ANNUAL	R473	551678.14	4164370.93	*551678.144164370.93*	0.0513	PHASE 1	0.0429	HAUL1	0.02603	HAUL2
ANNUAL	R474	551298.14	4164550.93	*551298.144164550.93*	0.1397	PHASE 1	0.1231	HAUL1	0.05087	HAUL2
ANNUAL	R475	551358.14	4164550.93	*551358.144164550.93*	0.1245	PHASE 1	0.1079	HAUL1	0.04662	HAUL2
ANNUAL	R476	551318.14	4164570.93	*551318.144164570.93*	0.1437	PHASE 1	0.1276	HAUL1	0.0508	HAUL2
ANNUAL	R477	551358.14	4164570.93	*551358.144164570.93*	0.1319	PHASE 1	0.1164	HAUL1	0.04782	HAUL2
ANNUAL	R478	551318.14	4164590.93	*551318.144164590.93*	0.1529	PHASE 1	0.1383	HAUL1	0.05211	HAUL2
ANNUAL	R479	551358.14	4164590.93	*551358.144164590.93*	0.1392	PHASE 1	0.1254	HAUL1	0.04893	HAUL2
ANNUAL	R480	551298.14	4164610.93	*551298.144164610.93*	0.1704	PHASE 1	0.1582	HAUL1	0.05511	HAUL2
ANNUAL	R481	551318.14	4164610.93	*551318.144164610.93*	0.1620	PHASE 1	0.1498	HAUL1	0.05332	HAUL2
ANNUAL	R482	551358.14	4164610.93	*551358.144164610.93*	0.1464	PHASE 1	0.1351	HAUL1	0.04996	HAUL2
ANNUAL	R483	551398.14	4164610.93	*551398.144164610.93*	0.1325	PHASE 1	0.1230	HAUL1	0.04691	HAUL2
ANNUAL	R484	551438.14	4164610.93	*551438.144164610.93*	0.1204	PHASE 1	0.1133	HAUL1	0.04416	HAUL2
ANNUAL	R485	551358.14	4164630.93	*551358.144164630.93*	0.1533	PHASE 1	0.1455	HAUL1	0.0509	HAUL2
ANNUAL	R486	551398.14	4164630.93	*551398.144164630.93*	0.1378	PHASE 1	0.1319	HAUL1	0.04771	HAUL2
ANNUAL	R487	551298.14	4164650.93	*551298.144164650.93*	0.1904	PHASE 1	0.1869	HAUL1	0.05739	HAUL2
ANNUAL	R488	551338.14	4164650.93	*551338.144164650.93*	0.1692	PHASE 1	0.1659	HAUL1	0.05354	HAUL2
ANNUAL	R489	551398.14	4164650.93	*551398.144164650.93*	0.1427	PHASE 1	0.1415	HAUL1	0.04842	HAUL2
ANNUAL	R490	551438.14	4164650.93	*551438.144164650.93*	0.1282	PHASE 1	0.1293	HAUL1	0.04545	HAUL2
ANNUAL	R491	551298.14	4164670.93	*551298.144164670.93*	0.1997	PHASE 1	0.2034	HAUL1	0.05834	HAUL2
ANNUAL	R492	551338.14	4164670.93	*551338.144164670.93*	0.1761	PHASE 1	0.1795	HAUL1	0.05434	HAUL2
ANNUAL	R493	551378.14	4164670.93	*551378.144164670.93*	0.1560	PHASE 1	0.1601	HAUL1	0.05071	HAUL2
ANNUAL	R494	551418.14	4164670.93	*551418.144164670.93*	0.1390	PHASE 1	0.1447	HAUL1	0.04747	HAUL2
ANNUAL	R495	551478.14	4164670.93	*551478.144164670.93*	0.1181	PHASE 1	0.1273	HAUL1	0.04319	HAUL2
ANNUAL	R496	551318.14	4164690.93	*551318.144164690.93*	0.1948	PHASE 1	0.2076	HAUL1	0.05703	HAUL2
ANNUAL	R497	551358.14	4164690.93	*551358.144164690.93*	0.1709	PHASE 1	0.1830	HAUL1	0.0531	HAUL2
ANNUAL	R498	551398.14	4164690.93	*551398.144164690.93*	0.1509	PHASE 1	0.1633	HAUL1	0.04957	HAUL2
ANNUAL	R499	551458.14	4164690.93	*551458.144164690.93*	0.1269	PHASE 1	0.1415	HAUL1	0.04494	HAUL2
ANNUAL	R500	551338.14	4164710.93	*551338.144164710.93*	0.1877	PHASE 1	0.2116	HAUL1	0.05558	HAUL2
ANNUAL	R501	551378.14	4164710.93	*551378.144164710.93*	0.1642	PHASE 1	0.1864	HAUL1	0.05175	HAUL2
ANNUAL	R502	551418.14	4164710.93	*551418.144164710.93*	0.1448	PHASE 1	0.1666	HAUL1	0.04833	HAUL2
ANNUAL	R503	551458.14	4164710.93	*551458.144164710.93*	0.1286	PHASE 1	0.1512	HAUL1	0.04526	HAUL2
ANNUAL	R504	551398.14	4164730.93	*551398.144164730.93*	0.1565	PHASE 1	0.1899	HAUL1	0.05032	HAUL2
ANNUAL	R505	551418.14	4164750.93	*551418.144164750.93*	0.1479	PHASE 1	0.1935	HAUL1	0.04883	HAUL2
ANNUAL	R506	550597.48	4164211.07	*550597.484164211.07*	0.0415	PHASE 1	0.0272	HAUL1	0.02229	HAUL2
ANNUAL	R507	550637.48	4164311.07	*550637.484164311.07*	0.0584	PHASE 1	0.0380	HAUL1	0.03	HAUL2
ANNUAL	R508	550697.48	4164311.07	*550697.484164311.07*	0.0599	PHASE 1	0.0426	HAUL1	0.02732	HAUL2
ANNUAL	R509	550737.48	4164311.07	*550737.484164311.07*	0.0593	PHASE 1	0.0448	HAUL1	0.02606	HAUL2
ANNUAL	R510	550777.48	4164311.07	*550777.484164311.07*	0.0578	PHASE 1	0.0463	HAUL1	0.0256	HAUL2
ANNUAL	R511	550817.48	4164311.07	*550817.484164311.07*	0.0557	PHASE 1	0.0473	HAUL1	0.02589	HAUL2
ANNUAL	R512	550697.48	4164331.07	*550697.484164331.07*	0.0646	PHASE 1	0.0456	HAUL1	0.02946	HAUL2
ANNUAL	R513	550777.48	4164331.07	*550777.484164331.07*	0.0625	PHASE 1	0.0498	HAUL1	0.02761	HAUL2
ANNUAL	R514	550817.48	4164331.07	*550817.484164331.07*	0.0604	PHASE 1	0.0510	HAUL1	0.02803	HAUL2
ANNUAL	R515	550557.48	4164351.07	*550557.484164351.07*	0.0585	PHASE 1	0.0333	HAUL1	0.03783	HAUL2
ANNUAL	R516	550617.48	4164351.07	*550617.484164351.07*	0.0655	PHASE 1	0.0404	HAUL1	0.03625	HAUL2
ANNUAL	R517	550657.48	4164351.07	*550657.484164351.07*	0.0685	PHASE 1	0.0450	HAUL1	0.03414	HAUL2
ANNUAL	R518	550697.48	4164351.07	*550697.484164351.07*	0.0698	PHASE 1	0.0490	HAUL1	0.03189	HAUL2
ANNUAL	R519	550737.48	4164351.07	*550737.484164351.07*	0.0694	PHASE 1	0.0518	HAUL1	0.03032	HAUL2
ANNUAL	R520	550797.48	4164351.07	*550797.484164351.07*	0.0670	PHASE 1	0.0546	HAUL1	0.0301	HAUL2
ANNUAL	R521	551338.14	4164610.93	*551338.144164610.93*	0.1540	PHASE 1	0.1421	HAUL1	0.05161	HAUL2
ANNUAL	R522	551378.14	4164610.93	*551378.144164610.93*	0.1392	PHASE 1	0.1287	HAUL1	0.0484	HAUL2
ANNUAL	R523	551418.14	4164610.93	*551418.144164610.93*	0.1263	PHASE 1	0.1179	HAUL1	0.0455	HAUL2
ANNUAL	R524	551318.14	4164630.93	*551318.144164630.93*	0.1709	PHASE 1	0.1623	HAUL1	0.05443	HAUL2
ANNUAL	R525	551378.14	4164630.93	*551378.144164630.93*	0.1453	PHASE 1	0.1383	HAUL1	0.04927	HAUL2
ANNUAL	R526	551438.14	4164630.93	*551438.144164630.93*	0.1245	PHASE 1	0.1210	HAUL1	0.04484	HAUL2
ANNUAL	R527	551318.14	4164650.93	*551318.144164650.93*	0.1795	PHASE 1	0.1759	HAUL1	0.05542	HAUL2
ANNUAL	R528	551358.14	4164650.93	*551358.144164650.93*	0.1597	PHASE 1	0.1569	HAUL1	0.05174	HAUL2
ANNUAL	R529	551418.14	4164650.93	*551418.144164650.93*	0.1352	PHASE 1	0.1351	HAUL1	0.0469	HAUL2
ANNUAL	R530	551478.14	4164650.93	*551478.144164650.93*	0.1157	PHASE 1	0.1195	HAUL1	0.04275	HAUL2
ANNUAL	R531	551318.14	4164670.93	*551318.144164670.93*	0.1875	PHASE 1	0.1909	HAUL1	0.05629	HAUL2
ANNUAL	R532	551358.14	4164670.93	*551358.144164670.93*	0.1656	PHASE 1	0.1693	HAUL1	0.05248	HAUL2
ANNUAL	R533	551398.14	4164670.93	*551398.144164670.93*	0.1471	PHASE 1	0.1519	HAUL1	0.04904	HAUL2
ANNUAL	R534	551438.14	4164670.93	*551438.144164670.93*	0.1315	PHASE 1	0.1382	HAUL1	0.04597	HAUL2
ANNUAL	R535	551298.14	4164690.93	*551298.144164690.93*	0.2083	PHASE 1	0.2219	HAUL1	0.05915	HAUL2
ANNUAL	R536	551338.14	4164690.93	*551338.144164690.93*	0.1823	PHASE 1	0.1946	HAUL1	0.05502	HAUL2
ANNUAL	R537	551378.14	4164690.93	*551378.144164690.93*	0.1605	PHASE 1	0.1726	HAUL1	0.05129	HAUL2
ANNUAL	R538	551418.14	4164690.93	*551418.144164690.93*	0.1422	PHASE 1	0.1552	HAUL1	0.04795	HAUL2
ANNUAL	R539	551598.14	4164690.93	*551598.144164690.93*	0.0887	PHASE 1	0.1091	HAUL1	0.03649	HAUL2
ANNUAL	R540	551358.14	4164710.93	*551358.144164710.93*	0.1754	PHASE 1	0.1983	HAUL1	0.05361	HAUL2
ANNUAL	R541	551398.14	4164710.93	*551398.144164710.93*	0.1541	PHASE 1	0.1759	HAUL1	0.04999	HAUL2
ANNUAL	R542	551438.14	4164710.93	*551438.144164710.93*	0.1364	PHASE 1	0.1585	HAUL1	0.04676	HAUL2
ANNUAL	R543	551378.14	4164730.93	*551378.144164730.93*	0.1672	PHASE 1	0.2019	HAUL1	0.05211	HAUL2
ANNUAL	R544	551438.14	4164730.93	*551438.144164730.93*	0.1379	PHASE 1	0.1701	HAUL1	0.04702	HAUL2
ANNUAL	R545	551438.14	4164750.93	*551438.144164750.93*	0.1388	PHASE 1	0.1830	HAUL1	0.0472	HAUL2
ANNUAL	R546	550597.48	4164231.07	*550597.484164231.07*	0.0439	PHASE 1	0.0284	HAUL1	0.02377	HAUL2
ANNUAL	R547	550657.48	4164311.07	*550657.484164311.07*	0.0593	PHASE 1	0.0397	HAUL1	0.02908	HAUL2
ANNUAL	R548	550717.48	4164311.07	*550717.484164311.07*	0.0598	PHASE 1	0.0438	HAUL1	0.0266	HAUL2
ANNUAL	R549	550757.48	4164311.07	*550757.484164311.07*	0.0586	PHASE 1	0.0456	HAUL1	0.02573	HAUL2
ANNUAL	R550	550797.48	4164311.07	*550797.484164311.07*	0.0568	PHASE 1	0.0468	HAUL1	0.02567	HAUL2
ANNUAL	R551	550677.48	4164331.07	*550677.484164331.07*	0.0643	PHASE 1	0.0440	HAUL1	0.03042	HAUL2
ANNUAL	R552	550757.48	4164331.07	*550757.484164331.07*	0.0634	PHASE 1	0.0490	HAUL1	0.02771	HAUL2
ANNUAL	R553	550797.48	4164331.07	*550797.484164331.07*	0.0615	PHASE 1	0.0505	HAUL1	0.02773	HAUL2
ANNUAL	R554	550837.48	4164331.07	*550837.484164331.07*	0.0593	PHASE 1	0.0515	HAUL1	0.02846	HAUL2

ANNUAL	R555	550577.48	4164351.07	*550577.484164351.07*	0.0611	PHASE 1	0.0356	HAUL1	0.03756	HAUL2
ANNUAL	R556	550637.48	4164351.07	*550637.484164351.07*	0.0672	PHASE 1	0.0428	HAUL1	0.03526	HAUL2
ANNUAL	R557	550677.48	4164351.07	*550677.484164351.07*	0.0694	PHASE 1	0.0471	HAUL1	0.03298	HAUL2
ANNUAL	R558	550717.48	4164351.07	*550717.484164351.07*	0.0698	PHASE 1	0.0505	HAUL1	0.03097	HAUL2
ANNUAL	R559	550777.48	4164351.07	*550777.484164351.07*	0.0679	PHASE 1	0.0538	HAUL1	0.0299	HAUL2
ANNUAL	R560	550817.48	4164351.07	*550817.484164351.07*	0.0659	PHASE 1	0.0553	HAUL1	0.0305	HAUL2
ANNUAL	R561	550837.48	4164351.07	*550837.484164351.07*	0.0647	PHASE 1	0.0559	HAUL1	0.03104	HAUL2
ANNUAL	R562	550577.48	4164371.07	*550577.484164371.07*	0.0652	PHASE 1	0.0373	HAUL1	0.04083	HAUL2
ANNUAL	R563	550617.48	4164371.07	*550617.484164371.07*	0.0704	PHASE 1	0.0428	HAUL1	0.03954	HAUL2
ANNUAL	R564	550677.48	4164371.07	*550677.484164371.07*	0.0751	PHASE 1	0.0506	HAUL1	0.0359	HAUL2
ANNUAL	R565	550717.48	4164371.07	*550717.484164371.07*	0.0758	PHASE 1	0.0546	HAUL1	0.03362	HAUL2
ANNUAL	R566	550757.48	4164371.07	*550757.484164371.07*	0.0749	PHASE 1	0.0573	HAUL1	0.03255	HAUL2
ANNUAL	R567	550857.48	4164371.07	*550857.484164371.07*	0.0699	PHASE 1	0.0618	HAUL1	0.03481	HAUL2
ANNUAL	R568	550717.48	4164391.07	*550717.484164391.07*	0.0826	PHASE 1	0.0592	HAUL1	0.03668	HAUL2
ANNUAL	R569	550757.48	4164391.07	*550757.484164391.07*	0.0819	PHASE 1	0.0625	HAUL1	0.03556	HAUL2
ANNUAL	R570	550797.48	4164391.07	*550797.484164391.07*	0.0803	PHASE 1	0.0649	HAUL1	0.03612	HAUL2
ANNUAL	R571	550857.48	4164391.07	*550857.484164391.07*	0.0772	PHASE 1	0.0680	HAUL1	0.03851	HAUL2
ANNUAL	R572	550757.48	4164411.07	*550757.484164411.07*	0.0899	PHASE 1	0.0684	HAUL1	0.03912	HAUL2
ANNUAL	R573	550797.48	4164411.07	*550797.484164411.07*	0.0885	PHASE 1	0.0714	HAUL1	0.04002	HAUL2
ANNUAL	R574	550857.48	4164411.07	*550857.484164411.07*	0.0859	PHASE 1	0.0756	HAUL1	0.04292	HAUL2
ANNUAL	R575	550837.48	4164431.07	*550837.484164431.07*	0.0970	PHASE 1	0.0830	HAUL1	0.04711	HAUL2
ANNUAL	R576	550837.48	4164451.07	*550837.484164451.07*	0.1092	PHASE 1	0.0938	HAUL1	0.05344	HAUL2
ANNUAL	R577	550857.48	4164471.07	*550857.484164471.07*	0.1239	PHASE 1	0.1104	HAUL1	0.06225	HAUL2
ANNUAL	R578	551045.12	4165591.04	*551045.124165591.04*	0.0282	PHASE 1	0.0584	HAUL1	0.02385	HAUL2
ANNUAL	R579	550857.48	4164351.07	*550857.484164351.07*	0.0635	PHASE 1	0.0565	HAUL1	0.03167	HAUL2
ANNUAL	R580	550597.48	4164371.07	*550597.484164371.07*	0.0679	PHASE 1	0.0400	HAUL1	0.04033	HAUL2
ANNUAL	R581	550657.48	4164371.07	*550657.484164371.07*	0.0740	PHASE 1	0.0481	HAUL1	0.03722	HAUL2
ANNUAL	R582	550697.48	4164371.07	*550697.484164371.07*	0.0757	PHASE 1	0.0527	HAUL1	0.03466	HAUL2
ANNUAL	R583	550737.48	4164371.07	*550737.484164371.07*	0.0755	PHASE 1	0.0561	HAUL1	0.03291	HAUL2
ANNUAL	R584	550777.48	4164371.07	*550777.484164371.07*	0.0741	PHASE 1	0.0584	HAUL1	0.03255	HAUL2
ANNUAL	R585	550697.48	4164391.07	*550697.484164391.07*	0.0823	PHASE 1	0.0570	HAUL1	0.03786	HAUL2
ANNUAL	R586	550737.48	4164391.07	*550737.484164391.07*	0.0824	PHASE 1	0.0610	HAUL1	0.0359	HAUL2
ANNUAL	R587	550777.48	4164391.07	*550777.484164391.07*	0.0811	PHASE 1	0.0637	HAUL1	0.03566	HAUL2
ANNUAL	R588	550817.48	4164391.07	*550817.484164391.07*	0.0793	PHASE 1	0.0660	HAUL1	0.03681	HAUL2
ANNUAL	R589	550737.48	4164411.07	*550737.484164411.07*	0.0903	PHASE 1	0.0667	HAUL1	0.0394	HAUL2
ANNUAL	R590	550777.48	4164411.07	*550777.484164411.07*	0.0893	PHASE 1	0.0700	HAUL1	0.03937	HAUL2
ANNUAL	R591	550817.48	4164411.07	*550817.484164411.07*	0.0877	PHASE 1	0.0728	HAUL1	0.04092	HAUL2
ANNUAL	R592	550797.48	4164431.07	*550797.484164431.07*	0.0982	PHASE 1	0.0792	HAUL1	0.04478	HAUL2
ANNUAL	R593	550857.48	4164431.07	*550857.484164431.07*	0.0962	PHASE 1	0.0848	HAUL1	0.04821	HAUL2
ANNUAL	R594	550837.48	4164471.07	*550837.484164471.07*	0.1239	PHASE 1	0.1073	HAUL1	0.06122	HAUL2
ANNUAL	R595	551065.12	4165571.04	*551065.124165571.04*	0.0286	PHASE 1	0.0650	HAUL1	0.02452	HAUL2
ANNUAL	R596	551065.12	4165591.04	*551065.124165591.04*	0.0275	PHASE 1	0.0611	HAUL1	0.02328	HAUL2

Health Risk - Dose and Risk Factors and Values

Dose factors

			3rd trimester	0<2	2<9	16<30	16-70	source
Dose factors for calc	Construction	Residential	3.46E-04	1.05E-03	6.05E-04	2.50E-04	2.23E-04	*dose factors for lookup in risk calcs*
		Recreational	8.57E-06	4.29E-05	2.29E-05	8.57E-06	8.21E-06	*dose factors for lookup in risk calcs*
		school	2.96E-05	1.48E-04	6.41E-05	2.96E-05	2.84E-05	*dose factors for lookup in risk calcs*
	Daily Breath Rate (L/kg-day)	Residential	361	1090	631	261	233	OEHHA 2015, Table 5.6, 95th %ile for 3rdtri-2yrs old; 80th for 2>9 per BAAQMD guidance
		Recreational	240	1200	640	240	230	OEHHA 2015, Table 5.8 (95th, moderate) for all bins but 3rd tri, which was taken from SJVUAPCD's draft guidance
		School	240	1200	520	240	230	BAAQMD guidance - 95th percentile
	A		1	1	1	1	1	OEHHA 2015, page 5-24
	EF, Exposure frequency (unitless), day	Residential	0.96	0.96	0.96	0.96	0.96	OEHHA 2015, page 5-24, 350 days/yr
		Recreational	0.036	0.036	0.036	0.036	0.036	3x/week, 2 hours/day, for 9 years
		School	0.12	0.12	0.12	0.12	0.12	BAAQMD Guidance - 180 days/yr, 6 hours/day
	Conversion Factor		1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	(mg/ug * m3/L)
	Adjustment Factor (schools		1.00	1.00	1.00	1.00	1.00	Similar to WAF; OEHHA 2015, Page 4-44 and Equation 4.1; non-continuous emissions adjusted per WAF guidance. DF of 1 since construction and student presence assumed to completely overlap

Risk Factors

Risk factors for calcs	Construction	Residential	1.10E+01	11.00	3.30E+00	1.10E+00	1.10E+00	*without ED; ED/AT calculation in risk calc*
		Recreational	1.10E+01	1.10E+01	3.30E+00	1.10E+00	1.10E+00	
		school	1.10E+01	1.10E+01	3.30E+00	1.10E+00	1.10E+00	
	CPF, DPM ([mg/kg-day]$^{-1}$)		1.1	1.1	1.1	1.1	1.1	OEHHA 2015, Table 7.1
	Average Age Sensitivity Factor		10	10	3	1	1	OEHHA 2015, Table 8.3
	AT, Average Time (days)		70	70	70	70	70	Averaging time for lifetime cancer risk
	FAH		1.00	1.00	1.00	1.00	1.00	OEHHA 2015, Table 8.4: Use FAH = 1 if a school is within the 1×10-6 (or greater) cancer risk isopleth

ED, Exposure Duration (years)	see ED calculation sheet	
Chronic Inhalation Reference Exposure Level, respiratory, DPM	5	http://www.baaqmd.gov/~/media/files/planning-and-research/rules-and-regs/workshops/2016/reg-2-5/hra-guidelines_clean_jan_2016-pdf.pdf?la=en

conversions:

Second per hour	3600
Grams per ton	907184.74
Million	1,000,000
m2 per acre	4046.86
days per year	365

Unitized rate reasoning, see Section 3.9.2 of CAPCOA's HRA Guide:
An alternative approach is applying unitized emission rate and summation concepts, which drastically reduce the computational time for large multiple pollutant projects.
all chemical concentration levels vary linearly with their source release rate
The concentration at the receptor can then be multiplied by the actual rates (actual g/s (x) unitized 1 g/s rate)

DPM HRA Factors and values - Operations

Dose factors

				3rd trimester	0<2	2<9	16<30	16-70	source
factors for calcs --->	Construction	Existing Student		4.97E-04	2.49E-03	1.33E-03	4.97E-04	4.76E-04	*dose factors for lookup in risk calcs*
		New Student		4.97E-04	2.49E-03	1.33E-03	4.97E-04	4.76E-04	
		Residential		3.46E-04	1.05E-03	6.05E-04	2.50E-04	2.23E-04	
		Offsite Student		4.97E-04	2.49E-03	1.33E-03	4.97E-04	4.76E-04	*dose factors for lookup in risk calcs*
	Daily Breath Rate (L/kg-day)	Residential		361	1090	631	261	233	OEHHA 2015, Table 5.6, 95th %ile for 3rdtri-2yrs old; 80th for other age groups
		School		240	1200	640	240	230	SJVAPCD for 3rd tri; 95th percentile for all
	A			1	1	1	1	1	OEHHA 2015, page 5-24
	EF, Exposure frequency (unitless), day	Residential		0.96	0.96	0.96	0.96	0.96	OEHHA 2015, page 5-24, 350 days/yr
		School		0.49	0.49	0.49	0.49	0.49	180 days/yr
	Conversion Factor			1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	(mg/ug * m3/L)
	Adjustment Factor (schools			4.20	4.20	4.20	4.20	4.20	Similar to WAF; OEHHA 2015, Page 4-44 and Equation 4.1; non-continuous emissions adjusted per WAF guidance. DF of 1 since construction and student presence assumed to completely overlap

Risk Factors

factors for calcs --->		Existing Student		0.00E+00	0.00E+00	1.89E-01	0.00E+00	0.00E+00	
		New Student		0.00E+00	0.00E+00	1.89E-01	0.00E+00	0.00E+00	
		Offsite Student		0.00E+00	0.00E+00	1.89E-01	0.00E+00	0.00E+00	
		Residential		3.93E-02	3.14E-01	0.00E+00	2.20E-01	0.00E+00	
	CPF, DPM ([mg/kg-day]$^{-1}$)			1.1	1.1	1.1	1.1	1.1	OEHHA 2015, Table 7.1
	Average Age Sensitivity Factor			10	10	3	1	1	OEHHA 2015, Table 8.3
	AT, Average Time (days)			70	70	70	70	70	Averaging time for lifetime cancer risk
	FAH			1.00	1.00	1.00	1.00	1.00	OEHHA 2015, Table 8.4: Use FAH = 1 if a school is within the 1×10-6 (or greater) cancer risk isopleth
	ED, Exposure Duration (years)								
	Buses	New Wilson/Central Students				4.00			Grades 1-8; ages 6-13
		Residential		0.25	2.00		14.00		Equation 8.2.4 B, OEHHA 2015; 30 years total
	Roadway	New Wilson/Central Students				4.00			Equation 8.2.4 A, OEHHA 2015
		Residential							Equation 8.2.4 B, OEHHA 2015; 30 years total

	Chronic Inhalation Reference Exposure Level, respiratory, DPM	5
1hr to annual		0.1

conversions:

Second per hour	3600
Grams per ton	907184.74
Million	1,000,000
m2 per acre	4046.86
days per year	365

Project-Level Unmitigated MEI Cancer and Non-Cancer (HI) during Construction

Receptor	Increased Cancer Risk (per million)	Non-Cancer (HI)
Residential	9.8	0.02
BAAQMD Threshold	10	1
Exceed BAAQMD Threshold?	No	No

					1	2	3	4	5	6	7	8	9	10	11
Period	ID	X	Y	*concat*	Concentration [ug/m^3]	PHASE 1	Concentration [ug/m^3]	Haul1	Concentration [ug/m^3]	Haul2	Concentration [ug/m^3]	Building	Concentration [ug/m^3]	Building
ANNUAL	R1	550876.81	4164331.7	*550876.814164331.7*	0.0571	PHASE 1	0.0523	HAUL1	0.02961	HAUL2				
ANNUAL	R2	550896.81	4164351.7	*550896.814164351.7*	0.0615	PHASE 1	0.0574	HAUL1	0.03305	HAUL2				
ANNUAL	R3	550876.81	4164371.7	*550876.814164371.7*	0.0690	PHASE 1	0.0625	HAUL1	0.03564	HAUL2				
ANNUAL	R4	550936.81	4164371.7	*550936.814164371.7*	0.0658	PHASE 1	0.0637	HAUL1	0.03759	HAUL2				
ANNUAL	R5	550876.81	4164391.7	*550876.814164391.7*	0.0764	PHASE 1	0.0691	HAUL1	0.03946	HAUL2				
ANNUAL	R6	550916.81	4164391.7	*550916.814164391.7*	0.0743	PHASE 1	0.0703	HAUL1	0.0409	HAUL2				
ANNUAL	R7	550956.81	4164391.7	*550956.814164391.7*	0.0725	PHASE 1	0.0709	HAUL1	0.04188	HAUL2				
ANNUAL	R8	550996.81	4164391.7	*550996.814164391.7*	0.0713	PHASE 1	0.0710	HAUL1	0.04238	HAUL2				
ANNUAL	R9	551036.81	4164391.7	*551036.814164391.7*	0.0710	PHASE 1	0.0709	HAUL1	0.04247	HAUL2				
ANNUAL	R10	550896.81	4164411.7	*550896.814164411.7*	0.0842	PHASE 1	0.0779	HAUL1	0.04475	HAUL2				
ANNUAL	R11	550936.81	4164411.7	*550936.814164411.7*	0.0822	PHASE 1	0.0791	HAUL1	0.04585	HAUL2				
ANNUAL	R12	550976.81	4164411.7	*550976.814164411.7*	0.0806	PHASE 1	0.0795	HAUL1	0.04635	HAUL2				
ANNUAL	R13	551016.81	4164411.7	*551016.814164411.7*	0.0798	PHASE 1	0.0794	HAUL1	0.04631	HAUL2				
ANNUAL	R14	551056.81	4164411.7	*551056.814164411.7*	0.0798	PHASE 1	0.0791	HAUL1	0.04586	HAUL2				
ANNUAL	R15	550876.81	4164431.7	*550876.814164431.7*	0.0958	PHASE 1	0.0866	HAUL1	0.0493	HAUL2				
ANNUAL	R16	550916.81	4164431.7	*550916.814164431.7*	0.0939	PHASE 1	0.0887	HAUL1	0.05056	HAUL2				
ANNUAL	R17	550956.81	4164431.7	*550956.814164431.7*	0.0919	PHASE 1	0.0896	HAUL1	0.05101	HAUL2				
ANNUAL	R18	550996.81	4164431.7	*550996.814164431.7*	0.0905	PHASE 1	0.0896	HAUL1	0.0508	HAUL2				
ANNUAL	R19	551036.81	4164431.7	*551036.814164431.7*	0.0899	PHASE 1	0.0892	HAUL1	0.05009	HAUL2				
ANNUAL	R20	551076.81	4164431.7	*551076.814164431.7*	0.0901	PHASE 1	0.0884	HAUL1	0.04903	HAUL2				
ANNUAL	R21	551116.81	4164431.7	*551116.814164431.7*	0.0905	PHASE 1	0.0871	HAUL1	0.04773	HAUL2				
ANNUAL	R22	550896.81	4164451.7	*550896.814164451.7*	0.1077	PHASE 1	0.1001	HAUL1	0.05621	HAUL2				
ANNUAL	R23	550936.81	4164451.7	*550936.814164451.7*	0.1056	PHASE 1	0.1019	HAUL1	0.05657	HAUL2				
ANNUAL	R24	550976.81	4164451.7	*550976.814164451.7*	0.1036	PHASE 1	0.1021	HAUL1	0.05609	HAUL2				
ANNUAL	R25	551016.81	4164451.7	*551016.814164451.7*	0.1023	PHASE 1	0.1016	HAUL1	0.05502	HAUL2				
ANNUAL	R26	551056.81	4164451.7	*551056.814164451.7*	0.1018	PHASE 1	0.1005	HAUL1	0.05356	HAUL2				
ANNUAL	R27	551096.81	4164451.7	*551096.814164451.7*	0.1017	PHASE 1	0.0989	HAUL1	0.05186	HAUL2				
ANNUAL	R28	551136.81	4164451.7	*551136.814164451.7*	0.1016	PHASE 1	0.0966	HAUL1	0.05006	HAUL2				
ANNUAL	R29	550876.81	4164471.7	*550876.814164471.7*	0.1241	PHASE 1	0.1134	HAUL1	0.06313	HAUL2				
ANNUAL	R30	550936.81	4164471.7	*550936.814164471.7*	0.1211	PHASE 1	0.1174	HAUL1	0.06297	HAUL2				
ANNUAL	R31	550976.81	4164471.7	*550976.814164471.7*	0.1186	PHASE 1	0.1174	HAUL1	0.06168	HAUL2				
ANNUAL	R32	551036.81	4164471.7	*551036.814164471.7*	0.1161	PHASE 1	0.1154	HAUL1	0.05882	HAUL2				
ANNUAL	R33	551076.81	4164471.7	*551076.814164471.7*	0.1153	PHASE 1	0.1132	HAUL1	0.0566	HAUL2				
ANNUAL	R34	551116.81	4164471.7	*551116.814164471.7*	0.1145	PHASE 1	0.1103	HAUL1	0.0543	HAUL2				
ANNUAL	R35	551156.81	4164471.7	*551156.814164471.7*	0.1134	PHASE 1	0.1064	HAUL1	0.05201	HAUL2				
ANNUAL	R36	550916.81	4164491.7	*550916.814164491.7*	0.1414	PHASE 1	0.1364	HAUL1	0.07101	HAUL2				
ANNUAL	R37	550976.81	4164491.7	*550976.814164491.7*	0.1367	PHASE 1	0.1364	HAUL1	0.06773	HAUL2				
ANNUAL	R38	551016.81	4164491.7	*551016.814164491.7*	0.1340	PHASE 1	0.1342	HAUL1	0.06497	HAUL2				
ANNUAL	R39	551096.81	4164491.7	*551096.814164491.7*	0.1302	PHASE 1	0.1271	HAUL1	0.05913	HAUL2				
ANNUAL	R40	551136.81	4164491.7	*551136.814164491.7*	0.1281	PHASE 1	0.1222	HAUL1	0.05629	HAUL2				
ANNUAL	R41	550876.81	4164351.7	*550876.814164351.7*	0.0626	PHASE 1	0.0570	HAUL1	0.03239	HAUL2				
ANNUAL	R42	550936.81	4164351.7	*550936.814164351.7*	0.0594	PHASE 1	0.0578	HAUL1	0.03423	HAUL2				
ANNUAL	R43	550896.81	4164371.7	*550896.814164371.7*	0.0678	PHASE 1	0.0630	HAUL1	0.03636	HAUL2				
ANNUAL	R44	550956.81	4164371.7	*550956.814164371.7*	0.0650	PHASE 1	0.0638	HAUL1	0.03808	HAUL2				
ANNUAL	R45	550896.81	4164391.7	*550896.814164391.7*	0.0753	PHASE 1	0.0698	HAUL1	0.04023	HAUL2				
ANNUAL	R46	550936.81	4164391.7	*550936.814164391.7*	0.0733	PHASE 1	0.0707	HAUL1	0.04145	HAUL2				
ANNUAL	R47	550976.81	4164391.7	*550976.814164391.7*	0.0718	PHASE 1	0.0710	HAUL1	0.04219	HAUL2				
ANNUAL	R48	551016.81	4164391.7	*551016.814164391.7*	0.0711	PHASE 1	0.0710	HAUL1	0.04247	HAUL2				
ANNUAL	R49	550876.81	4164411.7	*550876.814164411.7*	0.0853	PHASE 1	0.0770	HAUL1	0.04396	HAUL2				
ANNUAL	R50	550916.81	4164411.7	*550916.814164411.7*	0.0832	PHASE 1	0.0786	HAUL1	0.04538	HAUL2				
ANNUAL	R51	550956.81	4164411.7	*550956.814164411.7*	0.0813	PHASE 1	0.0794	HAUL1	0.04617	HAUL2				
ANNUAL	R52	550996.81	4164411.7	*550996.814164411.7*	0.0801	PHASE 1	0.0795	HAUL1	0.04639	HAUL2				
ANNUAL	R53	551036.81	4164411.7	*551036.814164411.7*	0.0797	PHASE 1	0.0793	HAUL1	0.04613	HAUL2				
ANNUAL	R54	551076.81	4164411.7	*551076.814164411.7*	0.0801	PHASE 1	0.0788	HAUL1	0.04551	HAUL2				
ANNUAL	R55	550896.81	4164431.7	*550896.814164431.7*	0.0949	PHASE 1	0.0878	HAUL1	0.05003	HAUL2				
ANNUAL	R56	550936.81	4164431.7	*550936.814164431.7*	0.0928	PHASE 1	0.0893	HAUL1	0.05088	HAUL2				
ANNUAL	R57	550976.81	4164431.7	*550976.814164431.7*	0.0911	PHASE 1	0.0897	HAUL1	0.05098	HAUL2				
ANNUAL	R58	551016.81	4164431.7	*551016.814164431.7*	0.0901	PHASE 1	0.0895	HAUL1	0.0505	HAUL2				
ANNUAL	R59	551056.81	4164431.7	*551056.814164431.7*	0.0899	PHASE 1	0.0889	HAUL1	0.0496	HAUL2				
ANNUAL	R60	551096.81	4164431.7	*551096.814164431.7*	0.0903	PHASE 1	0.0879	HAUL1	0.0484	HAUL2				
ANNUAL	R61	550876.81	4164451.7	*550876.814164451.7*	0.1085	PHASE 1	0.0985	HAUL1	0.05563	HAUL2				
ANNUAL	R62	550916.81	4164451.7	*550916.814164451.7*	0.1067	PHASE 1	0.1012	HAUL1	0.05651	HAUL2				
ANNUAL	R63	550956.81	4164451.7	*550956.814164451.7*	0.1045	PHASE 1	0.1022	HAUL1	0.05642	HAUL2				
ANNUAL	R64	550996.81	4164451.7	*550996.814164451.7*	0.1028	PHASE 1	0.1019	HAUL1	0.05562	HAUL2				
ANNUAL	R65	551036.81	4164451.7	*551036.814164451.7*	0.1019	PHASE 1	0.1011	HAUL1	0.05433	HAUL2				
ANNUAL	R66	551076.81	4164451.7	*551076.814164451.7*	0.1017	PHASE 1	0.0998	HAUL1	0.05274	HAUL2				
ANNUAL	R67	551116.81	4164451.7	*551116.814164451.7*	0.1017	PHASE 1	0.0979	HAUL1	0.05097	HAUL2				
ANNUAL	R68	551156.81	4164451.7	*551156.814164451.7*	0.1015	PHASE 1	0.0951	HAUL1	0.04913	HAUL2				
ANNUAL	R69	550916.81	4164471.7	*550916.814164471.7*	0.1223	PHASE 1	0.1168	HAUL1	0.06331	HAUL2				
ANNUAL	R70	550956.81	4164471.7	*550956.814164471.7*	0.1198	PHASE 1	0.1177	HAUL1	0.06242	HAUL2				
ANNUAL	R71	550996.81	4164471.7	*550996.814164471.7*	0.1176	PHASE 1	0.1169	HAUL1	0.06082	HAUL2				
ANNUAL	R72	551056.81	4164471.7	*551056.814164471.7*	0.1157	PHASE 1	0.1144	HAUL1	0.05773	HAUL2				
ANNUAL	R73	551096.81	4164471.7	*551096.814164471.7*	0.1149	PHASE 1	0.1119	HAUL1	0.05545	HAUL2				
ANNUAL	R74	551136.81	4164471.7	*551136.814164471.7*	0.1140	PHASE 1	0.1085	HAUL1	0.05315	HAUL2				
ANNUAL	R75	551176.81	4164471.7	*551176.814164471.7*	0.1125	PHASE 1	0.1041	HAUL1	0.05087	HAUL2				
ANNUAL	R76	550956.81	4164491.7	*550956.814164491.7*	0.1383	PHASE 1	0.1370	HAUL1	0.06898	HAUL2				
ANNUAL	R77	550996.81	4164491.7	*550996.814164491.7*	0.1353	PHASE 1	0.1354	HAUL1	0.06638	HAUL2				
ANNUAL	R78	551076.81	4164491.7	*551076.814164491.7*	0.1311	PHASE 1	0.1292	HAUL1	0.06059	HAUL2				
ANNUAL	R79	551116.81	4164491.7	*551116.814164491.7*	0.1292	PHASE 1	0.1248	HAUL1	0.05769	HAUL2				
ANNUAL	R80	551156.81	4164491.7	*551156.814164491.7*	0.1268	PHASE 1	0.1194	HAUL1	0.05491	HAUL2				
ANNUAL	R81	551176.81	4164491.7	*551176.814164491.7*	0.1253	PHASE 1	0.1163	HAUL1	0.05356	HAUL2				
ANNUAL	R82	550956.81	4164511.7	*550956.814164511.7*	0.1610	PHASE 1	0.1614	HAUL1	0.07607	HAUL2				
ANNUAL	R83	550996.81	4164511.7	*550996.814164511.7*	0.1566	PHASE 1	0.1583	HAUL1	0.07224	HAUL2				
ANNUAL	R84	551036.81	4164511.7	*551036.814164511.7*	0.1529	PHASE 1	0.1537	HAUL1	0.06839	HAUL2				
ANNUAL	R85	551116.81	4164511.7	*551116.814164511.7*	0.1461	PHASE 1	0.1417	HAUL1	0.06112	HAUL2				
ANNUAL	R86	551156.81	4164511.7	*551156.814164511.7*	0.1419	PHASE 1	0.1342	HAUL1	0.05781	HAUL2				
ANNUAL	R87	551216.81	4164511.7	*551216.814164511.7*	0.1338	PHASE 1	0.1214	HAUL1	0.05322	HAUL2				
ANNUAL	R88	551256.81	4164511.7	*551256.814164511.7*	0.1275	PHASE 1	0.1127	HAUL1	0.0504	HAUL2				
ANNUAL	R89	551016.81	4164531.7	*551016.814164531.7*	0.1795	PHASE 1	0.1836	HAUL1	0.07579	HAUL2				
ANNUAL	R90	551056.81	4164531.7	*551056.814164531.7*	0.1740	PHASE 1	0.1752	HAUL1	0.071	HAUL2				
ANNUAL	R91	551096.81	4164531.7	*551096.814164531.7*	0.1683	PHASE 1	0.1661	HAUL1	0.06659	HAUL2				
ANNUAL	R92	551196.81	4164531.7	*551196.814164531.7*	0.1514	PHASE 1	0.1401	HAUL1	0.05714	HAUL2				
ANNUAL	R93	551236.81	4164531.7	*551236.814164531.7*	0.1431	PHASE 1	0.1291	HAUL1	0.05386	HAUL2				
ANNUAL	R94	551016.81	4164551.7	*551016.814164551.7*	0.2097	PHASE 1	0.2180	HAUL1	0.08133	HAUL2				
ANNUAL	R95	551056.81	4164551.7	*551056.814164551.7*	0.2009	PHASE 1	0.2046	HAUL1	0.0755	HAUL2				
ANNUAL	R96	551096.81	4164551.7	*551096.814164551.7*	0.1920	PHASE 1	0.1910	HAUL1	0.07029	HAUL2				
ANNUAL	R97	551136.81	4164551.7	*551136.814164551.7*	0.1826	PHASE 1	0.1772	HAUL1	0.06564	HAUL2				
ANNUAL	R98	551216.81	4164551.7	*551216.814164551.7*	0.1618	PHASE 1	0.1491	HAUL1	0.05765	HAUL2				
ANNUAL	R99	551276.81	4164551.7	*551276.814164551.7*	0.1456	PHASE 1	0.1297	HAUL1	0.05257	HAUL2				
ANNUAL	R100	551096.81	4164571.7	*551096.814164571.7*	0.2193	PHASE 1	0.2204	HAUL1	0.07389	HAUL2				
ANNUAL	R101	551136.81	4164571.7	*551136.814164571.7*	0.2055	PHASE 1	0.2011	HAUL1	0.06862	HAUL2				
ANNUAL	R102	551196.81	4164571.7	*551196.814164571.7*	0.1844	PHASE 1	0.1737	HAUL1	0.06179	HAUL2				
ANNUAL	R103	551256.81	4164571.7	*551256.814164571.7*	0.1635	PHASE 1	0.1490	HAUL1	0.05595	HAUL2				
ANNUAL	R104	551116.81	4164591.7	*551116.814164591.7*	0.2407	PHASE 1	0.2414	HAUL1	0.0743	HAUL2				
ANNUAL	R105	551196.81	4164591.7	*551196.814164591.7*	0.2027	PHASE 1	0.1931	HAUL1	0.06395	HAUL2				
ANNUAL	R106	551236.81	4164591.7	*551236.814164591.7*	0.1849	PHASE 1	0.1725	HAUL1	0.05961	HAUL2				
ANNUAL	R107	551276.81	4164591.7	*551276.814164591.7*	0.1686	PHASE 1	0.1546	HAUL1	0.05574	HAUL2				
ANNUAL	R108	551176.81	4164611.7	*551176.814164611.7*	0.2341	PHASE 1	0.2284	HAUL1	0.06853	HAUL2				
ANNUAL	R109	551236.81	4164611.7	*551236.814164611.7*	0.2000	PHASE 1	0.1897	HAUL1	0.06131	HAUL2				
ANNUAL	R110	551276.81	4164611.7	*551276.814164611.7*	0.1804	PHASE 1	0.1686	HAUL1	0.05717	HAUL2				
ANNUAL	R111	551196.81	4164631.7	*551196.814164631.7*	0.2424	PHASE 1	0.2381	HAUL1	0.06784	HAUL2				
ANNUAL	R112	551256.81	4164631.7	*551256.814164631.7*	0.2032	PHASE 1	0.1956	HAUL1	0.0606	HAUL2				
ANNUAL	R113	551256.81	4164651.7	*551256.814164651.7*	0.2165	PHASE 1	0.2141	HAUL1	0.06189	HAUL2				
ANNUAL	R114	551256.81	4164671.7	*551256.814164671.7*	0.2292	PHASE 1	0.2345	HAUL1	0.06302	HAUL2				
ANNUAL	R115	550384.79	4164931.52	*550384.794164931.52*	0.0571	PHASE 1	0.0238	HAUL1	0.24851	HAUL2				
ANNUAL	R116	550405.01	4165011.9	*550405.014165011.9*	0.0600	PHASE 1	0.0247	HAUL1	0.37606	HAUL2				
ANNUAL	R117	550445.01	4165031.9	*550445.014165031.9*	0.0713	PHASE 1	0.0277	HAUL1	0.56204	HAUL2				
ANNUAL	R118	550485.01	4165031.9	*550485.014165031.9*	0.0871	PHASE 1	0.0315	HAUL1	1.08375	HAUL2				
ANNUAL	R119	550585.01	4165031.9	*550585.014165031.9*	0.1489	PHASE 1	0.0439	HAUL1	0.87758	HAUL2				
ANNUAL	R120	550625.01	4165031.9	*550625.014165031.9*	0.1817	PHASE 1	0.0501	HAUL1	0.56032	HAUL2				
ANNUAL	R121	550916.81	4164511.7	*550916.814164511.7*	0.1651	PHASE 1	0.1615	HAUL1	0.0796	HAUL2				
ANNUAL	R122	550976.81	4164511.7	*550976.814164511.7*	0.1587	PHASE 1	0.1601	HAUL1	0.07417	HAUL2				
ANNUAL	R123	551016.81	4164511.7	*551016.814164511.7*	0.1547	PHASE 1	0.1562	HAUL1	0.07031	HAUL2				
ANNUAL	R124	551056.81	4164511.7	*551056.814164511.7*	0.1512	PHASE 1	0.1510	HAUL1	0.0665	HAUL2				
ANNUAL	R125	551136.81	4164511.7	*551136.814164511.7*	0.1441	PHASE 1	0.1380	HAUL1	0.05944	HAUL2				
ANNUAL	R126	551196.81	4164511.7	*551196.814164511.7*	0.1368	PHASE 1	0.1259	HAUL1	0.05471	HAUL2				
ANNUAL	R127	551236.81	4164511.7	*551236.814164511.7*	0.1307	PHASE 1	0.1170	HAUL1	0.05179	HAUL2				
ANNUAL	R128	550996.81	4164531.7	*550996.814164531.7*	0.1825	PHASE 1	0.1872	HAUL1	0.07832	HAUL2				
ANNUAL	R129	551036.81	4164531.7	*551036.814164531.7*	0.1767	PHASE 1	0.1795	HAUL1	0.07335	HAUL2				
ANNUAL	R130	551076.81	4164531.7	*551076.814164531.7*	0.1712	PHASE 1	0.1708	HAUL1	0.06875	HAUL2				
ANNUAL	R131	551156.81	4164531.7	*551156.814164531.7*	0.1588	PHASE 1	0.1510	HAUL1	0.06069	HAUL2				
ANNUAL	R132	551216.81	4164531.7	*551216.814164531.7*	0.1473	PHASE 1	0.1346	HAUL1	0.05547	HAUL2				
ANNUAL	R133	551276.81	4164531.7	*551276.814164531.7*	0.1347	PHASE 1	0.1186	HAUL1	0.05086	HAUL2				
ANNUAL	R134	551036.81	4164551.7	*551036.814164551.7*	0.2053	PHASE 1	0.2114	HAUL1	0.07833	HAUL2				
ANNUAL	R135	551076.81	4164551.7	*551076.814164551.7*	0.1965	PHASE 1	0.1979	HAUL1	0.07282	HAUL2				
ANNUAL	R136	551116.81	4164551.7	*551116.814164551.7*	0.1874	PHASE 1	0.1842	HAUL1	0.0679	HAUL2				
ANNUAL	R137	551196.81	4164551.7	*551196.814164551.7*	0.1672	PHASE 1	0.1560	HAUL1	0.05951	HAUL2				

ANNUAL	R138	551236.81	4164551.7	*551236.814164551.7*	0.1563	PHASE 1	0.1423	HAUL1	0.05587	HAUL2
ANNUAL	R139	551076.81	4164571.7	*551076.814164571.7*	0.2261	PHASE 1	0.2304	HAUL1	0.0768	HAUL2
ANNUAL	R140	551116.81	4164571.7	*551116.814164571.7*	0.2124	PHASE 1	0.2107	HAUL1	0.07117	HAUL2
ANNUAL	R141	551176.81	4164571.7	*551176.814164571.7*	0.1915	PHASE 1	0.1826	HAUL1	0.06395	HAUL2
ANNUAL	R142	551216.81	4164571.7	*551216.814164571.7*	0.1773	PHASE 1	0.1650	HAUL1	0.05974	HAUL2
ANNUAL	R143	551276.81	4164571.7	*551276.814164571.7*	0.1570	PHASE 1	0.1416	HAUL1	0.05421	HAUL2
ANNUAL	R144	551176.81	4164591.7	*551176.814164591.7*	0.2121	PHASE 1	0.2043	HAUL1	0.06632	HAUL2
ANNUAL	R145	551216.81	4164591.7	*551216.814164591.7*	0.1937	PHASE 1	0.1825	HAUL1	0.06172	HAUL2
ANNUAL	R146	551256.81	4164591.7	*551256.814164591.7*	0.1765	PHASE 1	0.1632	HAUL1	0.05762	HAUL2
ANNUAL	R147	551156.81	4164611.7	*551156.814164611.7*	0.2464	PHASE 1	0.2434	HAUL1	0.07124	HAUL2
ANNUAL	R148	551196.81	4164611.7	*551196.814164611.7*	0.2222	PHASE 1	0.2146	HAUL1	0.06597	HAUL2
ANNUAL	R149	551256.81	4164611.7	*551256.814164611.7*	0.1899	PHASE 1	0.1787	HAUL1	0.05918	HAUL2
ANNUAL	R150	551176.81	4164631.7	*551176.814164631.7*	0.2574	PHASE 1	0.2550	HAUL1	0.07057	HAUL2
ANNUAL	R151	551236.81	4164631.7	*551236.814164631.7*	0.2154	PHASE 1	0.2085	HAUL1	0.06286	HAUL2
ANNUAL	R152	551276.81	4164631.7	*551276.814164631.7*	0.1921	PHASE 1	0.1839	HAUL1	0.05848	HAUL2
ANNUAL	R153	551276.81	4164651.7	*551276.814164651.7*	0.2035	PHASE 1	0.2006	HAUL1	0.05966	HAUL2
ANNUAL	R154	550384.79	4164911.52	*550384.794164911.52*	0.0577	PHASE 1	0.0239	HAUL1	0.23009	HAUL2
ANNUAL	R155	550164.79	4164951.52	*550164.794164951.52*	0.0245	PHASE 1	0.0131	HAUL1	0.28728	HAUL2
ANNUAL	R156	550405.01	4165031.9	*550405.014165031.9*	0.0591	PHASE 1	0.0245	HAUL1	0.41312	HAUL2
ANNUAL	R157	550465.01	4165031.9	*550465.014165031.9*	0.0786	PHASE 1	0.0295	HAUL1	0.72657	HAUL2
ANNUAL	R158	550545.01	4165031.9	*550545.014165031.9*	0.1201	PHASE 1	0.0384	HAUL1	2.22488	HAUL2
ANNUAL	R159	550605.01	4165031.9	*550605.014165031.9*	0.1650	PHASE 1	0.0469	HAUL1	0.68248	HAUL2
ANNUAL	R160	550645.01	4165031.9	*550645.014165031.9*	0.1986	PHASE 1	0.0535	HAUL1	0.47512	HAUL2
ANNUAL	R161	550665.01	4165031.9	*550665.014165031.9*	0.2152	PHASE 1	0.0569	HAUL1	0.41111	HAUL2
ANNUAL	R162	550705.01	4165031.9	*550705.014165031.9*	0.2453	PHASE 1	0.0642	HAUL1	0.32044	HAUL2
ANNUAL	R163	550405.01	4165051.9	*550405.014165051.9*	0.0581	PHASE 1	0.0243	HAUL1	0.45625	HAUL2
ANNUAL	R164	550465.01	4165051.9	*550465.014165051.9*	0.0765	PHASE 1	0.0291	HAUL1	0.87658	HAUL2
ANNUAL	R165	550545.01	4165051.9	*550545.014165051.9*	0.1136	PHASE 1	0.0375	HAUL1	1.60752	HAUL2
ANNUAL	R166	550585.01	4165051.9	*550585.014165051.9*	0.1383	PHASE 1	0.0427	HAUL1	0.77403	HAUL2
ANNUAL	R167	550665.01	4165051.9	*550665.014165051.9*	0.1924	PHASE 1	0.0548	HAUL1	0.38766	HAUL2
ANNUAL	R168	550705.01	4165051.9	*550705.014165051.9*	0.2157	PHASE 1	0.0615	HAUL1	0.30509	HAUL2
ANNUAL	R169	550745.01	4165051.9	*550745.014165051.9*	0.2324	PHASE 1	0.0686	HAUL1	0.24847	HAUL2
ANNUAL	R170	550545.01	4165071.9	*550545.014165071.9*	0.1076	PHASE 1	0.0367	HAUL1	1.26849	HAUL2
ANNUAL	R171	550585.01	4165071.9	*550585.014165071.9*	0.1288	PHASE 1	0.0416	HAUL1	0.69455	HAUL2
ANNUAL	R172	550685.01	4165071.9	*550685.014165071.9*	0.1832	PHASE 1	0.0560	HAUL1	0.32449	HAUL2
ANNUAL	R173	550725.01	4165071.9	*550725.014165071.9*	0.1990	PHASE 1	0.0624	HAUL1	0.26186	HAUL2
ANNUAL	R174	550525.01	4165091.9	*550525.014165091.9*	0.0935	PHASE 1	0.0339	HAUL1	1.64006	HAUL2
ANNUAL	R175	550565.01	4165091.9	*550565.014165091.9*	0.1109	PHASE 1	0.0382	HAUL1	0.78735	HAUL2
ANNUAL	R176	550725.01	4165091.9	*550725.014165091.9*	0.1777	PHASE 1	0.0599	HAUL1	0.24959	HAUL2
ANNUAL	R177	550525.01	4165111.9	*550525.014165111.9*	0.0891	PHASE 1	0.0332	HAUL1	1.2922	HAUL2
ANNUAL	R178	550565.01	4165111.9	*550565.014165111.9*	0.1044	PHASE 1	0.0373	HAUL1	0.70539	HAUL2
ANNUAL	R179	550505.01	4165131.9	*550505.014165131.9*	0.0787	PHASE 1	0.0308	HAUL1	1.66919	HAUL2
ANNUAL	R180	550545.01	4165131.9	*550545.014165131.9*	0.0916	PHASE 1	0.0345	HAUL1	0.79911	HAUL2
ANNUAL	R181	550585.01	4165131.9	*550585.014165131.9*	0.1054	PHASE 1	0.0386	HAUL1	0.53169	HAUL2
ANNUAL	R182	550625.01	4165131.9	*550625.014165131.9*	0.1193	PHASE 1	0.0430	HAUL1	0.39366	HAUL2
ANNUAL	R183	550705.01	4165131.9	*550705.014165131.9*	0.1417	PHASE 1	0.0529	HAUL1	0.24813	HAUL2
ANNUAL	R184	550505.01	4165151.9	*550505.014165151.9*	0.0755	PHASE 1	0.0303	HAUL1	1.31582	HAUL2
ANNUAL	R185	550545.01	4165151.9	*550545.014165151.9*	0.0869	PHASE 1	0.0338	HAUL1	0.7135	HAUL2
ANNUAL	R186	550605.01	4165151.9	*550605.014165151.9*	0.1050	PHASE 1	0.0397	HAUL1	0.42117	HAUL2
ANNUAL	R187	550665.01	4165151.9	*550665.014165151.9*	0.1215	PHASE 1	0.0464	HAUL1	0.28852	HAUL2
ANNUAL	R188	550705.01	4165151.9	*550705.014165151.9*	0.1297	PHASE 1	0.0512	HAUL1	0.23426	HAUL2
ANNUAL	R189	550505.01	4165171.9	*550505.014165171.9*	0.0723	PHASE 1	0.0298	HAUL1	1.09069	HAUL2
ANNUAL	R190	550545.01	4165171.9	*550545.014165171.9*	0.0825	PHASE 1	0.0331	HAUL1	0.64183	HAUL2
ANNUAL	R191	550605.01	4165171.9	*550605.014165171.9*	0.0984	PHASE 1	0.0387	HAUL1	0.39005	HAUL2
ANNUAL	R192	550665.01	4165171.9	*550665.014165171.9*	0.1124	PHASE 1	0.0450	HAUL1	0.27011	HAUL2
ANNUAL	R193	550705.01	4165171.9	*550705.014165171.9*	0.1193	PHASE 1	0.0495	HAUL1	0.22039	HAUL2
ANNUAL	R194	550545.01	4165191.9	*550545.014165191.9*	0.0785	PHASE 1	0.0324	HAUL1	0.57868	HAUL2
ANNUAL	R195	550605.01	4165191.9	*550605.014165191.9*	0.0923	PHASE 1	0.0378	HAUL1	0.35974	HAUL2
ANNUAL	R196	550645.01	4165191.9	*550645.014165191.9*	0.1007	PHASE 1	0.0416	HAUL1	0.281	HAUL2
ANNUAL	R197	550685.01	4165191.9	*550685.014165191.9*	0.1075	PHASE 1	0.0458	HAUL1	0.2273	HAUL2
ANNUAL	R198	550585.01	4165211.9	*550585.014165211.9*	0.0829	PHASE 1	0.0351	HAUL1	0.37808	HAUL2
ANNUAL	R199	550625.01	4165211.9	*550625.014165211.9*	0.0906	PHASE 1	0.0386	HAUL1	0.29137	HAUL2
ANNUAL	R200	550665.01	4165211.9	*550665.014165211.9*	0.0972	PHASE 1	0.0424	HAUL1	0.23358	HAUL2
ANNUAL	R201	550685.01	4165031.9	*550685.014165031.9*	0.2309	PHASE 1	0.0605	HAUL1	0.3609	HAUL2
ANNUAL	R202	550725.01	4165031.9	*550725.014165031.9*	0.2578	PHASE 1	0.0680	HAUL1	0.28719	HAUL2
ANNUAL	R203	550445.01	4165051.9	*550445.014165051.9*	0.0696	PHASE 1	0.0274	HAUL1	0.64461	HAUL2
ANNUAL	R204	550485.01	4165051.9	*550485.014165051.9*	0.0842	PHASE 1	0.0310	HAUL1	1.47456	HAUL2
ANNUAL	R205	550565.01	4165051.9	*550565.014165051.9*	0.1255	PHASE 1	0.0400	HAUL1	1.03698	HAUL2
ANNUAL	R206	550645.01	4165051.9	*550645.014165051.9*	0.1792	PHASE 1	0.0516	HAUL1	0.44477	HAUL2
ANNUAL	R207	550685.01	4165051.9	*550685.014165051.9*	0.2047	PHASE 1	0.0581	HAUL1	0.34216	HAUL2
ANNUAL	R208	550725.01	4165051.9	*550725.014165051.9*	0.2251	PHASE 1	0.0650	HAUL1	0.27434	HAUL2
ANNUAL	R209	550525.01	4165071.9	*550525.014165071.9*	0.0980	PHASE 1	0.0345	HAUL1	2.26722	HAUL2
ANNUAL	R210	550565.01	4165071.9	*550565.014165071.9*	0.1179	PHASE 1	0.0391	HAUL1	0.89303	HAUL2
ANNUAL	R211	550605.01	4165071.9	*550605.014165071.9*	0.1401	PHASE 1	0.0442	HAUL1	0.56996	HAUL2
ANNUAL	R212	550705.01	4165071.9	*550705.014165071.9*	0.1918	PHASE 1	0.0591	HAUL1	0.29037	HAUL2
ANNUAL	R213	550745.01	4165071.9	*550745.014165071.9*	0.2045	PHASE 1	0.0657	HAUL1	0.23771	HAUL2
ANNUAL	R214	550545.01	4165091.9	*550545.014165091.9*	0.1019	PHASE 1	0.0360	HAUL1	1.05595	HAUL2
ANNUAL	R215	550585.01	4165091.9	*550585.014165091.9*	0.1202	PHASE 1	0.0406	HAUL1	0.63086	HAUL2
ANNUAL	R216	550505.01	4165111.9	*550505.014165111.9*	0.0821	PHASE 1	0.0314	HAUL1	2.31272	HAUL2
ANNUAL	R217	550545.01	4165111.9	*550545.014165111.9*	0.0966	PHASE 1	0.0352	HAUL1	0.9083	HAUL2
ANNUAL	R218	550585.01	4165111.9	*550585.014165111.9*	0.1125	PHASE 1	0.0395	HAUL1	0.57777	HAUL2
ANNUAL	R219	550525.01	4165131.9	*550525.014165131.9*	0.0850	PHASE 1	0.0326	HAUL1	1.07378	HAUL2
ANNUAL	R220	550565.01	4165131.9	*550565.014165131.9*	0.0984	PHASE 1	0.0365	HAUL1	0.63873	HAUL2
ANNUAL	R221	550605.01	4165131.9	*550605.014165131.9*	0.1124	PHASE 1	0.0408	HAUL1	0.4537	HAUL2
ANNUAL	R222	550685.01	4165131.9	*550685.014165131.9*	0.1371	PHASE 1	0.0503	HAUL1	0.27504	HAUL2
ANNUAL	R223	550485.01	4165151.9	*550485.014165151.9*	0.0702	PHASE 1	0.0287	HAUL1	2.36716	HAUL2
ANNUAL	R224	550525.01	4165151.9	*550525.014165151.9*	0.0811	PHASE 1	0.0320	HAUL1	0.92217	HAUL2
ANNUAL	R225	550565.01	4165151.9	*550565.014165151.9*	0.0929	PHASE 1	0.0357	HAUL1	0.58202	HAUL2
ANNUAL	R226	550625.01	4165151.9	*550625.014165151.9*	0.1109	PHASE 1	0.0419	HAUL1	0.36724	HAUL2
ANNUAL	R227	550685.01	4165151.9	*550685.014165151.9*	0.1259	PHASE 1	0.0487	HAUL1	0.25907	HAUL2
ANNUAL	R228	550485.01	4165171.9	*550485.014165171.9*	0.0675	PHASE 1	0.0282	HAUL1	1.70262	HAUL2
ANNUAL	R229	550525.01	4165171.9	*550525.014165171.9*	0.0773	PHASE 1	0.0314	HAUL1	0.80777	HAUL2
ANNUAL	R230	550585.01	4165171.9	*550585.014165171.9*	0.0932	PHASE 1	0.0368	HAUL1	0.45136	HAUL2
ANNUAL	R231	550625.01	4165171.9	*550625.014165171.9*	0.1034	PHASE 1	0.0407	HAUL1	0.34156	HAUL2
ANNUAL	R232	550685.01	4165171.9	*550685.014165171.9*	0.1161	PHASE 1	0.0472	HAUL1	0.24317	HAUL2
ANNUAL	R233	550525.01	4165191.9	*550525.014165191.9*	0.0738	PHASE 1	0.0308	HAUL1	0.71446	HAUL2
ANNUAL	R234	550585.01	4165191.9	*550585.014165191.9*	0.0878	PHASE 1	0.0359	HAUL1	0.41423	HAUL2
ANNUAL	R235	550625.01	4165191.9	*550625.014165191.9*	0.0967	PHASE 1	0.0397	HAUL1	0.31632	HAUL2
ANNUAL	R236	550665.01	4165191.9	*550665.014165191.9*	0.1043	PHASE 1	0.0437	HAUL1	0.25179	HAUL2
ANNUAL	R237	550705.01	4165191.9	*550705.014165191.9*	0.1102	PHASE 1	0.0480	HAUL1	0.20652	HAUL2
ANNUAL	R238	550605.01	4165211.9	*550605.014165211.9*	0.0868	PHASE 1	0.0368	HAUL1	0.32997	HAUL2
ANNUAL	R239	550645.01	4165211.9	*550645.014165211.9*	0.0941	PHASE 1	0.0405	HAUL1	0.2598	HAUL2
ANNUAL	R240	550685.01	4165211.9	*550685.014165211.9*	0.0999	PHASE 1	0.0445	HAUL1	0.21149	HAUL2
ANNUAL	R241	550605.01	4165231.9	*550605.014165231.9*	0.0818	PHASE 1	0.0359	HAUL1	0.30065	HAUL2
ANNUAL	R242	550645.01	4165231.9	*550645.014165231.9*	0.0881	PHASE 1	0.0394	HAUL1	0.23883	HAUL2
ANNUAL	R243	550685.01	4165231.9	*550685.014165231.9*	0.0931	PHASE 1	0.0432	HAUL1	0.1958	HAUL2
ANNUAL	R244	550665.01	4165251.9	*550665.014165251.9*	0.0850	PHASE 1	0.0401	HAUL1	0.19776	HAUL2
ANNUAL	R245	550425.01	4165291.9	*550425.014165291.9*	0.0460	PHASE 1	0.0224	HAUL1	1.3954	HAUL2
ANNUAL	R246	550945.45	4165192.15	*550945.454165192.15*	0.1122	PHASE 1	0.0882	HAUL1	0.08903	HAUL2
ANNUAL	R247	550985.45	4165192.15	*550985.454165192.15*	0.1092	PHASE 1	0.1017	HAUL1	0.08015	HAUL2
ANNUAL	R248	550925.45	4165212.15	*550925.454165212.15*	0.1035	PHASE 1	0.0800	HAUL1	0.08949	HAUL2
ANNUAL	R249	550965.45	4165212.15	*550965.454165212.15*	0.1010	PHASE 1	0.0913	HAUL1	0.08047	HAUL2
ANNUAL	R250	551005.45	4165212.15	*551005.454165212.15*	0.0966	PHASE 1	0.1068	HAUL1	0.07283	HAUL2
ANNUAL	R251	550885.45	4165232.15	*550885.454165232.15*	0.0970	PHASE 1	0.0688	HAUL1	0.09489	HAUL2
ANNUAL	R252	550925.45	4165232.15	*550925.454165232.15*	0.0952	PHASE 1	0.0773	HAUL1	0.08492	HAUL2
ANNUAL	R253	550965.45	4165232.15	*550965.454165232.15*	0.0924	PHASE 1	0.0883	HAUL1	0.07655	HAUL2
ANNUAL	R254	551025.45	4165232.15	*551025.454165232.15*	0.0852	PHASE 1	0.1139	HAUL1	0.06627	HAUL2
ANNUAL	R255	551065.45	4165232.15	*551065.454165232.15*	0.0785	PHASE 1	0.1424	HAUL1	0.06063	HAUL2
ANNUAL	R256	550905.45	4165252.15	*550905.454165252.15*	0.0889	PHASE 1	0.0704	HAUL1	0.08477	HAUL2
ANNUAL	R257	550945.45	4165252.15	*550945.454165252.15*	0.0865	PHASE 1	0.0797	HAUL1	0.07637	HAUL2
ANNUAL	R258	551025.45	4165252.15	*551025.454165252.15*	0.0780	PHASE 1	0.1108	HAUL1	0.06313	HAUL2
ANNUAL	R259	551065.45	4165252.15	*551065.454165252.15*	0.0720	PHASE 1	0.1399	HAUL1	0.05787	HAUL2
ANNUAL	R260	551105.45	4165252.15	*551105.454165252.15*	0.0655	PHASE 1	0.1909	HAUL1	0.0533	HAUL2
ANNUAL	R261	550905.45	4165272.15	*550905.454165272.15*	0.0824	PHASE 1	0.0682	HAUL1	0.07994	HAUL2
ANNUAL	R262	550945.45	4165272.15	*550945.454165272.15*	0.0800	PHASE 1	0.0772	HAUL1	0.07224	HAUL2
ANNUAL	R263	551045.45	4165272.15	*551045.454165272.15*	0.0691	PHASE 1	0.1207	HAUL1	0.0575	HAUL2
ANNUAL	R264	551085.45	4165272.15	*551085.454165272.15*	0.0634	PHASE 1	0.1593	HAUL1	0.05295	HAUL2
ANNUAL	R265	550865.45	4165292.15	*550865.454165292.15*	0.0784	PHASE 1	0.0593	HAUL1	0.08351	HAUL2
ANNUAL	R266	550905.45	4165292.15	*550905.454165292.15*	0.0767	PHASE 1	0.0660	HAUL1	0.07522	HAUL2
ANNUAL	R267	550945.45	4165292.15	*550945.454165292.15*	0.0742	PHASE 1	0.0748	HAUL1	0.0682	HAUL2
ANNUAL	R268	551045.45	4165292.15	*551045.454165292.15*	0.0640	PHASE 1	0.1175	HAUL1	0.05465	HAUL2
ANNUAL	R269	551085.45	4165292.15	*551085.454165292.15*	0.0589	PHASE 1	0.1565	HAUL1	0.05044	HAUL2
ANNUAL	R270	550885.45	4165312.15	*550885.454165312.15*	0.0724	PHASE 1	0.0604	HAUL1	0.07423	HAUL2
ANNUAL	R271	550925.45	4165312.15	*550925.454165312.15*	0.0704	PHASE 1	0.0679	HAUL1	0.06734	HAUL2
ANNUAL	R272	551025.45	4165312.15	*551025.454165312.15*	0.0617	PHASE 1	0.1016	HAUL1	0.05401	HAUL2
ANNUAL	R273	550865.45	4165332.15	*550865.454165332.15*	0.0685	PHASE 1	0.0557	HAUL1	0.07293	HAUL2
ANNUAL	R274	550905.45	4165332.15	*550905.454165332.15*	0.0668	PHASE 1	0.0620	HAUL1	0.06623	HAUL2
ANNUAL	R275	550985.45	4165332.15	*550985.454165332.15*	0.0613	PHASE 1	0.0815	HAUL1	0.05549	HAUL2
ANNUAL	R276	550925.45	4165352.15	*550925.454165352.15*	0.0616	PHASE 1	0.0638	HAUL1	0.05932	HAUL2

ANNUAL	R277	550865.45	4165372.15	*550865.454165372.15*	0.0605	PHASE 1	0.0524	HAUL1	0.0633	HAUL2
ANNUAL	R278	550405.6	4164911.75	*550405.64164911.75*	0.0641	PHASE 1	0.0256	HAUL1	0.24757	HAUL2
ANNUAL	R279	550405.6	4164931.75	*550405.64164931.75*	0.0634	PHASE 1	0.0255	HAUL1	0.26805	HAUL2
ANNUAL	R280	550465.6	4164931.75	*550465.64164931.75*	0.0890	PHASE 1	0.0314	HAUL1	0.38145	HAUL2
ANNUAL	R281	550625.01	4165231.9	*550625.014165231.9*	0.0851	PHASE 1	0.0376	HAUL1	0.26673	HAUL2
ANNUAL	R282	550665.01	4165231.9	*550665.014165231.9*	0.0908	PHASE 1	0.0413	HAUL1	0.21552	HAUL2
ANNUAL	R283	550645.01	4165251.9	*550645.014165251.9*	0.0827	PHASE 1	0.0384	HAUL1	0.21822	HAUL2
ANNUAL	R284	550685.01	4165251.9	*550685.014165251.9*	0.0870	PHASE 1	0.0420	HAUL1	0.18035	HAUL2
ANNUAL	R285	550925.45	4165192.15	*550925.454165192.15*	0.1130	PHASE 1	0.0829	HAUL1	0.09408	HAUL2
ANNUAL	R286	550965.45	4165192.15	*550965.454165192.15*	0.1109	PHASE 1	0.0945	HAUL1	0.08441	HAUL2
ANNUAL	R287	550905.45	4165212.15	*550905.454165212.15*	0.1044	PHASE 1	0.0754	HAUL1	0.09463	HAUL2
ANNUAL	R288	550945.45	4165212.15	*550945.454165212.15*	0.1024	PHASE 1	0.0852	HAUL1	0.08479	HAUL2
ANNUAL	R289	550985.45	4165212.15	*550985.454165212.15*	0.0991	PHASE 1	0.0984	HAUL1	0.07649	HAUL2
ANNUAL	R290	551045.45	4165212.15	*551045.454165212.15*	0.0902	PHASE 1	0.1295	HAUL1	0.06631	HAUL2
ANNUAL	R291	550905.45	4165232.15	*550905.454165232.15*	0.0962	PHASE 1	0.0728	HAUL1	0.08967	HAUL2
ANNUAL	R292	550945.45	4165232.15	*550945.454165232.15*	0.0939	PHASE 1	0.0824	HAUL1	0.08056	HAUL2
ANNUAL	R293	550985.45	4165232.15	*550985.454165232.15*	0.0904	PHASE 1	0.0953	HAUL1	0.07285	HAUL2
ANNUAL	R294	551045.45	4165232.15	*551045.454165232.15*	0.0820	PHASE 1	0.1266	HAUL1	0.06334	HAUL2
ANNUAL	R295	550885.45	4165252.15	*550885.454165252.15*	0.0898	PHASE 1	0.0666	HAUL1	0.08955	HAUL2
ANNUAL	R296	550925.45	4165252.15	*550925.454165252.15*	0.0878	PHASE 1	0.0748	HAUL1	0.08039	HAUL2
ANNUAL	R297	550965.45	4165252.15	*550965.454165252.15*	0.0849	PHASE 1	0.0855	HAUL1	0.07266	HAUL2
ANNUAL	R298	551045.45	4165252.15	*551045.454165252.15*	0.0751	PHASE 1	0.1237	HAUL1	0.0604	HAUL2
ANNUAL	R299	551085.45	4165252.15	*551085.454165252.15*	0.0687	PHASE 1	0.1614	HAUL1	0.05551	HAUL2
ANNUAL	R300	550885.45	4165272.15	*550885.454165272.15*	0.0834	PHASE 1	0.0644	HAUL1	0.08431	HAUL2
ANNUAL	R301	550925.45	4165272.15	*550925.454165272.15*	0.0813	PHASE 1	0.0724	HAUL1	0.07593	HAUL2
ANNUAL	R302	551025.45	4165272.15	*551025.454165272.15*	0.0718	PHASE 1	0.1078	HAUL1	0.06003	HAUL2
ANNUAL	R303	551065.45	4165272.15	*551065.454165272.15*	0.0663	PHASE 1	0.1371	HAUL1	0.05515	HAUL2
ANNUAL	R304	551105.45	4165272.15	*551105.454165272.15*	0.0606	PHASE 1	0.1907	HAUL1	0.0509	HAUL2
ANNUAL	R305	550885.45	4165292.15	*550885.454165292.15*	0.0776	PHASE 1	0.0624	HAUL1	0.07919	HAUL2
ANNUAL	R306	550925.45	4165292.15	*550925.454165292.15*	0.0755	PHASE 1	0.0701	HAUL1	0.07157	HAUL2
ANNUAL	R307	551025.45	4165292.15	*551025.454165292.15*	0.0664	PHASE 1	0.1047	HAUL1	0.05698	HAUL2
ANNUAL	R308	551065.45	4165292.15	*551065.454165292.15*	0.0615	PHASE 1	0.1339	HAUL1	0.05248	HAUL2
ANNUAL	R309	550865.45	4165312.15	*550865.454165312.15*	0.0732	PHASE 1	0.0574	HAUL1	0.07811	HAUL2
ANNUAL	R310	550905.45	4165312.15	*550905.454165312.15*	0.0715	PHASE 1	0.0640	HAUL1	0.07064	HAUL2
ANNUAL	R311	550945.45	4165312.15	*550945.454165312.15*	0.0690	PHASE 1	0.0725	HAUL1	0.06428	HAUL2
ANNUAL	R312	551045.45	4165312.15	*551045.454165312.15*	0.0595	PHASE 1	0.1143	HAUL1	0.05187	HAUL2
ANNUAL	R313	550885.45	4165332.15	*550885.454165332.15*	0.0678	PHASE 1	0.0586	HAUL1	0.06945	HAUL2
ANNUAL	R314	550925.45	4165332.15	*550925.454165332.15*	0.0657	PHASE 1	0.0658	HAUL1	0.06325	HAUL2
ANNUAL	R315	551005.45	4165332.15	*551005.454165332.15*	0.0595	PHASE 1	0.0890	HAUL1	0.05323	HAUL2
ANNUAL	R316	550945.45	4165352.15	*550945.454165352.15*	0.0603	PHASE 1	0.0679	HAUL1	0.05683	HAUL2
ANNUAL	R317	550885.45	4165372.15	*550885.454165372.15*	0.0597	PHASE 1	0.0551	HAUL1	0.06055	HAUL2
ANNUAL	R318	550425.6	4164911.75	*550425.64164911.75*	0.0715	PHASE 1	0.0274	HAUL1	0.27014	HAUL2
ANNUAL	R319	550425.6	4164931.75	*550425.64164931.75*	0.0705	PHASE 1	0.0272	HAUL1	0.29376	HAUL2
ANNUAL	R320	550485.6	4164931.75	*550485.64164931.75*	0.1012	PHASE 1	0.0338	HAUL1	0.46001	HAUL2
ANNUAL	R321	550505.6	4164931.75	*550505.64164931.75*	0.1161	PHASE 1	0.0365	HAUL1	0.58991	HAUL2
ANNUAL	R322	550425.6	4164951.75	*550425.64164951.75*	0.0695	PHASE 1	0.0270	HAUL1	0.32027	HAUL2
ANNUAL	R323	550525.6	4164951.75	*550525.64164951.75*	0.1293	PHASE 1	0.0388	HAUL1	1.07699	HAUL2
ANNUAL	R324	550505.6	4164971.75	*550505.64164971.75*	0.1086	PHASE 1	0.0354	HAUL1	0.85091	HAUL2
ANNUAL	R325	550585.6	4164971.75	*550585.64164971.75*	0.1901	PHASE 1	0.0479	HAUL1	1.53006	HAUL2
ANNUAL	R326	550625.6	4164971.75	*550625.64164971.75*	0.2525	PHASE 1	0.0559	HAUL1	0.74118	HAUL2
ANNUAL	R327	550505.6	4164991.75	*550505.64164991.75*	0.1048	PHASE 1	0.0348	HAUL1	1.08584	HAUL2
ANNUAL	R328	550585.6	4164991.75	*550585.64164991.75*	0.1748	PHASE 1	0.0465	HAUL1	1.21115	HAUL2
ANNUAL	R329	550625.6	4164991.75	*550625.64164991.75*	0.2245	PHASE 1	0.0538	HAUL1	0.66597	HAUL2
ANNUAL	R330	550665.6	4164991.75	*550665.64164991.75*	0.2790	PHASE 1	0.0620	HAUL1	0.46402	HAUL2
ANNUAL	R331	550585.6	4165011.75	*550585.64165011.75*	0.1614	PHASE 1	0.0452	HAUL1	1.01008	HAUL2
ANNUAL	R332	550625.6	4165011.75	*550625.64165011.75*	0.2015	PHASE 1	0.0520	HAUL1	0.60639	HAUL2
ANNUAL	R333	550665.6	4165011.75	*550665.64165011.75*	0.2439	PHASE 1	0.0594	HAUL1	0.43528	HAUL2
ANNUAL	R334	550705.6	4165011.75	*550705.64165011.75*	0.2836	PHASE 1	0.0673	HAUL1	0.33563	HAUL2
ANNUAL	R335	551378.51	4165172.16	*551378.514165172.16*	0.0534	PHASE 1	0.6486	HAUL1	0.03814	HAUL2
ANNUAL	R336	551418.51	4165172.16	*551418.514165172.16*	0.0498	PHASE 1	0.4331	HAUL1	0.03582	HAUL2
ANNUAL	R337	551338.51	4165192.16	*551338.514165192.16*	0.0524	PHASE 1	1.0191	HAUL1	0.03939	HAUL2
ANNUAL	R338	551378.51	4165192.16	*551378.514165192.16*	0.0490	PHASE 1	0.5784	HAUL1	0.03695	HAUL2
ANNUAL	R339	551418.51	4165192.16	*551418.514165192.16*	0.0459	PHASE 1	0.3960	HAUL1	0.03474	HAUL2
ANNUAL	R340	551338.51	4165212.16	*551338.514165212.16*	0.0481	PHASE 1	0.8615	HAUL1	0.03808	HAUL2
ANNUAL	R341	551378.51	4165212.16	*551378.514165212.16*	0.0451	PHASE 1	0.5183	HAUL1	0.03576	HAUL2
ANNUAL	R342	551418.51	4165212.16	*551418.514165212.16*	0.0424	PHASE 1	0.3619	HAUL1	0.03365	HAUL2
ANNUAL	R343	551358.51	4165232.16	*551358.514165232.16*	0.0430	PHASE 1	0.5734	HAUL1	0.03564	HAUL2
ANNUAL	R344	551398.51	4165232.16	*551398.514165232.16*	0.0405	PHASE 1	0.3880	HAUL1	0.03355	HAUL2
ANNUAL	R345	551378.51	4165252.16	*551378.514165252.16*	0.0387	PHASE 1	0.4167	HAUL1	0.03338	HAUL2
ANNUAL	R346	551378.51	4165272.16	*551378.514165272.16*	0.0361	PHASE 1	0.3720	HAUL1	0.0322	HAUL2
ANNUAL	R347	551498.28	4164852.3	*551498.284164852.3*	0.1089	PHASE 1	0.2273	HAUL1	0.04235	HAUL2
ANNUAL	R348	551538.28	4164852.3	*551538.284164852.3*	0.0971	PHASE 1	0.2001	HAUL1	0.03978	HAUL2
ANNUAL	R349	551458.28	4164872.3	*551458.284164872.3*	0.1199	PHASE 1	0.2847	HAUL1	0.0449	HAUL2
ANNUAL	R350	551498.28	4164872.3	*551498.284164872.3*	0.1059	PHASE 1	0.2453	HAUL1	0.04206	HAUL2
ANNUAL	R351	551538.28	4164872.3	*551538.284164872.3*	0.0945	PHASE 1	0.2129	HAUL1	0.0395	HAUL2
ANNUAL	R352	551458.28	4164892.3	*551458.284164892.3*	0.1160	PHASE 1	0.3133	HAUL1	0.04451	HAUL2
ANNUAL	R353	551498.28	4164892.3	*551498.284164892.3*	0.1026	PHASE 1	0.2648	HAUL1	0.0417	HAUL2
ANNUAL	R354	551538.28	4164892.3	*551538.284164892.3*	0.0916	PHASE 1	0.2260	HAUL1	0.03917	HAUL2
ANNUAL	R355	551458.28	4164912.3	*551458.284164912.3*	0.1116	PHASE 1	0.3460	HAUL1	0.04405	HAUL2
ANNUAL	R356	551498.28	4164912.3	*551498.284164912.3*	0.0988	PHASE 1	0.2853	HAUL1	0.04128	HAUL2
ANNUAL	R357	551538.28	4164912.3	*551538.284164912.3*	0.0883	PHASE 1	0.2389	HAUL1	0.03878	HAUL2
ANNUAL	R358	551458.28	4164932.3	*551458.284164932.3*	0.1068	PHASE 1	0.3824	HAUL1	0.04353	HAUL2
ANNUAL	R359	551498.28	4164932.3	*551498.284164932.3*	0.0947	PHASE 1	0.3059	HAUL1	0.0408	HAUL2
ANNUAL	R360	551538.28	4164932.3	*551538.284164932.3*	0.0848	PHASE 1	0.2510	HAUL1	0.03833	HAUL2
ANNUAL	R361	550405.6	4164951.75	*550405.64164951.75*	0.0627	PHASE 1	0.0253	HAUL1	0.29073	HAUL2
ANNUAL	R362	550465.6	4164951.75	*550465.64164951.75*	0.0871	PHASE 1	0.0311	HAUL1	0.42503	HAUL2
ANNUAL	R363	550485.6	4164971.75	*550485.64164971.75*	0.0959	PHASE 1	0.0329	HAUL1	0.60524	HAUL2
ANNUAL	R364	550525.6	4164971.75	*550525.64164971.75*	0.1239	PHASE 1	0.0381	HAUL1	1.49118	HAUL2
ANNUAL	R365	550605.6	4164971.75	*550605.64164971.75*	0.2197	PHASE 1	0.0517	HAUL1	0.99222	HAUL2
ANNUAL	R366	550405.6	4164991.75	*550405.64164991.75*	0.0611	PHASE 1	0.0250	HAUL1	0.34455	HAUL2
ANNUAL	R367	550565.6	4164991.75	*550565.64164991.75*	0.1534	PHASE 1	0.0432	HAUL1	2.13871	HAUL2
ANNUAL	R368	550605.6	4164991.75	*550605.64164991.75*	0.1987	PHASE 1	0.0501	HAUL1	0.85555	HAUL2
ANNUAL	R369	550645.6	4164991.75	*550645.64164991.75*	0.2515	PHASE 1	0.0578	HAUL1	0.54701	HAUL2
ANNUAL	R370	550565.6	4165011.75	*550565.64165011.75*	0.1435	PHASE 1	0.0422	HAUL1	1.55596	HAUL2
ANNUAL	R371	550605.6	4165011.75	*550605.64165011.75*	0.1809	PHASE 1	0.0485	HAUL1	0.75535	HAUL2
ANNUAL	R372	550645.6	4165011.75	*550645.64165011.75*	0.2227	PHASE 1	0.0556	HAUL1	0.50734	HAUL2
ANNUAL	R373	550685.6	4165011.75	*550685.64165011.75*	0.2644	PHASE 1	0.0633	HAUL1	0.3798	HAUL2
ANNUAL	R374	551318.51	4165172.16	*551318.514165172.16*	0.0595	PHASE 1	2.2167	HAUL1	0.04208	HAUL2
ANNUAL	R375	551398.51	4165172.16	*551398.514165172.16*	0.0515	PHASE 1	0.5211	HAUL1	0.03695	HAUL2
ANNUAL	R376	551318.51	4165192.16	*551318.514165192.16*	0.0542	PHASE 1	1.6155	HAUL1	0.04071	HAUL2
ANNUAL	R377	551358.51	4165192.16	*551358.514165192.16*	0.0506	PHASE 1	0.7403	HAUL1	0.03814	HAUL2
ANNUAL	R378	551398.51	4165192.16	*551398.514165192.16*	0.0474	PHASE 1	0.4721	HAUL1	0.03582	HAUL2
ANNUAL	R379	551318.51	4165212.16	*551318.514165212.16*	0.0497	PHASE 1	1.2627	HAUL1	0.03934	HAUL2
ANNUAL	R380	551358.51	4165212.16	*551358.514165212.16*	0.0466	PHASE 1	0.6495	HAUL1	0.03689	HAUL2
ANNUAL	R381	551398.51	4165212.16	*551398.514165212.16*	0.0437	PHASE 1	0.4282	HAUL1	0.03469	HAUL2
ANNUAL	R382	551338.51	4165232.16	*551338.514165232.16*	0.0443	PHASE 1	0.7397	HAUL1	0.03677	HAUL2
ANNUAL	R383	551378.51	4165232.16	*551378.514165232.16*	0.0417	PHASE 1	0.4651	HAUL1	0.03457	HAUL2
ANNUAL	R384	551358.51	4165252.16	*551358.514165252.16*	0.0399	PHASE 1	0.5073	HAUL1	0.0344	HAUL2
ANNUAL	R385	551398.51	4165252.16	*551398.514165252.16*	0.0376	PHASE 1	0.3505	HAUL1	0.03241	HAUL2
ANNUAL	R386	551478.28	4164852.3	*551478.284164852.3*	0.1156	PHASE 1	0.2427	HAUL1	0.04374	HAUL2
ANNUAL	R387	551518.28	4164852.3	*551518.284164852.3*	0.1027	PHASE 1	0.2131	HAUL1	0.04104	HAUL2
ANNUAL	R388	551558.28	4164852.3	*551558.284164852.3*	0.0919	PHASE 1	0.1879	HAUL1	0.03858	HAUL2
ANNUAL	R389	551478.28	4164872.3	*551478.284164872.3*	0.1125	PHASE 1	0.2639	HAUL1	0.04343	HAUL2
ANNUAL	R390	551518.28	4164872.3	*551518.284164872.3*	0.0999	PHASE 1	0.2284	HAUL1	0.04075	HAUL2
ANNUAL	R391	551558.28	4164872.3	*551558.284164872.3*	0.0895	PHASE 1	0.1987	HAUL1	0.03831	HAUL2
ANNUAL	R392	551478.28	4164892.3	*551478.284164892.3*	0.1089	PHASE 1	0.2876	HAUL1	0.04306	HAUL2
ANNUAL	R393	551518.28	4164892.3	*551518.284164892.3*	0.0968	PHASE 1	0.2443	HAUL1	0.0404	HAUL2
ANNUAL	R394	551558.28	4164892.3	*551558.284164892.3*	0.0867	PHASE 1	0.2095	HAUL1	0.03799	HAUL2
ANNUAL	R395	551478.28	4164912.3	*551478.284164912.3*	0.1048	PHASE 1	0.3134	HAUL1	0.04262	HAUL2
ANNUAL	R396	551518.28	4164912.3	*551518.284164912.3*	0.0933	PHASE 1	0.2606	HAUL1	0.04	HAUL2
ANNUAL	R397	551438.28	4164932.3	*551438.284164932.3*	0.1139	PHASE 1	0.4317	HAUL1	0.04502	HAUL2
ANNUAL	R398	551478.28	4164932.3	*551478.284164932.3*	0.1004	PHASE 1	0.3407	HAUL1	0.04212	HAUL2
ANNUAL	R399	551518.28	4164932.3	*551518.284164932.3*	0.0896	PHASE 1	0.2763	HAUL1	0.03954	HAUL2
ANNUAL	R400	551438.28	4164952.3	*551438.284164952.3*	0.1082	PHASE 1	0.4875	HAUL1	0.04441	HAUL2
ANNUAL	R401	551458.28	4164952.3	*551458.284164952.3*	0.1016	PHASE 1	0.4210	HAUL1	0.04295	HAUL2
ANNUAL	R402	551498.28	4164952.3	*551498.284164952.3*	0.0904	PHASE 1	0.3254	HAUL1	0.04026	HAUL2
ANNUAL	R403	551538.28	4164952.3	*551538.284164952.3*	0.0812	PHASE 1	0.2616	HAUL1	0.03784	HAUL2
ANNUAL	R404	551438.28	4164972.3	*551438.284164972.3*	0.1023	PHASE 1	0.5468	HAUL1	0.04374	HAUL2
ANNUAL	R405	551478.28	4164972.3	*551478.284164972.3*	0.0908	PHASE 1	0.3924	HAUL1	0.04095	HAUL2
ANNUAL	R406	551518.28	4164972.3	*551518.284164972.3*	0.0814	PHASE 1	0.3022	HAUL1	0.03846	HAUL2
ANNUAL	R407	551318.28	4164992.3	*551318.284164992.3*	0.1470	PHASE 1	3.8259	HAUL1	0.05315	HAUL2
ANNUAL	R408	551438.28	4164992.3	*551438.284164992.3*	0.0962	PHASE 1	0.6010	HAUL1	0.04302	HAUL2
ANNUAL	R409	551478.28	4164992.3	*551478.284164992.3*	0.0857	PHASE 1	0.4112	HAUL1	0.04029	HAUL2
ANNUAL	R410	551458.28	4165012.3	*551458.284165012.3*	0.0851	PHASE 1	0.5074	HAUL1	0.04087	HAUL2
ANNUAL	R411	551498.28	4165012.3	*551498.284165012.3*	0.0765	PHASE 1	0.3602	HAUL1	0.03836	HAUL2
ANNUAL	R412	551438.28	4165032.3	*551438.284165032.3*	0.0839	PHASE 1	0.6426	HAUL1	0.04142	HAUL2
ANNUAL	R413	551498.28	4165032.3	*551498.284165032.3*	0.0718	PHASE 1	0.3595	HAUL1	0.03765	HAUL2
ANNUAL	R414	551418.28	4165052.3	*551418.284165052.3*	0.0821	PHASE 1	0.8141	HAUL1	0.04191	HAUL2
ANNUAL	R415	551458.28	4165052.3	*551458.284165052.3*	0.0740	PHASE 1	0.4956	HAUL1	0.03926	HAUL2

ANNUAL	R416	551358.28	4165072.3	*551358.284165072.3*	0.0890	PHASE 1	3.0291	HAUL1	0.04533	HAUL2
ANNUAL	R417	551398.28	4165072.3	*551398.284165072.3*	0.0798	PHASE 1	0.9762	HAUL1	0.04235	HAUL2
ANNUAL	R418	551438.28	4165072.3	*551438.284165072.3*	0.0721	PHASE 1	0.5735	HAUL1	0.03965	HAUL2
ANNUAL	R419	551358.28	4165092.3	*551358.284165092.3*	0.0808	PHASE 1	2.0353	HAUL1	0.0442	HAUL2
ANNUAL	R420	551398.28	4165092.3	*551398.284165092.3*	0.0732	PHASE 1	0.8337	HAUL1	0.04133	HAUL2
ANNUAL	R421	551438.28	4165092.3	*551438.284165092.3*	0.0666	PHASE 1	0.5241	HAUL1	0.03872	HAUL2
ANNUAL	R422	551338.28	4165112.3	*551338.284165112.3*	0.0770	PHASE 1	3.1266	HAUL1	0.04452	HAUL2
ANNUAL	R423	551378.28	4165112.3	*551378.284165112.3*	0.0701	PHASE 1	0.9843	HAUL1	0.04161	HAUL2
ANNUAL	R424	551418.28	4165112.3	*551418.284165112.3*	0.0641	PHASE 1	0.5779	HAUL1	0.03898	HAUL2
ANNUAL	R425	551458.28	4165112.3	*551458.284165112.3*	0.0588	PHASE 1	0.4048	HAUL1	0.03659	HAUL2
ANNUAL	R426	551358.28	4165132.3	*551358.284165132.3*	0.0666	PHASE 1	1.2097	HAUL1	0.04184	HAUL2
ANNUAL	R427	551398.28	4165132.3	*551398.284165132.3*	0.0613	PHASE 1	0.6454	HAUL1	0.03918	HAUL2
ANNUAL	R428	551438.28	4165132.3	*551438.284165132.3*	0.0566	PHASE 1	0.4373	HAUL1	0.03677	HAUL2
ANNUAL	R429	551338.28	4165152.3	*551338.284165152.3*	0.0630	PHASE 1	1.5691	HAUL1	0.042	HAUL2
ANNUAL	R430	551378.28	4165152.3	*551378.284165152.3*	0.0583	PHASE 1	0.7352	HAUL1	0.03932	HAUL2
ANNUAL	R431	551418.28	4165152.3	*551418.284165152.3*	0.0541	PHASE 1	0.4751	HAUL1	0.03689	HAUL2
ANNUAL	R432	551338.28	4165172.3	*551338.284165172.3*	0.0573	PHASE 1	1.2404	HAUL1	0.0407	HAUL2
ANNUAL	R433	551378.28	4165172.3	*551378.284165172.3*	0.0534	PHASE 1	0.6499	HAUL1	0.03815	HAUL2
ANNUAL	R434	551298.14	4164530.93	*551298.144164530.93*	0.1298	PHASE 1	0.1130	HAUL1	0.04929	HAUL2
ANNUAL	R435	551318.14	4164550.93	*551318.144164550.93*	0.1346	PHASE 1	0.1177	HAUL1	0.04941	HAUL2
ANNUAL	R436	551298.14	4164570.93	*551298.144164570.93*	0.1498	PHASE 1	0.1339	HAUL1	0.05238	HAUL2
ANNUAL	R437	551338.14	4164570.93	*551338.144164570.93*	0.1377	PHASE 1	0.1218	HAUL1	0.04928	HAUL2
ANNUAL	R438	551298.14	4164590.93	*551298.144164590.93*	0.1601	PHASE 1	0.1456	HAUL1	0.05379	HAUL2
ANNUAL	R439	551338.14	4164590.93	*551338.144164590.93*	0.1459	PHASE 1	0.1316	HAUL1	0.05049	HAUL2
ANNUAL	R440	551378.14	4164590.93	*551378.144164590.93*	0.1329	PHASE 1	0.1198	HAUL1	0.04745	HAUL2
ANNUAL	R441	551478.28	4164952.3	*551478.284164952.3*	0.0957	PHASE 1	0.3679	HAUL1	0.04156	HAUL2
ANNUAL	R442	551518.28	4164952.3	*551518.284164952.3*	0.0856	PHASE 1	0.2905	HAUL1	0.03902	HAUL2
ANNUAL	R443	551418.28	4164972.3	*551418.284164972.3*	0.1091	PHASE 1	0.6697	HAUL1	0.04526	HAUL2
ANNUAL	R444	551458.28	4164972.3	*551458.284164972.3*	0.0962	PHASE 1	0.4582	HAUL1	0.04231	HAUL2
ANNUAL	R445	551498.28	4164972.3	*551498.284164972.3*	0.0859	PHASE 1	0.3420	HAUL1	0.03968	HAUL2
ANNUAL	R446	551538.28	4164972.3	*551538.284164972.3*	0.0773	PHASE 1	0.2699	HAUL1	0.0373	HAUL2
ANNUAL	R447	551418.28	4164992.3	*551418.284164992.3*	0.1024	PHASE 1	0.7756	HAUL1	0.0445	HAUL2
ANNUAL	R448	551458.28	4164992.3	*551458.284164992.3*	0.0907	PHASE 1	0.4890	HAUL1	0.04162	HAUL2
ANNUAL	R449	551498.28	4164992.3	*551498.284164992.3*	0.0812	PHASE 1	0.3542	HAUL1	0.03904	HAUL2
ANNUAL	R450	551478.28	4165012.3	*551478.284165012.3*	0.0806	PHASE 1	0.4216	HAUL1	0.03958	HAUL2
ANNUAL	R451	551418.28	4165032.3	*551418.284165032.3*	0.0888	PHASE 1	0.8710	HAUL1	0.04282	HAUL2
ANNUAL	R452	551478.28	4165032.3	*551478.284165032.3*	0.0755	PHASE 1	0.4219	HAUL1	0.03883	HAUL2
ANNUAL	R453	551378.28	4165052.3	*551378.284165052.3*	0.0920	PHASE 1	1.9834	HAUL1	0.04484	HAUL2
ANNUAL	R454	551438.28	4165052.3	*551438.284165052.3*	0.0779	PHASE 1	0.6178	HAUL1	0.04056	HAUL2
ANNUAL	R455	551478.28	4165052.3	*551478.284165052.3*	0.0705	PHASE 1	0.4124	HAUL1	0.03804	HAUL2
ANNUAL	R456	551378.28	4165072.3	*551378.284165072.3*	0.0842	PHASE 1	1.4784	HAUL1	0.0438	HAUL2
ANNUAL	R457	551418.28	4165072.3	*551418.284165072.3*	0.0758	PHASE 1	0.7267	HAUL1	0.04097	HAUL2
ANNUAL	R458	551458.28	4165072.3	*551458.284165072.3*	0.0687	PHASE 1	0.4697	HAUL1	0.0384	HAUL2
ANNUAL	R459	551378.28	4165092.3	*551378.284165092.3*	0.0768	PHASE 1	1.1814	HAUL1	0.04272	HAUL2
ANNUAL	R460	551418.28	4165092.3	*551418.284165092.3*	0.0697	PHASE 1	0.6451	HAUL1	0.03999	HAUL2
ANNUAL	R461	551458.28	4165092.3	*551458.284165092.3*	0.0636	PHASE 1	0.4377	HAUL1	0.03751	HAUL2
ANNUAL	R462	551358.28	4165112.3	*551358.284165112.3*	0.0734	PHASE 1	1.5193	HAUL1	0.04303	HAUL2
ANNUAL	R463	551398.28	4165112.3	*551398.284165112.3*	0.0670	PHASE 1	0.7279	HAUL1	0.04027	HAUL2
ANNUAL	R464	551438.28	4165112.3	*551438.284165112.3*	0.0614	PHASE 1	0.4780	HAUL1	0.03775	HAUL2
ANNUAL	R465	551338.28	4165132.3	*551338.284165132.3*	0.0696	PHASE 1	2.1228	HAUL1	0.04327	HAUL2
ANNUAL	R466	551378.28	4165132.3	*551378.284165132.3*	0.0639	PHASE 1	0.8427	HAUL1	0.04048	HAUL2
ANNUAL	R467	551418.28	4165132.3	*551418.284165132.3*	0.0589	PHASE 1	0.5224	HAUL1	0.03795	HAUL2
ANNUAL	R468	551458.28	4165132.3	*551458.284165132.3*	0.0544	PHASE 1	0.3738	HAUL1	0.03565	HAUL2
ANNUAL	R469	551358.28	4165152.3	*551358.284165152.3*	0.0606	PHASE 1	1.0033	HAUL1	0.04062	HAUL2
ANNUAL	R470	551398.28	4165152.3	*551398.284165152.3*	0.0562	PHASE 1	0.5784	HAUL1	0.03808	HAUL2
ANNUAL	R471	551318.28	4165172.3	*551318.284165172.3*	0.0595	PHASE 1	2.2309	HAUL1	0.04209	HAUL2
ANNUAL	R472	551358.28	4165172.3	*551358.284165172.3*	0.0553	PHASE 1	0.8551	HAUL1	0.03939	HAUL2
ANNUAL	R473	551678.14	4164370.93	*551678.144164370.93*	0.0513	PHASE 1	0.0429	HAUL1	0.02603	HAUL2
ANNUAL	R474	551298.14	4164550.93	*551298.144164550.93*	0.1397	PHASE 1	0.1231	HAUL1	0.05087	HAUL2
ANNUAL	R475	551358.14	4164550.93	*551358.144164550.93*	0.1245	PHASE 1	0.1079	HAUL1	0.04662	HAUL2
ANNUAL	R476	551318.14	4164570.93	*551318.144164570.93*	0.1437	PHASE 1	0.1276	HAUL1	0.0508	HAUL2
ANNUAL	R477	551358.14	4164570.93	*551358.144164570.93*	0.1319	PHASE 1	0.1164	HAUL1	0.04782	HAUL2
ANNUAL	R478	551318.14	4164590.93	*551318.144164590.93*	0.1529	PHASE 1	0.1383	HAUL1	0.05211	HAUL2
ANNUAL	R479	551358.14	4164590.93	*551358.144164590.93*	0.1392	PHASE 1	0.1254	HAUL1	0.04893	HAUL2
ANNUAL	R480	551298.14	4164610.93	*551298.144164610.93*	0.1704	PHASE 1	0.1582	HAUL1	0.05511	HAUL2
ANNUAL	R481	551318.14	4164610.93	*551318.144164610.93*	0.1620	PHASE 1	0.1498	HAUL1	0.05332	HAUL2
ANNUAL	R482	551358.14	4164610.93	*551358.144164610.93*	0.1464	PHASE 1	0.1351	HAUL1	0.04996	HAUL2
ANNUAL	R483	551398.14	4164610.93	*551398.144164610.93*	0.1325	PHASE 1	0.1230	HAUL1	0.04691	HAUL2
ANNUAL	R484	551438.14	4164610.93	*551438.144164610.93*	0.1204	PHASE 1	0.1133	HAUL1	0.04416	HAUL2
ANNUAL	R485	551358.14	4164630.93	*551358.144164630.93*	0.1533	PHASE 1	0.1455	HAUL1	0.0509	HAUL2
ANNUAL	R486	551398.14	4164630.93	*551398.144164630.93*	0.1378	PHASE 1	0.1319	HAUL1	0.04771	HAUL2
ANNUAL	R487	551298.14	4164650.93	*551298.144164650.93*	0.1904	PHASE 1	0.1869	HAUL1	0.05739	HAUL2
ANNUAL	R488	551338.14	4164650.93	*551338.144164650.93*	0.1692	PHASE 1	0.1659	HAUL1	0.05354	HAUL2
ANNUAL	R489	551398.14	4164650.93	*551398.144164650.93*	0.1427	PHASE 1	0.1415	HAUL1	0.04842	HAUL2
ANNUAL	R490	551438.14	4164650.93	*551438.144164650.93*	0.1282	PHASE 1	0.1293	HAUL1	0.04545	HAUL2
ANNUAL	R491	551298.14	4164670.93	*551298.144164670.93*	0.1997	PHASE 1	0.2034	HAUL1	0.05834	HAUL2
ANNUAL	R492	551338.14	4164670.93	*551338.144164670.93*	0.1761	PHASE 1	0.1795	HAUL1	0.05434	HAUL2
ANNUAL	R493	551378.14	4164670.93	*551378.144164670.93*	0.1560	PHASE 1	0.1601	HAUL1	0.05071	HAUL2
ANNUAL	R494	551418.14	4164670.93	*551418.144164670.93*	0.1390	PHASE 1	0.1447	HAUL1	0.04747	HAUL2
ANNUAL	R495	551478.14	4164670.93	*551478.144164670.93*	0.1181	PHASE 1	0.1273	HAUL1	0.04319	HAUL2
ANNUAL	R496	551318.14	4164690.93	*551318.144164690.93*	0.1948	PHASE 1	0.2076	HAUL1	0.05703	HAUL2
ANNUAL	R497	551358.14	4164690.93	*551358.144164690.93*	0.1709	PHASE 1	0.1830	HAUL1	0.0531	HAUL2
ANNUAL	R498	551398.14	4164690.93	*551398.144164690.93*	0.1509	PHASE 1	0.1633	HAUL1	0.04957	HAUL2
ANNUAL	R499	551458.14	4164690.93	*551458.144164690.93*	0.1269	PHASE 1	0.1415	HAUL1	0.04494	HAUL2
ANNUAL	R500	551338.14	4164710.93	*551338.144164710.93*	0.1877	PHASE 1	0.2116	HAUL1	0.05558	HAUL2
ANNUAL	R501	551378.14	4164710.93	*551378.144164710.93*	0.1642	PHASE 1	0.1864	HAUL1	0.05175	HAUL2
ANNUAL	R502	551418.14	4164710.93	*551418.144164710.93*	0.1448	PHASE 1	0.1666	HAUL1	0.04833	HAUL2
ANNUAL	R503	551458.14	4164710.93	*551458.144164710.93*	0.1286	PHASE 1	0.1512	HAUL1	0.04526	HAUL2
ANNUAL	R504	551398.14	4164730.93	*551398.144164730.93*	0.1565	PHASE 1	0.1899	HAUL1	0.05032	HAUL2
ANNUAL	R505	551418.14	4164750.93	*551418.144164750.93*	0.1479	PHASE 1	0.1935	HAUL1	0.04883	HAUL2
ANNUAL	R506	550597.48	4164211.07	*550597.484164211.07*	0.0415	PHASE 1	0.0272	HAUL1	0.02229	HAUL2
ANNUAL	R507	550637.48	4164311.07	*550637.484164311.07*	0.0584	PHASE 1	0.0380	HAUL1	0.03	HAUL2
ANNUAL	R508	550697.48	4164311.07	*550697.484164311.07*	0.0599	PHASE 1	0.0426	HAUL1	0.02732	HAUL2
ANNUAL	R509	550737.48	4164311.07	*550737.484164311.07*	0.0593	PHASE 1	0.0448	HAUL1	0.02606	HAUL2
ANNUAL	R510	550777.48	4164311.07	*550777.484164311.07*	0.0578	PHASE 1	0.0463	HAUL1	0.0256	HAUL2
ANNUAL	R511	550817.48	4164311.07	*550817.484164311.07*	0.0557	PHASE 1	0.0473	HAUL1	0.02589	HAUL2
ANNUAL	R512	550697.48	4164331.07	*550697.484164331.07*	0.0646	PHASE 1	0.0456	HAUL1	0.02946	HAUL2
ANNUAL	R513	550777.48	4164331.07	*550777.484164331.07*	0.0625	PHASE 1	0.0498	HAUL1	0.02761	HAUL2
ANNUAL	R514	550817.48	4164331.07	*550817.484164331.07*	0.0604	PHASE 1	0.0510	HAUL1	0.02803	HAUL2
ANNUAL	R515	550557.48	4164351.07	*550557.484164351.07*	0.0585	PHASE 1	0.0333	HAUL1	0.03783	HAUL2
ANNUAL	R516	550617.48	4164351.07	*550617.484164351.07*	0.0655	PHASE 1	0.0404	HAUL1	0.03625	HAUL2
ANNUAL	R517	550657.48	4164351.07	*550657.484164351.07*	0.0685	PHASE 1	0.0450	HAUL1	0.03414	HAUL2
ANNUAL	R518	550697.48	4164351.07	*550697.484164351.07*	0.0698	PHASE 1	0.0490	HAUL1	0.03189	HAUL2
ANNUAL	R519	550737.48	4164351.07	*550737.484164351.07*	0.0694	PHASE 1	0.0518	HAUL1	0.03032	HAUL2
ANNUAL	R520	550797.48	4164351.07	*550797.484164351.07*	0.0670	PHASE 1	0.0546	HAUL1	0.0301	HAUL2
ANNUAL	R521	551338.14	4164610.93	*551338.144164610.93*	0.1540	PHASE 1	0.1421	HAUL1	0.05161	HAUL2
ANNUAL	R522	551378.14	4164610.93	*551378.144164610.93*	0.1392	PHASE 1	0.1287	HAUL1	0.0484	HAUL2
ANNUAL	R523	551418.14	4164610.93	*551418.144164610.93*	0.1263	PHASE 1	0.1179	HAUL1	0.0455	HAUL2
ANNUAL	R524	551318.14	4164630.93	*551318.144164630.93*	0.1709	PHASE 1	0.1623	HAUL1	0.05443	HAUL2
ANNUAL	R525	551378.14	4164630.93	*551378.144164630.93*	0.1453	PHASE 1	0.1383	HAUL1	0.04927	HAUL2
ANNUAL	R526	551438.14	4164630.93	*551438.144164630.93*	0.1245	PHASE 1	0.1210	HAUL1	0.04484	HAUL2
ANNUAL	R527	551318.14	4164650.93	*551318.144164650.93*	0.1795	PHASE 1	0.1759	HAUL1	0.05542	HAUL2
ANNUAL	R528	551358.14	4164650.93	*551358.144164650.93*	0.1597	PHASE 1	0.1569	HAUL1	0.05174	HAUL2
ANNUAL	R529	551418.14	4164650.93	*551418.144164650.93*	0.1352	PHASE 1	0.1351	HAUL1	0.0469	HAUL2
ANNUAL	R530	551478.14	4164650.93	*551478.144164650.93*	0.1157	PHASE 1	0.1195	HAUL1	0.04275	HAUL2
ANNUAL	R531	551318.14	4164670.93	*551318.144164670.93*	0.1875	PHASE 1	0.1909	HAUL1	0.05629	HAUL2
ANNUAL	R532	551358.14	4164670.93	*551358.144164670.93*	0.1656	PHASE 1	0.1693	HAUL1	0.05248	HAUL2
ANNUAL	R533	551398.14	4164670.93	*551398.144164670.93*	0.1471	PHASE 1	0.1519	HAUL1	0.04904	HAUL2
ANNUAL	R534	551438.14	4164670.93	*551438.144164670.93*	0.1315	PHASE 1	0.1382	HAUL1	0.04597	HAUL2
ANNUAL	R535	551298.14	4164690.93	*551298.144164690.93*	0.2083	PHASE 1	0.2219	HAUL1	0.05915	HAUL2
ANNUAL	R536	551338.14	4164690.93	*551338.144164690.93*	0.1823	PHASE 1	0.1946	HAUL1	0.05502	HAUL2
ANNUAL	R537	551378.14	4164690.93	*551378.144164690.93*	0.1605	PHASE 1	0.1726	HAUL1	0.05129	HAUL2
ANNUAL	R538	551418.14	4164690.93	*551418.144164690.93*	0.1422	PHASE 1	0.1552	HAUL1	0.04795	HAUL2
ANNUAL	R539	551598.14	4164690.93	*551598.144164690.93*	0.0887	PHASE 1	0.1091	HAUL1	0.03649	HAUL2
ANNUAL	R540	551358.14	4164710.93	*551358.144164710.93*	0.1754	PHASE 1	0.1983	HAUL1	0.05361	HAUL2
ANNUAL	R541	551398.14	4164710.93	*551398.144164710.93*	0.1541	PHASE 1	0.1759	HAUL1	0.04999	HAUL2
ANNUAL	R542	551438.14	4164710.93	*551438.144164710.93*	0.1364	PHASE 1	0.1585	HAUL1	0.04676	HAUL2
ANNUAL	R543	551378.14	4164730.93	*551378.144164730.93*	0.1672	PHASE 1	0.2019	HAUL1	0.05211	HAUL2
ANNUAL	R544	551438.14	4164730.93	*551438.144164730.93*	0.1379	PHASE 1	0.1701	HAUL1	0.04702	HAUL2
ANNUAL	R545	551438.14	4164750.93	*551438.144164750.93*	0.1388	PHASE 1	0.1830	HAUL1	0.0472	HAUL2
ANNUAL	R546	550597.48	4164231.07	*550597.484164231.07*	0.0439	PHASE 1	0.0284	HAUL1	0.02377	HAUL2
ANNUAL	R547	550657.48	4164311.07	*550657.484164311.07*	0.0593	PHASE 1	0.0397	HAUL1	0.02908	HAUL2
ANNUAL	R548	550717.48	4164311.07	*550717.484164311.07*	0.0598	PHASE 1	0.0438	HAUL1	0.0266	HAUL2
ANNUAL	R549	550757.48	4164311.07	*550757.484164311.07*	0.0586	PHASE 1	0.0456	HAUL1	0.02573	HAUL2
ANNUAL	R550	550797.48	4164311.07	*550797.484164311.07*	0.0568	PHASE 1	0.0468	HAUL1	0.02567	HAUL2
ANNUAL	R551	550677.48	4164331.07	*550677.484164331.07*	0.0643	PHASE 1	0.0440	HAUL1	0.03042	HAUL2
ANNUAL	R552	550757.48	4164331.07	*550757.484164331.07*	0.0634	PHASE 1	0.0490	HAUL1	0.02771	HAUL2
ANNUAL	R553	550797.48	4164331.07	*550797.484164331.07*	0.0615	PHASE 1	0.0505	HAUL1	0.02773	HAUL2
ANNUAL	R554	550837.48	4164331.07	*550837.484164331.07*	0.0593	PHASE 1	0.0515	HAUL1	0.02846	HAUL2

ANNUAL	R555	550577.48	4164351.07	*550577.484164351.07*	0.0611	PHASE 1	0.0356	HAUL1	0.03756	HAUL2
ANNUAL	R556	550637.48	4164351.07	*550637.484164351.07*	0.0672	PHASE 1	0.0428	HAUL1	0.03526	HAUL2
ANNUAL	R557	550677.48	4164351.07	*550677.484164351.07*	0.0694	PHASE 1	0.0471	HAUL1	0.03298	HAUL2
ANNUAL	R558	550717.48	4164351.07	*550717.484164351.07*	0.0698	PHASE 1	0.0505	HAUL1	0.03097	HAUL2
ANNUAL	R559	550777.48	4164351.07	*550777.484164351.07*	0.0679	PHASE 1	0.0538	HAUL1	0.0299	HAUL2
ANNUAL	R560	550817.48	4164351.07	*550817.484164351.07*	0.0659	PHASE 1	0.0553	HAUL1	0.0305	HAUL2
ANNUAL	R561	550837.48	4164351.07	*550837.484164351.07*	0.0647	PHASE 1	0.0559	HAUL1	0.03104	HAUL2
ANNUAL	R562	550577.48	4164371.07	*550577.484164371.07*	0.0652	PHASE 1	0.0373	HAUL1	0.04083	HAUL2
ANNUAL	R563	550617.48	4164371.07	*550617.484164371.07*	0.0704	PHASE 1	0.0428	HAUL1	0.03954	HAUL2
ANNUAL	R564	550677.48	4164371.07	*550677.484164371.07*	0.0751	PHASE 1	0.0506	HAUL1	0.0359	HAUL2
ANNUAL	R565	550717.48	4164371.07	*550717.484164371.07*	0.0758	PHASE 1	0.0546	HAUL1	0.03362	HAUL2
ANNUAL	R566	550757.48	4164371.07	*550757.484164371.07*	0.0749	PHASE 1	0.0573	HAUL1	0.03255	HAUL2
ANNUAL	R567	550857.48	4164371.07	*550857.484164371.07*	0.0699	PHASE 1	0.0618	HAUL1	0.03481	HAUL2
ANNUAL	R568	550717.48	4164391.07	*550717.484164391.07*	0.0826	PHASE 1	0.0592	HAUL1	0.03668	HAUL2
ANNUAL	R569	550757.48	4164391.07	*550757.484164391.07*	0.0819	PHASE 1	0.0625	HAUL1	0.03556	HAUL2
ANNUAL	R570	550797.48	4164391.07	*550797.484164391.07*	0.0803	PHASE 1	0.0649	HAUL1	0.03612	HAUL2
ANNUAL	R571	550857.48	4164391.07	*550857.484164391.07*	0.0772	PHASE 1	0.0680	HAUL1	0.03851	HAUL2
ANNUAL	R572	550757.48	4164411.07	*550757.484164411.07*	0.0899	PHASE 1	0.0684	HAUL1	0.03912	HAUL2
ANNUAL	R573	550797.48	4164411.07	*550797.484164411.07*	0.0885	PHASE 1	0.0714	HAUL1	0.04002	HAUL2
ANNUAL	R574	550857.48	4164411.07	*550857.484164411.07*	0.0859	PHASE 1	0.0756	HAUL1	0.04292	HAUL2
ANNUAL	R575	550837.48	4164431.07	*550837.484164431.07*	0.0970	PHASE 1	0.0830	HAUL1	0.04711	HAUL2
ANNUAL	R576	550837.48	4164451.07	*550837.484164451.07*	0.1092	PHASE 1	0.0938	HAUL1	0.05344	HAUL2
ANNUAL	R577	550857.48	4164471.07	*550857.484164471.07*	0.1239	PHASE 1	0.1104	HAUL1	0.06225	HAUL2
ANNUAL	R578	551045.12	4165591.04	*551045.124165591.04*	0.0282	PHASE 1	0.0584	HAUL1	0.02385	HAUL2
ANNUAL	R579	550857.48	4164351.07	*550857.484164351.07*	0.0635	PHASE 1	0.0565	HAUL1	0.03167	HAUL2
ANNUAL	R580	550597.48	4164371.07	*550597.484164371.07*	0.0679	PHASE 1	0.0400	HAUL1	0.04033	HAUL2
ANNUAL	R581	550657.48	4164371.07	*550657.484164371.07*	0.0740	PHASE 1	0.0481	HAUL1	0.03722	HAUL2
ANNUAL	R582	550697.48	4164371.07	*550697.484164371.07*	0.0757	PHASE 1	0.0527	HAUL1	0.03466	HAUL2
ANNUAL	R583	550737.48	4164371.07	*550737.484164371.07*	0.0755	PHASE 1	0.0561	HAUL1	0.03291	HAUL2
ANNUAL	R584	550777.48	4164371.07	*550777.484164371.07*	0.0741	PHASE 1	0.0584	HAUL1	0.03255	HAUL2
ANNUAL	R585	550697.48	4164391.07	*550697.484164391.07*	0.0823	PHASE 1	0.0570	HAUL1	0.03786	HAUL2
ANNUAL	R586	550737.48	4164391.07	*550737.484164391.07*	0.0824	PHASE 1	0.0610	HAUL1	0.0359	HAUL2
ANNUAL	R587	550777.48	4164391.07	*550777.484164391.07*	0.0811	PHASE 1	0.0637	HAUL1	0.03566	HAUL2
ANNUAL	R588	550817.48	4164391.07	*550817.484164391.07*	0.0793	PHASE 1	0.0660	HAUL1	0.03681	HAUL2
ANNUAL	R589	550737.48	4164411.07	*550737.484164411.07*	0.0903	PHASE 1	0.0667	HAUL1	0.0394	HAUL2
ANNUAL	R590	550777.48	4164411.07	*550777.484164411.07*	0.0893	PHASE 1	0.0700	HAUL1	0.03937	HAUL2
ANNUAL	R591	550817.48	4164411.07	*550817.484164411.07*	0.0877	PHASE 1	0.0728	HAUL1	0.04092	HAUL2
ANNUAL	R592	550797.48	4164431.07	*550797.484164431.07*	0.0982	PHASE 1	0.0792	HAUL1	0.04478	HAUL2
ANNUAL	R593	550857.48	4164431.07	*550857.484164431.07*	0.0962	PHASE 1	0.0848	HAUL1	0.04821	HAUL2
ANNUAL	R594	550837.48	4164471.07	*550837.484164471.07*	0.1239	PHASE 1	0.1073	HAUL1	0.06122	HAUL2
ANNUAL	R595	551065.12	4165571.04	*551065.124165571.04*	0.0286	PHASE 1	0.0650	HAUL1	0.02452	HAUL2
ANNUAL	R596	551065.12	4165591.04	*551065.124165591.04*	0.0275	PHASE 1	0.0611	HAUL1	0.02328	HAUL2

Health Risk - Dose and Risk Factors and Values

Dose factors

			3rd trimester	0<2	2<9	16<30	16-70	source
Dose factors for calc	Construction	Residential	3.46E-04	1.05E-03	6.05E-04	2.50E-04	2.23E-04	*dose factors for lookup in risk calcs*
		Recreational	8.57E-06	4.29E-05	2.29E-05	8.57E-06	8.21E-06	*dose factors for lookup in risk calcs*
		school	2.96E-05	1.48E-04	6.41E-05	2.96E-05	2.84E-05	*dose factors for lookup in risk calcs*
	Daily Breath Rate (L/kg-day)	Residential	361	1090	631	261	233	OEHHA 2015, Table 5.6, 95th %ile for 3rdtri-2yrs old; 80th for 2>9 per BAAQMD guidance
		Recreational	240	1200	640	240	230	OEHHA 2015, Table 5.8 (95th, moderate) for all bins but 3rd tri, which was taken from SJVUAPCD's draft guidance
		School	240	1200	520	240	230	BAAQMD guidance - 95th percentile
	A		1	1	1	1	1	OEHHA 2015, page 5-24
	EF, Exposure frequency (unitless), day	Residential	0.96	0.96	0.96	0.96	0.96	OEHHA 2015, page 5-24, 350 days/yr
		Recreational	0.036	0.036	0.036	0.036	0.036	3x/week, 2 hours/day, for 9 years
		School	0.12	0.12	0.12	0.12	0.12	BAAQMD Guidance - 180 days/yr, 6 hours/day
	Conversion Factor		1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	(mg/ug * m3/L)
	Adjustment Factor (schools		1.00	1.00	1.00	1.00	1.00	Similar to WAF; OEHHA 2015, Page 4-44 and Equation 4.1; non-continuous emissions adjusted per WAF guidance. DF of 1 since construction and student presence assumed to completely overlap

Risk Factors

Risk factors for calcs	Construction	Residential	1.10E+01	11.00	3.30E+00	1.10E+00	1.10E+00	*without ED; ED/AT calculation in risk calc*
		Recreational	1.10E+01	1.10E+01	3.30E+00	1.10E+00	1.10E+00	
		school	1.10E+01	1.10E+01	3.30E+00	1.10E+00	1.10E+00	
	CPF, DPM ([mg/kg-day]$^{-1}$)		1.1	1.1	1.1	1.1	1.1	OEHHA 2015, Table 7.1
	Average Age Sensitivity Factor		10	10	3	1	1	OEHHA 2015, Table 8.3
	AT, Average Time (days)		70	70	70	70	70	Averaging time for lifetime cancer risk
	FAH		1.00	1.00	1.00	1.00	1.00	OEHHA 2015, Table 8.4: Use FAH = 1 if a school is within the 1×10-6 (or greater) cancer risk isopleth

ED, Exposure Duration (years)	see ED calculation sheet	
Chronic Inhalation Reference Exposure Level, respiratory, DPM	5	http://www.baaqmd.gov/~/media/files/planning-and-research/rules-and-regs/workshops/2016/reg-2-5/hra-guidelines_clean_jan_2016-pdf.pdf?la=en

conversions:

Second per hour	3600
Grams per ton	907184.74
Million	1,000,000
m2 per acre	4046.86
days per year	365

Unitized rate reasoning, see Section 3.9.2 of CAPCOA's HRA Guide:
An alternative approach is applying unitized emission rate and summation concepts, which drastically reduce the computational time for large multiple pollutant projects.
all chemical concentration levels vary linearly with their source release rate
The concentration at the receptor can then be multiplied by the actual rates (actual g/s (x) unitized 1 g/s rate)

DPM HRA Factors and values - Operations

Dose factors

				3rd trimester	0<2	2<9	16<30	16-70	source
factors for calcs --->	Construction	Existing Student		4.97E-04	2.49E-03	1.33E-03	4.97E-04	4.76E-04	*dose factors for lookup in risk calcs*
		New Student		4.97E-04	2.49E-03	1.33E-03	4.97E-04	4.76E-04	
		Residential		3.46E-04	1.05E-03	6.05E-04	2.50E-04	2.23E-04	
		Offsite Student		4.97E-04	2.49E-03	1.33E-03	4.97E-04	4.76E-04	*dose factors for lookup in risk calcs*
	Daily Breath Rate (L/kg-day)	Residential		361	1090	631	261	233	OEHHA 2015, Table 5.6, 95th %ile for 3rdtri-2yrs old; 80th for other age groups
		School		240	1200	640	240	230	SJVAPCD for 3rd tri; 95th percentile for all
	A			1	1	1	1	1	OEHHA 2015, page 5-24
	EF, Exposure frequency (unitless), day	Residential		0.96	0.96	0.96	0.96	0.96	OEHHA 2015, page 5-24, 350 days/yr
		School		0.49	0.49	0.49	0.49	0.49	180 days/yr
	Conversion Factor			1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	(mg/ug * m3/L)
	Adjustment Factor (schools			4.20	4.20	4.20	4.20	4.20	Similar to WAF; OEHHA 2015, Page 4-44 and Equation 4.1; non-continuous emissions adjusted per WAF guidance. DF of 1 since construction and student presence assumed to completely overlap

Risk Factors

factors for calcs --->		Existing Student		0.00E+00	0.00E+00	1.89E-01	0.00E+00	0.00E+00	
		New Student		0.00E+00	0.00E+00	1.89E-01	0.00E+00	0.00E+00	
		Offsite Student		0.00E+00	0.00E+00	1.89E-01	0.00E+00	0.00E+00	
		Residential		3.93E-02	3.14E-01	0.00E+00	2.20E-01	0.00E+00	
	CPF, DPM ([mg/kg-day]$^{-1}$)			1.1	1.1	1.1	1.1	1.1	OEHHA 2015, Table 7.1
	Average Age Sensitivity Factor			10	10	3	1	1	OEHHA 2015, Table 8.3
	AT, Average Time (days)			70	70	70	70	70	Averaging time for lifetime cancer risk
	FAH			1.00	1.00	1.00	1.00	1.00	OEHHA 2015, Table 8.4: Use FAH = 1 if a school is within the 1×10-6 (or greater) cancer risk isopleth
	ED, Exposure Duration (years)								
	Buses	New Wilson/Central Students				4.00			Grades 1-8; ages 6-13
		Residential		0.25	2.00		14.00		Equation 8.2.4 B, OEHHA 2015; 30 years total
	Roadway	New Wilson/Central Students				4.00			Equation 8.2.4 A, OEHHA 2015
		Residential							Equation 8.2.4 B, OEHHA 2015; 30 years total

	Chronic Inhalation Reference Exposure Level, respiratory, DPM	5
1hr to annual		0.1

conversions:

Second per hour	3600
Grams per ton	907184.74
Million	1,000,000
m2 per acre	4046.86
days per year	365

Project-Level Mitigated PM2.5 during Construction

Receptor	PM2.5
Residential	0.003
BAAQMD Threshold	0.3
Exceed BAAQMD Threshold?	No

					1	2	3	4	5	6	7	8	9	10	11
Period	ID	X	Y	*concat*	Concentration [ug/m^3]	PHASE 1	Concentration [ug/m^3]	Haul1	Concentration [ug/m^3]	Haul2	Concentration [ug/m^3]	Building	Concentration [ug/m^3]	Building
ANNUAL	R1	550876.81	4164331.7	*550876.814164331.7*	0.0571	PHASE 1	0.0523	HAUL1	0.02961	HAUL2				
ANNUAL	R2	550896.81	4164351.7	*550896.814164351.7*	0.0615	PHASE 1	0.0574	HAUL1	0.03305	HAUL2				
ANNUAL	R3	550876.81	4164371.7	*550876.814164371.7*	0.0690	PHASE 1	0.0625	HAUL1	0.03564	HAUL2				
ANNUAL	R4	550936.81	4164371.7	*550936.814164371.7*	0.0658	PHASE 1	0.0637	HAUL1	0.03759	HAUL2				
ANNUAL	R5	550876.81	4164391.7	*550876.814164391.7*	0.0764	PHASE 1	0.0691	HAUL1	0.03946	HAUL2				
ANNUAL	R6	550916.81	4164391.7	*550916.814164391.7*	0.0743	PHASE 1	0.0703	HAUL1	0.0409	HAUL2				
ANNUAL	R7	550956.81	4164391.7	*550956.814164391.7*	0.0725	PHASE 1	0.0709	HAUL1	0.04188	HAUL2				
ANNUAL	R8	550996.81	4164391.7	*550996.814164391.7*	0.0713	PHASE 1	0.0710	HAUL1	0.04238	HAUL2				
ANNUAL	R9	551036.81	4164391.7	*551036.814164391.7*	0.0710	PHASE 1	0.0709	HAUL1	0.04247	HAUL2				
ANNUAL	R10	550896.81	4164411.7	*550896.814164411.7*	0.0842	PHASE 1	0.0779	HAUL1	0.04475	HAUL2				
ANNUAL	R11	550936.81	4164411.7	*550936.814164411.7*	0.0822	PHASE 1	0.0791	HAUL1	0.04585	HAUL2				
ANNUAL	R12	550976.81	4164411.7	*550976.814164411.7*	0.0806	PHASE 1	0.0795	HAUL1	0.04635	HAUL2				
ANNUAL	R13	551016.81	4164411.7	*551016.814164411.7*	0.0798	PHASE 1	0.0794	HAUL1	0.04631	HAUL2				
ANNUAL	R14	551056.81	4164411.7	*551056.814164411.7*	0.0798	PHASE 1	0.0791	HAUL1	0.04586	HAUL2				
ANNUAL	R15	550876.81	4164431.7	*550876.814164431.7*	0.0958	PHASE 1	0.0866	HAUL1	0.0493	HAUL2				
ANNUAL	R16	550916.81	4164431.7	*550916.814164431.7*	0.0939	PHASE 1	0.0887	HAUL1	0.05056	HAUL2				
ANNUAL	R17	550956.81	4164431.7	*550956.814164431.7*	0.0919	PHASE 1	0.0896	HAUL1	0.05101	HAUL2				
ANNUAL	R18	550996.81	4164431.7	*550996.814164431.7*	0.0905	PHASE 1	0.0896	HAUL1	0.0508	HAUL2				
ANNUAL	R19	551036.81	4164431.7	*551036.814164431.7*	0.0899	PHASE 1	0.0892	HAUL1	0.05009	HAUL2				
ANNUAL	R20	551076.81	4164431.7	*551076.814164431.7*	0.0901	PHASE 1	0.0884	HAUL1	0.04903	HAUL2				
ANNUAL	R21	551116.81	4164431.7	*551116.814164431.7*	0.0905	PHASE 1	0.0871	HAUL1	0.04773	HAUL2				
ANNUAL	R22	550896.81	4164451.7	*550896.814164451.7*	0.1077	PHASE 1	0.1001	HAUL1	0.05621	HAUL2				
ANNUAL	R23	550936.81	4164451.7	*550936.814164451.7*	0.1056	PHASE 1	0.1019	HAUL1	0.05657	HAUL2				
ANNUAL	R24	550976.81	4164451.7	*550976.814164451.7*	0.1036	PHASE 1	0.1021	HAUL1	0.05609	HAUL2				
ANNUAL	R25	551016.81	4164451.7	*551016.814164451.7*	0.1023	PHASE 1	0.1016	HAUL1	0.05502	HAUL2				
ANNUAL	R26	551056.81	4164451.7	*551056.814164451.7*	0.1018	PHASE 1	0.1005	HAUL1	0.05356	HAUL2				
ANNUAL	R27	551096.81	4164451.7	*551096.814164451.7*	0.1017	PHASE 1	0.0989	HAUL1	0.05186	HAUL2				
ANNUAL	R28	551136.81	4164451.7	*551136.814164451.7*	0.1016	PHASE 1	0.0966	HAUL1	0.05006	HAUL2				
ANNUAL	R29	550876.81	4164471.7	*550876.814164471.7*	0.1241	PHASE 1	0.1134	HAUL1	0.06313	HAUL2				
ANNUAL	R30	550936.81	4164471.7	*550936.814164471.7*	0.1211	PHASE 1	0.1174	HAUL1	0.06297	HAUL2				
ANNUAL	R31	550976.81	4164471.7	*550976.814164471.7*	0.1186	PHASE 1	0.1174	HAUL1	0.06168	HAUL2				
ANNUAL	R32	551036.81	4164471.7	*551036.814164471.7*	0.1161	PHASE 1	0.1154	HAUL1	0.05882	HAUL2				
ANNUAL	R33	551076.81	4164471.7	*551076.814164471.7*	0.1153	PHASE 1	0.1132	HAUL1	0.0566	HAUL2				
ANNUAL	R34	551116.81	4164471.7	*551116.814164471.7*	0.1145	PHASE 1	0.1103	HAUL1	0.0543	HAUL2				
ANNUAL	R35	551156.81	4164471.7	*551156.814164471.7*	0.1134	PHASE 1	0.1064	HAUL1	0.05201	HAUL2				
ANNUAL	R36	550916.81	4164491.7	*550916.814164491.7*	0.1414	PHASE 1	0.1364	HAUL1	0.07101	HAUL2				
ANNUAL	R37	550976.81	4164491.7	*550976.814164491.7*	0.1367	PHASE 1	0.1364	HAUL1	0.06773	HAUL2				
ANNUAL	R38	551016.81	4164491.7	*551016.814164491.7*	0.1340	PHASE 1	0.1342	HAUL1	0.06497	HAUL2				
ANNUAL	R39	551096.81	4164491.7	*551096.814164491.7*	0.1302	PHASE 1	0.1271	HAUL1	0.05913	HAUL2				
ANNUAL	R40	551136.81	4164491.7	*551136.814164491.7*	0.1281	PHASE 1	0.1222	HAUL1	0.05629	HAUL2				
ANNUAL	R41	550876.81	4164351.7	*550876.814164351.7*	0.0626	PHASE 1	0.0570	HAUL1	0.03239	HAUL2				
ANNUAL	R42	550936.81	4164351.7	*550936.814164351.7*	0.0594	PHASE 1	0.0578	HAUL1	0.03423	HAUL2				
ANNUAL	R43	550896.81	4164371.7	*550896.814164371.7*	0.0678	PHASE 1	0.0630	HAUL1	0.03636	HAUL2				
ANNUAL	R44	550956.81	4164371.7	*550956.814164371.7*	0.0650	PHASE 1	0.0638	HAUL1	0.03808	HAUL2				
ANNUAL	R45	550896.81	4164391.7	*550896.814164391.7*	0.0753	PHASE 1	0.0698	HAUL1	0.04023	HAUL2				
ANNUAL	R46	550936.81	4164391.7	*550936.814164391.7*	0.0733	PHASE 1	0.0707	HAUL1	0.04145	HAUL2				
ANNUAL	R47	550976.81	4164391.7	*550976.814164391.7*	0.0718	PHASE 1	0.0710	HAUL1	0.04219	HAUL2				
ANNUAL	R48	551016.81	4164391.7	*551016.814164391.7*	0.0711	PHASE 1	0.0710	HAUL1	0.04247	HAUL2				
ANNUAL	R49	550876.81	4164411.7	*550876.814164411.7*	0.0853	PHASE 1	0.0770	HAUL1	0.04396	HAUL2				
ANNUAL	R50	550916.81	4164411.7	*550916.814164411.7*	0.0832	PHASE 1	0.0786	HAUL1	0.04538	HAUL2				
ANNUAL	R51	550956.81	4164411.7	*550956.814164411.7*	0.0813	PHASE 1	0.0794	HAUL1	0.04617	HAUL2				
ANNUAL	R52	550996.81	4164411.7	*550996.814164411.7*	0.0801	PHASE 1	0.0795	HAUL1	0.04639	HAUL2				
ANNUAL	R53	551036.81	4164411.7	*551036.814164411.7*	0.0797	PHASE 1	0.0793	HAUL1	0.04613	HAUL2				
ANNUAL	R54	551076.81	4164411.7	*551076.814164411.7*	0.0801	PHASE 1	0.0788	HAUL1	0.04551	HAUL2				
ANNUAL	R55	550896.81	4164431.7	*550896.814164431.7*	0.0949	PHASE 1	0.0878	HAUL1	0.05003	HAUL2				
ANNUAL	R56	550936.81	4164431.7	*550936.814164431.7*	0.0928	PHASE 1	0.0893	HAUL1	0.05088	HAUL2				
ANNUAL	R57	550976.81	4164431.7	*550976.814164431.7*	0.0911	PHASE 1	0.0897	HAUL1	0.05098	HAUL2				
ANNUAL	R58	551016.81	4164431.7	*551016.814164431.7*	0.0901	PHASE 1	0.0895	HAUL1	0.0505	HAUL2				
ANNUAL	R59	551056.81	4164431.7	*551056.814164431.7*	0.0899	PHASE 1	0.0889	HAUL1	0.0496	HAUL2				
ANNUAL	R60	551096.81	4164431.7	*551096.814164431.7*	0.0903	PHASE 1	0.0879	HAUL1	0.0484	HAUL2				
ANNUAL	R61	550876.81	4164451.7	*550876.814164451.7*	0.1085	PHASE 1	0.0985	HAUL1	0.05563	HAUL2				
ANNUAL	R62	550916.81	4164451.7	*550916.814164451.7*	0.1067	PHASE 1	0.1012	HAUL1	0.05651	HAUL2				
ANNUAL	R63	550956.81	4164451.7	*550956.814164451.7*	0.1045	PHASE 1	0.1022	HAUL1	0.05642	HAUL2				
ANNUAL	R64	550996.81	4164451.7	*550996.814164451.7*	0.1028	PHASE 1	0.1019	HAUL1	0.05562	HAUL2				
ANNUAL	R65	551036.81	4164451.7	*551036.814164451.7*	0.1019	PHASE 1	0.1011	HAUL1	0.05433	HAUL2				
ANNUAL	R66	551076.81	4164451.7	*551076.814164451.7*	0.1017	PHASE 1	0.0998	HAUL1	0.05274	HAUL2				
ANNUAL	R67	551116.81	4164451.7	*551116.814164451.7*	0.1017	PHASE 1	0.0979	HAUL1	0.05097	HAUL2				
ANNUAL	R68	551156.81	4164451.7	*551156.814164451.7*	0.1015	PHASE 1	0.0951	HAUL1	0.04913	HAUL2				
ANNUAL	R69	550916.81	4164471.7	*550916.814164471.7*	0.1223	PHASE 1	0.1168	HAUL1	0.06331	HAUL2				
ANNUAL	R70	550956.81	4164471.7	*550956.814164471.7*	0.1198	PHASE 1	0.1177	HAUL1	0.06242	HAUL2				
ANNUAL	R71	550996.81	4164471.7	*550996.814164471.7*	0.1176	PHASE 1	0.1169	HAUL1	0.06082	HAUL2				
ANNUAL	R72	551056.81	4164471.7	*551056.814164471.7*	0.1157	PHASE 1	0.1144	HAUL1	0.05773	HAUL2				
ANNUAL	R73	551096.81	4164471.7	*551096.814164471.7*	0.1149	PHASE 1	0.1119	HAUL1	0.05545	HAUL2				
ANNUAL	R74	551136.81	4164471.7	*551136.814164471.7*	0.1140	PHASE 1	0.1085	HAUL1	0.05315	HAUL2				
ANNUAL	R75	551176.81	4164471.7	*551176.814164471.7*	0.1125	PHASE 1	0.1041	HAUL1	0.05087	HAUL2				
ANNUAL	R76	550956.81	4164491.7	*550956.814164491.7*	0.1383	PHASE 1	0.1370	HAUL1	0.06898	HAUL2				
ANNUAL	R77	550996.81	4164491.7	*550996.814164491.7*	0.1353	PHASE 1	0.1354	HAUL1	0.06638	HAUL2				
ANNUAL	R78	551076.81	4164491.7	*551076.814164491.7*	0.1311	PHASE 1	0.1292	HAUL1	0.06059	HAUL2				
ANNUAL	R79	551116.81	4164491.7	*551116.814164491.7*	0.1292	PHASE 1	0.1248	HAUL1	0.05769	HAUL2				
ANNUAL	R80	551156.81	4164491.7	*551156.814164491.7*	0.1268	PHASE 1	0.1194	HAUL1	0.05491	HAUL2				
ANNUAL	R81	551176.81	4164491.7	*551176.814164491.7*	0.1253	PHASE 1	0.1163	HAUL1	0.05356	HAUL2				
ANNUAL	R82	550956.81	4164511.7	*550956.814164511.7*	0.1610	PHASE 1	0.1614	HAUL1	0.07607	HAUL2				
ANNUAL	R83	550996.81	4164511.7	*550996.814164511.7*	0.1566	PHASE 1	0.1583	HAUL1	0.07224	HAUL2				
ANNUAL	R84	551036.81	4164511.7	*551036.814164511.7*	0.1529	PHASE 1	0.1537	HAUL1	0.06839	HAUL2				
ANNUAL	R85	551116.81	4164511.7	*551116.814164511.7*	0.1461	PHASE 1	0.1417	HAUL1	0.06112	HAUL2				
ANNUAL	R86	551156.81	4164511.7	*551156.814164511.7*	0.1419	PHASE 1	0.1342	HAUL1	0.05781	HAUL2				
ANNUAL	R87	551216.81	4164511.7	*551216.814164511.7*	0.1338	PHASE 1	0.1214	HAUL1	0.05322	HAUL2				
ANNUAL	R88	551256.81	4164511.7	*551256.814164511.7*	0.1275	PHASE 1	0.1127	HAUL1	0.0504	HAUL2				
ANNUAL	R89	551016.81	4164531.7	*551016.814164531.7*	0.1795	PHASE 1	0.1836	HAUL1	0.07579	HAUL2				
ANNUAL	R90	551056.81	4164531.7	*551056.814164531.7*	0.1740	PHASE 1	0.1752	HAUL1	0.071	HAUL2				
ANNUAL	R91	551096.81	4164531.7	*551096.814164531.7*	0.1683	PHASE 1	0.1661	HAUL1	0.06659	HAUL2				
ANNUAL	R92	551196.81	4164531.7	*551196.814164531.7*	0.1514	PHASE 1	0.1401	HAUL1	0.05714	HAUL2				
ANNUAL	R93	551236.81	4164531.7	*551236.814164531.7*	0.1431	PHASE 1	0.1291	HAUL1	0.05386	HAUL2				
ANNUAL	R94	551016.81	4164551.7	*551016.814164551.7*	0.2097	PHASE 1	0.2180	HAUL1	0.08133	HAUL2				
ANNUAL	R95	551056.81	4164551.7	*551056.814164551.7*	0.2009	PHASE 1	0.2046	HAUL1	0.0755	HAUL2				
ANNUAL	R96	551096.81	4164551.7	*551096.814164551.7*	0.1920	PHASE 1	0.1910	HAUL1	0.07029	HAUL2				
ANNUAL	R97	551136.81	4164551.7	*551136.814164551.7*	0.1826	PHASE 1	0.1772	HAUL1	0.06564	HAUL2				
ANNUAL	R98	551216.81	4164551.7	*551216.814164551.7*	0.1618	PHASE 1	0.1491	HAUL1	0.05765	HAUL2				
ANNUAL	R99	551276.81	4164551.7	*551276.814164551.7*	0.1456	PHASE 1	0.1297	HAUL1	0.05257	HAUL2				
ANNUAL	R100	551096.81	4164571.7	*551096.814164571.7*	0.2193	PHASE 1	0.2204	HAUL1	0.07389	HAUL2				
ANNUAL	R101	551136.81	4164571.7	*551136.814164571.7*	0.2055	PHASE 1	0.2011	HAUL1	0.06862	HAUL2				
ANNUAL	R102	551196.81	4164571.7	*551196.814164571.7*	0.1844	PHASE 1	0.1737	HAUL1	0.06179	HAUL2				
ANNUAL	R103	551256.81	4164571.7	*551256.814164571.7*	0.1635	PHASE 1	0.1490	HAUL1	0.05595	HAUL2				
ANNUAL	R104	551116.81	4164591.7	*551116.814164591.7*	0.2407	PHASE 1	0.2414	HAUL1	0.0743	HAUL2				
ANNUAL	R105	551196.81	4164591.7	*551196.814164591.7*	0.2027	PHASE 1	0.1931	HAUL1	0.06395	HAUL2				
ANNUAL	R106	551236.81	4164591.7	*551236.814164591.7*	0.1849	PHASE 1	0.1725	HAUL1	0.05961	HAUL2				
ANNUAL	R107	551276.81	4164591.7	*551276.814164591.7*	0.1686	PHASE 1	0.1546	HAUL1	0.05574	HAUL2				
ANNUAL	R108	551176.81	4164611.7	*551176.814164611.7*	0.2341	PHASE 1	0.2284	HAUL1	0.06853	HAUL2				
ANNUAL	R109	551236.81	4164611.7	*551236.814164611.7*	0.2000	PHASE 1	0.1897	HAUL1	0.06131	HAUL2				
ANNUAL	R110	551276.81	4164611.7	*551276.814164611.7*	0.1804	PHASE 1	0.1686	HAUL1	0.05717	HAUL2				
ANNUAL	R111	551196.81	4164631.7	*551196.814164631.7*	0.2424	PHASE 1	0.2381	HAUL1	0.06784	HAUL2				
ANNUAL	R112	551256.81	4164631.7	*551256.814164631.7*	0.2032	PHASE 1	0.1956	HAUL1	0.0606	HAUL2				
ANNUAL	R113	551256.81	4164651.7	*551256.814164651.7*	0.2165	PHASE 1	0.2141	HAUL1	0.06189	HAUL2				
ANNUAL	R114	551256.81	4164671.7	*551256.814164671.7*	0.2292	PHASE 1	0.2345	HAUL1	0.06302	HAUL2				
ANNUAL	R115	550384.79	4164931.52	*550384.794164931.52*	0.0571	PHASE 1	0.0238	HAUL1	0.24851	HAUL2				
ANNUAL	R116	550405.01	4165011.9	*550405.014165011.9*	0.0600	PHASE 1	0.0247	HAUL1	0.37606	HAUL2				
ANNUAL	R117	550445.01	4165031.9	*550445.014165031.9*	0.0713	PHASE 1	0.0277	HAUL1	0.56204	HAUL2				
ANNUAL	R118	550485.01	4165031.9	*550485.014165031.9*	0.0871	PHASE 1	0.0315	HAUL1	1.08375	HAUL2				
ANNUAL	R119	550585.01	4165031.9	*550585.014165031.9*	0.1489	PHASE 1	0.0439	HAUL1	0.87758	HAUL2				
ANNUAL	R120	550625.01	4165031.9	*550625.014165031.9*	0.1817	PHASE 1	0.0501	HAUL1	0.56032	HAUL2				
ANNUAL	R121	550916.81	4164511.7	*550916.814164511.7*	0.1651	PHASE 1	0.1615	HAUL1	0.0796	HAUL2				
ANNUAL	R122	550976.81	4164511.7	*550976.814164511.7*	0.1587	PHASE 1	0.1601	HAUL1	0.07417	HAUL2				
ANNUAL	R123	551016.81	4164511.7	*551016.814164511.7*	0.1547	PHASE 1	0.1562	HAUL1	0.07031	HAUL2				
ANNUAL	R124	551056.81	4164511.7	*551056.814164511.7*	0.1512	PHASE 1	0.1510	HAUL1	0.0665	HAUL2				
ANNUAL	R125	551136.81	4164511.7	*551136.814164511.7*	0.1441	PHASE 1	0.1380	HAUL1	0.05944	HAUL2				
ANNUAL	R126	551196.81	4164511.7	*551196.814164511.7*	0.1368	PHASE 1	0.1259	HAUL1	0.05471	HAUL2				
ANNUAL	R127	551236.81	4164511.7	*551236.814164511.7*	0.1307	PHASE 1	0.1170	HAUL1	0.05179	HAUL2				
ANNUAL	R128	550996.81	4164531.7	*550996.814164531.7*	0.1825	PHASE 1	0.1872	HAUL1	0.07832	HAUL2				
ANNUAL	R129	551036.81	4164531.7	*551036.814164531.7*	0.1767	PHASE 1	0.1795	HAUL1	0.07335	HAUL2				
ANNUAL	R130	551076.81	4164531.7	*551076.814164531.7*	0.1712	PHASE 1	0.1708	HAUL1	0.06875	HAUL2				
ANNUAL	R131	551156.81	4164531.7	*551156.814164531.7*	0.1588	PHASE 1	0.1510	HAUL1	0.06069	HAUL2				
ANNUAL	R132	551216.81	4164531.7	*551216.814164531.7*	0.1473	PHASE 1	0.1346	HAUL1	0.05547	HAUL2				
ANNUAL	R133	551276.81	4164531.7	*551276.814164531.7*	0.1347	PHASE 1	0.1186	HAUL1	0.05086	HAUL2				
ANNUAL	R134	551036.81	4164551.7	*551036.814164551.7*	0.2053	PHASE 1	0.2114	HAUL1	0.07833	HAUL2				
ANNUAL	R135	551076.81	4164551.7	*551076.814164551.7*	0.1965	PHASE 1	0.1979	HAUL1	0.07282	HAUL2				
ANNUAL	R136	551116.81	4164551.7	*551116.814164551.7*	0.1874	PHASE 1	0.1842	HAUL1	0.0679	HAUL2				
ANNUAL	R137	551196.81	4164551.7	*551196.814164551.7*	0.1672	PHASE 1	0.1560	HAUL1	0.05951	HAUL2				

ANNUAL	R138	551236.81	4164551.7	*551236.814164551.7*	0.1563	PHASE 1	0.1423	HAUL1	0.05587	HAUL2
ANNUAL	R139	551076.81	4164571.7	*551076.814164571.7*	0.2261	PHASE 1	0.2304	HAUL1	0.0768	HAUL2
ANNUAL	R140	551116.81	4164571.7	*551116.814164571.7*	0.2124	PHASE 1	0.2107	HAUL1	0.07117	HAUL2
ANNUAL	R141	551176.81	4164571.7	*551176.814164571.7*	0.1915	PHASE 1	0.1826	HAUL1	0.06395	HAUL2
ANNUAL	R142	551216.81	4164571.7	*551216.814164571.7*	0.1773	PHASE 1	0.1650	HAUL1	0.05974	HAUL2
ANNUAL	R143	551276.81	4164571.7	*551276.814164571.7*	0.1570	PHASE 1	0.1416	HAUL1	0.05421	HAUL2
ANNUAL	R144	551176.81	4164591.7	*551176.814164591.7*	0.2121	PHASE 1	0.2043	HAUL1	0.06632	HAUL2
ANNUAL	R145	551216.81	4164591.7	*551216.814164591.7*	0.1937	PHASE 1	0.1825	HAUL1	0.06172	HAUL2
ANNUAL	R146	551256.81	4164591.7	*551256.814164591.7*	0.1765	PHASE 1	0.1632	HAUL1	0.05762	HAUL2
ANNUAL	R147	551156.81	4164611.7	*551156.814164611.7*	0.2464	PHASE 1	0.2434	HAUL1	0.07124	HAUL2
ANNUAL	R148	551196.81	4164611.7	*551196.814164611.7*	0.2222	PHASE 1	0.2146	HAUL1	0.06597	HAUL2
ANNUAL	R149	551256.81	4164611.7	*551256.814164611.7*	0.1899	PHASE 1	0.1787	HAUL1	0.05918	HAUL2
ANNUAL	R150	551176.81	4164631.7	*551176.814164631.7*	0.2574	PHASE 1	0.2550	HAUL1	0.07057	HAUL2
ANNUAL	R151	551236.81	4164631.7	*551236.814164631.7*	0.2154	PHASE 1	0.2085	HAUL1	0.06286	HAUL2
ANNUAL	R152	551276.81	4164631.7	*551276.814164631.7*	0.1921	PHASE 1	0.1839	HAUL1	0.05848	HAUL2
ANNUAL	R153	551276.81	4164651.7	*551276.814164651.7*	0.2035	PHASE 1	0.2006	HAUL1	0.05966	HAUL2
ANNUAL	R154	550384.79	4164911.52	*550384.794164911.52*	0.0577	PHASE 1	0.0239	HAUL1	0.23009	HAUL2
ANNUAL	R155	550164.79	4164951.52	*550164.794164951.52*	0.0245	PHASE 1	0.0131	HAUL1	0.28728	HAUL2
ANNUAL	R156	550405.01	4165031.9	*550405.014165031.9*	0.0591	PHASE 1	0.0245	HAUL1	0.41312	HAUL2
ANNUAL	R157	550465.01	4165031.9	*550465.014165031.9*	0.0786	PHASE 1	0.0295	HAUL1	0.72657	HAUL2
ANNUAL	R158	550545.01	4165031.9	*550545.014165031.9*	0.1201	PHASE 1	0.0384	HAUL1	2.22488	HAUL2
ANNUAL	R159	550605.01	4165031.9	*550605.014165031.9*	0.1650	PHASE 1	0.0469	HAUL1	0.68248	HAUL2
ANNUAL	R160	550645.01	4165031.9	*550645.014165031.9*	0.1986	PHASE 1	0.0535	HAUL1	0.47512	HAUL2
ANNUAL	R161	550665.01	4165031.9	*550665.014165031.9*	0.2152	PHASE 1	0.0569	HAUL1	0.41111	HAUL2
ANNUAL	R162	550705.01	4165031.9	*550705.014165031.9*	0.2453	PHASE 1	0.0642	HAUL1	0.32044	HAUL2
ANNUAL	R163	550405.01	4165051.9	*550405.014165051.9*	0.0581	PHASE 1	0.0243	HAUL1	0.45625	HAUL2
ANNUAL	R164	550465.01	4165051.9	*550465.014165051.9*	0.0765	PHASE 1	0.0291	HAUL1	0.87658	HAUL2
ANNUAL	R165	550545.01	4165051.9	*550545.014165051.9*	0.1136	PHASE 1	0.0375	HAUL1	1.60752	HAUL2
ANNUAL	R166	550585.01	4165051.9	*550585.014165051.9*	0.1383	PHASE 1	0.0427	HAUL1	0.77403	HAUL2
ANNUAL	R167	550665.01	4165051.9	*550665.014165051.9*	0.1924	PHASE 1	0.0548	HAUL1	0.38766	HAUL2
ANNUAL	R168	550705.01	4165051.9	*550705.014165051.9*	0.2157	PHASE 1	0.0615	HAUL1	0.30509	HAUL2
ANNUAL	R169	550745.01	4165051.9	*550745.014165051.9*	0.2324	PHASE 1	0.0686	HAUL1	0.24847	HAUL2
ANNUAL	R170	550545.01	4165071.9	*550545.014165071.9*	0.1076	PHASE 1	0.0367	HAUL1	1.26849	HAUL2
ANNUAL	R171	550585.01	4165071.9	*550585.014165071.9*	0.1288	PHASE 1	0.0416	HAUL1	0.69455	HAUL2
ANNUAL	R172	550685.01	4165071.9	*550685.014165071.9*	0.1832	PHASE 1	0.0560	HAUL1	0.32449	HAUL2
ANNUAL	R173	550725.01	4165071.9	*550725.014165071.9*	0.1990	PHASE 1	0.0624	HAUL1	0.26186	HAUL2
ANNUAL	R174	550525.01	4165091.9	*550525.014165091.9*	0.0935	PHASE 1	0.0339	HAUL1	1.64006	HAUL2
ANNUAL	R175	550565.01	4165091.9	*550565.014165091.9*	0.1109	PHASE 1	0.0382	HAUL1	0.78735	HAUL2
ANNUAL	R176	550725.01	4165091.9	*550725.014165091.9*	0.1777	PHASE 1	0.0599	HAUL1	0.24959	HAUL2
ANNUAL	R177	550525.01	4165111.9	*550525.014165111.9*	0.0891	PHASE 1	0.0332	HAUL1	1.2922	HAUL2
ANNUAL	R178	550565.01	4165111.9	*550565.014165111.9*	0.1044	PHASE 1	0.0373	HAUL1	0.70539	HAUL2
ANNUAL	R179	550505.01	4165131.9	*550505.014165131.9*	0.0787	PHASE 1	0.0308	HAUL1	1.66919	HAUL2
ANNUAL	R180	550545.01	4165131.9	*550545.014165131.9*	0.0916	PHASE 1	0.0345	HAUL1	0.79911	HAUL2
ANNUAL	R181	550585.01	4165131.9	*550585.014165131.9*	0.1054	PHASE 1	0.0386	HAUL1	0.53169	HAUL2
ANNUAL	R182	550625.01	4165131.9	*550625.014165131.9*	0.1193	PHASE 1	0.0430	HAUL1	0.39366	HAUL2
ANNUAL	R183	550705.01	4165131.9	*550705.014165131.9*	0.1417	PHASE 1	0.0529	HAUL1	0.24813	HAUL2
ANNUAL	R184	550505.01	4165151.9	*550505.014165151.9*	0.0755	PHASE 1	0.0303	HAUL1	1.31582	HAUL2
ANNUAL	R185	550545.01	4165151.9	*550545.014165151.9*	0.0869	PHASE 1	0.0338	HAUL1	0.7135	HAUL2
ANNUAL	R186	550605.01	4165151.9	*550605.014165151.9*	0.1050	PHASE 1	0.0397	HAUL1	0.42117	HAUL2
ANNUAL	R187	550665.01	4165151.9	*550665.014165151.9*	0.1215	PHASE 1	0.0464	HAUL1	0.28852	HAUL2
ANNUAL	R188	550705.01	4165151.9	*550705.014165151.9*	0.1297	PHASE 1	0.0512	HAUL1	0.23426	HAUL2
ANNUAL	R189	550505.01	4165171.9	*550505.014165171.9*	0.0723	PHASE 1	0.0298	HAUL1	1.09069	HAUL2
ANNUAL	R190	550545.01	4165171.9	*550545.014165171.9*	0.0825	PHASE 1	0.0331	HAUL1	0.64183	HAUL2
ANNUAL	R191	550605.01	4165171.9	*550605.014165171.9*	0.0984	PHASE 1	0.0387	HAUL1	0.39005	HAUL2
ANNUAL	R192	550665.01	4165171.9	*550665.014165171.9*	0.1124	PHASE 1	0.0450	HAUL1	0.27011	HAUL2
ANNUAL	R193	550705.01	4165171.9	*550705.014165171.9*	0.1193	PHASE 1	0.0495	HAUL1	0.22039	HAUL2
ANNUAL	R194	550545.01	4165191.9	*550545.014165191.9*	0.0785	PHASE 1	0.0324	HAUL1	0.57868	HAUL2
ANNUAL	R195	550605.01	4165191.9	*550605.014165191.9*	0.0923	PHASE 1	0.0378	HAUL1	0.35974	HAUL2
ANNUAL	R196	550645.01	4165191.9	*550645.014165191.9*	0.1007	PHASE 1	0.0416	HAUL1	0.281	HAUL2
ANNUAL	R197	550685.01	4165191.9	*550685.014165191.9*	0.1075	PHASE 1	0.0458	HAUL1	0.2273	HAUL2
ANNUAL	R198	550585.01	4165211.9	*550585.014165211.9*	0.0829	PHASE 1	0.0351	HAUL1	0.37808	HAUL2
ANNUAL	R199	550625.01	4165211.9	*550625.014165211.9*	0.0906	PHASE 1	0.0386	HAUL1	0.29137	HAUL2
ANNUAL	R200	550665.01	4165211.9	*550665.014165211.9*	0.0972	PHASE 1	0.0424	HAUL1	0.23358	HAUL2
ANNUAL	R201	550685.01	4165031.9	*550685.014165031.9*	0.2309	PHASE 1	0.0605	HAUL1	0.3609	HAUL2
ANNUAL	R202	550725.01	4165031.9	*550725.014165031.9*	0.2578	PHASE 1	0.0680	HAUL1	0.28719	HAUL2
ANNUAL	R203	550445.01	4165051.9	*550445.014165051.9*	0.0696	PHASE 1	0.0274	HAUL1	0.64461	HAUL2
ANNUAL	R204	550485.01	4165051.9	*550485.014165051.9*	0.0842	PHASE 1	0.0310	HAUL1	1.47456	HAUL2
ANNUAL	R205	550565.01	4165051.9	*550565.014165051.9*	0.1255	PHASE 1	0.0400	HAUL1	1.03698	HAUL2
ANNUAL	R206	550645.01	4165051.9	*550645.014165051.9*	0.1792	PHASE 1	0.0516	HAUL1	0.44477	HAUL2
ANNUAL	R207	550685.01	4165051.9	*550685.014165051.9*	0.2047	PHASE 1	0.0581	HAUL1	0.34216	HAUL2
ANNUAL	R208	550725.01	4165051.9	*550725.014165051.9*	0.2251	PHASE 1	0.0650	HAUL1	0.27434	HAUL2
ANNUAL	R209	550525.01	4165071.9	*550525.014165071.9*	0.0980	PHASE 1	0.0345	HAUL1	2.26722	HAUL2
ANNUAL	R210	550565.01	4165071.9	*550565.014165071.9*	0.1179	PHASE 1	0.0391	HAUL1	0.89303	HAUL2
ANNUAL	R211	550605.01	4165071.9	*550605.014165071.9*	0.1401	PHASE 1	0.0442	HAUL1	0.56996	HAUL2
ANNUAL	R212	550705.01	4165071.9	*550705.014165071.9*	0.1918	PHASE 1	0.0591	HAUL1	0.29037	HAUL2
ANNUAL	R213	550745.01	4165071.9	*550745.014165071.9*	0.2045	PHASE 1	0.0657	HAUL1	0.23771	HAUL2
ANNUAL	R214	550545.01	4165091.9	*550545.014165091.9*	0.1019	PHASE 1	0.0360	HAUL1	1.05595	HAUL2
ANNUAL	R215	550585.01	4165091.9	*550585.014165091.9*	0.1202	PHASE 1	0.0406	HAUL1	0.63086	HAUL2
ANNUAL	R216	550505.01	4165111.9	*550505.014165111.9*	0.0821	PHASE 1	0.0314	HAUL1	2.31272	HAUL2
ANNUAL	R217	550545.01	4165111.9	*550545.014165111.9*	0.0966	PHASE 1	0.0352	HAUL1	0.9083	HAUL2
ANNUAL	R218	550585.01	4165111.9	*550585.014165111.9*	0.1125	PHASE 1	0.0395	HAUL1	0.57777	HAUL2
ANNUAL	R219	550525.01	4165131.9	*550525.014165131.9*	0.0850	PHASE 1	0.0326	HAUL1	1.07378	HAUL2
ANNUAL	R220	550565.01	4165131.9	*550565.014165131.9*	0.0984	PHASE 1	0.0365	HAUL1	0.63873	HAUL2
ANNUAL	R221	550605.01	4165131.9	*550605.014165131.9*	0.1124	PHASE 1	0.0408	HAUL1	0.4537	HAUL2
ANNUAL	R222	550685.01	4165131.9	*550685.014165131.9*	0.1371	PHASE 1	0.0503	HAUL1	0.27504	HAUL2
ANNUAL	R223	550485.01	4165151.9	*550485.014165151.9*	0.0702	PHASE 1	0.0287	HAUL1	2.36716	HAUL2
ANNUAL	R224	550525.01	4165151.9	*550525.014165151.9*	0.0811	PHASE 1	0.0320	HAUL1	0.92217	HAUL2
ANNUAL	R225	550565.01	4165151.9	*550565.014165151.9*	0.0929	PHASE 1	0.0357	HAUL1	0.58202	HAUL2
ANNUAL	R226	550625.01	4165151.9	*550625.014165151.9*	0.1109	PHASE 1	0.0419	HAUL1	0.36724	HAUL2
ANNUAL	R227	550685.01	4165151.9	*550685.014165151.9*	0.1259	PHASE 1	0.0487	HAUL1	0.25907	HAUL2
ANNUAL	R228	550485.01	4165171.9	*550485.014165171.9*	0.0675	PHASE 1	0.0282	HAUL1	1.70262	HAUL2
ANNUAL	R229	550525.01	4165171.9	*550525.014165171.9*	0.0773	PHASE 1	0.0314	HAUL1	0.80777	HAUL2
ANNUAL	R230	550585.01	4165171.9	*550585.014165171.9*	0.0932	PHASE 1	0.0368	HAUL1	0.45136	HAUL2
ANNUAL	R231	550625.01	4165171.9	*550625.014165171.9*	0.1034	PHASE 1	0.0407	HAUL1	0.34156	HAUL2
ANNUAL	R232	550685.01	4165171.9	*550685.014165171.9*	0.1161	PHASE 1	0.0472	HAUL1	0.24317	HAUL2
ANNUAL	R233	550525.01	4165191.9	*550525.014165191.9*	0.0738	PHASE 1	0.0308	HAUL1	0.71446	HAUL2
ANNUAL	R234	550585.01	4165191.9	*550585.014165191.9*	0.0878	PHASE 1	0.0359	HAUL1	0.41423	HAUL2
ANNUAL	R235	550625.01	4165191.9	*550625.014165191.9*	0.0967	PHASE 1	0.0397	HAUL1	0.31632	HAUL2
ANNUAL	R236	550665.01	4165191.9	*550665.014165191.9*	0.1043	PHASE 1	0.0437	HAUL1	0.25179	HAUL2
ANNUAL	R237	550705.01	4165191.9	*550705.014165191.9*	0.1102	PHASE 1	0.0480	HAUL1	0.20652	HAUL2
ANNUAL	R238	550605.01	4165211.9	*550605.014165211.9*	0.0868	PHASE 1	0.0368	HAUL1	0.32997	HAUL2
ANNUAL	R239	550645.01	4165211.9	*550645.014165211.9*	0.0941	PHASE 1	0.0405	HAUL1	0.2598	HAUL2
ANNUAL	R240	550685.01	4165211.9	*550685.014165211.9*	0.0999	PHASE 1	0.0445	HAUL1	0.21149	HAUL2
ANNUAL	R241	550605.01	4165231.9	*550605.014165231.9*	0.0818	PHASE 1	0.0359	HAUL1	0.30065	HAUL2
ANNUAL	R242	550645.01	4165231.9	*550645.014165231.9*	0.0881	PHASE 1	0.0394	HAUL1	0.23883	HAUL2
ANNUAL	R243	550685.01	4165231.9	*550685.014165231.9*	0.0931	PHASE 1	0.0432	HAUL1	0.1958	HAUL2
ANNUAL	R244	550665.01	4165251.9	*550665.014165251.9*	0.0850	PHASE 1	0.0401	HAUL1	0.19776	HAUL2
ANNUAL	R245	550425.01	4165291.9	*550425.014165291.9*	0.0460	PHASE 1	0.0224	HAUL1	1.3954	HAUL2
ANNUAL	R246	550945.45	4165192.15	*550945.454165192.15*	0.1122	PHASE 1	0.0882	HAUL1	0.08903	HAUL2
ANNUAL	R247	550985.45	4165192.15	*550985.454165192.15*	0.1092	PHASE 1	0.1017	HAUL1	0.08015	HAUL2
ANNUAL	R248	550925.45	4165212.15	*550925.454165212.15*	0.1035	PHASE 1	0.0800	HAUL1	0.08949	HAUL2
ANNUAL	R249	550965.45	4165212.15	*550965.454165212.15*	0.1010	PHASE 1	0.0913	HAUL1	0.08047	HAUL2
ANNUAL	R250	551005.45	4165212.15	*551005.454165212.15*	0.0966	PHASE 1	0.1068	HAUL1	0.07283	HAUL2
ANNUAL	R251	550885.45	4165232.15	*550885.454165232.15*	0.0970	PHASE 1	0.0688	HAUL1	0.09489	HAUL2
ANNUAL	R252	550925.45	4165232.15	*550925.454165232.15*	0.0952	PHASE 1	0.0773	HAUL1	0.08492	HAUL2
ANNUAL	R253	550965.45	4165232.15	*550965.454165232.15*	0.0924	PHASE 1	0.0883	HAUL1	0.07655	HAUL2
ANNUAL	R254	551025.45	4165232.15	*551025.454165232.15*	0.0852	PHASE 1	0.1139	HAUL1	0.06627	HAUL2
ANNUAL	R255	551065.45	4165232.15	*551065.454165232.15*	0.0785	PHASE 1	0.1424	HAUL1	0.06063	HAUL2
ANNUAL	R256	550905.45	4165252.15	*550905.454165252.15*	0.0889	PHASE 1	0.0704	HAUL1	0.08477	HAUL2
ANNUAL	R257	550945.45	4165252.15	*550945.454165252.15*	0.0865	PHASE 1	0.0797	HAUL1	0.07637	HAUL2
ANNUAL	R258	551025.45	4165252.15	*551025.454165252.15*	0.0780	PHASE 1	0.1108	HAUL1	0.06313	HAUL2
ANNUAL	R259	551065.45	4165252.15	*551065.454165252.15*	0.0720	PHASE 1	0.1399	HAUL1	0.05787	HAUL2
ANNUAL	R260	551105.45	4165252.15	*551105.454165252.15*	0.0655	PHASE 1	0.1909	HAUL1	0.0533	HAUL2
ANNUAL	R261	550905.45	4165272.15	*550905.454165272.15*	0.0824	PHASE 1	0.0682	HAUL1	0.07994	HAUL2
ANNUAL	R262	550945.45	4165272.15	*550945.454165272.15*	0.0800	PHASE 1	0.0772	HAUL1	0.07224	HAUL2
ANNUAL	R263	551045.45	4165272.15	*551045.454165272.15*	0.0691	PHASE 1	0.1207	HAUL1	0.0575	HAUL2
ANNUAL	R264	551085.45	4165272.15	*551085.454165272.15*	0.0634	PHASE 1	0.1593	HAUL1	0.05295	HAUL2
ANNUAL	R265	550865.45	4165292.15	*550865.454165292.15*	0.0784	PHASE 1	0.0593	HAUL1	0.08351	HAUL2
ANNUAL	R266	550905.45	4165292.15	*550905.454165292.15*	0.0767	PHASE 1	0.0660	HAUL1	0.07522	HAUL2
ANNUAL	R267	550945.45	4165292.15	*550945.454165292.15*	0.0742	PHASE 1	0.0748	HAUL1	0.0682	HAUL2
ANNUAL	R268	551045.45	4165292.15	*551045.454165292.15*	0.0640	PHASE 1	0.1175	HAUL1	0.05465	HAUL2
ANNUAL	R269	551085.45	4165292.15	*551085.454165292.15*	0.0589	PHASE 1	0.1565	HAUL1	0.05044	HAUL2
ANNUAL	R270	550885.45	4165312.15	*550885.454165312.15*	0.0724	PHASE 1	0.0604	HAUL1	0.07423	HAUL2
ANNUAL	R271	550925.45	4165312.15	*550925.454165312.15*	0.0704	PHASE 1	0.0679	HAUL1	0.06734	HAUL2
ANNUAL	R272	551025.45	4165312.15	*551025.454165312.15*	0.0617	PHASE 1	0.1016	HAUL1	0.05401	HAUL2
ANNUAL	R273	550865.45	4165332.15	*550865.454165332.15*	0.0685	PHASE 1	0.0557	HAUL1	0.07293	HAUL2
ANNUAL	R274	550905.45	4165332.15	*550905.454165332.15*	0.0668	PHASE 1	0.0620	HAUL1	0.06623	HAUL2
ANNUAL	R275	550985.45	4165332.15	*550985.454165332.15*	0.0613	PHASE 1	0.0815	HAUL1	0.05549	HAUL2
ANNUAL	R276	550925.45	4165352.15	*550925.454165352.15*	0.0616	PHASE 1	0.0638	HAUL1	0.05932	HAUL2

ANNUAL	R277	550865.45	4165372.15	*550865.454165372.15*	0.0605	PHASE 1	0.0524	HAUL1	0.0633	HAUL2
ANNUAL	R278	550405.6	4164911.75	*550405.64164911.75*	0.0641	PHASE 1	0.0256	HAUL1	0.24757	HAUL2
ANNUAL	R279	550405.6	4164931.75	*550405.64164931.75*	0.0634	PHASE 1	0.0255	HAUL1	0.26805	HAUL2
ANNUAL	R280	550465.6	4164931.75	*550465.64164931.75*	0.0890	PHASE 1	0.0314	HAUL1	0.38145	HAUL2
ANNUAL	R281	550625.01	4165231.9	*550625.014165231.9*	0.0851	PHASE 1	0.0376	HAUL1	0.26673	HAUL2
ANNUAL	R282	550665.01	4165231.9	*550665.014165231.9*	0.0908	PHASE 1	0.0413	HAUL1	0.21552	HAUL2
ANNUAL	R283	550645.01	4165251.9	*550645.014165251.9*	0.0827	PHASE 1	0.0384	HAUL1	0.21822	HAUL2
ANNUAL	R284	550685.01	4165251.9	*550685.014165251.9*	0.0870	PHASE 1	0.0420	HAUL1	0.18035	HAUL2
ANNUAL	R285	550925.45	4165192.15	*550925.454165192.15*	0.1130	PHASE 1	0.0829	HAUL1	0.09408	HAUL2
ANNUAL	R286	550965.45	4165192.15	*550965.454165192.15*	0.1109	PHASE 1	0.0945	HAUL1	0.08441	HAUL2
ANNUAL	R287	550905.45	4165212.15	*550905.454165212.15*	0.1044	PHASE 1	0.0754	HAUL1	0.09463	HAUL2
ANNUAL	R288	550945.45	4165212.15	*550945.454165212.15*	0.1024	PHASE 1	0.0852	HAUL1	0.08479	HAUL2
ANNUAL	R289	550985.45	4165212.15	*550985.454165212.15*	0.0991	PHASE 1	0.0984	HAUL1	0.07649	HAUL2
ANNUAL	R290	551045.45	4165212.15	*551045.454165212.15*	0.0902	PHASE 1	0.1295	HAUL1	0.06631	HAUL2
ANNUAL	R291	550905.45	4165232.15	*550905.454165232.15*	0.0962	PHASE 1	0.0728	HAUL1	0.08967	HAUL2
ANNUAL	R292	550945.45	4165232.15	*550945.454165232.15*	0.0939	PHASE 1	0.0824	HAUL1	0.08056	HAUL2
ANNUAL	R293	550985.45	4165232.15	*550985.454165232.15*	0.0904	PHASE 1	0.0953	HAUL1	0.07285	HAUL2
ANNUAL	R294	551045.45	4165232.15	*551045.454165232.15*	0.0820	PHASE 1	0.1266	HAUL1	0.06334	HAUL2
ANNUAL	R295	550885.45	4165252.15	*550885.454165252.15*	0.0898	PHASE 1	0.0666	HAUL1	0.08955	HAUL2
ANNUAL	R296	550925.45	4165252.15	*550925.454165252.15*	0.0878	PHASE 1	0.0748	HAUL1	0.08039	HAUL2
ANNUAL	R297	550965.45	4165252.15	*550965.454165252.15*	0.0849	PHASE 1	0.0855	HAUL1	0.07266	HAUL2
ANNUAL	R298	551045.45	4165252.15	*551045.454165252.15*	0.0751	PHASE 1	0.1237	HAUL1	0.0604	HAUL2
ANNUAL	R299	551085.45	4165252.15	*551085.454165252.15*	0.0687	PHASE 1	0.1614	HAUL1	0.05551	HAUL2
ANNUAL	R300	550885.45	4165272.15	*550885.454165272.15*	0.0834	PHASE 1	0.0644	HAUL1	0.08431	HAUL2
ANNUAL	R301	550925.45	4165272.15	*550925.454165272.15*	0.0813	PHASE 1	0.0724	HAUL1	0.07593	HAUL2
ANNUAL	R302	551025.45	4165272.15	*551025.454165272.15*	0.0718	PHASE 1	0.1078	HAUL1	0.06003	HAUL2
ANNUAL	R303	551065.45	4165272.15	*551065.454165272.15*	0.0663	PHASE 1	0.1371	HAUL1	0.05515	HAUL2
ANNUAL	R304	551105.45	4165272.15	*551105.454165272.15*	0.0606	PHASE 1	0.1907	HAUL1	0.0509	HAUL2
ANNUAL	R305	550885.45	4165292.15	*550885.454165292.15*	0.0776	PHASE 1	0.0624	HAUL1	0.07919	HAUL2
ANNUAL	R306	550925.45	4165292.15	*550925.454165292.15*	0.0755	PHASE 1	0.0701	HAUL1	0.07157	HAUL2
ANNUAL	R307	551025.45	4165292.15	*551025.454165292.15*	0.0664	PHASE 1	0.1047	HAUL1	0.05698	HAUL2
ANNUAL	R308	551065.45	4165292.15	*551065.454165292.15*	0.0615	PHASE 1	0.1339	HAUL1	0.05248	HAUL2
ANNUAL	R309	550865.45	4165312.15	*550865.454165312.15*	0.0732	PHASE 1	0.0574	HAUL1	0.07811	HAUL2
ANNUAL	R310	550905.45	4165312.15	*550905.454165312.15*	0.0715	PHASE 1	0.0640	HAUL1	0.07064	HAUL2
ANNUAL	R311	550945.45	4165312.15	*550945.454165312.15*	0.0690	PHASE 1	0.0725	HAUL1	0.06428	HAUL2
ANNUAL	R312	551045.45	4165312.15	*551045.454165312.15*	0.0595	PHASE 1	0.1143	HAUL1	0.05187	HAUL2
ANNUAL	R313	550885.45	4165332.15	*550885.454165332.15*	0.0678	PHASE 1	0.0586	HAUL1	0.06945	HAUL2
ANNUAL	R314	550925.45	4165332.15	*550925.454165332.15*	0.0657	PHASE 1	0.0658	HAUL1	0.06325	HAUL2
ANNUAL	R315	551005.45	4165332.15	*551005.454165332.15*	0.0595	PHASE 1	0.0890	HAUL1	0.05323	HAUL2
ANNUAL	R316	550945.45	4165352.15	*550945.454165352.15*	0.0603	PHASE 1	0.0679	HAUL1	0.05683	HAUL2
ANNUAL	R317	550885.45	4165372.15	*550885.454165372.15*	0.0597	PHASE 1	0.0551	HAUL1	0.06055	HAUL2
ANNUAL	R318	550425.6	4164911.75	*550425.64164911.75*	0.0715	PHASE 1	0.0274	HAUL1	0.27014	HAUL2
ANNUAL	R319	550425.6	4164931.75	*550425.64164931.75*	0.0705	PHASE 1	0.0272	HAUL1	0.29376	HAUL2
ANNUAL	R320	550485.6	4164931.75	*550485.64164931.75*	0.1012	PHASE 1	0.0338	HAUL1	0.46001	HAUL2
ANNUAL	R321	550505.6	4164931.75	*550505.64164931.75*	0.1161	PHASE 1	0.0365	HAUL1	0.58991	HAUL2
ANNUAL	R322	550425.6	4164951.75	*550425.64164951.75*	0.0695	PHASE 1	0.0270	HAUL1	0.32027	HAUL2
ANNUAL	R323	550525.6	4164951.75	*550525.64164951.75*	0.1293	PHASE 1	0.0388	HAUL1	1.07699	HAUL2
ANNUAL	R324	550505.6	4164971.75	*550505.64164971.75*	0.1086	PHASE 1	0.0354	HAUL1	0.85091	HAUL2
ANNUAL	R325	550585.6	4164971.75	*550585.64164971.75*	0.1901	PHASE 1	0.0479	HAUL1	1.53006	HAUL2
ANNUAL	R326	550625.6	4164971.75	*550625.64164971.75*	0.2525	PHASE 1	0.0559	HAUL1	0.74118	HAUL2
ANNUAL	R327	550505.6	4164991.75	*550505.64164991.75*	0.1048	PHASE 1	0.0348	HAUL1	1.08584	HAUL2
ANNUAL	R328	550585.6	4164991.75	*550585.64164991.75*	0.1748	PHASE 1	0.0465	HAUL1	1.21115	HAUL2
ANNUAL	R329	550625.6	4164991.75	*550625.64164991.75*	0.2245	PHASE 1	0.0538	HAUL1	0.66597	HAUL2
ANNUAL	R330	550665.6	4164991.75	*550665.64164991.75*	0.2790	PHASE 1	0.0620	HAUL1	0.46402	HAUL2
ANNUAL	R331	550585.6	4165011.75	*550585.64165011.75*	0.1614	PHASE 1	0.0452	HAUL1	1.01008	HAUL2
ANNUAL	R332	550625.6	4165011.75	*550625.64165011.75*	0.2015	PHASE 1	0.0520	HAUL1	0.60639	HAUL2
ANNUAL	R333	550665.6	4165011.75	*550665.64165011.75*	0.2439	PHASE 1	0.0594	HAUL1	0.43528	HAUL2
ANNUAL	R334	550705.6	4165011.75	*550705.64165011.75*	0.2836	PHASE 1	0.0673	HAUL1	0.33563	HAUL2
ANNUAL	R335	551378.51	4165172.16	*551378.514165172.16*	0.0534	PHASE 1	0.6486	HAUL1	0.03814	HAUL2
ANNUAL	R336	551418.51	4165172.16	*551418.514165172.16*	0.0498	PHASE 1	0.4331	HAUL1	0.03582	HAUL2
ANNUAL	R337	551338.51	4165192.16	*551338.514165192.16*	0.0524	PHASE 1	1.0191	HAUL1	0.03939	HAUL2
ANNUAL	R338	551378.51	4165192.16	*551378.514165192.16*	0.0490	PHASE 1	0.5784	HAUL1	0.03695	HAUL2
ANNUAL	R339	551418.51	4165192.16	*551418.514165192.16*	0.0459	PHASE 1	0.3960	HAUL1	0.03474	HAUL2
ANNUAL	R340	551338.51	4165212.16	*551338.514165212.16*	0.0481	PHASE 1	0.8615	HAUL1	0.03808	HAUL2
ANNUAL	R341	551378.51	4165212.16	*551378.514165212.16*	0.0451	PHASE 1	0.5183	HAUL1	0.03576	HAUL2
ANNUAL	R342	551418.51	4165212.16	*551418.514165212.16*	0.0424	PHASE 1	0.3619	HAUL1	0.03365	HAUL2
ANNUAL	R343	551358.51	4165232.16	*551358.514165232.16*	0.0430	PHASE 1	0.5734	HAUL1	0.03564	HAUL2
ANNUAL	R344	551398.51	4165232.16	*551398.514165232.16*	0.0405	PHASE 1	0.3880	HAUL1	0.03355	HAUL2
ANNUAL	R345	551378.51	4165252.16	*551378.514165252.16*	0.0387	PHASE 1	0.4167	HAUL1	0.03338	HAUL2
ANNUAL	R346	551378.51	4165272.16	*551378.514165272.16*	0.0361	PHASE 1	0.3720	HAUL1	0.0322	HAUL2
ANNUAL	R347	551498.28	4164852.3	*551498.284164852.3*	0.1089	PHASE 1	0.2273	HAUL1	0.04235	HAUL2
ANNUAL	R348	551538.28	4164852.3	*551538.284164852.3*	0.0971	PHASE 1	0.2001	HAUL1	0.03978	HAUL2
ANNUAL	R349	551458.28	4164872.3	*551458.284164872.3*	0.1199	PHASE 1	0.2847	HAUL1	0.0449	HAUL2
ANNUAL	R350	551498.28	4164872.3	*551498.284164872.3*	0.1059	PHASE 1	0.2453	HAUL1	0.04206	HAUL2
ANNUAL	R351	551538.28	4164872.3	*551538.284164872.3*	0.0945	PHASE 1	0.2129	HAUL1	0.0395	HAUL2
ANNUAL	R352	551458.28	4164892.3	*551458.284164892.3*	0.1160	PHASE 1	0.3133	HAUL1	0.04451	HAUL2
ANNUAL	R353	551498.28	4164892.3	*551498.284164892.3*	0.1026	PHASE 1	0.2648	HAUL1	0.0417	HAUL2
ANNUAL	R354	551538.28	4164892.3	*551538.284164892.3*	0.0916	PHASE 1	0.2260	HAUL1	0.03917	HAUL2
ANNUAL	R355	551458.28	4164912.3	*551458.284164912.3*	0.1116	PHASE 1	0.3460	HAUL1	0.04405	HAUL2
ANNUAL	R356	551498.28	4164912.3	*551498.284164912.3*	0.0988	PHASE 1	0.2853	HAUL1	0.04128	HAUL2
ANNUAL	R357	551538.28	4164912.3	*551538.284164912.3*	0.0883	PHASE 1	0.2389	HAUL1	0.03878	HAUL2
ANNUAL	R358	551458.28	4164932.3	*551458.284164932.3*	0.1068	PHASE 1	0.3824	HAUL1	0.04353	HAUL2
ANNUAL	R359	551498.28	4164932.3	*551498.284164932.3*	0.0947	PHASE 1	0.3059	HAUL1	0.0408	HAUL2
ANNUAL	R360	551538.28	4164932.3	*551538.284164932.3*	0.0848	PHASE 1	0.2510	HAUL1	0.03833	HAUL2
ANNUAL	R361	550405.6	4164951.75	*550405.64164951.75*	0.0627	PHASE 1	0.0253	HAUL1	0.29073	HAUL2
ANNUAL	R362	550465.6	4164951.75	*550465.64164951.75*	0.0871	PHASE 1	0.0311	HAUL1	0.42503	HAUL2
ANNUAL	R363	550485.6	4164971.75	*550485.64164971.75*	0.0959	PHASE 1	0.0329	HAUL1	0.60524	HAUL2
ANNUAL	R364	550525.6	4164971.75	*550525.64164971.75*	0.1239	PHASE 1	0.0381	HAUL1	1.49118	HAUL2
ANNUAL	R365	550605.6	4164971.75	*550605.64164971.75*	0.2197	PHASE 1	0.0517	HAUL1	0.99222	HAUL2
ANNUAL	R366	550405.6	4164991.75	*550405.64164991.75*	0.0611	PHASE 1	0.0250	HAUL1	0.34455	HAUL2
ANNUAL	R367	550565.6	4164991.75	*550565.64164991.75*	0.1534	PHASE 1	0.0432	HAUL1	2.13871	HAUL2
ANNUAL	R368	550605.6	4164991.75	*550605.64164991.75*	0.1987	PHASE 1	0.0501	HAUL1	0.85555	HAUL2
ANNUAL	R369	550645.6	4164991.75	*550645.64164991.75*	0.2515	PHASE 1	0.0578	HAUL1	0.54701	HAUL2
ANNUAL	R370	550565.6	4165011.75	*550565.64165011.75*	0.1435	PHASE 1	0.0422	HAUL1	1.55596	HAUL2
ANNUAL	R371	550605.6	4165011.75	*550605.64165011.75*	0.1809	PHASE 1	0.0485	HAUL1	0.75535	HAUL2
ANNUAL	R372	550645.6	4165011.75	*550645.64165011.75*	0.2227	PHASE 1	0.0556	HAUL1	0.50734	HAUL2
ANNUAL	R373	550685.6	4165011.75	*550685.64165011.75*	0.2644	PHASE 1	0.0633	HAUL1	0.3798	HAUL2
ANNUAL	R374	551318.51	4165172.16	*551318.514165172.16*	0.0595	PHASE 1	2.2167	HAUL1	0.04208	HAUL2
ANNUAL	R375	551398.51	4165172.16	*551398.514165172.16*	0.0515	PHASE 1	0.5211	HAUL1	0.03695	HAUL2
ANNUAL	R376	551318.51	4165192.16	*551318.514165192.16*	0.0542	PHASE 1	1.6155	HAUL1	0.04071	HAUL2
ANNUAL	R377	551358.51	4165192.16	*551358.514165192.16*	0.0506	PHASE 1	0.7403	HAUL1	0.03814	HAUL2
ANNUAL	R378	551398.51	4165192.16	*551398.514165192.16*	0.0474	PHASE 1	0.4721	HAUL1	0.03582	HAUL2
ANNUAL	R379	551318.51	4165212.16	*551318.514165212.16*	0.0497	PHASE 1	1.2627	HAUL1	0.03934	HAUL2
ANNUAL	R380	551358.51	4165212.16	*551358.514165212.16*	0.0466	PHASE 1	0.6495	HAUL1	0.03689	HAUL2
ANNUAL	R381	551398.51	4165212.16	*551398.514165212.16*	0.0437	PHASE 1	0.4282	HAUL1	0.03469	HAUL2
ANNUAL	R382	551338.51	4165232.16	*551338.514165232.16*	0.0443	PHASE 1	0.7397	HAUL1	0.03677	HAUL2
ANNUAL	R383	551378.51	4165232.16	*551378.514165232.16*	0.0417	PHASE 1	0.4651	HAUL1	0.03457	HAUL2
ANNUAL	R384	551358.51	4165252.16	*551358.514165252.16*	0.0399	PHASE 1	0.5073	HAUL1	0.0344	HAUL2
ANNUAL	R385	551398.51	4165252.16	*551398.514165252.16*	0.0376	PHASE 1	0.3505	HAUL1	0.03241	HAUL2
ANNUAL	R386	551478.28	4164852.3	*551478.284164852.3*	0.1156	PHASE 1	0.2427	HAUL1	0.04374	HAUL2
ANNUAL	R387	551518.28	4164852.3	*551518.284164852.3*	0.1027	PHASE 1	0.2131	HAUL1	0.04104	HAUL2
ANNUAL	R388	551558.28	4164852.3	*551558.284164852.3*	0.0919	PHASE 1	0.1879	HAUL1	0.03858	HAUL2
ANNUAL	R389	551478.28	4164872.3	*551478.284164872.3*	0.1125	PHASE 1	0.2639	HAUL1	0.04343	HAUL2
ANNUAL	R390	551518.28	4164872.3	*551518.284164872.3*	0.0999	PHASE 1	0.2284	HAUL1	0.04075	HAUL2
ANNUAL	R391	551558.28	4164872.3	*551558.284164872.3*	0.0895	PHASE 1	0.1987	HAUL1	0.03831	HAUL2
ANNUAL	R392	551478.28	4164892.3	*551478.284164892.3*	0.1089	PHASE 1	0.2876	HAUL1	0.04306	HAUL2
ANNUAL	R393	551518.28	4164892.3	*551518.284164892.3*	0.0968	PHASE 1	0.2443	HAUL1	0.0404	HAUL2
ANNUAL	R394	551558.28	4164892.3	*551558.284164892.3*	0.0867	PHASE 1	0.2095	HAUL1	0.03799	HAUL2
ANNUAL	R395	551478.28	4164912.3	*551478.284164912.3*	0.1048	PHASE 1	0.3134	HAUL1	0.04262	HAUL2
ANNUAL	R396	551518.28	4164912.3	*551518.284164912.3*	0.0933	PHASE 1	0.2606	HAUL1	0.04	HAUL2
ANNUAL	R397	551438.28	4164932.3	*551438.284164932.3*	0.1139	PHASE 1	0.4317	HAUL1	0.04502	HAUL2
ANNUAL	R398	551478.28	4164932.3	*551478.284164932.3*	0.1004	PHASE 1	0.3407	HAUL1	0.04212	HAUL2
ANNUAL	R399	551518.28	4164932.3	*551518.284164932.3*	0.0896	PHASE 1	0.2763	HAUL1	0.03954	HAUL2
ANNUAL	R400	551438.28	4164952.3	*551438.284164952.3*	0.1082	PHASE 1	0.4875	HAUL1	0.04441	HAUL2
ANNUAL	R401	551458.28	4164952.3	*551458.284164952.3*	0.1016	PHASE 1	0.4210	HAUL1	0.04295	HAUL2
ANNUAL	R402	551498.28	4164952.3	*551498.284164952.3*	0.0904	PHASE 1	0.3254	HAUL1	0.04026	HAUL2
ANNUAL	R403	551538.28	4164952.3	*551538.284164952.3*	0.0812	PHASE 1	0.2616	HAUL1	0.03784	HAUL2
ANNUAL	R404	551438.28	4164972.3	*551438.284164972.3*	0.1023	PHASE 1	0.5468	HAUL1	0.04374	HAUL2
ANNUAL	R405	551478.28	4164972.3	*551478.284164972.3*	0.0908	PHASE 1	0.3924	HAUL1	0.04095	HAUL2
ANNUAL	R406	551518.28	4164972.3	*551518.284164972.3*	0.0814	PHASE 1	0.3022	HAUL1	0.03846	HAUL2
ANNUAL	R407	551318.28	4164992.3	*551318.284164992.3*	0.1470	PHASE 1	3.8259	HAUL1	0.05315	HAUL2
ANNUAL	R408	551438.28	4164992.3	*551438.284164992.3*	0.0962	PHASE 1	0.6010	HAUL1	0.04302	HAUL2
ANNUAL	R409	551478.28	4164992.3	*551478.284164992.3*	0.0857	PHASE 1	0.4112	HAUL1	0.04029	HAUL2
ANNUAL	R410	551458.28	4165012.3	*551458.284165012.3*	0.0851	PHASE 1	0.5074	HAUL1	0.04087	HAUL2
ANNUAL	R411	551498.28	4165012.3	*551498.284165012.3*	0.0765	PHASE 1	0.3602	HAUL1	0.03836	HAUL2
ANNUAL	R412	551438.28	4165032.3	*551438.284165032.3*	0.0839	PHASE 1	0.6426	HAUL1	0.04142	HAUL2
ANNUAL	R413	551498.28	4165032.3	*551498.284165032.3*	0.0718	PHASE 1	0.3595	HAUL1	0.03765	HAUL2
ANNUAL	R414	551418.28	4165052.3	*551418.284165052.3*	0.0821	PHASE 1	0.8141	HAUL1	0.04191	HAUL2
ANNUAL	R415	551458.28	4165052.3	*551458.284165052.3*	0.0740	PHASE 1	0.4956	HAUL1	0.03926	HAUL2

ANNUAL	R416	551358.28	4165072.3	*551358.284165072.3*	0.0890	PHASE 1	3.0291	HAUL1	0.04533	HAUL2
ANNUAL	R417	551398.28	4165072.3	*551398.284165072.3*	0.0798	PHASE 1	0.9762	HAUL1	0.04235	HAUL2
ANNUAL	R418	551438.28	4165072.3	*551438.284165072.3*	0.0721	PHASE 1	0.5735	HAUL1	0.03965	HAUL2
ANNUAL	R419	551358.28	4165092.3	*551358.284165092.3*	0.0808	PHASE 1	2.0353	HAUL1	0.0442	HAUL2
ANNUAL	R420	551398.28	4165092.3	*551398.284165092.3*	0.0732	PHASE 1	0.8337	HAUL1	0.04133	HAUL2
ANNUAL	R421	551438.28	4165092.3	*551438.284165092.3*	0.0666	PHASE 1	0.5241	HAUL1	0.03872	HAUL2
ANNUAL	R422	551338.28	4165112.3	*551338.284165112.3*	0.0770	PHASE 1	3.1266	HAUL1	0.04452	HAUL2
ANNUAL	R423	551378.28	4165112.3	*551378.284165112.3*	0.0701	PHASE 1	0.9843	HAUL1	0.04161	HAUL2
ANNUAL	R424	551418.28	4165112.3	*551418.284165112.3*	0.0641	PHASE 1	0.5779	HAUL1	0.03898	HAUL2
ANNUAL	R425	551458.28	4165112.3	*551458.284165112.3*	0.0588	PHASE 1	0.4048	HAUL1	0.03659	HAUL2
ANNUAL	R426	551358.28	4165132.3	*551358.284165132.3*	0.0666	PHASE 1	1.2097	HAUL1	0.04184	HAUL2
ANNUAL	R427	551398.28	4165132.3	*551398.284165132.3*	0.0613	PHASE 1	0.6454	HAUL1	0.03918	HAUL2
ANNUAL	R428	551438.28	4165132.3	*551438.284165132.3*	0.0566	PHASE 1	0.4373	HAUL1	0.03677	HAUL2
ANNUAL	R429	551338.28	4165152.3	*551338.284165152.3*	0.0630	PHASE 1	1.5691	HAUL1	0.042	HAUL2
ANNUAL	R430	551378.28	4165152.3	*551378.284165152.3*	0.0583	PHASE 1	0.7352	HAUL1	0.03932	HAUL2
ANNUAL	R431	551418.28	4165152.3	*551418.284165152.3*	0.0541	PHASE 1	0.4751	HAUL1	0.03689	HAUL2
ANNUAL	R432	551338.28	4165172.3	*551338.284165172.3*	0.0573	PHASE 1	1.2404	HAUL1	0.0407	HAUL2
ANNUAL	R433	551378.28	4165172.3	*551378.284165172.3*	0.0534	PHASE 1	0.6499	HAUL1	0.03815	HAUL2
ANNUAL	R434	551298.14	4164530.93	*551298.144164530.93*	0.1298	PHASE 1	0.1130	HAUL1	0.04929	HAUL2
ANNUAL	R435	551318.14	4164550.93	*551318.144164550.93*	0.1346	PHASE 1	0.1177	HAUL1	0.04941	HAUL2
ANNUAL	R436	551298.14	4164570.93	*551298.144164570.93*	0.1498	PHASE 1	0.1339	HAUL1	0.05238	HAUL2
ANNUAL	R437	551338.14	4164570.93	*551338.144164570.93*	0.1377	PHASE 1	0.1218	HAUL1	0.04928	HAUL2
ANNUAL	R438	551298.14	4164590.93	*551298.144164590.93*	0.1601	PHASE 1	0.1456	HAUL1	0.05379	HAUL2
ANNUAL	R439	551338.14	4164590.93	*551338.144164590.93*	0.1459	PHASE 1	0.1316	HAUL1	0.05049	HAUL2
ANNUAL	R440	551378.14	4164590.93	*551378.144164590.93*	0.1329	PHASE 1	0.1198	HAUL1	0.04745	HAUL2
ANNUAL	R441	551478.28	4164952.3	*551478.284164952.3*	0.0957	PHASE 1	0.3679	HAUL1	0.04156	HAUL2
ANNUAL	R442	551518.28	4164952.3	*551518.284164952.3*	0.0856	PHASE 1	0.2905	HAUL1	0.03902	HAUL2
ANNUAL	R443	551418.28	4164972.3	*551418.284164972.3*	0.1091	PHASE 1	0.6697	HAUL1	0.04526	HAUL2
ANNUAL	R444	551458.28	4164972.3	*551458.284164972.3*	0.0962	PHASE 1	0.4582	HAUL1	0.04231	HAUL2
ANNUAL	R445	551498.28	4164972.3	*551498.284164972.3*	0.0859	PHASE 1	0.3420	HAUL1	0.03968	HAUL2
ANNUAL	R446	551538.28	4164972.3	*551538.284164972.3*	0.0773	PHASE 1	0.2699	HAUL1	0.0373	HAUL2
ANNUAL	R447	551418.28	4164992.3	*551418.284164992.3*	0.1024	PHASE 1	0.7756	HAUL1	0.0445	HAUL2
ANNUAL	R448	551458.28	4164992.3	*551458.284164992.3*	0.0907	PHASE 1	0.4890	HAUL1	0.04162	HAUL2
ANNUAL	R449	551498.28	4164992.3	*551498.284164992.3*	0.0812	PHASE 1	0.3542	HAUL1	0.03904	HAUL2
ANNUAL	R450	551478.28	4165012.3	*551478.284165012.3*	0.0806	PHASE 1	0.4216	HAUL1	0.03958	HAUL2
ANNUAL	R451	551418.28	4165032.3	*551418.284165032.3*	0.0888	PHASE 1	0.8710	HAUL1	0.04282	HAUL2
ANNUAL	R452	551478.28	4165032.3	*551478.284165032.3*	0.0755	PHASE 1	0.4219	HAUL1	0.03883	HAUL2
ANNUAL	R453	551378.28	4165052.3	*551378.284165052.3*	0.0920	PHASE 1	1.9834	HAUL1	0.04484	HAUL2
ANNUAL	R454	551438.28	4165052.3	*551438.284165052.3*	0.0779	PHASE 1	0.6178	HAUL1	0.04056	HAUL2
ANNUAL	R455	551478.28	4165052.3	*551478.284165052.3*	0.0705	PHASE 1	0.4124	HAUL1	0.03804	HAUL2
ANNUAL	R456	551378.28	4165072.3	*551378.284165072.3*	0.0842	PHASE 1	1.4784	HAUL1	0.0438	HAUL2
ANNUAL	R457	551418.28	4165072.3	*551418.284165072.3*	0.0758	PHASE 1	0.7267	HAUL1	0.04097	HAUL2
ANNUAL	R458	551458.28	4165072.3	*551458.284165072.3*	0.0687	PHASE 1	0.4697	HAUL1	0.0384	HAUL2
ANNUAL	R459	551378.28	4165092.3	*551378.284165092.3*	0.0768	PHASE 1	1.1814	HAUL1	0.04272	HAUL2
ANNUAL	R460	551418.28	4165092.3	*551418.284165092.3*	0.0697	PHASE 1	0.6451	HAUL1	0.03999	HAUL2
ANNUAL	R461	551458.28	4165092.3	*551458.284165092.3*	0.0636	PHASE 1	0.4377	HAUL1	0.03751	HAUL2
ANNUAL	R462	551358.28	4165112.3	*551358.284165112.3*	0.0734	PHASE 1	1.5193	HAUL1	0.04303	HAUL2
ANNUAL	R463	551398.28	4165112.3	*551398.284165112.3*	0.0670	PHASE 1	0.7279	HAUL1	0.04027	HAUL2
ANNUAL	R464	551438.28	4165112.3	*551438.284165112.3*	0.0614	PHASE 1	0.4780	HAUL1	0.03775	HAUL2
ANNUAL	R465	551338.28	4165132.3	*551338.284165132.3*	0.0696	PHASE 1	2.1228	HAUL1	0.04327	HAUL2
ANNUAL	R466	551378.28	4165132.3	*551378.284165132.3*	0.0639	PHASE 1	0.8427	HAUL1	0.04048	HAUL2
ANNUAL	R467	551418.28	4165132.3	*551418.284165132.3*	0.0589	PHASE 1	0.5224	HAUL1	0.03795	HAUL2
ANNUAL	R468	551458.28	4165132.3	*551458.284165132.3*	0.0544	PHASE 1	0.3738	HAUL1	0.03565	HAUL2
ANNUAL	R469	551358.28	4165152.3	*551358.284165152.3*	0.0606	PHASE 1	1.0033	HAUL1	0.04062	HAUL2
ANNUAL	R470	551398.28	4165152.3	*551398.284165152.3*	0.0562	PHASE 1	0.5784	HAUL1	0.03808	HAUL2
ANNUAL	R471	551318.28	4165172.3	*551318.284165172.3*	0.0595	PHASE 1	2.2309	HAUL1	0.04209	HAUL2
ANNUAL	R472	551358.28	4165172.3	*551358.284165172.3*	0.0553	PHASE 1	0.8551	HAUL1	0.03939	HAUL2
ANNUAL	R473	551678.14	4164370.93	*551678.144164370.93*	0.0513	PHASE 1	0.0429	HAUL1	0.02603	HAUL2
ANNUAL	R474	551298.14	4164550.93	*551298.144164550.93*	0.1397	PHASE 1	0.1231	HAUL1	0.05087	HAUL2
ANNUAL	R475	551358.14	4164550.93	*551358.144164550.93*	0.1245	PHASE 1	0.1079	HAUL1	0.04662	HAUL2
ANNUAL	R476	551318.14	4164570.93	*551318.144164570.93*	0.1437	PHASE 1	0.1276	HAUL1	0.0508	HAUL2
ANNUAL	R477	551358.14	4164570.93	*551358.144164570.93*	0.1319	PHASE 1	0.1164	HAUL1	0.04782	HAUL2
ANNUAL	R478	551318.14	4164590.93	*551318.144164590.93*	0.1529	PHASE 1	0.1383	HAUL1	0.05211	HAUL2
ANNUAL	R479	551358.14	4164590.93	*551358.144164590.93*	0.1392	PHASE 1	0.1254	HAUL1	0.04893	HAUL2
ANNUAL	R480	551298.14	4164610.93	*551298.144164610.93*	0.1704	PHASE 1	0.1582	HAUL1	0.05511	HAUL2
ANNUAL	R481	551318.14	4164610.93	*551318.144164610.93*	0.1620	PHASE 1	0.1498	HAUL1	0.05332	HAUL2
ANNUAL	R482	551358.14	4164610.93	*551358.144164610.93*	0.1464	PHASE 1	0.1351	HAUL1	0.04996	HAUL2
ANNUAL	R483	551398.14	4164610.93	*551398.144164610.93*	0.1325	PHASE 1	0.1230	HAUL1	0.04691	HAUL2
ANNUAL	R484	551438.14	4164610.93	*551438.144164610.93*	0.1204	PHASE 1	0.1133	HAUL1	0.04416	HAUL2
ANNUAL	R485	551358.14	4164630.93	*551358.144164630.93*	0.1533	PHASE 1	0.1455	HAUL1	0.0509	HAUL2
ANNUAL	R486	551398.14	4164630.93	*551398.144164630.93*	0.1378	PHASE 1	0.1319	HAUL1	0.04771	HAUL2
ANNUAL	R487	551298.14	4164650.93	*551298.144164650.93*	0.1904	PHASE 1	0.1869	HAUL1	0.05739	HAUL2
ANNUAL	R488	551338.14	4164650.93	*551338.144164650.93*	0.1692	PHASE 1	0.1659	HAUL1	0.05354	HAUL2
ANNUAL	R489	551398.14	4164650.93	*551398.144164650.93*	0.1427	PHASE 1	0.1415	HAUL1	0.04842	HAUL2
ANNUAL	R490	551438.14	4164650.93	*551438.144164650.93*	0.1282	PHASE 1	0.1293	HAUL1	0.04545	HAUL2
ANNUAL	R491	551298.14	4164670.93	*551298.144164670.93*	0.1997	PHASE 1	0.2034	HAUL1	0.05834	HAUL2
ANNUAL	R492	551338.14	4164670.93	*551338.144164670.93*	0.1761	PHASE 1	0.1795	HAUL1	0.05434	HAUL2
ANNUAL	R493	551378.14	4164670.93	*551378.144164670.93*	0.1560	PHASE 1	0.1601	HAUL1	0.05071	HAUL2
ANNUAL	R494	551418.14	4164670.93	*551418.144164670.93*	0.1390	PHASE 1	0.1447	HAUL1	0.04747	HAUL2
ANNUAL	R495	551478.14	4164670.93	*551478.144164670.93*	0.1181	PHASE 1	0.1273	HAUL1	0.04319	HAUL2
ANNUAL	R496	551318.14	4164690.93	*551318.144164690.93*	0.1948	PHASE 1	0.2076	HAUL1	0.05703	HAUL2
ANNUAL	R497	551358.14	4164690.93	*551358.144164690.93*	0.1709	PHASE 1	0.1830	HAUL1	0.0531	HAUL2
ANNUAL	R498	551398.14	4164690.93	*551398.144164690.93*	0.1509	PHASE 1	0.1633	HAUL1	0.04957	HAUL2
ANNUAL	R499	551458.14	4164690.93	*551458.144164690.93*	0.1269	PHASE 1	0.1415	HAUL1	0.04494	HAUL2
ANNUAL	R500	551338.14	4164710.93	*551338.144164710.93*	0.1877	PHASE 1	0.2116	HAUL1	0.05558	HAUL2
ANNUAL	R501	551378.14	4164710.93	*551378.144164710.93*	0.1642	PHASE 1	0.1864	HAUL1	0.05175	HAUL2
ANNUAL	R502	551418.14	4164710.93	*551418.144164710.93*	0.1448	PHASE 1	0.1666	HAUL1	0.04833	HAUL2
ANNUAL	R503	551458.14	4164710.93	*551458.144164710.93*	0.1286	PHASE 1	0.1512	HAUL1	0.04526	HAUL2
ANNUAL	R504	551398.14	4164730.93	*551398.144164730.93*	0.1565	PHASE 1	0.1899	HAUL1	0.05032	HAUL2
ANNUAL	R505	551418.14	4164750.93	*551418.144164750.93*	0.1479	PHASE 1	0.1935	HAUL1	0.04883	HAUL2
ANNUAL	R506	550597.48	4164211.07	*550597.484164211.07*	0.0415	PHASE 1	0.0272	HAUL1	0.02229	HAUL2
ANNUAL	R507	550637.48	4164311.07	*550637.484164311.07*	0.0584	PHASE 1	0.0380	HAUL1	0.03	HAUL2
ANNUAL	R508	550697.48	4164311.07	*550697.484164311.07*	0.0599	PHASE 1	0.0426	HAUL1	0.02732	HAUL2
ANNUAL	R509	550737.48	4164311.07	*550737.484164311.07*	0.0593	PHASE 1	0.0448	HAUL1	0.02606	HAUL2
ANNUAL	R510	550777.48	4164311.07	*550777.484164311.07*	0.0578	PHASE 1	0.0463	HAUL1	0.0256	HAUL2
ANNUAL	R511	550817.48	4164311.07	*550817.484164311.07*	0.0557	PHASE 1	0.0473	HAUL1	0.02589	HAUL2
ANNUAL	R512	550697.48	4164331.07	*550697.484164331.07*	0.0646	PHASE 1	0.0456	HAUL1	0.02946	HAUL2
ANNUAL	R513	550777.48	4164331.07	*550777.484164331.07*	0.0625	PHASE 1	0.0498	HAUL1	0.02761	HAUL2
ANNUAL	R514	550817.48	4164331.07	*550817.484164331.07*	0.0604	PHASE 1	0.0510	HAUL1	0.02803	HAUL2
ANNUAL	R515	550557.48	4164351.07	*550557.484164351.07*	0.0585	PHASE 1	0.0333	HAUL1	0.03783	HAUL2
ANNUAL	R516	550617.48	4164351.07	*550617.484164351.07*	0.0655	PHASE 1	0.0404	HAUL1	0.03625	HAUL2
ANNUAL	R517	550657.48	4164351.07	*550657.484164351.07*	0.0685	PHASE 1	0.0450	HAUL1	0.03414	HAUL2
ANNUAL	R518	550697.48	4164351.07	*550697.484164351.07*	0.0698	PHASE 1	0.0490	HAUL1	0.03189	HAUL2
ANNUAL	R519	550737.48	4164351.07	*550737.484164351.07*	0.0694	PHASE 1	0.0518	HAUL1	0.03032	HAUL2
ANNUAL	R520	550797.48	4164351.07	*550797.484164351.07*	0.0670	PHASE 1	0.0546	HAUL1	0.0301	HAUL2
ANNUAL	R521	551338.14	4164610.93	*551338.144164610.93*	0.1540	PHASE 1	0.1421	HAUL1	0.05161	HAUL2
ANNUAL	R522	551378.14	4164610.93	*551378.144164610.93*	0.1392	PHASE 1	0.1287	HAUL1	0.0484	HAUL2
ANNUAL	R523	551418.14	4164610.93	*551418.144164610.93*	0.1263	PHASE 1	0.1179	HAUL1	0.0455	HAUL2
ANNUAL	R524	551318.14	4164630.93	*551318.144164630.93*	0.1709	PHASE 1	0.1623	HAUL1	0.05443	HAUL2
ANNUAL	R525	551378.14	4164630.93	*551378.144164630.93*	0.1453	PHASE 1	0.1383	HAUL1	0.04927	HAUL2
ANNUAL	R526	551438.14	4164630.93	*551438.144164630.93*	0.1245	PHASE 1	0.1210	HAUL1	0.04484	HAUL2
ANNUAL	R527	551318.14	4164650.93	*551318.144164650.93*	0.1795	PHASE 1	0.1759	HAUL1	0.05542	HAUL2
ANNUAL	R528	551358.14	4164650.93	*551358.144164650.93*	0.1597	PHASE 1	0.1569	HAUL1	0.05174	HAUL2
ANNUAL	R529	551418.14	4164650.93	*551418.144164650.93*	0.1352	PHASE 1	0.1351	HAUL1	0.0469	HAUL2
ANNUAL	R530	551478.14	4164650.93	*551478.144164650.93*	0.1157	PHASE 1	0.1195	HAUL1	0.04275	HAUL2
ANNUAL	R531	551318.14	4164670.93	*551318.144164670.93*	0.1875	PHASE 1	0.1909	HAUL1	0.05629	HAUL2
ANNUAL	R532	551358.14	4164670.93	*551358.144164670.93*	0.1656	PHASE 1	0.1693	HAUL1	0.05248	HAUL2
ANNUAL	R533	551398.14	4164670.93	*551398.144164670.93*	0.1471	PHASE 1	0.1519	HAUL1	0.04904	HAUL2
ANNUAL	R534	551438.14	4164670.93	*551438.144164670.93*	0.1315	PHASE 1	0.1382	HAUL1	0.04597	HAUL2
ANNUAL	R535	551298.14	4164690.93	*551298.144164690.93*	0.2083	PHASE 1	0.2219	HAUL1	0.05915	HAUL2
ANNUAL	R536	551338.14	4164690.93	*551338.144164690.93*	0.1823	PHASE 1	0.1946	HAUL1	0.05502	HAUL2
ANNUAL	R537	551378.14	4164690.93	*551378.144164690.93*	0.1605	PHASE 1	0.1726	HAUL1	0.05129	HAUL2
ANNUAL	R538	551418.14	4164690.93	*551418.144164690.93*	0.1422	PHASE 1	0.1552	HAUL1	0.04795	HAUL2
ANNUAL	R539	551598.14	4164690.93	*551598.144164690.93*	0.0887	PHASE 1	0.1091	HAUL1	0.03649	HAUL2
ANNUAL	R540	551358.14	4164710.93	*551358.144164710.93*	0.1754	PHASE 1	0.1983	HAUL1	0.05361	HAUL2
ANNUAL	R541	551398.14	4164710.93	*551398.144164710.93*	0.1541	PHASE 1	0.1759	HAUL1	0.04999	HAUL2
ANNUAL	R542	551438.14	4164710.93	*551438.144164710.93*	0.1364	PHASE 1	0.1585	HAUL1	0.04676	HAUL2
ANNUAL	R543	551378.14	4164730.93	*551378.144164730.93*	0.1672	PHASE 1	0.2019	HAUL1	0.05211	HAUL2
ANNUAL	R544	551438.14	4164730.93	*551438.144164730.93*	0.1379	PHASE 1	0.1701	HAUL1	0.04702	HAUL2
ANNUAL	R545	551438.14	4164750.93	*551438.144164750.93*	0.1388	PHASE 1	0.1830	HAUL1	0.0472	HAUL2
ANNUAL	R546	550597.48	4164231.07	*550597.484164231.07*	0.0439	PHASE 1	0.0284	HAUL1	0.02377	HAUL2
ANNUAL	R547	550657.48	4164311.07	*550657.484164311.07*	0.0593	PHASE 1	0.0397	HAUL1	0.02908	HAUL2
ANNUAL	R548	550717.48	4164311.07	*550717.484164311.07*	0.0598	PHASE 1	0.0438	HAUL1	0.0266	HAUL2
ANNUAL	R549	550757.48	4164311.07	*550757.484164311.07*	0.0586	PHASE 1	0.0456	HAUL1	0.02573	HAUL2
ANNUAL	R550	550797.48	4164311.07	*550797.484164311.07*	0.0568	PHASE 1	0.0468	HAUL1	0.02567	HAUL2
ANNUAL	R551	550677.48	4164331.07	*550677.484164331.07*	0.0643	PHASE 1	0.0440	HAUL1	0.03042	HAUL2
ANNUAL	R552	550757.48	4164331.07	*550757.484164331.07*	0.0634	PHASE 1	0.0490	HAUL1	0.02771	HAUL2
ANNUAL	R553	550797.48	4164331.07	*550797.484164331.07*	0.0615	PHASE 1	0.0505	HAUL1	0.02773	HAUL2
ANNUAL	R554	550837.48	4164331.07	*550837.484164331.07*	0.0593	PHASE 1	0.0515	HAUL1	0.02846	HAUL2

ANNUAL	R555	550577.48	4164351.07	*550577.484164351.07*	0.0611	PHASE 1	0.0356	HAUL1	0.03756	HAUL2
ANNUAL	R556	550637.48	4164351.07	*550637.484164351.07*	0.0672	PHASE 1	0.0428	HAUL1	0.03526	HAUL2
ANNUAL	R557	550677.48	4164351.07	*550677.484164351.07*	0.0694	PHASE 1	0.0471	HAUL1	0.03298	HAUL2
ANNUAL	R558	550717.48	4164351.07	*550717.484164351.07*	0.0698	PHASE 1	0.0505	HAUL1	0.03097	HAUL2
ANNUAL	R559	550777.48	4164351.07	*550777.484164351.07*	0.0679	PHASE 1	0.0538	HAUL1	0.0299	HAUL2
ANNUAL	R560	550817.48	4164351.07	*550817.484164351.07*	0.0659	PHASE 1	0.0553	HAUL1	0.0305	HAUL2
ANNUAL	R561	550837.48	4164351.07	*550837.484164351.07*	0.0647	PHASE 1	0.0559	HAUL1	0.03104	HAUL2
ANNUAL	R562	550577.48	4164371.07	*550577.484164371.07*	0.0652	PHASE 1	0.0373	HAUL1	0.04083	HAUL2
ANNUAL	R563	550617.48	4164371.07	*550617.484164371.07*	0.0704	PHASE 1	0.0428	HAUL1	0.03954	HAUL2
ANNUAL	R564	550677.48	4164371.07	*550677.484164371.07*	0.0751	PHASE 1	0.0506	HAUL1	0.0359	HAUL2
ANNUAL	R565	550717.48	4164371.07	*550717.484164371.07*	0.0758	PHASE 1	0.0546	HAUL1	0.03362	HAUL2
ANNUAL	R566	550757.48	4164371.07	*550757.484164371.07*	0.0749	PHASE 1	0.0573	HAUL1	0.03255	HAUL2
ANNUAL	R567	550857.48	4164371.07	*550857.484164371.07*	0.0699	PHASE 1	0.0618	HAUL1	0.03481	HAUL2
ANNUAL	R568	550717.48	4164391.07	*550717.484164391.07*	0.0826	PHASE 1	0.0592	HAUL1	0.03668	HAUL2
ANNUAL	R569	550757.48	4164391.07	*550757.484164391.07*	0.0819	PHASE 1	0.0625	HAUL1	0.03556	HAUL2
ANNUAL	R570	550797.48	4164391.07	*550797.484164391.07*	0.0803	PHASE 1	0.0649	HAUL1	0.03612	HAUL2
ANNUAL	R571	550857.48	4164391.07	*550857.484164391.07*	0.0772	PHASE 1	0.0680	HAUL1	0.03851	HAUL2
ANNUAL	R572	550757.48	4164411.07	*550757.484164411.07*	0.0899	PHASE 1	0.0684	HAUL1	0.03912	HAUL2
ANNUAL	R573	550797.48	4164411.07	*550797.484164411.07*	0.0885	PHASE 1	0.0714	HAUL1	0.04002	HAUL2
ANNUAL	R574	550857.48	4164411.07	*550857.484164411.07*	0.0859	PHASE 1	0.0756	HAUL1	0.04292	HAUL2
ANNUAL	R575	550837.48	4164431.07	*550837.484164431.07*	0.0970	PHASE 1	0.0830	HAUL1	0.04711	HAUL2
ANNUAL	R576	550837.48	4164451.07	*550837.484164451.07*	0.1092	PHASE 1	0.0938	HAUL1	0.05344	HAUL2
ANNUAL	R577	550857.48	4164471.07	*550857.484164471.07*	0.1239	PHASE 1	0.1104	HAUL1	0.06225	HAUL2
ANNUAL	R578	551045.12	4165591.04	*551045.124165591.04*	0.0282	PHASE 1	0.0584	HAUL1	0.02385	HAUL2
ANNUAL	R579	550857.48	4164351.07	*550857.484164351.07*	0.0635	PHASE 1	0.0565	HAUL1	0.03167	HAUL2
ANNUAL	R580	550597.48	4164371.07	*550597.484164371.07*	0.0679	PHASE 1	0.0400	HAUL1	0.04033	HAUL2
ANNUAL	R581	550657.48	4164371.07	*550657.484164371.07*	0.0740	PHASE 1	0.0481	HAUL1	0.03722	HAUL2
ANNUAL	R582	550697.48	4164371.07	*550697.484164371.07*	0.0757	PHASE 1	0.0527	HAUL1	0.03466	HAUL2
ANNUAL	R583	550737.48	4164371.07	*550737.484164371.07*	0.0755	PHASE 1	0.0561	HAUL1	0.03291	HAUL2
ANNUAL	R584	550777.48	4164371.07	*550777.484164371.07*	0.0741	PHASE 1	0.0584	HAUL1	0.03255	HAUL2
ANNUAL	R585	550697.48	4164391.07	*550697.484164391.07*	0.0823	PHASE 1	0.0570	HAUL1	0.03786	HAUL2
ANNUAL	R586	550737.48	4164391.07	*550737.484164391.07*	0.0824	PHASE 1	0.0610	HAUL1	0.0359	HAUL2
ANNUAL	R587	550777.48	4164391.07	*550777.484164391.07*	0.0811	PHASE 1	0.0637	HAUL1	0.03566	HAUL2
ANNUAL	R588	550817.48	4164391.07	*550817.484164391.07*	0.0793	PHASE 1	0.0660	HAUL1	0.03681	HAUL2
ANNUAL	R589	550737.48	4164411.07	*550737.484164411.07*	0.0903	PHASE 1	0.0667	HAUL1	0.0394	HAUL2
ANNUAL	R590	550777.48	4164411.07	*550777.484164411.07*	0.0893	PHASE 1	0.0700	HAUL1	0.03937	HAUL2
ANNUAL	R591	550817.48	4164411.07	*550817.484164411.07*	0.0877	PHASE 1	0.0728	HAUL1	0.04092	HAUL2
ANNUAL	R592	550797.48	4164431.07	*550797.484164431.07*	0.0982	PHASE 1	0.0792	HAUL1	0.04478	HAUL2
ANNUAL	R593	550857.48	4164431.07	*550857.484164431.07*	0.0962	PHASE 1	0.0848	HAUL1	0.04821	HAUL2
ANNUAL	R594	550837.48	4164471.07	*550837.484164471.07*	0.1239	PHASE 1	0.1073	HAUL1	0.06122	HAUL2
ANNUAL	R595	551065.12	4165571.04	*551065.124165571.04*	0.0286	PHASE 1	0.0650	HAUL1	0.02452	HAUL2
ANNUAL	R596	551065.12	4165591.04	*551065.124165591.04*	0.0275	PHASE 1	0.0611	HAUL1	0.02328	HAUL2

Health Risk - Dose and Risk Factors and Values

Dose factors

			3rd trimester	0<2	2<9	16<30	16-70	source
Dose factors for calc	Construction	Residential	3.46E-04	1.05E-03	6.05E-04	2.50E-04	2.23E-04	*dose factors for lookup in risk calcs*
		Recreational	8.57E-06	4.29E-05	2.29E-05	8.57E-06	8.21E-06	*dose factors for lookup in risk calcs*
		school	2.96E-05	1.48E-04	6.41E-05	2.96E-05	2.84E-05	*dose factors for lookup in risk calcs*
	Daily Breath Rate (L/kg-day)	Residential	361	1090	631	261	233	OEHHA 2015, Table 5.6, 95th %ile for 3rdtri-2yrs old; 80th for 2>9 per BAAQMD guidance
		Recreational	240	1200	640	240	230	OEHHA 2015, Table 5.8 (95th, moderate) for all bins but 3rd tri, which was taken from SJVUAPCD's draft guidance
		School	240	1200	520	240	230	BAAQMD guidance - 95th percentile
	A		1	1	1	1	1	OEHHA 2015, page 5-24
	EF, Exposure frequency (unitless), day	Residential	0.96	0.96	0.96	0.96	0.96	OEHHA 2015, page 5-24, 350 days/yr
		Recreational	0.036	0.036	0.036	0.036	0.036	3x/week, 2 hours/day, for 9 years
		School	0.12	0.12	0.12	0.12	0.12	BAAQMD Guidance - 180 days/yr, 6 hours/day
	Conversion Factor		1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	(mg/ug * m3/L)
	Adjustment Factor (schools		1.00	1.00	1.00	1.00	1.00	Similar to WAF; OEHHA 2015, Page 4-44 and Equation 4.1; non-continuous emissions adjusted per WAF guidance. DF of 1 since construction and student presence assumed to completely overlap

Risk Factors

Risk factors for calcs	Construction	Residential	1.10E+01	11.00	3.30E+00	1.10E+00	1.10E+00	*without ED; ED/AT calculation in risk calc*
		Recreational	1.10E+01	1.10E+01	3.30E+00	1.10E+00	1.10E+00	
		school	1.10E+01	1.10E+01	3.30E+00	1.10E+00	1.10E+00	
	CPF, DPM ([mg/kg-day]$^{-1}$)		1.1	1.1	1.1	1.1	1.1	OEHHA 2015, Table 7.1
	Average Age Sensitivity Factor		10	10	3	1	1	OEHHA 2015, Table 8.3
	AT, Average Time (days)		70	70	70	70	70	Averaging time for lifetime cancer risk
	FAH		1.00	1.00	1.00	1.00	1.00	OEHHA 2015, Table 8.4: Use FAH = 1 if a school is within the 1×10-6 (or greater) cancer risk isopleth

ED, Exposure Duration (years)	see ED calculation sheet	
Chronic Inhalation Reference Exposure Level, respiratory, DPM	5	http://www.baaqmd.gov/~/media/files/planning-and-research/rules-and-regs/workshops/2016/reg-2-5/hra-guidelines_clean_jan_2016-pdf.pdf?la=en

conversions:

Second per hour	3600
Grams per ton	907184.74
Million	1,000,000
m2 per acre	4046.86
days per year	365

Unitized rate reasoning, see Section 3.9.2 of CAPCOA's HRA Guide:
An alternative approach is applying unitized emission rate and summation concepts, which drastically reduce the computational time for large multiple pollutant projects.
all chemical concentration levels vary linearly with their source release rate
The concentration at the receptor can then be multiplied by the actual rates (actual g/s (x) unitized 1 g/s rate)

DPM HRA Factors and values - Operations

Dose factors

				3rd trimester	0<2	2<9	16<30	16-70	source
factors for calcs --->	Construction	Existing Student		4.97E-04	2.49E-03	1.33E-03	4.97E-04	4.76E-04	*dose factors for lookup in risk calcs*
		New Student		4.97E-04	2.49E-03	1.33E-03	4.97E-04	4.76E-04	
		Residential		3.46E-04	1.05E-03	6.05E-04	2.50E-04	2.23E-04	
		Offsite Student		4.97E-04	2.49E-03	1.33E-03	4.97E-04	4.76E-04	*dose factors for lookup in risk calcs*
	Daily Breath Rate (L/kg-day)	Residential		361	1090	631	261	233	OEHHA 2015, Table 5.6, 95th %ile for 3rdtri-2yrs old; 80th for other age groups
		School		240	1200	640	240	230	SJVAPCD for 3rd tri; 95th percentile for all
	A			1	1	1	1	1	OEHHA 2015, page 5-24
	EF, Exposure frequency (unitless), day	Residential		0.96	0.96	0.96	0.96	0.96	OEHHA 2015, page 5-24, 350 days/yr
		School		0.49	0.49	0.49	0.49	0.49	180 days/yr
	Conversion Factor			1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	(mg/ug * m3/L)
	Adjustment Factor (schools			4.20	4.20	4.20	4.20	4.20	Similar to WAF; OEHHA 2015, Page 4-44 and Equation 4.1; non-continuous emissions adjusted per WAF guidance. DF of 1 since construction and student presence assumed to completely overlap

Risk Factors

factors for calcs --->		Existing Student		0.00E+00	0.00E+00	1.89E-01	0.00E+00	0.00E+00	
		New Student		0.00E+00	0.00E+00	1.89E-01	0.00E+00	0.00E+00	
		Offsite Student		0.00E+00	0.00E+00	1.89E-01	0.00E+00	0.00E+00	
		Residential		3.93E-02	3.14E-01	0.00E+00	2.20E-01	0.00E+00	
	CPF, DPM ([mg/kg-day]$^{-1}$)			1.1	1.1	1.1	1.1	1.1	OEHHA 2015, Table 7.1
	Average Age Sensitivity Factor			10	10	3	1	1	OEHHA 2015, Table 8.3
	AT, Average Time (days)			70	70	70	70	70	Averaging time for lifetime cancer risk
	FAH			1.00	1.00	1.00	1.00	1.00	OEHHA 2015, Table 8.4: Use FAH = 1 if a school is within the 1×10-6 (or greater) cancer risk isopleth
	ED, Exposure Duration (years)								
	Buses	New Wilson/Central Students				4.00			Grades 1-8; ages 6-13
		Residential		0.25	2.00		14.00		Equation 8.2.4 B, OEHHA 2015; 30 years total
	Roadway	New Wilson/Central Students				4.00			Equation 8.2.4 A, OEHHA 2015
		Residential							Equation 8.2.4 B, OEHHA 2015; 30 years total

	Chronic Inhalation Reference Exposure Level, respiratory, DPM	5
1hr to annual		0.1

conversions:

Second per hour	3600
Grams per ton	907184.74
Million	1,000,000
m2 per acre	4046.86
days per year	365

Project-Level Unmitigated PM2.5 during Construction

Receptor	PM2.5
Residential	0.02
BAAQMD Threshold	0.3
Exceed BAAQMD Threshold?	No

Onsite PM2.5 Exhaust Emissions (pounds per hour* calculation)

**ran aermod using 1 lbs/hr*

Building	Start	End	Working Days
Phase I	1/1/2020	6/2/2022	883

Dates by Bin

	3rd tri	0>2	2>9
start	1/1/2020	4/2/2020	4/3/2022
end	4/1/2020	4/2/2022	4/1/2029

Working days by phase

	start	end	2020		2021		2022	
Phase I	1/1/2020	6/2/2022	1/1/2020	12/31/2020	1/1/2021	12/31/2021	1/1/2022	6/2/2022

Work days by bin

	2020	2021	2022
Phase I	365	365	152

Annual Tons — Unmitigated-Emissions

Building	Start	End	PM2.5 Ex Tons Total	2020	2021	2022
Phase I	1/1/2020	6/2/2022	0.7	0.356	0.252	0.107

Annual Pounds

Building	Start	End	PM2.5 Ex LBs Total	2020	2021	2022
Phase I	1/1/2020	6/2/2022	1429	711	504	214

Lbs per day by year

	2020	2021	2022	
Phase I	1.95	1.38	1.40	TRUE

Apportioning of Emissions by Bin

3rd Tri	**bin range->**	**1/1/2020**	**4/1/2020**	working days	lbs/total in bin	lbs/day	lbs/hr				TRUE	ED
	Phase I	1/1/2020	4/1/2020	91	177.3	1.95	0.1299					0.249
0>2	**bin range->**	**4/2/2020**	**4/2/2022**	working days	2020	2021	2022	lbs/total in bin	lbs/day	lbs/hr		ED
	Phase I	4/2/2020	4/2/2022	730	273	365	91	1164	1.5944764	0.1063		2.000
2>9	**bin range->**	**4/3/2022**	**4/1/2029**	working days	lbs/total in bin	lbs/day	lbs/hr					ED
	Phase I	4/3/2022	6/2/2022	60	88	1.4604884	0.0974					0.164

for HRA Sheet

		3rd tri	0<2	2<9
lb/hr	Phase I	0.12989	0.10630	0.09737
ED	Phase I	0.25	2.00	0.16

Defaults/Constants

Calendar

2020	2021	2022
1/1/2020	1/1/2021	1/1/2022
12/31/2020	12/31/2021	12/31/2022

Exposure Durations

Metric	3rd tri	0<2	2<9	2<16	16<30
max days	91.25	730	2555	5110	5110
yrs	0.25	2	7	14	14

Conversions

365	workdays per year
365	Operational days/year
86400	Seconds per day
907184.74	g per ton
2000	ton to lbs
15	day to hour (7AM to 10PM)
1000000	Million

Release Height (DPM)	3 m
Vertical Dimension (DPM)	0.6977 m

Offsite PM2.5 Exhaust Emissions (pounds per hour* calculation)

**ran aermod using 1 lbs/hr*

Building	Start	End	Working Days
Haul Route	1/1/2020	6/2/2022	883

Dates by Bin

	3rd tri	0>2	2>9
start	1/1/2020	4/2/2020	4/3/2022
end	4/1/2020	4/2/2022	4/1/2029

Working days by phase

	start	end	2020		2021		2022	
Haul	1/1/2020	6/2/2022	1/1/2020	12/31/2020	1/1/2021	12/31/2021	1/1/2022	6/2/2022

Work days by bin

	2020	2021	2022
Haul	365	365	152

Annual Tons — Unmitigated-Hauling

Building	Start	End	PM2.5 Ex Tons Total	2020	2021	2022
Haul	1/1/2020	6/2/2022	0.002	0.002	0.000	0.000

Annual Pounds

Building	Start	End	PM2.5 Ex LBs Total	2020	2021	2022
Haul	1/1/2020	6/2/2022	4	4	0	0

Lbs per day by year

	2020	2021	2022	
Haul	0.01	0.00	0.00	TRUE

Apprortioning of Emissions by Bin

3rd Tri	**bin range->**	**1/1/2020**	**4/1/2020**	working days	lbs/total in bin	lbs/day	lbs/hr			TRUE	ED
	EC	1/1/2020	4/1/2020	91	1.0	0.01	0.0010				0.249
0>2	**bin range->**	**4/2/2020**	**4/2/2022**	working days	2020	2021	2022	lbs/total in bin	lbs/day	lbs/hr	ED
	EC	4/2/2020	4/2/2022	730	273	365	91	3	0.0043613	0.0004	2.000
2>9	**bin range->**	**4/3/2022**	**4/1/2029**	working days	lbs/total in bin	lbs/day	lbs/hr				ED
	-	4/3/2022	6/2/2022	60	0.126	0.00	0.0000				0.164

for HRA Sheet

		3rd tri	0<2	2<9
lb/hr	Haul	0.00105	0.00044	0.00000
ED	Haul	0.25	2.00	0.16

Defaults/Constants

Calendar

2020	2021	2022	2023
1/1/2020	1/1/2021	1/1/2022	1/1/2023
12/31/2020	12/31/2021	12/31/2022	12/31/2023

Exposure Durations

Metric	3rd tri	0<2	2<9	2<16	16<30
max days	91.25	730	2555	5110	5110
yrs	0.25	2	7	14	14

Conversions

365	workdays per year
365	Operational days/year
86400	Seconds per day
907184.74	g per ton
2000	ton to lbs
10	day to hour (7AM to 4PM)
1000000	Million

Release Height (DPM)	3	m
Vertical Dimension (DPM)	0.6977	m

					1	2	3	4	5	6	7	8	9	10	11
Period	ID	X	Y	*concat*	Concentration [ug/m^3]	PHASE 1	Concentration [ug/m^3]	Haul1	Concentration [ug/m^3]	Haul2	Concentration [ug/m^3]	Building	Concentration [ug/m^3]	Building
ANNUAL	R1	550876.81	4164331.7	*550876.814164331.7*	0.0571	PHASE 1	0.0523	HAUL1	0.02961	HAUL2				
ANNUAL	R2	550896.81	4164351.7	*550896.814164351.7*	0.0615	PHASE 1	0.0574	HAUL1	0.03305	HAUL2				
ANNUAL	R3	550876.81	4164371.7	*550876.814164371.7*	0.0690	PHASE 1	0.0625	HAUL1	0.03564	HAUL2				
ANNUAL	R4	550936.81	4164371.7	*550936.814164371.7*	0.0658	PHASE 1	0.0637	HAUL1	0.03759	HAUL2				
ANNUAL	R5	550876.81	4164391.7	*550876.814164391.7*	0.0764	PHASE 1	0.0691	HAUL1	0.03946	HAUL2				
ANNUAL	R6	550916.81	4164391.7	*550916.814164391.7*	0.0743	PHASE 1	0.0703	HAUL1	0.0409	HAUL2				
ANNUAL	R7	550956.81	4164391.7	*550956.814164391.7*	0.0725	PHASE 1	0.0709	HAUL1	0.04188	HAUL2				
ANNUAL	R8	550996.81	4164391.7	*550996.814164391.7*	0.0713	PHASE 1	0.0710	HAUL1	0.04238	HAUL2				
ANNUAL	R9	551036.81	4164391.7	*551036.814164391.7*	0.0710	PHASE 1	0.0709	HAUL1	0.04247	HAUL2				
ANNUAL	R10	550896.81	4164411.7	*550896.814164411.7*	0.0842	PHASE 1	0.0779	HAUL1	0.04475	HAUL2				
ANNUAL	R11	550936.81	4164411.7	*550936.814164411.7*	0.0822	PHASE 1	0.0791	HAUL1	0.04585	HAUL2				
ANNUAL	R12	550976.81	4164411.7	*550976.814164411.7*	0.0806	PHASE 1	0.0795	HAUL1	0.04635	HAUL2				
ANNUAL	R13	551016.81	4164411.7	*551016.814164411.7*	0.0798	PHASE 1	0.0794	HAUL1	0.04631	HAUL2				
ANNUAL	R14	551056.81	4164411.7	*551056.814164411.7*	0.0798	PHASE 1	0.0791	HAUL1	0.04586	HAUL2				
ANNUAL	R15	550876.81	4164431.7	*550876.814164431.7*	0.0958	PHASE 1	0.0866	HAUL1	0.0493	HAUL2				
ANNUAL	R16	550916.81	4164431.7	*550916.814164431.7*	0.0939	PHASE 1	0.0887	HAUL1	0.05056	HAUL2				
ANNUAL	R17	550956.81	4164431.7	*550956.814164431.7*	0.0919	PHASE 1	0.0896	HAUL1	0.05101	HAUL2				
ANNUAL	R18	550996.81	4164431.7	*550996.814164431.7*	0.0905	PHASE 1	0.0896	HAUL1	0.0508	HAUL2				
ANNUAL	R19	551036.81	4164431.7	*551036.814164431.7*	0.0899	PHASE 1	0.0892	HAUL1	0.05009	HAUL2				
ANNUAL	R20	551076.81	4164431.7	*551076.814164431.7*	0.0901	PHASE 1	0.0884	HAUL1	0.04903	HAUL2				
ANNUAL	R21	551116.81	4164431.7	*551116.814164431.7*	0.0905	PHASE 1	0.0871	HAUL1	0.04773	HAUL2				
ANNUAL	R22	550896.81	4164451.7	*550896.814164451.7*	0.1077	PHASE 1	0.1001	HAUL1	0.05621	HAUL2				
ANNUAL	R23	550936.81	4164451.7	*550936.814164451.7*	0.1056	PHASE 1	0.1019	HAUL1	0.05657	HAUL2				
ANNUAL	R24	550976.81	4164451.7	*550976.814164451.7*	0.1036	PHASE 1	0.1021	HAUL1	0.05609	HAUL2				
ANNUAL	R25	551016.81	4164451.7	*551016.814164451.7*	0.1023	PHASE 1	0.1016	HAUL1	0.05502	HAUL2				
ANNUAL	R26	551056.81	4164451.7	*551056.814164451.7*	0.1018	PHASE 1	0.1005	HAUL1	0.05356	HAUL2				
ANNUAL	R27	551096.81	4164451.7	*551096.814164451.7*	0.1017	PHASE 1	0.0989	HAUL1	0.05186	HAUL2				
ANNUAL	R28	551136.81	4164451.7	*551136.814164451.7*	0.1016	PHASE 1	0.0966	HAUL1	0.05006	HAUL2				
ANNUAL	R29	550876.81	4164471.7	*550876.814164471.7*	0.1241	PHASE 1	0.1134	HAUL1	0.06313	HAUL2				
ANNUAL	R30	550936.81	4164471.7	*550936.814164471.7*	0.1211	PHASE 1	0.1174	HAUL1	0.06297	HAUL2				
ANNUAL	R31	550976.81	4164471.7	*550976.814164471.7*	0.1186	PHASE 1	0.1174	HAUL1	0.06168	HAUL2				
ANNUAL	R32	551036.81	4164471.7	*551036.814164471.7*	0.1161	PHASE 1	0.1154	HAUL1	0.05882	HAUL2				
ANNUAL	R33	551076.81	4164471.7	*551076.814164471.7*	0.1153	PHASE 1	0.1132	HAUL1	0.0566	HAUL2				
ANNUAL	R34	551116.81	4164471.7	*551116.814164471.7*	0.1145	PHASE 1	0.1103	HAUL1	0.0543	HAUL2				
ANNUAL	R35	551156.81	4164471.7	*551156.814164471.7*	0.1134	PHASE 1	0.1064	HAUL1	0.05201	HAUL2				
ANNUAL	R36	550916.81	4164491.7	*550916.814164491.7*	0.1414	PHASE 1	0.1364	HAUL1	0.07101	HAUL2				
ANNUAL	R37	550976.81	4164491.7	*550976.814164491.7*	0.1367	PHASE 1	0.1364	HAUL1	0.06773	HAUL2				
ANNUAL	R38	551016.81	4164491.7	*551016.814164491.7*	0.1340	PHASE 1	0.1342	HAUL1	0.06497	HAUL2				
ANNUAL	R39	551096.81	4164491.7	*551096.814164491.7*	0.1302	PHASE 1	0.1271	HAUL1	0.05913	HAUL2				
ANNUAL	R40	551136.81	4164491.7	*551136.814164491.7*	0.1281	PHASE 1	0.1222	HAUL1	0.05629	HAUL2				
ANNUAL	R41	550876.81	4164351.7	*550876.814164351.7*	0.0626	PHASE 1	0.0570	HAUL1	0.03239	HAUL2				
ANNUAL	R42	550936.81	4164351.7	*550936.814164351.7*	0.0594	PHASE 1	0.0578	HAUL1	0.03423	HAUL2				
ANNUAL	R43	550896.81	4164371.7	*550896.814164371.7*	0.0678	PHASE 1	0.0630	HAUL1	0.03636	HAUL2				
ANNUAL	R44	550956.81	4164371.7	*550956.814164371.7*	0.0650	PHASE 1	0.0638	HAUL1	0.03808	HAUL2				
ANNUAL	R45	550896.81	4164391.7	*550896.814164391.7*	0.0753	PHASE 1	0.0698	HAUL1	0.04023	HAUL2				
ANNUAL	R46	550936.81	4164391.7	*550936.814164391.7*	0.0733	PHASE 1	0.0707	HAUL1	0.04145	HAUL2				
ANNUAL	R47	550976.81	4164391.7	*550976.814164391.7*	0.0718	PHASE 1	0.0710	HAUL1	0.04219	HAUL2				
ANNUAL	R48	551016.81	4164391.7	*551016.814164391.7*	0.0711	PHASE 1	0.0710	HAUL1	0.04247	HAUL2				
ANNUAL	R49	550876.81	4164411.7	*550876.814164411.7*	0.0853	PHASE 1	0.0770	HAUL1	0.04396	HAUL2				
ANNUAL	R50	550916.81	4164411.7	*550916.814164411.7*	0.0832	PHASE 1	0.0786	HAUL1	0.04538	HAUL2				
ANNUAL	R51	550956.81	4164411.7	*550956.814164411.7*	0.0813	PHASE 1	0.0794	HAUL1	0.04617	HAUL2				
ANNUAL	R52	550996.81	4164411.7	*550996.814164411.7*	0.0801	PHASE 1	0.0795	HAUL1	0.04639	HAUL2				
ANNUAL	R53	551036.81	4164411.7	*551036.814164411.7*	0.0797	PHASE 1	0.0793	HAUL1	0.04613	HAUL2				
ANNUAL	R54	551076.81	4164411.7	*551076.814164411.7*	0.0801	PHASE 1	0.0788	HAUL1	0.04551	HAUL2				
ANNUAL	R55	550896.81	4164431.7	*550896.814164431.7*	0.0949	PHASE 1	0.0878	HAUL1	0.05003	HAUL2				
ANNUAL	R56	550936.81	4164431.7	*550936.814164431.7*	0.0928	PHASE 1	0.0893	HAUL1	0.05088	HAUL2				
ANNUAL	R57	550976.81	4164431.7	*550976.814164431.7*	0.0911	PHASE 1	0.0897	HAUL1	0.05098	HAUL2				
ANNUAL	R58	551016.81	4164431.7	*551016.814164431.7*	0.0901	PHASE 1	0.0895	HAUL1	0.0505	HAUL2				
ANNUAL	R59	551056.81	4164431.7	*551056.814164431.7*	0.0899	PHASE 1	0.0889	HAUL1	0.0496	HAUL2				
ANNUAL	R60	551096.81	4164431.7	*551096.814164431.7*	0.0903	PHASE 1	0.0879	HAUL1	0.0484	HAUL2				
ANNUAL	R61	550876.81	4164451.7	*550876.814164451.7*	0.1085	PHASE 1	0.0985	HAUL1	0.05563	HAUL2				
ANNUAL	R62	550916.81	4164451.7	*550916.814164451.7*	0.1067	PHASE 1	0.1012	HAUL1	0.05651	HAUL2				
ANNUAL	R63	550956.81	4164451.7	*550956.814164451.7*	0.1045	PHASE 1	0.1022	HAUL1	0.05642	HAUL2				
ANNUAL	R64	550996.81	4164451.7	*550996.814164451.7*	0.1028	PHASE 1	0.1019	HAUL1	0.05562	HAUL2				
ANNUAL	R65	551036.81	4164451.7	*551036.814164451.7*	0.1019	PHASE 1	0.1011	HAUL1	0.05433	HAUL2				
ANNUAL	R66	551076.81	4164451.7	*551076.814164451.7*	0.1017	PHASE 1	0.0998	HAUL1	0.05274	HAUL2				
ANNUAL	R67	551116.81	4164451.7	*551116.814164451.7*	0.1017	PHASE 1	0.0979	HAUL1	0.05097	HAUL2				
ANNUAL	R68	551156.81	4164451.7	*551156.814164451.7*	0.1015	PHASE 1	0.0951	HAUL1	0.04913	HAUL2				
ANNUAL	R69	550916.81	4164471.7	*550916.814164471.7*	0.1223	PHASE 1	0.1168	HAUL1	0.06331	HAUL2				
ANNUAL	R70	550956.81	4164471.7	*550956.814164471.7*	0.1198	PHASE 1	0.1177	HAUL1	0.06242	HAUL2				
ANNUAL	R71	550996.81	4164471.7	*550996.814164471.7*	0.1176	PHASE 1	0.1169	HAUL1	0.06082	HAUL2				
ANNUAL	R72	551056.81	4164471.7	*551056.814164471.7*	0.1157	PHASE 1	0.1144	HAUL1	0.05773	HAUL2				
ANNUAL	R73	551096.81	4164471.7	*551096.814164471.7*	0.1149	PHASE 1	0.1119	HAUL1	0.05545	HAUL2				
ANNUAL	R74	551136.81	4164471.7	*551136.814164471.7*	0.1140	PHASE 1	0.1085	HAUL1	0.05315	HAUL2				
ANNUAL	R75	551176.81	4164471.7	*551176.814164471.7*	0.1125	PHASE 1	0.1041	HAUL1	0.05087	HAUL2				
ANNUAL	R76	550956.81	4164491.7	*550956.814164491.7*	0.1383	PHASE 1	0.1370	HAUL1	0.06898	HAUL2				
ANNUAL	R77	550996.81	4164491.7	*550996.814164491.7*	0.1353	PHASE 1	0.1354	HAUL1	0.06638	HAUL2				
ANNUAL	R78	551076.81	4164491.7	*551076.814164491.7*	0.1311	PHASE 1	0.1292	HAUL1	0.06059	HAUL2				
ANNUAL	R79	551116.81	4164491.7	*551116.814164491.7*	0.1292	PHASE 1	0.1248	HAUL1	0.05769	HAUL2				
ANNUAL	R80	551156.81	4164491.7	*551156.814164491.7*	0.1268	PHASE 1	0.1194	HAUL1	0.05491	HAUL2				
ANNUAL	R81	551176.81	4164491.7	*551176.814164491.7*	0.1253	PHASE 1	0.1163	HAUL1	0.05356	HAUL2				
ANNUAL	R82	550956.81	4164511.7	*550956.814164511.7*	0.1610	PHASE 1	0.1614	HAUL1	0.07607	HAUL2				
ANNUAL	R83	550996.81	4164511.7	*550996.814164511.7*	0.1566	PHASE 1	0.1583	HAUL1	0.07224	HAUL2				
ANNUAL	R84	551036.81	4164511.7	*551036.814164511.7*	0.1529	PHASE 1	0.1537	HAUL1	0.06839	HAUL2				
ANNUAL	R85	551116.81	4164511.7	*551116.814164511.7*	0.1461	PHASE 1	0.1417	HAUL1	0.06112	HAUL2				
ANNUAL	R86	551156.81	4164511.7	*551156.814164511.7*	0.1419	PHASE 1	0.1342	HAUL1	0.05781	HAUL2				
ANNUAL	R87	551216.81	4164511.7	*551216.814164511.7*	0.1338	PHASE 1	0.1214	HAUL1	0.05322	HAUL2				
ANNUAL	R88	551256.81	4164511.7	*551256.814164511.7*	0.1275	PHASE 1	0.1127	HAUL1	0.0504	HAUL2				
ANNUAL	R89	551016.81	4164531.7	*551016.814164531.7*	0.1795	PHASE 1	0.1836	HAUL1	0.07579	HAUL2				
ANNUAL	R90	551056.81	4164531.7	*551056.814164531.7*	0.1740	PHASE 1	0.1752	HAUL1	0.071	HAUL2				
ANNUAL	R91	551096.81	4164531.7	*551096.814164531.7*	0.1683	PHASE 1	0.1661	HAUL1	0.06659	HAUL2				
ANNUAL	R92	551196.81	4164531.7	*551196.814164531.7*	0.1514	PHASE 1	0.1401	HAUL1	0.05714	HAUL2				
ANNUAL	R93	551236.81	4164531.7	*551236.814164531.7*	0.1431	PHASE 1	0.1291	HAUL1	0.05386	HAUL2				
ANNUAL	R94	551016.81	4164551.7	*551016.814164551.7*	0.2097	PHASE 1	0.2180	HAUL1	0.08133	HAUL2				
ANNUAL	R95	551056.81	4164551.7	*551056.814164551.7*	0.2009	PHASE 1	0.2046	HAUL1	0.0755	HAUL2				
ANNUAL	R96	551096.81	4164551.7	*551096.814164551.7*	0.1920	PHASE 1	0.1910	HAUL1	0.07029	HAUL2				
ANNUAL	R97	551136.81	4164551.7	*551136.814164551.7*	0.1826	PHASE 1	0.1772	HAUL1	0.06564	HAUL2				
ANNUAL	R98	551216.81	4164551.7	*551216.814164551.7*	0.1618	PHASE 1	0.1491	HAUL1	0.05765	HAUL2				
ANNUAL	R99	551276.81	4164551.7	*551276.814164551.7*	0.1456	PHASE 1	0.1297	HAUL1	0.05257	HAUL2				
ANNUAL	R100	551096.81	4164571.7	*551096.814164571.7*	0.2193	PHASE 1	0.2204	HAUL1	0.07389	HAUL2				
ANNUAL	R101	551136.81	4164571.7	*551136.814164571.7*	0.2055	PHASE 1	0.2011	HAUL1	0.06862	HAUL2				
ANNUAL	R102	551196.81	4164571.7	*551196.814164571.7*	0.1844	PHASE 1	0.1737	HAUL1	0.06179	HAUL2				
ANNUAL	R103	551256.81	4164571.7	*551256.814164571.7*	0.1635	PHASE 1	0.1490	HAUL1	0.05595	HAUL2				
ANNUAL	R104	551116.81	4164591.7	*551116.814164591.7*	0.2407	PHASE 1	0.2414	HAUL1	0.0743	HAUL2				
ANNUAL	R105	551196.81	4164591.7	*551196.814164591.7*	0.2027	PHASE 1	0.1931	HAUL1	0.06395	HAUL2				
ANNUAL	R106	551236.81	4164591.7	*551236.814164591.7*	0.1849	PHASE 1	0.1725	HAUL1	0.05961	HAUL2				
ANNUAL	R107	551276.81	4164591.7	*551276.814164591.7*	0.1686	PHASE 1	0.1546	HAUL1	0.05574	HAUL2				
ANNUAL	R108	551176.81	4164611.7	*551176.814164611.7*	0.2341	PHASE 1	0.2284	HAUL1	0.06853	HAUL2				
ANNUAL	R109	551236.81	4164611.7	*551236.814164611.7*	0.2000	PHASE 1	0.1897	HAUL1	0.06131	HAUL2				
ANNUAL	R110	551276.81	4164611.7	*551276.814164611.7*	0.1804	PHASE 1	0.1686	HAUL1	0.05717	HAUL2				
ANNUAL	R111	551196.81	4164631.7	*551196.814164631.7*	0.2424	PHASE 1	0.2381	HAUL1	0.06784	HAUL2				
ANNUAL	R112	551256.81	4164631.7	*551256.814164631.7*	0.2032	PHASE 1	0.1956	HAUL1	0.0606	HAUL2				
ANNUAL	R113	551256.81	4164651.7	*551256.814164651.7*	0.2165	PHASE 1	0.2141	HAUL1	0.06189	HAUL2				
ANNUAL	R114	551256.81	4164671.7	*551256.814164671.7*	0.2292	PHASE 1	0.2345	HAUL1	0.06302	HAUL2				
ANNUAL	R115	550384.79	4164931.52	*550384.794164931.52*	0.0571	PHASE 1	0.0238	HAUL1	0.24851	HAUL2				
ANNUAL	R116	550405.01	4165011.9	*550405.014165011.9*	0.0600	PHASE 1	0.0247	HAUL1	0.37606	HAUL2				
ANNUAL	R117	550445.01	4165031.9	*550445.014165031.9*	0.0713	PHASE 1	0.0277	HAUL1	0.56204	HAUL2				
ANNUAL	R118	550485.01	4165031.9	*550485.014165031.9*	0.0871	PHASE 1	0.0315	HAUL1	1.08375	HAUL2				
ANNUAL	R119	550585.01	4165031.9	*550585.014165031.9*	0.1489	PHASE 1	0.0439	HAUL1	0.87758	HAUL2				
ANNUAL	R120	550625.01	4165031.9	*550625.014165031.9*	0.1817	PHASE 1	0.0501	HAUL1	0.56032	HAUL2				
ANNUAL	R121	550916.81	4164511.7	*550916.814164511.7*	0.1651	PHASE 1	0.1615	HAUL1	0.0796	HAUL2				
ANNUAL	R122	550976.81	4164511.7	*550976.814164511.7*	0.1587	PHASE 1	0.1601	HAUL1	0.07417	HAUL2				
ANNUAL	R123	551016.81	4164511.7	*551016.814164511.7*	0.1547	PHASE 1	0.1562	HAUL1	0.07031	HAUL2				
ANNUAL	R124	551056.81	4164511.7	*551056.814164511.7*	0.1512	PHASE 1	0.1510	HAUL1	0.0665	HAUL2				
ANNUAL	R125	551136.81	4164511.7	*551136.814164511.7*	0.1441	PHASE 1	0.1380	HAUL1	0.05944	HAUL2				
ANNUAL	R126	551196.81	4164511.7	*551196.814164511.7*	0.1368	PHASE 1	0.1259	HAUL1	0.05471	HAUL2				
ANNUAL	R127	551236.81	4164511.7	*551236.814164511.7*	0.1307	PHASE 1	0.1170	HAUL1	0.05179	HAUL2				
ANNUAL	R128	550996.81	4164531.7	*550996.814164531.7*	0.1825	PHASE 1	0.1872	HAUL1	0.07832	HAUL2				
ANNUAL	R129	551036.81	4164531.7	*551036.814164531.7*	0.1767	PHASE 1	0.1795	HAUL1	0.07335	HAUL2				
ANNUAL	R130	551076.81	4164531.7	*551076.814164531.7*	0.1712	PHASE 1	0.1708	HAUL1	0.06875	HAUL2				
ANNUAL	R131	551156.81	4164531.7	*551156.814164531.7*	0.1588	PHASE 1	0.1510	HAUL1	0.06069	HAUL2				
ANNUAL	R132	551216.81	4164531.7	*551216.814164531.7*	0.1473	PHASE 1	0.1346	HAUL1	0.05547	HAUL2				
ANNUAL	R133	551276.81	4164531.7	*551276.814164531.7*	0.1347	PHASE 1	0.1186	HAUL1	0.05086	HAUL2				
ANNUAL	R134	551036.81	4164551.7	*551036.814164551.7*	0.2053	PHASE 1	0.2114	HAUL1	0.07833	HAUL2				
ANNUAL	R135	551076.81	4164551.7	*551076.814164551.7*	0.1965	PHASE 1	0.1979	HAUL1	0.07282	HAUL2				
ANNUAL	R136	551116.81	4164551.7	*551116.814164551.7*	0.1874	PHASE 1	0.1842	HAUL1	0.0679	HAUL2				
ANNUAL	R137	551196.81	4164551.7	*551196.814164551.7*	0.1672	PHASE 1	0.1560	HAUL1	0.05951	HAUL2				

ANNUAL	R138	551236.81	4164551.7	*551236.814164551.7*	0.1563	PHASE 1	0.1423	HAUL1	0.05587	HAUL2
ANNUAL	R139	551076.81	4164571.7	*551076.814164571.7*	0.2261	PHASE 1	0.2304	HAUL1	0.0768	HAUL2
ANNUAL	R140	551116.81	4164571.7	*551116.814164571.7*	0.2124	PHASE 1	0.2107	HAUL1	0.07117	HAUL2
ANNUAL	R141	551176.81	4164571.7	*551176.814164571.7*	0.1915	PHASE 1	0.1826	HAUL1	0.06395	HAUL2
ANNUAL	R142	551216.81	4164571.7	*551216.814164571.7*	0.1773	PHASE 1	0.1650	HAUL1	0.05974	HAUL2
ANNUAL	R143	551276.81	4164571.7	*551276.814164571.7*	0.1570	PHASE 1	0.1416	HAUL1	0.05421	HAUL2
ANNUAL	R144	551176.81	4164591.7	*551176.814164591.7*	0.2121	PHASE 1	0.2043	HAUL1	0.06632	HAUL2
ANNUAL	R145	551216.81	4164591.7	*551216.814164591.7*	0.1937	PHASE 1	0.1825	HAUL1	0.06172	HAUL2
ANNUAL	R146	551256.81	4164591.7	*551256.814164591.7*	0.1765	PHASE 1	0.1632	HAUL1	0.05762	HAUL2
ANNUAL	R147	551156.81	4164611.7	*551156.814164611.7*	0.2464	PHASE 1	0.2434	HAUL1	0.07124	HAUL2
ANNUAL	R148	551196.81	4164611.7	*551196.814164611.7*	0.2222	PHASE 1	0.2146	HAUL1	0.06597	HAUL2
ANNUAL	R149	551256.81	4164611.7	*551256.814164611.7*	0.1899	PHASE 1	0.1787	HAUL1	0.05918	HAUL2
ANNUAL	R150	551176.81	4164631.7	*551176.814164631.7*	0.2574	PHASE 1	0.2550	HAUL1	0.07057	HAUL2
ANNUAL	R151	551236.81	4164631.7	*551236.814164631.7*	0.2154	PHASE 1	0.2085	HAUL1	0.06286	HAUL2
ANNUAL	R152	551276.81	4164631.7	*551276.814164631.7*	0.1921	PHASE 1	0.1839	HAUL1	0.05848	HAUL2
ANNUAL	R153	551276.81	4164651.7	*551276.814164651.7*	0.2035	PHASE 1	0.2006	HAUL1	0.05966	HAUL2
ANNUAL	R154	550384.79	4164911.52	*550384.794164911.52*	0.0577	PHASE 1	0.0239	HAUL1	0.23009	HAUL2
ANNUAL	R155	550164.79	4164951.52	*550164.794164951.52*	0.0245	PHASE 1	0.0131	HAUL1	0.28728	HAUL2
ANNUAL	R156	550405.01	4165031.9	*550405.014165031.9*	0.0591	PHASE 1	0.0245	HAUL1	0.41312	HAUL2
ANNUAL	R157	550465.01	4165031.9	*550465.014165031.9*	0.0786	PHASE 1	0.0295	HAUL1	0.72657	HAUL2
ANNUAL	R158	550545.01	4165031.9	*550545.014165031.9*	0.1201	PHASE 1	0.0384	HAUL1	2.22488	HAUL2
ANNUAL	R159	550605.01	4165031.9	*550605.014165031.9*	0.1650	PHASE 1	0.0469	HAUL1	0.68248	HAUL2
ANNUAL	R160	550645.01	4165031.9	*550645.014165031.9*	0.1986	PHASE 1	0.0535	HAUL1	0.47512	HAUL2
ANNUAL	R161	550665.01	4165031.9	*550665.014165031.9*	0.2152	PHASE 1	0.0569	HAUL1	0.41111	HAUL2
ANNUAL	R162	550705.01	4165031.9	*550705.014165031.9*	0.2453	PHASE 1	0.0642	HAUL1	0.32044	HAUL2
ANNUAL	R163	550405.01	4165051.9	*550405.014165051.9*	0.0581	PHASE 1	0.0243	HAUL1	0.45625	HAUL2
ANNUAL	R164	550465.01	4165051.9	*550465.014165051.9*	0.0765	PHASE 1	0.0291	HAUL1	0.87658	HAUL2
ANNUAL	R165	550545.01	4165051.9	*550545.014165051.9*	0.1136	PHASE 1	0.0375	HAUL1	1.60752	HAUL2
ANNUAL	R166	550585.01	4165051.9	*550585.014165051.9*	0.1383	PHASE 1	0.0427	HAUL1	0.77403	HAUL2
ANNUAL	R167	550665.01	4165051.9	*550665.014165051.9*	0.1924	PHASE 1	0.0548	HAUL1	0.38766	HAUL2
ANNUAL	R168	550705.01	4165051.9	*550705.014165051.9*	0.2157	PHASE 1	0.0615	HAUL1	0.30509	HAUL2
ANNUAL	R169	550745.01	4165051.9	*550745.014165051.9*	0.2324	PHASE 1	0.0686	HAUL1	0.24847	HAUL2
ANNUAL	R170	550545.01	4165071.9	*550545.014165071.9*	0.1076	PHASE 1	0.0367	HAUL1	1.26849	HAUL2
ANNUAL	R171	550585.01	4165071.9	*550585.014165071.9*	0.1288	PHASE 1	0.0416	HAUL1	0.69455	HAUL2
ANNUAL	R172	550685.01	4165071.9	*550685.014165071.9*	0.1832	PHASE 1	0.0560	HAUL1	0.32449	HAUL2
ANNUAL	R173	550725.01	4165071.9	*550725.014165071.9*	0.1990	PHASE 1	0.0624	HAUL1	0.26186	HAUL2
ANNUAL	R174	550525.01	4165091.9	*550525.014165091.9*	0.0935	PHASE 1	0.0339	HAUL1	1.64006	HAUL2
ANNUAL	R175	550565.01	4165091.9	*550565.014165091.9*	0.1109	PHASE 1	0.0382	HAUL1	0.78735	HAUL2
ANNUAL	R176	550725.01	4165091.9	*550725.014165091.9*	0.1777	PHASE 1	0.0599	HAUL1	0.24959	HAUL2
ANNUAL	R177	550525.01	4165111.9	*550525.014165111.9*	0.0891	PHASE 1	0.0332	HAUL1	1.2922	HAUL2
ANNUAL	R178	550565.01	4165111.9	*550565.014165111.9*	0.1044	PHASE 1	0.0373	HAUL1	0.70539	HAUL2
ANNUAL	R179	550505.01	4165131.9	*550505.014165131.9*	0.0787	PHASE 1	0.0308	HAUL1	1.66919	HAUL2
ANNUAL	R180	550545.01	4165131.9	*550545.014165131.9*	0.0916	PHASE 1	0.0345	HAUL1	0.79911	HAUL2
ANNUAL	R181	550585.01	4165131.9	*550585.014165131.9*	0.1054	PHASE 1	0.0386	HAUL1	0.53169	HAUL2
ANNUAL	R182	550625.01	4165131.9	*550625.014165131.9*	0.1193	PHASE 1	0.0430	HAUL1	0.39366	HAUL2
ANNUAL	R183	550705.01	4165131.9	*550705.014165131.9*	0.1417	PHASE 1	0.0529	HAUL1	0.24813	HAUL2
ANNUAL	R184	550505.01	4165151.9	*550505.014165151.9*	0.0755	PHASE 1	0.0303	HAUL1	1.31582	HAUL2
ANNUAL	R185	550545.01	4165151.9	*550545.014165151.9*	0.0869	PHASE 1	0.0338	HAUL1	0.7135	HAUL2
ANNUAL	R186	550605.01	4165151.9	*550605.014165151.9*	0.1050	PHASE 1	0.0397	HAUL1	0.42117	HAUL2
ANNUAL	R187	550665.01	4165151.9	*550665.014165151.9*	0.1215	PHASE 1	0.0464	HAUL1	0.28852	HAUL2
ANNUAL	R188	550705.01	4165151.9	*550705.014165151.9*	0.1297	PHASE 1	0.0512	HAUL1	0.23426	HAUL2
ANNUAL	R189	550505.01	4165171.9	*550505.014165171.9*	0.0723	PHASE 1	0.0298	HAUL1	1.09069	HAUL2
ANNUAL	R190	550545.01	4165171.9	*550545.014165171.9*	0.0825	PHASE 1	0.0331	HAUL1	0.64183	HAUL2
ANNUAL	R191	550605.01	4165171.9	*550605.014165171.9*	0.0984	PHASE 1	0.0387	HAUL1	0.39005	HAUL2
ANNUAL	R192	550665.01	4165171.9	*550665.014165171.9*	0.1124	PHASE 1	0.0450	HAUL1	0.27011	HAUL2
ANNUAL	R193	550705.01	4165171.9	*550705.014165171.9*	0.1193	PHASE 1	0.0495	HAUL1	0.22039	HAUL2
ANNUAL	R194	550545.01	4165191.9	*550545.014165191.9*	0.0785	PHASE 1	0.0324	HAUL1	0.57868	HAUL2
ANNUAL	R195	550605.01	4165191.9	*550605.014165191.9*	0.0923	PHASE 1	0.0378	HAUL1	0.35974	HAUL2
ANNUAL	R196	550645.01	4165191.9	*550645.014165191.9*	0.1007	PHASE 1	0.0416	HAUL1	0.281	HAUL2
ANNUAL	R197	550685.01	4165191.9	*550685.014165191.9*	0.1075	PHASE 1	0.0458	HAUL1	0.2273	HAUL2
ANNUAL	R198	550585.01	4165211.9	*550585.014165211.9*	0.0829	PHASE 1	0.0351	HAUL1	0.37808	HAUL2
ANNUAL	R199	550625.01	4165211.9	*550625.014165211.9*	0.0906	PHASE 1	0.0386	HAUL1	0.29137	HAUL2
ANNUAL	R200	550665.01	4165211.9	*550665.014165211.9*	0.0972	PHASE 1	0.0424	HAUL1	0.23358	HAUL2
ANNUAL	R201	550685.01	4165031.9	*550685.014165031.9*	0.2309	PHASE 1	0.0605	HAUL1	0.3609	HAUL2
ANNUAL	R202	550725.01	4165031.9	*550725.014165031.9*	0.2578	PHASE 1	0.0680	HAUL1	0.28719	HAUL2
ANNUAL	R203	550445.01	4165051.9	*550445.014165051.9*	0.0696	PHASE 1	0.0274	HAUL1	0.64461	HAUL2
ANNUAL	R204	550485.01	4165051.9	*550485.014165051.9*	0.0842	PHASE 1	0.0310	HAUL1	1.47456	HAUL2
ANNUAL	R205	550565.01	4165051.9	*550565.014165051.9*	0.1255	PHASE 1	0.0400	HAUL1	1.03698	HAUL2
ANNUAL	R206	550645.01	4165051.9	*550645.014165051.9*	0.1792	PHASE 1	0.0516	HAUL1	0.44477	HAUL2
ANNUAL	R207	550685.01	4165051.9	*550685.014165051.9*	0.2047	PHASE 1	0.0581	HAUL1	0.34216	HAUL2
ANNUAL	R208	550725.01	4165051.9	*550725.014165051.9*	0.2251	PHASE 1	0.0650	HAUL1	0.27434	HAUL2
ANNUAL	R209	550525.01	4165071.9	*550525.014165071.9*	0.0980	PHASE 1	0.0345	HAUL1	2.26722	HAUL2
ANNUAL	R210	550565.01	4165071.9	*550565.014165071.9*	0.1179	PHASE 1	0.0391	HAUL1	0.89303	HAUL2
ANNUAL	R211	550605.01	4165071.9	*550605.014165071.9*	0.1401	PHASE 1	0.0442	HAUL1	0.56996	HAUL2
ANNUAL	R212	550705.01	4165071.9	*550705.014165071.9*	0.1918	PHASE 1	0.0591	HAUL1	0.29037	HAUL2
ANNUAL	R213	550745.01	4165071.9	*550745.014165071.9*	0.2045	PHASE 1	0.0657	HAUL1	0.23771	HAUL2
ANNUAL	R214	550545.01	4165091.9	*550545.014165091.9*	0.1019	PHASE 1	0.0360	HAUL1	1.05595	HAUL2
ANNUAL	R215	550585.01	4165091.9	*550585.014165091.9*	0.1202	PHASE 1	0.0406	HAUL1	0.63086	HAUL2
ANNUAL	R216	550505.01	4165111.9	*550505.014165111.9*	0.0821	PHASE 1	0.0314	HAUL1	2.31272	HAUL2
ANNUAL	R217	550545.01	4165111.9	*550545.014165111.9*	0.0966	PHASE 1	0.0352	HAUL1	0.9083	HAUL2
ANNUAL	R218	550585.01	4165111.9	*550585.014165111.9*	0.1125	PHASE 1	0.0395	HAUL1	0.57777	HAUL2
ANNUAL	R219	550525.01	4165131.9	*550525.014165131.9*	0.0850	PHASE 1	0.0326	HAUL1	1.07378	HAUL2
ANNUAL	R220	550565.01	4165131.9	*550565.014165131.9*	0.0984	PHASE 1	0.0365	HAUL1	0.63873	HAUL2
ANNUAL	R221	550605.01	4165131.9	*550605.014165131.9*	0.1124	PHASE 1	0.0408	HAUL1	0.4537	HAUL2
ANNUAL	R222	550685.01	4165131.9	*550685.014165131.9*	0.1371	PHASE 1	0.0503	HAUL1	0.27504	HAUL2
ANNUAL	R223	550485.01	4165151.9	*550485.014165151.9*	0.0702	PHASE 1	0.0287	HAUL1	2.36716	HAUL2
ANNUAL	R224	550525.01	4165151.9	*550525.014165151.9*	0.0811	PHASE 1	0.0320	HAUL1	0.92217	HAUL2
ANNUAL	R225	550565.01	4165151.9	*550565.014165151.9*	0.0929	PHASE 1	0.0357	HAUL1	0.58202	HAUL2
ANNUAL	R226	550625.01	4165151.9	*550625.014165151.9*	0.1109	PHASE 1	0.0419	HAUL1	0.36724	HAUL2
ANNUAL	R227	550685.01	4165151.9	*550685.014165151.9*	0.1259	PHASE 1	0.0487	HAUL1	0.25907	HAUL2
ANNUAL	R228	550485.01	4165171.9	*550485.014165171.9*	0.0675	PHASE 1	0.0282	HAUL1	1.70262	HAUL2
ANNUAL	R229	550525.01	4165171.9	*550525.014165171.9*	0.0773	PHASE 1	0.0314	HAUL1	0.80777	HAUL2
ANNUAL	R230	550585.01	4165171.9	*550585.014165171.9*	0.0932	PHASE 1	0.0368	HAUL1	0.45136	HAUL2
ANNUAL	R231	550625.01	4165171.9	*550625.014165171.9*	0.1034	PHASE 1	0.0407	HAUL1	0.34156	HAUL2
ANNUAL	R232	550685.01	4165171.9	*550685.014165171.9*	0.1161	PHASE 1	0.0472	HAUL1	0.24317	HAUL2
ANNUAL	R233	550525.01	4165191.9	*550525.014165191.9*	0.0738	PHASE 1	0.0308	HAUL1	0.71446	HAUL2
ANNUAL	R234	550585.01	4165191.9	*550585.014165191.9*	0.0878	PHASE 1	0.0359	HAUL1	0.41423	HAUL2
ANNUAL	R235	550625.01	4165191.9	*550625.014165191.9*	0.0967	PHASE 1	0.0397	HAUL1	0.31632	HAUL2
ANNUAL	R236	550665.01	4165191.9	*550665.014165191.9*	0.1043	PHASE 1	0.0437	HAUL1	0.25179	HAUL2
ANNUAL	R237	550705.01	4165191.9	*550705.014165191.9*	0.1102	PHASE 1	0.0480	HAUL1	0.20652	HAUL2
ANNUAL	R238	550605.01	4165211.9	*550605.014165211.9*	0.0868	PHASE 1	0.0368	HAUL1	0.32997	HAUL2
ANNUAL	R239	550645.01	4165211.9	*550645.014165211.9*	0.0941	PHASE 1	0.0405	HAUL1	0.2598	HAUL2
ANNUAL	R240	550685.01	4165211.9	*550685.014165211.9*	0.0999	PHASE 1	0.0445	HAUL1	0.21149	HAUL2
ANNUAL	R241	550605.01	4165231.9	*550605.014165231.9*	0.0818	PHASE 1	0.0359	HAUL1	0.30065	HAUL2
ANNUAL	R242	550645.01	4165231.9	*550645.014165231.9*	0.0881	PHASE 1	0.0394	HAUL1	0.23883	HAUL2
ANNUAL	R243	550685.01	4165231.9	*550685.014165231.9*	0.0931	PHASE 1	0.0432	HAUL1	0.1958	HAUL2
ANNUAL	R244	550665.01	4165251.9	*550665.014165251.9*	0.0850	PHASE 1	0.0401	HAUL1	0.19776	HAUL2
ANNUAL	R245	550425.01	4165291.9	*550425.014165291.9*	0.0460	PHASE 1	0.0224	HAUL1	1.3954	HAUL2
ANNUAL	R246	550945.45	4165192.15	*550945.454165192.15*	0.1122	PHASE 1	0.0882	HAUL1	0.08903	HAUL2
ANNUAL	R247	550985.45	4165192.15	*550985.454165192.15*	0.1092	PHASE 1	0.1017	HAUL1	0.08015	HAUL2
ANNUAL	R248	550925.45	4165212.15	*550925.454165212.15*	0.1035	PHASE 1	0.0800	HAUL1	0.08949	HAUL2
ANNUAL	R249	550965.45	4165212.15	*550965.454165212.15*	0.1010	PHASE 1	0.0913	HAUL1	0.08047	HAUL2
ANNUAL	R250	551005.45	4165212.15	*551005.454165212.15*	0.0966	PHASE 1	0.1068	HAUL1	0.07283	HAUL2
ANNUAL	R251	550885.45	4165232.15	*550885.454165232.15*	0.0970	PHASE 1	0.0688	HAUL1	0.09489	HAUL2
ANNUAL	R252	550925.45	4165232.15	*550925.454165232.15*	0.0952	PHASE 1	0.0773	HAUL1	0.08492	HAUL2
ANNUAL	R253	550965.45	4165232.15	*550965.454165232.15*	0.0924	PHASE 1	0.0883	HAUL1	0.07655	HAUL2
ANNUAL	R254	551025.45	4165232.15	*551025.454165232.15*	0.0852	PHASE 1	0.1139	HAUL1	0.06627	HAUL2
ANNUAL	R255	551065.45	4165232.15	*551065.454165232.15*	0.0785	PHASE 1	0.1424	HAUL1	0.06063	HAUL2
ANNUAL	R256	550905.45	4165252.15	*550905.454165252.15*	0.0889	PHASE 1	0.0704	HAUL1	0.08477	HAUL2
ANNUAL	R257	550945.45	4165252.15	*550945.454165252.15*	0.0865	PHASE 1	0.0797	HAUL1	0.07637	HAUL2
ANNUAL	R258	551025.45	4165252.15	*551025.454165252.15*	0.0780	PHASE 1	0.1108	HAUL1	0.06313	HAUL2
ANNUAL	R259	551065.45	4165252.15	*551065.454165252.15*	0.0720	PHASE 1	0.1399	HAUL1	0.05787	HAUL2
ANNUAL	R260	551105.45	4165252.15	*551105.454165252.15*	0.0655	PHASE 1	0.1909	HAUL1	0.0533	HAUL2
ANNUAL	R261	550905.45	4165272.15	*550905.454165272.15*	0.0824	PHASE 1	0.0682	HAUL1	0.07994	HAUL2
ANNUAL	R262	550945.45	4165272.15	*550945.454165272.15*	0.0800	PHASE 1	0.0772	HAUL1	0.07224	HAUL2
ANNUAL	R263	551045.45	4165272.15	*551045.454165272.15*	0.0691	PHASE 1	0.1207	HAUL1	0.0575	HAUL2
ANNUAL	R264	551085.45	4165272.15	*551085.454165272.15*	0.0634	PHASE 1	0.1593	HAUL1	0.05295	HAUL2
ANNUAL	R265	550865.45	4165292.15	*550865.454165292.15*	0.0784	PHASE 1	0.0593	HAUL1	0.08351	HAUL2
ANNUAL	R266	550905.45	4165292.15	*550905.454165292.15*	0.0767	PHASE 1	0.0660	HAUL1	0.07522	HAUL2
ANNUAL	R267	550945.45	4165292.15	*550945.454165292.15*	0.0742	PHASE 1	0.0748	HAUL1	0.0682	HAUL2
ANNUAL	R268	551045.45	4165292.15	*551045.454165292.15*	0.0640	PHASE 1	0.1175	HAUL1	0.05465	HAUL2
ANNUAL	R269	551085.45	4165292.15	*551085.454165292.15*	0.0589	PHASE 1	0.1565	HAUL1	0.05044	HAUL2
ANNUAL	R270	550885.45	4165312.15	*550885.454165312.15*	0.0724	PHASE 1	0.0604	HAUL1	0.07423	HAUL2
ANNUAL	R271	550925.45	4165312.15	*550925.454165312.15*	0.0704	PHASE 1	0.0679	HAUL1	0.06734	HAUL2
ANNUAL	R272	551025.45	4165312.15	*551025.454165312.15*	0.0617	PHASE 1	0.1016	HAUL1	0.05401	HAUL2
ANNUAL	R273	550865.45	4165332.15	*550865.454165332.15*	0.0685	PHASE 1	0.0557	HAUL1	0.07293	HAUL2
ANNUAL	R274	550905.45	4165332.15	*550905.454165332.15*	0.0668	PHASE 1	0.0620	HAUL1	0.06623	HAUL2
ANNUAL	R275	550985.45	4165332.15	*550985.454165332.15*	0.0613	PHASE 1	0.0815	HAUL1	0.05549	HAUL2
ANNUAL	R276	550925.45	4165352.15	*550925.454165352.15*	0.0616	PHASE 1	0.0638	HAUL1	0.05932	HAUL2

ANNUAL	R277	550865.45	4165372.15	*550865.454165372.15*	0.0605	PHASE 1	0.0524	HAUL1	0.0633	HAUL2
ANNUAL	R278	550405.6	4164911.75	*550405.64164911.75*	0.0641	PHASE 1	0.0256	HAUL1	0.24757	HAUL2
ANNUAL	R279	550405.6	4164931.75	*550405.64164931.75*	0.0634	PHASE 1	0.0255	HAUL1	0.26805	HAUL2
ANNUAL	R280	550465.6	4164931.75	*550465.64164931.75*	0.0890	PHASE 1	0.0314	HAUL1	0.38145	HAUL2
ANNUAL	R281	550625.01	4165231.9	*550625.014165231.9*	0.0851	PHASE 1	0.0376	HAUL1	0.26673	HAUL2
ANNUAL	R282	550665.01	4165231.9	*550665.014165231.9*	0.0908	PHASE 1	0.0413	HAUL1	0.21552	HAUL2
ANNUAL	R283	550645.01	4165251.9	*550645.014165251.9*	0.0827	PHASE 1	0.0384	HAUL1	0.21822	HAUL2
ANNUAL	R284	550685.01	4165251.9	*550685.014165251.9*	0.0870	PHASE 1	0.0420	HAUL1	0.18035	HAUL2
ANNUAL	R285	550925.45	4165192.15	*550925.454165192.15*	0.1130	PHASE 1	0.0829	HAUL1	0.09408	HAUL2
ANNUAL	R286	550965.45	4165192.15	*550965.454165192.15*	0.1109	PHASE 1	0.0945	HAUL1	0.08441	HAUL2
ANNUAL	R287	550905.45	4165212.15	*550905.454165212.15*	0.1044	PHASE 1	0.0754	HAUL1	0.09463	HAUL2
ANNUAL	R288	550945.45	4165212.15	*550945.454165212.15*	0.1024	PHASE 1	0.0852	HAUL1	0.08479	HAUL2
ANNUAL	R289	550985.45	4165212.15	*550985.454165212.15*	0.0991	PHASE 1	0.0984	HAUL1	0.07649	HAUL2
ANNUAL	R290	551045.45	4165212.15	*551045.454165212.15*	0.0902	PHASE 1	0.1295	HAUL1	0.06631	HAUL2
ANNUAL	R291	550905.45	4165232.15	*550905.454165232.15*	0.0962	PHASE 1	0.0728	HAUL1	0.08967	HAUL2
ANNUAL	R292	550945.45	4165232.15	*550945.454165232.15*	0.0939	PHASE 1	0.0824	HAUL1	0.08056	HAUL2
ANNUAL	R293	550985.45	4165232.15	*550985.454165232.15*	0.0904	PHASE 1	0.0953	HAUL1	0.07285	HAUL2
ANNUAL	R294	551045.45	4165232.15	*551045.454165232.15*	0.0820	PHASE 1	0.1266	HAUL1	0.06334	HAUL2
ANNUAL	R295	550885.45	4165252.15	*550885.454165252.15*	0.0898	PHASE 1	0.0666	HAUL1	0.08955	HAUL2
ANNUAL	R296	550925.45	4165252.15	*550925.454165252.15*	0.0878	PHASE 1	0.0748	HAUL1	0.08039	HAUL2
ANNUAL	R297	550965.45	4165252.15	*550965.454165252.15*	0.0849	PHASE 1	0.0855	HAUL1	0.07266	HAUL2
ANNUAL	R298	551045.45	4165252.15	*551045.454165252.15*	0.0751	PHASE 1	0.1237	HAUL1	0.0604	HAUL2
ANNUAL	R299	551085.45	4165252.15	*551085.454165252.15*	0.0687	PHASE 1	0.1614	HAUL1	0.05551	HAUL2
ANNUAL	R300	550885.45	4165272.15	*550885.454165272.15*	0.0834	PHASE 1	0.0644	HAUL1	0.08431	HAUL2
ANNUAL	R301	550925.45	4165272.15	*550925.454165272.15*	0.0813	PHASE 1	0.0724	HAUL1	0.07593	HAUL2
ANNUAL	R302	551025.45	4165272.15	*551025.454165272.15*	0.0718	PHASE 1	0.1078	HAUL1	0.06003	HAUL2
ANNUAL	R303	551065.45	4165272.15	*551065.454165272.15*	0.0663	PHASE 1	0.1371	HAUL1	0.05515	HAUL2
ANNUAL	R304	551105.45	4165272.15	*551105.454165272.15*	0.0606	PHASE 1	0.1907	HAUL1	0.0509	HAUL2
ANNUAL	R305	550885.45	4165292.15	*550885.454165292.15*	0.0776	PHASE 1	0.0624	HAUL1	0.07919	HAUL2
ANNUAL	R306	550925.45	4165292.15	*550925.454165292.15*	0.0755	PHASE 1	0.0701	HAUL1	0.07157	HAUL2
ANNUAL	R307	551025.45	4165292.15	*551025.454165292.15*	0.0664	PHASE 1	0.1047	HAUL1	0.05698	HAUL2
ANNUAL	R308	551065.45	4165292.15	*551065.454165292.15*	0.0615	PHASE 1	0.1339	HAUL1	0.05248	HAUL2
ANNUAL	R309	550865.45	4165312.15	*550865.454165312.15*	0.0732	PHASE 1	0.0574	HAUL1	0.07811	HAUL2
ANNUAL	R310	550905.45	4165312.15	*550905.454165312.15*	0.0715	PHASE 1	0.0640	HAUL1	0.07064	HAUL2
ANNUAL	R311	550945.45	4165312.15	*550945.454165312.15*	0.0690	PHASE 1	0.0725	HAUL1	0.06428	HAUL2
ANNUAL	R312	551045.45	4165312.15	*551045.454165312.15*	0.0595	PHASE 1	0.1143	HAUL1	0.05187	HAUL2
ANNUAL	R313	550885.45	4165332.15	*550885.454165332.15*	0.0678	PHASE 1	0.0586	HAUL1	0.06945	HAUL2
ANNUAL	R314	550925.45	4165332.15	*550925.454165332.15*	0.0657	PHASE 1	0.0658	HAUL1	0.06325	HAUL2
ANNUAL	R315	551005.45	4165332.15	*551005.454165332.15*	0.0595	PHASE 1	0.0890	HAUL1	0.05323	HAUL2
ANNUAL	R316	550945.45	4165352.15	*550945.454165352.15*	0.0603	PHASE 1	0.0679	HAUL1	0.05683	HAUL2
ANNUAL	R317	550885.45	4165372.15	*550885.454165372.15*	0.0597	PHASE 1	0.0551	HAUL1	0.06055	HAUL2
ANNUAL	R318	550425.6	4164911.75	*550425.64164911.75*	0.0715	PHASE 1	0.0274	HAUL1	0.27014	HAUL2
ANNUAL	R319	550425.6	4164931.75	*550425.64164931.75*	0.0705	PHASE 1	0.0272	HAUL1	0.29376	HAUL2
ANNUAL	R320	550485.6	4164931.75	*550485.64164931.75*	0.1012	PHASE 1	0.0338	HAUL1	0.46001	HAUL2
ANNUAL	R321	550505.6	4164931.75	*550505.64164931.75*	0.1161	PHASE 1	0.0365	HAUL1	0.58991	HAUL2
ANNUAL	R322	550425.6	4164951.75	*550425.64164951.75*	0.0695	PHASE 1	0.0270	HAUL1	0.32027	HAUL2
ANNUAL	R323	550525.6	4164951.75	*550525.64164951.75*	0.1293	PHASE 1	0.0388	HAUL1	1.07699	HAUL2
ANNUAL	R324	550505.6	4164971.75	*550505.64164971.75*	0.1086	PHASE 1	0.0354	HAUL1	0.85091	HAUL2
ANNUAL	R325	550585.6	4164971.75	*550585.64164971.75*	0.1901	PHASE 1	0.0479	HAUL1	1.53006	HAUL2
ANNUAL	R326	550625.6	4164971.75	*550625.64164971.75*	0.2525	PHASE 1	0.0559	HAUL1	0.74118	HAUL2
ANNUAL	R327	550505.6	4164991.75	*550505.64164991.75*	0.1048	PHASE 1	0.0348	HAUL1	1.08584	HAUL2
ANNUAL	R328	550585.6	4164991.75	*550585.64164991.75*	0.1748	PHASE 1	0.0465	HAUL1	1.21115	HAUL2
ANNUAL	R329	550625.6	4164991.75	*550625.64164991.75*	0.2245	PHASE 1	0.0538	HAUL1	0.66597	HAUL2
ANNUAL	R330	550665.6	4164991.75	*550665.64164991.75*	0.2790	PHASE 1	0.0620	HAUL1	0.46402	HAUL2
ANNUAL	R331	550585.6	4165011.75	*550585.64165011.75*	0.1614	PHASE 1	0.0452	HAUL1	1.01008	HAUL2
ANNUAL	R332	550625.6	4165011.75	*550625.64165011.75*	0.2015	PHASE 1	0.0520	HAUL1	0.60639	HAUL2
ANNUAL	R333	550665.6	4165011.75	*550665.64165011.75*	0.2439	PHASE 1	0.0594	HAUL1	0.43528	HAUL2
ANNUAL	R334	550705.6	4165011.75	*550705.64165011.75*	0.2836	PHASE 1	0.0673	HAUL1	0.33563	HAUL2
ANNUAL	R335	551378.51	4165172.16	*551378.514165172.16*	0.0534	PHASE 1	0.6486	HAUL1	0.03814	HAUL2
ANNUAL	R336	551418.51	4165172.16	*551418.514165172.16*	0.0498	PHASE 1	0.4331	HAUL1	0.03582	HAUL2
ANNUAL	R337	551338.51	4165192.16	*551338.514165192.16*	0.0524	PHASE 1	1.0191	HAUL1	0.03939	HAUL2
ANNUAL	R338	551378.51	4165192.16	*551378.514165192.16*	0.0490	PHASE 1	0.5784	HAUL1	0.03695	HAUL2
ANNUAL	R339	551418.51	4165192.16	*551418.514165192.16*	0.0459	PHASE 1	0.3960	HAUL1	0.03474	HAUL2
ANNUAL	R340	551338.51	4165212.16	*551338.514165212.16*	0.0481	PHASE 1	0.8615	HAUL1	0.03808	HAUL2
ANNUAL	R341	551378.51	4165212.16	*551378.514165212.16*	0.0451	PHASE 1	0.5183	HAUL1	0.03576	HAUL2
ANNUAL	R342	551418.51	4165212.16	*551418.514165212.16*	0.0424	PHASE 1	0.3619	HAUL1	0.03365	HAUL2
ANNUAL	R343	551358.51	4165232.16	*551358.514165232.16*	0.0430	PHASE 1	0.5734	HAUL1	0.03564	HAUL2
ANNUAL	R344	551398.51	4165232.16	*551398.514165232.16*	0.0405	PHASE 1	0.3880	HAUL1	0.03355	HAUL2
ANNUAL	R345	551378.51	4165252.16	*551378.514165252.16*	0.0387	PHASE 1	0.4167	HAUL1	0.03338	HAUL2
ANNUAL	R346	551378.51	4165272.16	*551378.514165272.16*	0.0361	PHASE 1	0.3720	HAUL1	0.0322	HAUL2
ANNUAL	R347	551498.28	4164852.3	*551498.284164852.3*	0.1089	PHASE 1	0.2273	HAUL1	0.04235	HAUL2
ANNUAL	R348	551538.28	4164852.3	*551538.284164852.3*	0.0971	PHASE 1	0.2001	HAUL1	0.03978	HAUL2
ANNUAL	R349	551458.28	4164872.3	*551458.284164872.3*	0.1199	PHASE 1	0.2847	HAUL1	0.0449	HAUL2
ANNUAL	R350	551498.28	4164872.3	*551498.284164872.3*	0.1059	PHASE 1	0.2453	HAUL1	0.04206	HAUL2
ANNUAL	R351	551538.28	4164872.3	*551538.284164872.3*	0.0945	PHASE 1	0.2129	HAUL1	0.0395	HAUL2
ANNUAL	R352	551458.28	4164892.3	*551458.284164892.3*	0.1160	PHASE 1	0.3133	HAUL1	0.04451	HAUL2
ANNUAL	R353	551498.28	4164892.3	*551498.284164892.3*	0.1026	PHASE 1	0.2648	HAUL1	0.0417	HAUL2
ANNUAL	R354	551538.28	4164892.3	*551538.284164892.3*	0.0916	PHASE 1	0.2260	HAUL1	0.03917	HAUL2
ANNUAL	R355	551458.28	4164912.3	*551458.284164912.3*	0.1116	PHASE 1	0.3460	HAUL1	0.04405	HAUL2
ANNUAL	R356	551498.28	4164912.3	*551498.284164912.3*	0.0988	PHASE 1	0.2853	HAUL1	0.04128	HAUL2
ANNUAL	R357	551538.28	4164912.3	*551538.284164912.3*	0.0883	PHASE 1	0.2389	HAUL1	0.03878	HAUL2
ANNUAL	R358	551458.28	4164932.3	*551458.284164932.3*	0.1068	PHASE 1	0.3824	HAUL1	0.04353	HAUL2
ANNUAL	R359	551498.28	4164932.3	*551498.284164932.3*	0.0947	PHASE 1	0.3059	HAUL1	0.0408	HAUL2
ANNUAL	R360	551538.28	4164932.3	*551538.284164932.3*	0.0848	PHASE 1	0.2510	HAUL1	0.03833	HAUL2
ANNUAL	R361	550405.6	4164951.75	*550405.64164951.75*	0.0627	PHASE 1	0.0253	HAUL1	0.29073	HAUL2
ANNUAL	R362	550465.6	4164951.75	*550465.64164951.75*	0.0871	PHASE 1	0.0311	HAUL1	0.42503	HAUL2
ANNUAL	R363	550485.6	4164971.75	*550485.64164971.75*	0.0959	PHASE 1	0.0329	HAUL1	0.60524	HAUL2
ANNUAL	R364	550525.6	4164971.75	*550525.64164971.75*	0.1239	PHASE 1	0.0381	HAUL1	1.49118	HAUL2
ANNUAL	R365	550605.6	4164971.75	*550605.64164971.75*	0.2197	PHASE 1	0.0517	HAUL1	0.99222	HAUL2
ANNUAL	R366	550405.6	4164991.75	*550405.64164991.75*	0.0611	PHASE 1	0.0250	HAUL1	0.34455	HAUL2
ANNUAL	R367	550565.6	4164991.75	*550565.64164991.75*	0.1534	PHASE 1	0.0432	HAUL1	2.13871	HAUL2
ANNUAL	R368	550605.6	4164991.75	*550605.64164991.75*	0.1987	PHASE 1	0.0501	HAUL1	0.85555	HAUL2
ANNUAL	R369	550645.6	4164991.75	*550645.64164991.75*	0.2515	PHASE 1	0.0578	HAUL1	0.54701	HAUL2
ANNUAL	R370	550565.6	4165011.75	*550565.64165011.75*	0.1435	PHASE 1	0.0422	HAUL1	1.55596	HAUL2
ANNUAL	R371	550605.6	4165011.75	*550605.64165011.75*	0.1809	PHASE 1	0.0485	HAUL1	0.75535	HAUL2
ANNUAL	R372	550645.6	4165011.75	*550645.64165011.75*	0.2227	PHASE 1	0.0556	HAUL1	0.50734	HAUL2
ANNUAL	R373	550685.6	4165011.75	*550685.64165011.75*	0.2644	PHASE 1	0.0633	HAUL1	0.3798	HAUL2
ANNUAL	R374	551318.51	4165172.16	*551318.514165172.16*	0.0595	PHASE 1	2.2167	HAUL1	0.04208	HAUL2
ANNUAL	R375	551398.51	4165172.16	*551398.514165172.16*	0.0515	PHASE 1	0.5211	HAUL1	0.03695	HAUL2
ANNUAL	R376	551318.51	4165192.16	*551318.514165192.16*	0.0542	PHASE 1	1.6155	HAUL1	0.04071	HAUL2
ANNUAL	R377	551358.51	4165192.16	*551358.514165192.16*	0.0506	PHASE 1	0.7403	HAUL1	0.03814	HAUL2
ANNUAL	R378	551398.51	4165192.16	*551398.514165192.16*	0.0474	PHASE 1	0.4721	HAUL1	0.03582	HAUL2
ANNUAL	R379	551318.51	4165212.16	*551318.514165212.16*	0.0497	PHASE 1	1.2627	HAUL1	0.03934	HAUL2
ANNUAL	R380	551358.51	4165212.16	*551358.514165212.16*	0.0466	PHASE 1	0.6495	HAUL1	0.03689	HAUL2
ANNUAL	R381	551398.51	4165212.16	*551398.514165212.16*	0.0437	PHASE 1	0.4282	HAUL1	0.03469	HAUL2
ANNUAL	R382	551338.51	4165232.16	*551338.514165232.16*	0.0443	PHASE 1	0.7397	HAUL1	0.03677	HAUL2
ANNUAL	R383	551378.51	4165232.16	*551378.514165232.16*	0.0417	PHASE 1	0.4651	HAUL1	0.03457	HAUL2
ANNUAL	R384	551358.51	4165252.16	*551358.514165252.16*	0.0399	PHASE 1	0.5073	HAUL1	0.0344	HAUL2
ANNUAL	R385	551398.51	4165252.16	*551398.514165252.16*	0.0376	PHASE 1	0.3505	HAUL1	0.03241	HAUL2
ANNUAL	R386	551478.28	4164852.3	*551478.284164852.3*	0.1156	PHASE 1	0.2427	HAUL1	0.04374	HAUL2
ANNUAL	R387	551518.28	4164852.3	*551518.284164852.3*	0.1027	PHASE 1	0.2131	HAUL1	0.04104	HAUL2
ANNUAL	R388	551558.28	4164852.3	*551558.284164852.3*	0.0919	PHASE 1	0.1879	HAUL1	0.03858	HAUL2
ANNUAL	R389	551478.28	4164872.3	*551478.284164872.3*	0.1125	PHASE 1	0.2639	HAUL1	0.04343	HAUL2
ANNUAL	R390	551518.28	4164872.3	*551518.284164872.3*	0.0999	PHASE 1	0.2284	HAUL1	0.04075	HAUL2
ANNUAL	R391	551558.28	4164872.3	*551558.284164872.3*	0.0895	PHASE 1	0.1987	HAUL1	0.03831	HAUL2
ANNUAL	R392	551478.28	4164892.3	*551478.284164892.3*	0.1089	PHASE 1	0.2876	HAUL1	0.04306	HAUL2
ANNUAL	R393	551518.28	4164892.3	*551518.284164892.3*	0.0968	PHASE 1	0.2443	HAUL1	0.0404	HAUL2
ANNUAL	R394	551558.28	4164892.3	*551558.284164892.3*	0.0867	PHASE 1	0.2095	HAUL1	0.03799	HAUL2
ANNUAL	R395	551478.28	4164912.3	*551478.284164912.3*	0.1048	PHASE 1	0.3134	HAUL1	0.04262	HAUL2
ANNUAL	R396	551518.28	4164912.3	*551518.284164912.3*	0.0933	PHASE 1	0.2606	HAUL1	0.04	HAUL2
ANNUAL	R397	551438.28	4164932.3	*551438.284164932.3*	0.1139	PHASE 1	0.4317	HAUL1	0.04502	HAUL2
ANNUAL	R398	551478.28	4164932.3	*551478.284164932.3*	0.1004	PHASE 1	0.3407	HAUL1	0.04212	HAUL2
ANNUAL	R399	551518.28	4164932.3	*551518.284164932.3*	0.0896	PHASE 1	0.2763	HAUL1	0.03954	HAUL2
ANNUAL	R400	551438.28	4164952.3	*551438.284164952.3*	0.1082	PHASE 1	0.4875	HAUL1	0.04441	HAUL2
ANNUAL	R401	551458.28	4164952.3	*551458.284164952.3*	0.1016	PHASE 1	0.4210	HAUL1	0.04295	HAUL2
ANNUAL	R402	551498.28	4164952.3	*551498.284164952.3*	0.0904	PHASE 1	0.3254	HAUL1	0.04026	HAUL2
ANNUAL	R403	551538.28	4164952.3	*551538.284164952.3*	0.0812	PHASE 1	0.2616	HAUL1	0.03784	HAUL2
ANNUAL	R404	551438.28	4164972.3	*551438.284164972.3*	0.1023	PHASE 1	0.5468	HAUL1	0.04374	HAUL2
ANNUAL	R405	551478.28	4164972.3	*551478.284164972.3*	0.0908	PHASE 1	0.3924	HAUL1	0.04095	HAUL2
ANNUAL	R406	551518.28	4164972.3	*551518.284164972.3*	0.0814	PHASE 1	0.3022	HAUL1	0.03846	HAUL2
ANNUAL	R407	551318.28	4164992.3	*551318.284164992.3*	0.1470	PHASE 1	3.8259	HAUL1	0.05315	HAUL2
ANNUAL	R408	551438.28	4164992.3	*551438.284164992.3*	0.0962	PHASE 1	0.6010	HAUL1	0.04302	HAUL2
ANNUAL	R409	551478.28	4164992.3	*551478.284164992.3*	0.0857	PHASE 1	0.4112	HAUL1	0.04029	HAUL2
ANNUAL	R410	551458.28	4165012.3	*551458.284165012.3*	0.0851	PHASE 1	0.5074	HAUL1	0.04087	HAUL2
ANNUAL	R411	551498.28	4165012.3	*551498.284165012.3*	0.0765	PHASE 1	0.3602	HAUL1	0.03836	HAUL2
ANNUAL	R412	551438.28	4165032.3	*551438.284165032.3*	0.0839	PHASE 1	0.6426	HAUL1	0.04142	HAUL2
ANNUAL	R413	551498.28	4165032.3	*551498.284165032.3*	0.0718	PHASE 1	0.3595	HAUL1	0.03765	HAUL2
ANNUAL	R414	551418.28	4165052.3	*551418.284165052.3*	0.0821	PHASE 1	0.8141	HAUL1	0.04191	HAUL2
ANNUAL	R415	551458.28	4165052.3	*551458.284165052.3*	0.0740	PHASE 1	0.4956	HAUL1	0.03926	HAUL2

ANNUAL	R416	551358.28	4165072.3	*551358.284165072.3*	0.0890	PHASE 1	3.0291	HAUL1	0.04533	HAUL2
ANNUAL	R417	551398.28	4165072.3	*551398.284165072.3*	0.0798	PHASE 1	0.9762	HAUL1	0.04235	HAUL2
ANNUAL	R418	551438.28	4165072.3	*551438.284165072.3*	0.0721	PHASE 1	0.5735	HAUL1	0.03965	HAUL2
ANNUAL	R419	551358.28	4165092.3	*551358.284165092.3*	0.0808	PHASE 1	2.0353	HAUL1	0.0442	HAUL2
ANNUAL	R420	551398.28	4165092.3	*551398.284165092.3*	0.0732	PHASE 1	0.8337	HAUL1	0.04133	HAUL2
ANNUAL	R421	551438.28	4165092.3	*551438.284165092.3*	0.0666	PHASE 1	0.5241	HAUL1	0.03872	HAUL2
ANNUAL	R422	551338.28	4165112.3	*551338.284165112.3*	0.0770	PHASE 1	3.1266	HAUL1	0.04452	HAUL2
ANNUAL	R423	551378.28	4165112.3	*551378.284165112.3*	0.0701	PHASE 1	0.9843	HAUL1	0.04161	HAUL2
ANNUAL	R424	551418.28	4165112.3	*551418.284165112.3*	0.0641	PHASE 1	0.5779	HAUL1	0.03898	HAUL2
ANNUAL	R425	551458.28	4165112.3	*551458.284165112.3*	0.0588	PHASE 1	0.4048	HAUL1	0.03659	HAUL2
ANNUAL	R426	551358.28	4165132.3	*551358.284165132.3*	0.0666	PHASE 1	1.2097	HAUL1	0.04184	HAUL2
ANNUAL	R427	551398.28	4165132.3	*551398.284165132.3*	0.0613	PHASE 1	0.6454	HAUL1	0.03918	HAUL2
ANNUAL	R428	551438.28	4165132.3	*551438.284165132.3*	0.0566	PHASE 1	0.4373	HAUL1	0.03677	HAUL2
ANNUAL	R429	551338.28	4165152.3	*551338.284165152.3*	0.0630	PHASE 1	1.5691	HAUL1	0.042	HAUL2
ANNUAL	R430	551378.28	4165152.3	*551378.284165152.3*	0.0583	PHASE 1	0.7352	HAUL1	0.03932	HAUL2
ANNUAL	R431	551418.28	4165152.3	*551418.284165152.3*	0.0541	PHASE 1	0.4751	HAUL1	0.03689	HAUL2
ANNUAL	R432	551338.28	4165172.3	*551338.284165172.3*	0.0573	PHASE 1	1.2404	HAUL1	0.0407	HAUL2
ANNUAL	R433	551378.28	4165172.3	*551378.284165172.3*	0.0534	PHASE 1	0.6499	HAUL1	0.03815	HAUL2
ANNUAL	R434	551298.14	4164530.93	*551298.144164530.93*	0.1298	PHASE 1	0.1130	HAUL1	0.04929	HAUL2
ANNUAL	R435	551318.14	4164550.93	*551318.144164550.93*	0.1346	PHASE 1	0.1177	HAUL1	0.04941	HAUL2
ANNUAL	R436	551298.14	4164570.93	*551298.144164570.93*	0.1498	PHASE 1	0.1339	HAUL1	0.05238	HAUL2
ANNUAL	R437	551338.14	4164570.93	*551338.144164570.93*	0.1377	PHASE 1	0.1218	HAUL1	0.04928	HAUL2
ANNUAL	R438	551298.14	4164590.93	*551298.144164590.93*	0.1601	PHASE 1	0.1456	HAUL1	0.05379	HAUL2
ANNUAL	R439	551338.14	4164590.93	*551338.144164590.93*	0.1459	PHASE 1	0.1316	HAUL1	0.05049	HAUL2
ANNUAL	R440	551378.14	4164590.93	*551378.144164590.93*	0.1329	PHASE 1	0.1198	HAUL1	0.04745	HAUL2
ANNUAL	R441	551478.28	4164952.3	*551478.284164952.3*	0.0957	PHASE 1	0.3679	HAUL1	0.04156	HAUL2
ANNUAL	R442	551518.28	4164952.3	*551518.284164952.3*	0.0856	PHASE 1	0.2905	HAUL1	0.03902	HAUL2
ANNUAL	R443	551418.28	4164972.3	*551418.284164972.3*	0.1091	PHASE 1	0.6697	HAUL1	0.04526	HAUL2
ANNUAL	R444	551458.28	4164972.3	*551458.284164972.3*	0.0962	PHASE 1	0.4582	HAUL1	0.04231	HAUL2
ANNUAL	R445	551498.28	4164972.3	*551498.284164972.3*	0.0859	PHASE 1	0.3420	HAUL1	0.03968	HAUL2
ANNUAL	R446	551538.28	4164972.3	*551538.284164972.3*	0.0773	PHASE 1	0.2699	HAUL1	0.0373	HAUL2
ANNUAL	R447	551418.28	4164992.3	*551418.284164992.3*	0.1024	PHASE 1	0.7756	HAUL1	0.0445	HAUL2
ANNUAL	R448	551458.28	4164992.3	*551458.284164992.3*	0.0907	PHASE 1	0.4890	HAUL1	0.04162	HAUL2
ANNUAL	R449	551498.28	4164992.3	*551498.284164992.3*	0.0812	PHASE 1	0.3542	HAUL1	0.03904	HAUL2
ANNUAL	R450	551478.28	4165012.3	*551478.284165012.3*	0.0806	PHASE 1	0.4216	HAUL1	0.03958	HAUL2
ANNUAL	R451	551418.28	4165032.3	*551418.284165032.3*	0.0888	PHASE 1	0.8710	HAUL1	0.04282	HAUL2
ANNUAL	R452	551478.28	4165032.3	*551478.284165032.3*	0.0755	PHASE 1	0.4219	HAUL1	0.03883	HAUL2
ANNUAL	R453	551378.28	4165052.3	*551378.284165052.3*	0.0920	PHASE 1	1.9834	HAUL1	0.04484	HAUL2
ANNUAL	R454	551438.28	4165052.3	*551438.284165052.3*	0.0779	PHASE 1	0.6178	HAUL1	0.04056	HAUL2
ANNUAL	R455	551478.28	4165052.3	*551478.284165052.3*	0.0705	PHASE 1	0.4124	HAUL1	0.03804	HAUL2
ANNUAL	R456	551378.28	4165072.3	*551378.284165072.3*	0.0842	PHASE 1	1.4784	HAUL1	0.0438	HAUL2
ANNUAL	R457	551418.28	4165072.3	*551418.284165072.3*	0.0758	PHASE 1	0.7267	HAUL1	0.04097	HAUL2
ANNUAL	R458	551458.28	4165072.3	*551458.284165072.3*	0.0687	PHASE 1	0.4697	HAUL1	0.0384	HAUL2
ANNUAL	R459	551378.28	4165092.3	*551378.284165092.3*	0.0768	PHASE 1	1.1814	HAUL1	0.04272	HAUL2
ANNUAL	R460	551418.28	4165092.3	*551418.284165092.3*	0.0697	PHASE 1	0.6451	HAUL1	0.03999	HAUL2
ANNUAL	R461	551458.28	4165092.3	*551458.284165092.3*	0.0636	PHASE 1	0.4377	HAUL1	0.03751	HAUL2
ANNUAL	R462	551358.28	4165112.3	*551358.284165112.3*	0.0734	PHASE 1	1.5193	HAUL1	0.04303	HAUL2
ANNUAL	R463	551398.28	4165112.3	*551398.284165112.3*	0.0670	PHASE 1	0.7279	HAUL1	0.04027	HAUL2
ANNUAL	R464	551438.28	4165112.3	*551438.284165112.3*	0.0614	PHASE 1	0.4780	HAUL1	0.03775	HAUL2
ANNUAL	R465	551338.28	4165132.3	*551338.284165132.3*	0.0696	PHASE 1	2.1228	HAUL1	0.04327	HAUL2
ANNUAL	R466	551378.28	4165132.3	*551378.284165132.3*	0.0639	PHASE 1	0.8427	HAUL1	0.04048	HAUL2
ANNUAL	R467	551418.28	4165132.3	*551418.284165132.3*	0.0589	PHASE 1	0.5224	HAUL1	0.03795	HAUL2
ANNUAL	R468	551458.28	4165132.3	*551458.284165132.3*	0.0544	PHASE 1	0.3738	HAUL1	0.03565	HAUL2
ANNUAL	R469	551358.28	4165152.3	*551358.284165152.3*	0.0606	PHASE 1	1.0033	HAUL1	0.04062	HAUL2
ANNUAL	R470	551398.28	4165152.3	*551398.284165152.3*	0.0562	PHASE 1	0.5784	HAUL1	0.03808	HAUL2
ANNUAL	R471	551318.28	4165172.3	*551318.284165172.3*	0.0595	PHASE 1	2.2309	HAUL1	0.04209	HAUL2
ANNUAL	R472	551358.28	4165172.3	*551358.284165172.3*	0.0553	PHASE 1	0.8551	HAUL1	0.03939	HAUL2
ANNUAL	R473	551678.14	4164370.93	*551678.144164370.93*	0.0513	PHASE 1	0.0429	HAUL1	0.02603	HAUL2
ANNUAL	R474	551298.14	4164550.93	*551298.144164550.93*	0.1397	PHASE 1	0.1231	HAUL1	0.05087	HAUL2
ANNUAL	R475	551358.14	4164550.93	*551358.144164550.93*	0.1245	PHASE 1	0.1079	HAUL1	0.04662	HAUL2
ANNUAL	R476	551318.14	4164570.93	*551318.144164570.93*	0.1437	PHASE 1	0.1276	HAUL1	0.0508	HAUL2
ANNUAL	R477	551358.14	4164570.93	*551358.144164570.93*	0.1319	PHASE 1	0.1164	HAUL1	0.04782	HAUL2
ANNUAL	R478	551318.14	4164590.93	*551318.144164590.93*	0.1529	PHASE 1	0.1383	HAUL1	0.05211	HAUL2
ANNUAL	R479	551358.14	4164590.93	*551358.144164590.93*	0.1392	PHASE 1	0.1254	HAUL1	0.04893	HAUL2
ANNUAL	R480	551298.14	4164610.93	*551298.144164610.93*	0.1704	PHASE 1	0.1582	HAUL1	0.05511	HAUL2
ANNUAL	R481	551318.14	4164610.93	*551318.144164610.93*	0.1620	PHASE 1	0.1498	HAUL1	0.05332	HAUL2
ANNUAL	R482	551358.14	4164610.93	*551358.144164610.93*	0.1464	PHASE 1	0.1351	HAUL1	0.04996	HAUL2
ANNUAL	R483	551398.14	4164610.93	*551398.144164610.93*	0.1325	PHASE 1	0.1230	HAUL1	0.04691	HAUL2
ANNUAL	R484	551438.14	4164610.93	*551438.144164610.93*	0.1204	PHASE 1	0.1133	HAUL1	0.04416	HAUL2
ANNUAL	R485	551358.14	4164630.93	*551358.144164630.93*	0.1533	PHASE 1	0.1455	HAUL1	0.0509	HAUL2
ANNUAL	R486	551398.14	4164630.93	*551398.144164630.93*	0.1378	PHASE 1	0.1319	HAUL1	0.04771	HAUL2
ANNUAL	R487	551298.14	4164650.93	*551298.144164650.93*	0.1904	PHASE 1	0.1869	HAUL1	0.05739	HAUL2
ANNUAL	R488	551338.14	4164650.93	*551338.144164650.93*	0.1692	PHASE 1	0.1659	HAUL1	0.05354	HAUL2
ANNUAL	R489	551398.14	4164650.93	*551398.144164650.93*	0.1427	PHASE 1	0.1415	HAUL1	0.04842	HAUL2
ANNUAL	R490	551438.14	4164650.93	*551438.144164650.93*	0.1282	PHASE 1	0.1293	HAUL1	0.04545	HAUL2
ANNUAL	R491	551298.14	4164670.93	*551298.144164670.93*	0.1997	PHASE 1	0.2034	HAUL1	0.05834	HAUL2
ANNUAL	R492	551338.14	4164670.93	*551338.144164670.93*	0.1761	PHASE 1	0.1795	HAUL1	0.05434	HAUL2
ANNUAL	R493	551378.14	4164670.93	*551378.144164670.93*	0.1560	PHASE 1	0.1601	HAUL1	0.05071	HAUL2
ANNUAL	R494	551418.14	4164670.93	*551418.144164670.93*	0.1390	PHASE 1	0.1447	HAUL1	0.04747	HAUL2
ANNUAL	R495	551478.14	4164670.93	*551478.144164670.93*	0.1181	PHASE 1	0.1273	HAUL1	0.04319	HAUL2
ANNUAL	R496	551318.14	4164690.93	*551318.144164690.93*	0.1948	PHASE 1	0.2076	HAUL1	0.05703	HAUL2
ANNUAL	R497	551358.14	4164690.93	*551358.144164690.93*	0.1709	PHASE 1	0.1830	HAUL1	0.0531	HAUL2
ANNUAL	R498	551398.14	4164690.93	*551398.144164690.93*	0.1509	PHASE 1	0.1633	HAUL1	0.04957	HAUL2
ANNUAL	R499	551458.14	4164690.93	*551458.144164690.93*	0.1269	PHASE 1	0.1415	HAUL1	0.04494	HAUL2
ANNUAL	R500	551338.14	4164710.93	*551338.144164710.93*	0.1877	PHASE 1	0.2116	HAUL1	0.05558	HAUL2
ANNUAL	R501	551378.14	4164710.93	*551378.144164710.93*	0.1642	PHASE 1	0.1864	HAUL1	0.05175	HAUL2
ANNUAL	R502	551418.14	4164710.93	*551418.144164710.93*	0.1448	PHASE 1	0.1666	HAUL1	0.04833	HAUL2
ANNUAL	R503	551458.14	4164710.93	*551458.144164710.93*	0.1286	PHASE 1	0.1512	HAUL1	0.04526	HAUL2
ANNUAL	R504	551398.14	4164730.93	*551398.144164730.93*	0.1565	PHASE 1	0.1899	HAUL1	0.05032	HAUL2
ANNUAL	R505	551418.14	4164750.93	*551418.144164750.93*	0.1479	PHASE 1	0.1935	HAUL1	0.04883	HAUL2
ANNUAL	R506	550597.48	4164211.07	*550597.484164211.07*	0.0415	PHASE 1	0.0272	HAUL1	0.02229	HAUL2
ANNUAL	R507	550637.48	4164311.07	*550637.484164311.07*	0.0584	PHASE 1	0.0380	HAUL1	0.03	HAUL2
ANNUAL	R508	550697.48	4164311.07	*550697.484164311.07*	0.0599	PHASE 1	0.0426	HAUL1	0.02732	HAUL2
ANNUAL	R509	550737.48	4164311.07	*550737.484164311.07*	0.0593	PHASE 1	0.0448	HAUL1	0.02606	HAUL2
ANNUAL	R510	550777.48	4164311.07	*550777.484164311.07*	0.0578	PHASE 1	0.0463	HAUL1	0.0256	HAUL2
ANNUAL	R511	550817.48	4164311.07	*550817.484164311.07*	0.0557	PHASE 1	0.0473	HAUL1	0.02589	HAUL2
ANNUAL	R512	550697.48	4164331.07	*550697.484164331.07*	0.0646	PHASE 1	0.0456	HAUL1	0.02946	HAUL2
ANNUAL	R513	550777.48	4164331.07	*550777.484164331.07*	0.0625	PHASE 1	0.0498	HAUL1	0.02761	HAUL2
ANNUAL	R514	550817.48	4164331.07	*550817.484164331.07*	0.0604	PHASE 1	0.0510	HAUL1	0.02803	HAUL2
ANNUAL	R515	550557.48	4164351.07	*550557.484164351.07*	0.0585	PHASE 1	0.0333	HAUL1	0.03783	HAUL2
ANNUAL	R516	550617.48	4164351.07	*550617.484164351.07*	0.0655	PHASE 1	0.0404	HAUL1	0.03625	HAUL2
ANNUAL	R517	550657.48	4164351.07	*550657.484164351.07*	0.0685	PHASE 1	0.0450	HAUL1	0.03414	HAUL2
ANNUAL	R518	550697.48	4164351.07	*550697.484164351.07*	0.0698	PHASE 1	0.0490	HAUL1	0.03189	HAUL2
ANNUAL	R519	550737.48	4164351.07	*550737.484164351.07*	0.0694	PHASE 1	0.0518	HAUL1	0.03032	HAUL2
ANNUAL	R520	550797.48	4164351.07	*550797.484164351.07*	0.0670	PHASE 1	0.0546	HAUL1	0.0301	HAUL2
ANNUAL	R521	551338.14	4164610.93	*551338.144164610.93*	0.1540	PHASE 1	0.1421	HAUL1	0.05161	HAUL2
ANNUAL	R522	551378.14	4164610.93	*551378.144164610.93*	0.1392	PHASE 1	0.1287	HAUL1	0.0484	HAUL2
ANNUAL	R523	551418.14	4164610.93	*551418.144164610.93*	0.1263	PHASE 1	0.1179	HAUL1	0.0455	HAUL2
ANNUAL	R524	551318.14	4164630.93	*551318.144164630.93*	0.1709	PHASE 1	0.1623	HAUL1	0.05443	HAUL2
ANNUAL	R525	551378.14	4164630.93	*551378.144164630.93*	0.1453	PHASE 1	0.1383	HAUL1	0.04927	HAUL2
ANNUAL	R526	551438.14	4164630.93	*551438.144164630.93*	0.1245	PHASE 1	0.1210	HAUL1	0.04484	HAUL2
ANNUAL	R527	551318.14	4164650.93	*551318.144164650.93*	0.1795	PHASE 1	0.1759	HAUL1	0.05542	HAUL2
ANNUAL	R528	551358.14	4164650.93	*551358.144164650.93*	0.1597	PHASE 1	0.1569	HAUL1	0.05174	HAUL2
ANNUAL	R529	551418.14	4164650.93	*551418.144164650.93*	0.1352	PHASE 1	0.1351	HAUL1	0.0469	HAUL2
ANNUAL	R530	551478.14	4164650.93	*551478.144164650.93*	0.1157	PHASE 1	0.1195	HAUL1	0.04275	HAUL2
ANNUAL	R531	551318.14	4164670.93	*551318.144164670.93*	0.1875	PHASE 1	0.1909	HAUL1	0.05629	HAUL2
ANNUAL	R532	551358.14	4164670.93	*551358.144164670.93*	0.1656	PHASE 1	0.1693	HAUL1	0.05248	HAUL2
ANNUAL	R533	551398.14	4164670.93	*551398.144164670.93*	0.1471	PHASE 1	0.1519	HAUL1	0.04904	HAUL2
ANNUAL	R534	551438.14	4164670.93	*551438.144164670.93*	0.1315	PHASE 1	0.1382	HAUL1	0.04597	HAUL2
ANNUAL	R535	551298.14	4164690.93	*551298.144164690.93*	0.2083	PHASE 1	0.2219	HAUL1	0.05915	HAUL2
ANNUAL	R536	551338.14	4164690.93	*551338.144164690.93*	0.1823	PHASE 1	0.1946	HAUL1	0.05502	HAUL2
ANNUAL	R537	551378.14	4164690.93	*551378.144164690.93*	0.1605	PHASE 1	0.1726	HAUL1	0.05129	HAUL2
ANNUAL	R538	551418.14	4164690.93	*551418.144164690.93*	0.1422	PHASE 1	0.1552	HAUL1	0.04795	HAUL2
ANNUAL	R539	551598.14	4164690.93	*551598.144164690.93*	0.0887	PHASE 1	0.1091	HAUL1	0.03649	HAUL2
ANNUAL	R540	551358.14	4164710.93	*551358.144164710.93*	0.1754	PHASE 1	0.1983	HAUL1	0.05361	HAUL2
ANNUAL	R541	551398.14	4164710.93	*551398.144164710.93*	0.1541	PHASE 1	0.1759	HAUL1	0.04999	HAUL2
ANNUAL	R542	551438.14	4164710.93	*551438.144164710.93*	0.1364	PHASE 1	0.1585	HAUL1	0.04676	HAUL2
ANNUAL	R543	551378.14	4164730.93	*551378.144164730.93*	0.1672	PHASE 1	0.2019	HAUL1	0.05211	HAUL2
ANNUAL	R544	551438.14	4164730.93	*551438.144164730.93*	0.1379	PHASE 1	0.1701	HAUL1	0.04702	HAUL2
ANNUAL	R545	551438.14	4164750.93	*551438.144164750.93*	0.1388	PHASE 1	0.1830	HAUL1	0.0472	HAUL2
ANNUAL	R546	550597.48	4164231.07	*550597.484164231.07*	0.0439	PHASE 1	0.0284	HAUL1	0.02377	HAUL2
ANNUAL	R547	550657.48	4164311.07	*550657.484164311.07*	0.0593	PHASE 1	0.0397	HAUL1	0.02908	HAUL2
ANNUAL	R548	550717.48	4164311.07	*550717.484164311.07*	0.0598	PHASE 1	0.0438	HAUL1	0.0266	HAUL2
ANNUAL	R549	550757.48	4164311.07	*550757.484164311.07*	0.0586	PHASE 1	0.0456	HAUL1	0.02573	HAUL2
ANNUAL	R550	550797.48	4164311.07	*550797.484164311.07*	0.0568	PHASE 1	0.0468	HAUL1	0.02567	HAUL2
ANNUAL	R551	550677.48	4164331.07	*550677.484164331.07*	0.0643	PHASE 1	0.0440	HAUL1	0.03042	HAUL2
ANNUAL	R552	550757.48	4164331.07	*550757.484164331.07*	0.0634	PHASE 1	0.0490	HAUL1	0.02771	HAUL2
ANNUAL	R553	550797.48	4164331.07	*550797.484164331.07*	0.0615	PHASE 1	0.0505	HAUL1	0.02773	HAUL2
ANNUAL	R554	550837.48	4164331.07	*550837.484164331.07*	0.0593	PHASE 1	0.0515	HAUL1	0.02846	HAUL2

ANNUAL	R555	550577.48	4164351.07	*550577.484164351.07*	0.0611	PHASE 1	0.0356	HAUL1	0.03756	HAUL2
ANNUAL	R556	550637.48	4164351.07	*550637.484164351.07*	0.0672	PHASE 1	0.0428	HAUL1	0.03526	HAUL2
ANNUAL	R557	550677.48	4164351.07	*550677.484164351.07*	0.0694	PHASE 1	0.0471	HAUL1	0.03298	HAUL2
ANNUAL	R558	550717.48	4164351.07	*550717.484164351.07*	0.0698	PHASE 1	0.0505	HAUL1	0.03097	HAUL2
ANNUAL	R559	550777.48	4164351.07	*550777.484164351.07*	0.0679	PHASE 1	0.0538	HAUL1	0.0299	HAUL2
ANNUAL	R560	550817.48	4164351.07	*550817.484164351.07*	0.0659	PHASE 1	0.0553	HAUL1	0.0305	HAUL2
ANNUAL	R561	550837.48	4164351.07	*550837.484164351.07*	0.0647	PHASE 1	0.0559	HAUL1	0.03104	HAUL2
ANNUAL	R562	550577.48	4164371.07	*550577.484164371.07*	0.0652	PHASE 1	0.0373	HAUL1	0.04083	HAUL2
ANNUAL	R563	550617.48	4164371.07	*550617.484164371.07*	0.0704	PHASE 1	0.0428	HAUL1	0.03954	HAUL2
ANNUAL	R564	550677.48	4164371.07	*550677.484164371.07*	0.0751	PHASE 1	0.0506	HAUL1	0.0359	HAUL2
ANNUAL	R565	550717.48	4164371.07	*550717.484164371.07*	0.0758	PHASE 1	0.0546	HAUL1	0.03362	HAUL2
ANNUAL	R566	550757.48	4164371.07	*550757.484164371.07*	0.0749	PHASE 1	0.0573	HAUL1	0.03255	HAUL2
ANNUAL	R567	550857.48	4164371.07	*550857.484164371.07*	0.0699	PHASE 1	0.0618	HAUL1	0.03481	HAUL2
ANNUAL	R568	550717.48	4164391.07	*550717.484164391.07*	0.0826	PHASE 1	0.0592	HAUL1	0.03668	HAUL2
ANNUAL	R569	550757.48	4164391.07	*550757.484164391.07*	0.0819	PHASE 1	0.0625	HAUL1	0.03556	HAUL2
ANNUAL	R570	550797.48	4164391.07	*550797.484164391.07*	0.0803	PHASE 1	0.0649	HAUL1	0.03612	HAUL2
ANNUAL	R571	550857.48	4164391.07	*550857.484164391.07*	0.0772	PHASE 1	0.0680	HAUL1	0.03851	HAUL2
ANNUAL	R572	550757.48	4164411.07	*550757.484164411.07*	0.0899	PHASE 1	0.0684	HAUL1	0.03912	HAUL2
ANNUAL	R573	550797.48	4164411.07	*550797.484164411.07*	0.0885	PHASE 1	0.0714	HAUL1	0.04002	HAUL2
ANNUAL	R574	550857.48	4164411.07	*550857.484164411.07*	0.0859	PHASE 1	0.0756	HAUL1	0.04292	HAUL2
ANNUAL	R575	550837.48	4164431.07	*550837.484164431.07*	0.0970	PHASE 1	0.0830	HAUL1	0.04711	HAUL2
ANNUAL	R576	550837.48	4164451.07	*550837.484164451.07*	0.1092	PHASE 1	0.0938	HAUL1	0.05344	HAUL2
ANNUAL	R577	550857.48	4164471.07	*550857.484164471.07*	0.1239	PHASE 1	0.1104	HAUL1	0.06225	HAUL2
ANNUAL	R578	551045.12	4165591.04	*551045.124165591.04*	0.0282	PHASE 1	0.0584	HAUL1	0.02385	HAUL2
ANNUAL	R579	550857.48	4164351.07	*550857.484164351.07*	0.0635	PHASE 1	0.0565	HAUL1	0.03167	HAUL2
ANNUAL	R580	550597.48	4164371.07	*550597.484164371.07*	0.0679	PHASE 1	0.0400	HAUL1	0.04033	HAUL2
ANNUAL	R581	550657.48	4164371.07	*550657.484164371.07*	0.0740	PHASE 1	0.0481	HAUL1	0.03722	HAUL2
ANNUAL	R582	550697.48	4164371.07	*550697.484164371.07*	0.0757	PHASE 1	0.0527	HAUL1	0.03466	HAUL2
ANNUAL	R583	550737.48	4164371.07	*550737.484164371.07*	0.0755	PHASE 1	0.0561	HAUL1	0.03291	HAUL2
ANNUAL	R584	550777.48	4164371.07	*550777.484164371.07*	0.0741	PHASE 1	0.0584	HAUL1	0.03255	HAUL2
ANNUAL	R585	550697.48	4164391.07	*550697.484164391.07*	0.0823	PHASE 1	0.0570	HAUL1	0.03786	HAUL2
ANNUAL	R586	550737.48	4164391.07	*550737.484164391.07*	0.0824	PHASE 1	0.0610	HAUL1	0.0359	HAUL2
ANNUAL	R587	550777.48	4164391.07	*550777.484164391.07*	0.0811	PHASE 1	0.0637	HAUL1	0.03566	HAUL2
ANNUAL	R588	550817.48	4164391.07	*550817.484164391.07*	0.0793	PHASE 1	0.0660	HAUL1	0.03681	HAUL2
ANNUAL	R589	550737.48	4164411.07	*550737.484164411.07*	0.0903	PHASE 1	0.0667	HAUL1	0.0394	HAUL2
ANNUAL	R590	550777.48	4164411.07	*550777.484164411.07*	0.0893	PHASE 1	0.0700	HAUL1	0.03937	HAUL2
ANNUAL	R591	550817.48	4164411.07	*550817.484164411.07*	0.0877	PHASE 1	0.0728	HAUL1	0.04092	HAUL2
ANNUAL	R592	550797.48	4164431.07	*550797.484164431.07*	0.0982	PHASE 1	0.0792	HAUL1	0.04478	HAUL2
ANNUAL	R593	550857.48	4164431.07	*550857.484164431.07*	0.0962	PHASE 1	0.0848	HAUL1	0.04821	HAUL2
ANNUAL	R594	550837.48	4164471.07	*550837.484164471.07*	0.1239	PHASE 1	0.1073	HAUL1	0.06122	HAUL2
ANNUAL	R595	551065.12	4165571.04	*551065.124165571.04*	0.0286	PHASE 1	0.0650	HAUL1	0.02452	HAUL2
ANNUAL	R596	551065.12	4165591.04	*551065.124165591.04*	0.0275	PHASE 1	0.0611	HAUL1	0.02328	HAUL2

Health Risk - Dose and Risk Factors and Values

Dose factors

			3rd trimester	0<2	2<9	16<30	16-70	source
Dose factors for calc	Construction	Residential	3.46E-04	1.05E-03	6.05E-04	2.50E-04	2.23E-04	*dose factors for lookup in risk calcs*
		Recreational	8.57E-06	4.29E-05	2.29E-05	8.57E-06	8.21E-06	*dose factors for lookup in risk calcs*
		school	2.96E-05	1.48E-04	6.41E-05	2.96E-05	2.84E-05	*dose factors for lookup in risk calcs*
	Daily Breath Rate (L/kg-day)	Residential	361	1090	631	261	233	OEHHA 2015, Table 5.6, 95th %ile for 3rdtri-2yrs old; 80th for 2>9 per BAAQMD guidance
		Recreational	240	1200	640	240	230	OEHHA 2015, Table 5.8 (95th, moderate) for all bins but 3rd tri, which was taken from SJVUAPCD's draft guidance
		School	240	1200	520	240	230	BAAQMD guidance - 95th percentile
	A		1	1	1	1	1	OEHHA 2015, page 5-24
	EF, Exposure frequency (unitless), day	Residential	0.96	0.96	0.96	0.96	0.96	OEHHA 2015, page 5-24, 350 days/yr
		Recreational	0.036	0.036	0.036	0.036	0.036	3x/week, 2 hours/day, for 9 years
		School	0.12	0.12	0.12	0.12	0.12	BAAQMD Guidance - 180 days/yr, 6 hours/day
	Conversion Factor		1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	(mg/ug * m3/L)
	Adjustment Factor (schools		1.00	1.00	1.00	1.00	1.00	Similar to WAF; OEHHA 2015, Page 4-44 and Equation 4.1; non-continuous emissions adjusted per WAF guidance. DF of 1 since construction and student presence assumed to completely overlap

Risk Factors

Risk factors for calcs	Construction	Residential	1.10E+01	11.00	3.30E+00	1.10E+00	1.10E+00	*without ED; ED/AT calculation in risk calc*
		Recreational	1.10E+01	1.10E+01	3.30E+00	1.10E+00	1.10E+00	
		school	1.10E+01	1.10E+01	3.30E+00	1.10E+00	1.10E+00	
	CPF, DPM ([mg/kg-day]$^{-1}$)		1.1	1.1	1.1	1.1	1.1	OEHHA 2015, Table 7.1
	Average Age Sensitivity Factor		10	10	3	1	1	OEHHA 2015, Table 8.3
	AT, Average Time (days)		70	70	70	70	70	Averaging time for lifetime cancer risk
	FAH		1.00	1.00	1.00	1.00	1.00	OEHHA 2015, Table 8.4: Use FAH = 1 if a school is within the 1×10-6 (or greater) cancer risk isopleth

ED, Exposure Duration (years)	see ED calculation sheet	
Chronic Inhalation Reference Exposure Level, respiratory, DPM	5	http://www.baaqmd.gov/~/media/files/planning-and-research/rules-and-regs/workshops/2016/reg-2-5/hra-guidelines_clean_jan_2016-pdf.pdf?la=en

conversions:

Second per hour	3600
Grams per ton	907184.74
Million	1,000,000
m2 per acre	4046.86
days per year	365

Unitized rate reasoning, see Section 3.9.2 of CAPCOA's HRA Guide:
An alternative approach is applying unitized emission rate and summation concepts, which drastically reduce the computational time for large multiple pollutant projects.
all chemical concentration levels vary linearly with their source release rate
The concentration at the receptor can then be multiplied by the actual rates (actual g/s (x) unitized 1 g/s rate)

DPM HRA Factors and values - Operations

Dose factors

				3rd trimester	0<2	2<9	16<30	16-70	source
factors for calcs --->	Construction	Existing Student		4.97E-04	2.49E-03	1.33E-03	4.97E-04	4.76E-04	*dose factors for lookup in risk calcs*
		New Student		4.97E-04	2.49E-03	1.33E-03	4.97E-04	4.76E-04	
		Residential		3.46E-04	1.05E-03	6.05E-04	2.50E-04	2.23E-04	
		Offsite Student		4.97E-04	2.49E-03	1.33E-03	4.97E-04	4.76E-04	*dose factors for lookup in risk calcs*
	Daily Breath Rate (L/kg-day)	Residential		361	1090	631	261	233	OEHHA 2015, Table 5.6, 95th %ile for 3rdtri-2yrs old; 80th for other age groups
		School		240	1200	640	240	230	SJVAPCD for 3rd tri; 95th percentile for all
	A			1	1	1	1	1	OEHHA 2015, page 5-24
	EF, Exposure frequency (unitless), day	Residential		0.96	0.96	0.96	0.96	0.96	OEHHA 2015, page 5-24, 350 days/yr
		School		0.49	0.49	0.49	0.49	0.49	180 days/yr
	Conversion Factor			1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	(mg/ug * m3/L)
	Adjustment Factor (schools			4.20	4.20	4.20	4.20	4.20	Similar to WAF; OEHHA 2015, Page 4-44 and Equation 4.1; non-continuous emissions adjusted per WAF guidance. DF of 1 since construction and student presence assumed to completely overlap

Risk Factors

factors for calcs --->		Existing Student		0.00E+00	0.00E+00	1.89E-01	0.00E+00	0.00E+00	
		New Student		0.00E+00	0.00E+00	1.89E-01	0.00E+00	0.00E+00	
		Offsite Student		0.00E+00	0.00E+00	1.89E-01	0.00E+00	0.00E+00	
		Residential		3.93E-02	3.14E-01	0.00E+00	2.20E-01	0.00E+00	
	CPF, DPM ([mg/kg-day]$^{-1}$)			1.1	1.1	1.1	1.1	1.1	OEHHA 2015, Table 7.1
	Average Age Sensitivity Factor			10	10	3	1	1	OEHHA 2015, Table 8.3
	AT, Average Time (days)			70	70	70	70	70	Averaging time for lifetime cancer risk
	FAH			1.00	1.00	1.00	1.00	1.00	OEHHA 2015, Table 8.4: Use FAH = 1 if a school is within the 1×10-6 (or greater) cancer risk isopleth
	ED, Exposure Duration (years)								
	Buses	New Wilson/Central Students				4.00			Grades 1-8; ages 6-13
		Residential		0.25	2.00		14.00		Equation 8.2.4 B, OEHHA 2015; 30 years total
	Roadway	New Wilson/Central Students				4.00			Equation 8.2.4 A, OEHHA 2015
		Residential							Equation 8.2.4 B, OEHHA 2015; 30 years total

	Chronic Inhalation Reference Exposure Level, respiratory, DPM	5
1hr to annual		0.1

conversions:

Second per hour	3600
Grams per ton	907184.74
Million	1,000,000
m2 per acre	4046.86
days per year	365

Operational Risk Calcs

		3rd trimester	0<2	2<9	2<16	16<30	16-70	Total
Receptor Type	Residential							
AERMOD CONCENTRATION (ug/m^3)	0.00059							
Dose		2.04E-07	6.17E-07	3.57E-07	3.24E-07	1.48E-07		
Risk		0.00	1.94E-07	0.00E+00	2.14E-07	3.25E-08	0.00E+00	4.5E-07
Risk per million		0.01	0.194	0.00	0.21	0.03	0.00	0.45
Chronic HI		-	-	-	-	-	-	0.0001
PM2.5		-	-	-	-	-	-	0.00059

DPM HRA Factors and values - Construction

Dose fa

$Dose_{air} = C_{air} \times (DBR/BW) \times A \times EF \times 10^{-6}$

		3rd trimester	0<2	2<9	9<16	16<30	16-70	source
Dose factors for calcs --->	Residential	3.46E-04	1.05E-03	6.05E-04	5.48E-04	2.50E-04	2.23E-04	*dose factors for lookup in risk calcs*
Daily Breath Rate (L/kg-day)	Residential	361	1090	631	572	261	233	OEHHA 2015, Table 5.6, 95th %ile for 3rdtri-2yrs old; 80th for other age groups
A		1	1	1	1	1	1	OEHHA 2015, page 5-24
EF, Exposure frequency (unitless), days/365 days	Residential	0.96	0.96	0.96	0.96	0.96	0.96	OEHHA 2015, page 5-24, 350 days/yr
Conversion Factor		1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	(mg/ug * m3/L)

Risk Fac

$RISK_{inh,res} = DOSE_{air} \times CPF \times ASF \times ED/AT \times FAH$

		3rd trimester	0<2	2<9	9<16	16<30	16-70	*risk factors for lookup in risk calcs*
Risk factors for calcs --->	Residential	3.93E-02	3.14E-01	0.00E+00	6.60E-01	2.20E-01	0.00E+00	
CPF, DPM ([mg/kg-day]$^{-1}$)		1.1	1.1	1.1	1.1	1.1	1.1	OEHHA 2015, Table 7.1
Average Age Sensitivity Factor		10	10	3	3	1	1	OEHHA 2015, Table 8.3
AT, Average Time (years)		70	70	70	70	70	70	Averaging time for lifetime cancer risk
FAH		1.00	1.00	1.00	1.00	1.00	1.00	OEHHA 2015, Table 8.4: Use FAH = 1 if a school is within the 1×10-6 (or greater) cancer risk isopleth
ED, Exposure Duration (years)	Residential	0.25	2.00		14	14		OEHHA 2015, Table 6.3

Chronic Inhalation Reference Exposure Level, respiratory, DPM	5

Operations	**DPM**		
Number of Generators	2		
tons/year	0.022		
g total	19,958.07		
g per generator set	9,979.04		
seconds per year	15,768,000	assuming a 12-hour work day (daytime testing only)	
avg annual g/s per generator	0.000632866	over possible testing period only - Used in AERMOD	

Inputs

Release Height	6.07	meters	SJVAPCD
Emission Rate	0.000632866	g/s	Calculated above
Gas Exit Temperature	784	K	SJVACPD
Stack Inside Diameter	0.19		SJVAPCD
Gas Exit Velocity	87.68		SJVACPD
Gas Exist Flow Rate	2.486	m3/s	Calculated per AERMOD

Technical Modeling Considerations for Criteria Pollutants and Human Health Effects

In their interim guidance addressing *Sierra Club v. County of Fresno* (6 Cal. 5th 502) (Friant Ranch), SMAQMD (2019) recommends lead agencies compare the air quality models used in CEQA analyses to those models designed to evaluate regional attainment with ambient air quality standards and associated human health consequences. This section describes the three models used to estimate criteria pollutant emissions generated by construction and operation of the project and evaluates their ability to assess specific health impacts of the project. This section also analyzes whether models and tools that have been developed to quantify ambient pollutant concentrations could be used to reasonably correlate project-level emissions to specific health consequences.

Review of Project Analysis Models

Criteria pollutant emissions generated by construction and operation of the project were estimated using the California Emissions Estimator Model (CalEEMod), SMAQMD's Roadway Construction Emissions Model (RCEM), and the California Air Resources Board's (CARB) EMissions FACtor (EMFAC) model. Each of the following sections note whether the given model is suitable for quantify human health consequences or changes in nonattainment days.

California Emissions Estimator Model

CalEEMod is a statewide computer model quantifies construction and operational criteria pollutant and greenhouse gas (GHG) emissions from land use development projects. The model evaluates construction emissions associated with six phases—demolition, site preparation, grading, building construction, architectural coatings, and paving. Emission sources considered by the model include offroad construction equipment, onroad mobile vehicles, fugitive dust from land disturbance, and volatile organic compounds from architectural coatings and paving activities.

CalEEMod quantifies project emissions based on user-defined inputs for project location, operational year, land use type (e.g., commercial), climate zone, and size. Based on these minimum data inputs, users can estimate construction emissions based model generated default assumptions for construction phasing, construction equipment inventory and activities, and trip lengths. Default values included in the model were provided by California air districts and account for local conditions and regulations. Where appropriate, CalEEMod combines local data with regional and statewide values to ensure enough information is available to quantify emissions. Users can override default values with project-specific information. In addition, users can implement mitigation measures and strategies to reduce construction-related exhaust and fugitive dust emissions.

Based on the user inputs and emission factors from the CARB's EMFAC and OFFROAD models, CalEEMod calculates both daily maximum (pounds per day) and annual average (tons per year) emissions. These emissions can be compared to air district mass emission thresholds, such as those adopted by EDCAQMD. CalEEMod does not quantify concentrations of the various air pollutants (in

terms of micrograms per cubic meter or parts per million), nor does it estimate secondary pollutants (such as ozone and PM2.5) or potential human health effects from exposure to criteria pollutants. Accordingly, CalEEMod cannot be used to evaluate changes in the number of regional nonattainment days or correlate project-level emissions to specific health consequences.

Road Construction Emissions Model

SMAQMD's RCEM is a public-domain spreadsheet model formatted as a series of individual worksheets. The model is specifically designed to evaluate construction criteria pollutant and GHG emissions from linear projects (e.g., water infrastructure, roads). Four generic construction phases are considered by the model: 1) grubbing/land clearing, 2) grading/excavation, 3) drainage/utilities/subgrade, and 4) paving. Within these phases, the model estimates construction emissions for load hauling (onroad heavy-duty vehicle trips), worker commutes, construction site fugitive dust, and offroad construction vehicles. Although exhaust emissions are estimated for each activity, fugitive dust estimates are currently limited to major dust-generating activities, which include grubbing/land clearing and grading/excavation.

The RCEM was designed to enable users to estimate emissions using a minimum amount of project-specific information, such as construction start year and duration, project type, and the project length and area. This was done because specific data to quantify emissions from transportation projects is often unavailable when the environmental document is being prepared. To help facilitate the quantification of construction emissions based on valid assumptions, the RCEM contains default data based on surveys of construction equipment , schedules, and other construction data from a selection of construction projects in Sacramento County, as well as construction surveys conducted for CalEEMod and a technical evaluation completed by the University of California, Davis. Emission factors used by the model are from the CARB's EMFAC and OFFROAD models.

Like CalEEMod, RCEM calculates both daily maximum (pounds per day) and annual average (tons per year) emissions. RCEM does not quantify concentrations of the various air pollutants (in terms of micrograms per cubic meter or parts per million), nor does it estimate secondary pollutants (such as ozone and PM2.5) or potential human health effects from exposure to criteria pollutants. Accordingly, RCEM cannot be used to evaluate changes in the number of regional nonattainment days or correlate project-level emissions to specific health consequences.

EMissions FACtor Model

CARB developed the EMFAC model to facilitate preparation of statewide and regional mobile source emissions inventories. The model generates criteria pollutant and GHG emissions rates that can be multiplied by vehicle activity data from all motor vehicles, including passenger cars to heavy-duty trucks, operating on highways, freeways, and local roads in California. The resulting emissions estimates are mass emission quantities that can be expressed in terms of pounds per day and tons per year (or other similar unit rates). Like CalEEMod and RCEM, EMFAC does not assess pollutant dispersion or quantify concentrations or potential health effects. Accordingly, EMFAC cannot be used to evaluate changes in the number of regional nonattainment days or correlate project-level emissions to specific health consequences.

Review of Photochemical and Human Health Models

Several models and tools capable of translating mass emissions of criteria pollutants to ambient pollutant concentrations and various health endpoints have been developed. Table 1 summarizes key tools, identifies the analyzed pollutants, describes their intended application and resolution, and analyzes whether they could be used to reasonably correlate project-level emissions to specific health consequences.

As shown in Table 1, almost all tools were designed to be used at the national, state, regional, and/or city-levels. This is because criteria pollutants emitted by a specific source often do not deposit immediately adjacent to that source. Pollutants can be transported by prevailing winds or transformed through chemical reactions and physical interactions with other pollutants in the atmosphere. Because some pollutants can be transported over long distances, recorded violations of the ambient air quality standards at a specific monitoring station and resultant health effects experienced by the local population may be the result of faraway emission sources (some of which may not even be located within the same air basin). For this reason, attaining the ambient air quality standards and protecting human health from exposure to criteria pollutants requires a regional, and sometimes multiregional strategy that considers the combined effect of all emission-generating sources that influence air quality within an air basin.

The models and tools that have been developed to assess attainment of the ambient air quality standards and human health effects are therefore regional in nature and are not well suited to analyze small or localized changes in pollutant concentrations associated with individual projects. Said another way, "it remains impossible, using today's models, to correlate that increase in concentration to a specific health impact [because] such models are designed to determine regional, population-wide health impacts, and simply are not accurate when applied at the local level" (San Joaquin Valley Air Pollution Control District 2015). As of the writing of this analysis "neither the Sac Metro Air District nor any other air district currently have methodologies that would provide Lead Agencies and CEQA practitioners with a consistent, reliable, and meaningful analysis to correlate specific health impacts that may result from a proposed project's mass emissions" (Sacramento Metropolitan Air Quality Management District 2019).

Table 1. Analysis of Photochemical and Human Health Models

Tool	Created by	Description	Resolution	Pollutants Analyzed	Project-Level CEQA Applicability
AirCounts	Abt Assoc.	Online tool that helps large and medium-sized cities quickly estimate the health benefits of PM2.5 emission reductions and economic value of those benefits. The tool estimates the number of deaths (mortality) avoided and economic value related to user-specified regional, annual PM2.5 emissions reduction. The modeling year is 2010; avoided deaths are expected to occur over a 20-year period and their present value is shown in 2010 US dollars at a 3% discount rate.	City-level	Primary PM2.5	This tool is only illustrative, as it is limited to certain cities and does not target specific sectors. Given that it was designed as a screening-level tool, is not sector specific, and includes limited California data, the tool is **not recommended** for project-level CEQA analysis.
AP2 (formerly Air Pollution Emission Experiments and Policy [APEEP])	Mueller and Mendelsohn, 2006	AP2 is an integrated assessment model developed to assess marginal damage impacts from emissions at the national scale but can be applied at the county-level. The model connects emissions to monetary damages through six modules: emissions (per EPA's national inventory), air quality modeling, concentrations, exposures, physical effects, and valuation. Damages are presented on a dollar-per-ton basis. Model extends damage assessment beyond human health, and includes assessment on reduced crop and timber yields, reductions in visibility, enhanced depreciation of man-made materials and damages due to lost recreation services.	National or county-level	SO_2, ROG, NOx, ozone, PM2.5, PM10	The model operates at the national scale but may be applied at the county-level (although it is not clear how this adjustment should be made). The tool is also not commercially available. Accordingly, the tool is **not recommended** for project-level CEQA analysis.
Methodology for Estimating Premature Deaths Associated with Long-Term Exposure to Fine Airborne Particulate Matter in California	CARB	The staff report identifies a relative risk of premature death associated with PM2.5 exposure based on a review of all relevant scientific literature, and a new relative risk factor was developed. This new factor is a 10% increase in risk of premature death per 10 $\mu g/m^3$ increase in exposure to PM2.5 concentrations (uncertainty interval: 3% to 20%)	National		The primary author of the CARB staff report notes that the analysis method is not suited for small projects and may yield unreliable results due to various uncertainties. Accordingly, the tool is **not recommended** for project-level CEQA analysis.
Co-Benefits Risk Assessment (COBRA)	US EPA	Preliminary screening tool that contains baseline emission estimates of a variety of air pollutants for a single year (2017). COOBRA is targeted to state and local governments as a screening assessment for clean energy policies. Users specify changes to the baseline emission estimates. COBRA then uses "canned" source-receptor matrix model to estimate PM changes and resulting health outcomes and monetized values. The results can be mapped to visually represent air quality, human health, and health-related economic benefits. Analysis can be performed across the 14 major emissions categories included in the EPA's National Emissions Inventory. Note that COBRA is based on EPA's BenMAP-CE (discussed in a separate entry).	National, regional, state, or county-levels	PM2.5, SO_2, NOx, NH_3, and ROG	COBRA is a preliminary screening tool only and cannot be used at sub-county resolution. It also does not account for secondary emission changes resulting from market responses. Accordingly, the tool is **not recommended** for project-level CEQA analysis.
Environmental Benefits and Mapping Program-Community Edition (BenMAP-CE)	US EPA	BenMAP is EPA's detailed model for estimating the health impacts from air pollution. It relies on input concentrations and applies concentration-response (C-R) health impact functions, which relate a change in the concentration of a pollutant with a change in the incidence of a health endpoint, including premature mortality, heart attacks, chronic respiratory illnesses, asthma exacerbation and other adverse health effects. Detailed inputs are required for air quality changes (concentrations from AERMOD), population, baseline incidence rates, and effect estimates.	National, County, City, and sub-regional levels	Ozone, PM, NO_2, SO_2, CO	The smallest default analysis resolution for BenMAP-CE is 144 square kilometers (equivalent to approximately 56 square miles or 36,000 acres). This tool could be used to derive average health incidence/ton estimates that can be used for illustrative purposes only for most projects with proper disclosure of the inherent inaccuracies involved in averaging. It is **not recommended** for individual modeling of smaller projects, however. The tool may be appropriate for modeling certain large-scale General Plan-level analyses.

Tool	Created by	Description	Resolution	Pollutants Analyzed	Project-Level CEQA Applicability
Fast Scenario Screening Tool (TM5-FASST)	Joint Research Centre (Italy)	Tool allows users to evaluate how air pollutant emissions affect large scale pollutant concentrations and their impact on human health (mortality and years of life lost) and crop yield from national to regional air quality policies, such as climate policies. The tool is web-based and does not require coding or modelling. Users must gain access through publishers.	Global and national-levels	PM2.5, ozone, NOx, NH_3, CO, ROG, EC, CH_4, SO_2	This tool is applicable at national to global scales. Accordingly, the tool is **not recommended** for project-level CEQA analysis.
Long-range Energy Alternatives Planning System-- Integrated Benefits Calculator (LEAP-IBC)	Climate and Clean Air Coalit-ion (CCAC)	Allows users to rapidly estimate the impacts of reducing emissions on health, climate, and agriculture. Tool uses sensitivity coefficients that link gridded emissions of air pollutants and precursors to health, climate and agricultural impacts at a national level. The sensitivity coefficients are generated by a chemical transport model, so air quality modeling not necessary. Tool is currently Excel-based and is available through the developers only. A web-based interface is currently under development.	National-level	PM2.5, ozone, NO_2	This tool is applicable at national scale. Accordingly, the tool is **not recommended** for project-level CEQA analysis.
Multi-Pollutant Evaluation Method (MPEM)	BAAQMD	Estimates the impacts of control measures on pollutant concentration, population exposures, and health outcomes for criteria, toxic, and GHG pollutants. Monetizes the value of total health benefits from reductions in PM2.5, ozone, and certain carcinogens, and the social value of GHG reductions. MPEM was designed for development of a Clean Air Plan for the San Francisco Bay Area. The inputs are specific to the SF region and are not appropriate for projects outside BAAQMD.	Regional level in the SFBAAB	Ozone, PM, air toxics, GHG	This tool is designed to support the BAAQMD in regional planning and emissions analysis within the SFBAAB. The model applies changes in pollutant concentrations over a four-square kilometer grid. This tool could be used to derive average health incidence/ton estimates that can be used for illustrative purposes only for most projects with proper disclosure of the inherent inaccuracies involved in averaging. It is **not recommended** for individual modeling of smaller projects, however. The tool may be appropriate for certain large-scale planning-level analyses in the SFBAAB (with permission of BAAQMD).
Response Surface Model (RSM)-based Benefit-per-Ton Estimates	US EPA	Consists of tables reporting the monetized PM2.5-related health benefits from reducing PM2.5 precursors from certain source types nationally and for 9 US cities/regions. Applying these estimates simply involves multiplying the emissions reduction by the relevant benefit per-ton metric. The resulting value is the PM mortality risk estimate at a 3% discount rate. Note that RSM is based on EPA's BenMAP-CE (discussed in a separate entry).	National or regional (San Joaquin County only) levels	EC, SOx, VOC, NH_3, NOx	While RSM includes regional values specific to San Joaquin County, the metrics only reflect the benefits of reductions in exposure to ambient PM alone and do not include the benefits of reductions in other pollutants. The values are also dated as new sector-based BPT values are more current. Accordingly, the tool is **not recommended** for project-level CEQA analysis (even in San Joaquin County).
Sector-based Benefit-per-Ton Estimates	US EPA	Two specific sets of BPT estimates for 17 key source categories are available. Both are a reduced-form approach based on BenMAP modeling. The first are based on Fann et al. (2012) values and available from EPA's website. The second is based on updated modeling from Fann et al. (2017) and available in a Technical Support Document (TSD) from EPA. Applying these factors involves multiplying the emissions reduction (in tons) by the relevant benefit (economic value) or incidence (rates of mortality and morbidity) per-ton metric. The resulting value is the economics, mortality, and morbidity of direct and indirect PM2.5 emissions. All values are based on a national-scale study. Local values are preferred, but not available from any existing reduced form model and use of reduced form estimates for another city is unlikely to provide a better-than-national value. Use of the current values from EPA's 2018 TSD represent the most current estimate of monetized or incidence risk. Values from Lepeule et al. (2012) represent the most current estimate of mortality.	National-scale	PM2.5, SO2, NOx	Due to the complex non-linear chemistry governing ozone formation, EPA was not able to derive ozone or secondary PM BPT values. The BPT estimates provide a rough order-of-magnitude analysis of health consequences from directly-emitted PM and precursors to PM (with no secondary formation). However, the multipliers do not account for project-specific characteristics, receptor locations, or local dispersion characteristics. The resultant health effects are therefore reflective of national averages and may not be exact when applied to the project-level. Nonetheless, the estimates can be used to present an informational and scaled health risk analysis of directly-emitted PM and precursors to PM (with no secondary formation).

Approach to Greenhouse Gas Analysis

Applicability of Available Thresholds

Below is additional detail describing potential threshold approaches for the evaluation of greenhouse gas (GHG) emissions.

Compliance with a Qualified GHG Reduction Strategy

The Office of Planning and Research (OPR) acknowledges that the State Legislature encourages lead agencies to tier or streamline their environmental documents whenever feasible, and that GHG emissions may be best analyzed and mitigated at the programmatic level (California Office of Planning and Research 2018). A qualified plan may be used in the cumulative impact analysis for later projects when the analysis "identifies those requirements specified in the plan that apply to the project." For a GHG reduction plan to be considered a qualified plan, it must meet certain criteria established under State California Environmental Quality Act (CEQA) Guidelines Sections 15183.5 (b) and 15064.4, also specified above. Consequently, if a project is consistent with a local Climate Action Plan (CAP) that was created to meet that area's fair share reductions towards the Assembly Bill (AB) 32 GHG target for 2020, then the project would be considered consistent with statewide GHG reduction goals for 2020. Additionally, if a CAP was adopted that was consistent with the State's overall goals for post-2020, including the downward trajectory as clarified in Senate Bill (SB) 32 and Executive Order (EO) S-03-05, and a project is consistent with that CAP, it would be considered consistent with the State's post-2020 GHG emission strategy. Section 15183.5 also specifies that the project's CEQA analysis "must identify those requirements specified in the plan that apply to the project, and, if those requirements are not otherwise binding and enforceable, incorporate those requirements as mitigation measures applicable to the project."

The City of San Bruno developed a draft CAP in 2012. However, the CAP has not been adopted. Therefore, the CAP is not a "qualified GHG reduction strategy" under State CEQA Guidelines and compliance with the CAP is not an appropriate threshold approach for the Project's analysis.

Performance-Based Reductions

Performance-based thresholds are based on a percentage reduction from a projected future condition; for example, reducing future Business As Usual (BAU) emissions by the AB 32 target of 29 percent (below 2020 BAU levels) through a combination of State measures, project design features (e.g., renewable energy), or mitigation. The Bay Area Air Quality Management District (BAAQMD) recommends a 26 percent reduction from 2020 BAU levels to meet the AB 32 target (Bay Area Air Quality Management District 2017).

Based on the Court's reasoning in the Newhall Ranch decision (*Centers for Biological Diversity et al. vs. California Department of Fish and Wildlife,* California Supreme Court, 2015) relating a given project to the achievement of State reduction targets may require adjustments to the California Air Resources Board's (CARB's) statewide BAU model to not only isolate new development emissions, but also to consider unique geographic conditions and operational characteristics that may affect the performance of reduction measures in certain locations. To date, this type of adjustment to the statewide BAU target has not been performed and, therefore, is not appropriate for the project's analysis. The primary value of a performance-based target, as indicated in the Newhall Ranch decision, is that it can provide a scenario by which to evaluate the effectiveness of a project's reduction efficiency relative to an unmitigated condition. As such, future year targets can be used to benchmark performance, using either statewide or regional emission targets, to determine a project's fair share of mitigation.

Numeric Bright-Line Thresholds

Numerical bright-line thresholds identify the point at which additional analysis and mitigation of project-related GHG emission impacts is necessary. The BAAQMD has not developed bright-line thresholds for construction, but has for the operation of land use development projects (1,100 metric tons of carbon dioxide equivalent [CO_2e] per year) and stationary source (10,000 metric tons of CO_2e per year) projects. The land use development threshold is based on a gap analysis[1] and ties back to the state's AB 32 reduction target (1990 levels by 2020).[2] Because the buildout years for the Phase I Development and the Specific Plan are 2022 and 2040, respectively, use of BAAQMD's numeric-bright line land use development threshold tailored to 2020 reduction targets would not be appropriate for the project's analysis.

The stationary source threshold is derived from the California Air Pollution Control Officers Association's capture rate analysis of required reductions needed to meet EO S-3-05, which indicates that in order to reach the 2050 milestone, future BAU emissions will need to be reduced by 90 percent (California Air Pollution Control Officers Association 2009). The stationary source threshold is used, in part, to analyze project impacts and is further discussed below, under Section 3.4.2.1, *Thresholds of Significance.*

Efficiency-Based Thresholds

Another type of quantitative threshold is an efficiency-based threshold. Efficiency-based thresholds represent the GHG efficiency needed for development to achieve California's GHG emissions targets. While the Newhall Ranch decision did not specifically recommend the efficiency-based approach, the ruling did note that numerical threshold approaches may be appropriate for determining significance of GHG emissions and to emphasize the consideration of GHG efficiency. Efficiency-based thresholds allow lead agencies to compare projects of various types, sizes, and locations equally, and determine whether a project is consistent with the State's reduction goals. Efficiency-based thresholds for a residential project can be expressed on a per-capita basis, for an office project on a per-employee basis, or for a mixed-use project on a per service population (the sum of jobs and residents) basis.

The BAAQMD has developed GHG efficiency thresholds for land use projects (4.6 metric tons of carbon CO_2e per service population) and plans (6.6 metric tons of CO_2e per service population) with GHG emissions resulting from a mixture of building energy, transportation, solid waste, and other emissions. These threshold values are based on the required efficiency emissions that these sources must achieve per service population (i.e., per the sum of jobs and residents) to meet the state's 2020 reduction targets. Because the buildout years for the Phase I Development and the Specific Plan are 2022 and 2040, respectively, the use of BAAQMD's performance-based thresholds tailored to 2020 reduction targets would not be appropriate for the project's analysis.

CARB (2017) recommends statewide efficiency targets of no more than 6 metric tons of CO_2e per capita by 2030 and no more than 2 metric tons of CO_2e per capita by 2050. These targets were derived based on total statewide emissions from all emission categories (including emissions from stationary and industrial sources) and the reductions needed to achieve California's 2030 statewide target under SB 32 and the longer-term EO S-3-05 reduction goal of 80 percent below 1990 levels by 2050.

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[1] The gap analysis demonstrates the reductions needed at the residential and commercial land use levels to achieve State targets. Capture is the process of estimating the portion of projects that would result in emissions that exceed a significance threshold and would be subject to mitigation.

[2] The AB 32 Scoping Plan identifies specific measures to reduce GHG emissions to 1990 levels by 2020.

Because CARB's per capita efficiency targets are based on statewide emissions, they represent an average efficiency that does not specifically consider the unique geographic and project-specific features that could influence emissions reductions achieved the Project. The targets are also based on an inventory of GHG emissions from existing and future development through 2050, and therefore do not isolate the required emissions reductions from just new development that are needed to meet state goals. Tailoring CARB's per capita targets to local project conditions is not possible with the available data published in the 2017 Climate Change Scoping Plan. Moreover, the thresholds evaluate emissions per person or resident; the project is primary a commercial development and does not include a significant amount of new housing units.

Accordingly, CARB's efficiency targets are not appropriate thresholds to independently evaluate the significance of project-generated GHG emissions.

Compliance with Regulatory Programs

A lead agency could rely on regulatory compliance to show less-than-significant GHG impact if the project complies with or exceeds those programs adopted by CARB or other State agencies. However, such analysis is only applicable within the area governed by the regulations. For example, consistency with regulations addressing building efficiency would not suffice to determine that the project would not have significant GHG emissions from transportation.

The Newhall Ranch decision specifically mentions consistency with the Sustainable Community Strategies (per SB 375) and AB 32 as potential mechanisms for evaluating significance. A lead agency could assess project-level consistency with AB 32 in whole or part by evaluating whether the project complies with applicable policies in the AB 32 Scoping Plan. The AB 32 Scoping Plan does not consider deeper reductions needed to meet the state's 2030 target under SB 32. Accordingly, exclusively relying on consistency with the AB 32 Scoping Plan and related programs to evaluate emissions generated by land use development projects constructed after 2020 would not fully consider a project's potential GHG impacts to the state's long-term reduction trajectory.

More recent guidance on GHG reduction strategies and thresholds for operational emissions has been provided at the state level through the 2017 Scoping Plan, OPR, and CARB. The 2017 Scoping Plan outlines GHG reduction strategies by emission sector (water, transportation, and energy) required to meet the State's 2030 target under SB 32. OPR (2018) guidance specifies that a "land use development project that produces low vehicle miles traveled (VMT), achieves applicable building energy efficiency standards, uses no natural gas or other fossil fuels, and includes Energy Star appliances where available, may be able to demonstrate a less-than-significant greenhouse gas impact associated with project operation." Further, CARB (2019) guidance specifies per capita VMT reduction targets that would be needed statewide to meet long-term (2050) mobile source GHG reduction targets, considering increased vehicle efficiency and reduced carbon content in vehicle fuels.

To the extent the Specific Plan and the Phase I Development policies applicable to GHGs comply with or exceed the regulations outlined in the 2017 Scoping Plan and adopted by CARB or other State agencies, the Project could appropriately rely on their use as showing compliance with performance-based standards adopted to fulfill the statewide goal for reducing GHG emissions. The Project's compliance with regulatory programs adopted by CARB and other State agencies is therefore used to evaluate the significance of the Phase I Development and the Specific Plan's GHG emissions. While the regulatory framework to achieve long-term (post-2030) emissions reductions is in its infancy, many of the programs outlined in the 2017 Scoping Plan are likely to be carried forward or have already been adopted with post-2030 requirements (e.g., Renewable Portfolios Standard). Accordingly, evaluating

consistency with these programs and relevant guidance published by OPR and CARB for the reduction of long-term emissions is therefore also considered in the analysis of the Project's emissions.

Selected Project Construction Threshold Approach

As discussed above, BAAQMD's CEQA Guidelines do not identify a GHG emission threshold for construction-related emissions. Instead, BAAQMD recommends that GHG emissions from construction be quantified and disclosed, and that a determination regarding the significance of these GHG emissions be made with respect to whether a project is consistent with the emission reduction goals. The BAAQMD further recommends incorporation of Best Management Practices to reduce GHG emissions during construction, as feasible and applicable. This approach is used to evaluate construction-generated emissions.

Selected Project Construction Threshold Approach

While BAAQMD has adopted GHG thresholds for operational emissions from land use development projects (numeric and efficiency), these thresholds are based on the state's 2020 target under AB 32 and do not consider deeper reductions needed to meet the state's 2030 target under SB 32. Accordingly, exclusively relying on BAAQMD's adopted thresholds to evaluate emissions generated by land use development projects constructed after 2020 would not fully consider a project's potential GHG impacts to the state's long-term reduction trajectory. Similarly, the City of San Bruno does not have qualified GHG reduction plan and available statewide BAU and efficiency-metrics do not meet recommendations from the Courts for appropriate project-level GHG thresholds.

Based on the available threshold concepts recommended by air districts and the courts, GHG emissions from the Project are evaluated on a sector-by-sector (e.g., energy, water) basis using the most applicable regulatory programs, policies, and thresholds recommend by BAAQMD, CARB, and OPR, as described below ("compliance with regulatory programs"). Buildout years for the Phase I Development and the Specific Plan are 2022 and 2040, respectively. The State has a reduction goal of carbon neutrality set by B-55-18. However, the State's goal has not been codified in law, and neither the State nor the City has adopted a plan or framework to achieve the 2045 reduction goal. The State's 2030 target has been codified in law through SB 32 and the 2017 Climate Change Scoping Plan adopted to meet this goal. Therefore, 2030 marks the next statutory statewide milestone target applicable to the Project. The analysis focuses on the 2030 target and the plans, policies, and regulations adopted pursuant to achieving 2030 reductions. Emissions generated at full buildout in 2040 are used as an indicator for long-term emissions reduction progress and are evaluated as they relate to the Project's impacts on the State's long-term goal expressed under B-55-18. Where applicable, guidance from CARB, OPR, and other agencies related to long-term emissions reduction requirements is incorporated into the analysis.

- **Mobile sources**: CARB's 2017 Scoping Plan recognizes that while vehicle technologies and low carbon fuels will continue to reduce transportation sector emissions, VMT reductions are necessary to achieve California's long-term GHG reduction target. Recent CARB analysis demonstrate that a 14.3 percent reduction of VMT per service population by 2050 (compared to a 2015-2018 average) would be needed statewide to meet their long-term climate change planning goals through 2050. This reduction target is consistent with recent OPR guidance issued on SB 743, as discussed in Section 3.4.1, *Existing Conditions* and Section 3.10, *Transportation*. The Project would be constructed after 2020 and have a buildout near 2040 or later. Accordingly, use of CARB's 14.3 percent reduction of VMT per service population threshold for mobile source emissions is applicable to the Project. Mobile source emissions would be considered less than significant if the Project achieves a per service population VMT reduction of at least 14.3 percent (compared to a 2015-2018 average). In addition to VMT reductions, compliance with

regulatory programs (e.g., AB 1493, Low Carbon Fuel Standards, SB 743, and SB 375) would also be required to reduce the statewide mobile GHG emissions for a less than significant impact.

- **Energy, water, waste, area, and land sources.** CARB's 2017 Scoping Plan, which relies heavily on state programs (e.g., Title 24 and SB 100), outlines strategies required to reduce statewide GHG emissions in order to achieve California's SB 32 reduction target. Projects that implement applicable strategies from the 2017 Scoping Plan would be consistent the state's GHG reduction framework and requirements for these sectors. Accordingly, a sector-by-sector review of the respective project features and sustainability measures included in the Specific Plan and Phase I Development is conducted to evaluate consistency with the 2017 Scoping Plan. This assessment also considers recent OPR (2018) guidance related to the long-term reduction of statewide emissions. Accordingly, energy, water, waste, area, and land use source emissions would be considered less than significant if the Project is consistent with all applicable 2017 Scoping Plan strategies and supporting regulations and guidance.
- **Stationary sources**. BAAQMD has adopted a threshold of 10,000 metric tons CO_2e for stationary source projects. This threshold is consistent with stationary source thresholds adopted by other air quality management districts throughout the state. The threshold level is intended to capture 95 percent of all GHG emissions from new permit applications from stationary sources in the San Francisco Bay Area Air Basin and would do so by capturing only the large, significant projects since permit applications with emissions above the 10,000 metric tons CO_2e threshold account for less than 10 percent of applications. The emergency generators included as part of the Project would be permitted sources, and as such, the BAAQMD's 10,000 metric tons CO_2e threshold is appropriate for analyzing the significance of emissions generated by the generators. Stationary source emissions would be considered less than significant if emissions are less than 10,000 metric tons CO_2e.

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Appendix 3.5-1

Hydrology and Water Quality Evaluation

Kimley»Horn

MEMORANDUM

To:	City of San Bruno Public Works Department
From:	Felicia Dean, PE, LEED AP
Prepared By:	Felicia Dean, PE.
Copy:	Heidi Mekkelson, ICF and Rajeev Bhatia, Dyett & Bhatia
Date:	March 6, 2020
Subject:	Hydrology and Water Quality Evaluation for the Bayhill Specific Plan and the YouTube Phase 1 Office Development

1.0 INTRODUCTION

This Technical Memorandum was prepared to evaluate the potential impacts of the proposed Bayhill Specific Plan and the Phase 1 Development of the YouTube Expansion Plan related to hydrology, stormwater infrastructure and water quality. This study presents the analysis of the pre- and post-development runoff to evaluate stormwater discharge flows from the Specific Plan and the Phase 1 areas.

2.0 PROJECT DESCRIPTION

The Bayhill Specific Plan Area (Planning Area) is located in the City of San Bruno with an area of approximately 92.2 acres and is generally bounded by Interstate 380 to the north, Interstate 280 to the west, San Bruno Avenue West to the south from Interstate 280 to Elm Avenue and El Camino Real to the east, excluding those properties fronting on El Camino Real. See Figure 1 for extents of the Planning Area. Existing development on the Planning Area includes the Bayhill Office Park, the Bayhill Shopping Center and a hotel. The Planning Area is largely made up of buildings and extensive surface parking lots with limited landscaped areas around the buildings and trees planted throughout the parking lots. The area adjacent to Interstate 280 is undeveloped.

The Planning Area is made up of 17 large parcels of which 8 are owned by YouTube and are part of a 20-year campus expansion plan to be developed in five phases. See Figure 2 for the YouTube Expansion Plan Phasing Map. In total, the Bayhill Specific Plan development will transform the area to add up to approximately 2.46 million square feet of net new development, replacing the surface parking lots with new buildings and with parking provided in subterranean structures. See Figure 3 for potential extents of subterranean parking structures.

2.1 PHASE 1 DEVELOPMENT

The proposed Phase 1 Development includes two parcels totaling approximately 8.4 acres. The Phase 1 site is bisected by Grundy Lane and is bordered by Cherry Avenue to the West, Interstate 380 to the North, Bayhill Drive to the south, and an adjacent property to the East. “Phase 1” includes the development of two three-story buildings (each on its own parcel) that are located to the north and south of Grundy Lane. The Phase I Buildings will be constructed on the existing surface parking lots adjacent to the existing 900 and 1000 Cherry Avenue buildings, which are to remain.

The two proposed buildings are referred to as the "North Building" and the "South Building" and collectively as the "Phase 1 Buildings". Phase 1 contains a total of approximately 440,000 square feet of office space and three levels of subterranean parking.

The Phase 1 Development project also includes the following: construction of a new private multi-modal center at the 950 Elm Avenue parcel; the realignment of Grundy Lane and the vacation of the north end of Elm Avenue; infrastructure improvements throughout Grundy Lane and Bayhill Drive (between Cherry Avenue and Traeger Avenue); parking improvements at 1100 Grundy Lane and 950 Elm Avenue; and the demolition of the existing buildings located at 1150-1250 Bayhill Drive for temporary parking during Phase 1 construction (and future development of the Phase 2 buildings).

3.0 EXISTING AND PROPOSED DRAINAGE SYSTEM

3.1 EXISTING CONDITIONS

The Planning Area represents approximately 6.5% of the land area in "Watershed A", which is largely made up of fully developed land, and contributes less than 7% of the overall runoff within the Watershed A storm drain trunk system. Stormwater from the Planning Area and vicinity is collected through existing City storm drain networks that connect to a 72-inch main trunk line located on the eastern portion of the Planning Area as shown in Figure 4. This 72-inch main serves as the backbone to the City's 1,415-acre Watershed A pipe network as identified in the City of San Bruno Storm Drain Master Plan, discussed below in Section 3.2. Refer to Figure 5 for a map of the watershed areas studied in the Master Plan. The area west of Cherry Avenue drains to a pipeline in Cherry Avenue which flows to the north and connects to the 72-inch main trunk line. The area between Cherry Avenue and Elm Avenue drains into pipelines in Grundy Lane and Bayhill Drive which flow to the east and connects to the 72-inch main at Elm Avenue. The 72-inch main also collects flows from several pipes east of Elm Avenue and continues easterly and southerly until it exits the Planning Area near El Camino Real. The Phase 1 Development area is currently served by existing pipes ranging from 12-inch to 48-inch located in parking lots and along Grundy Lane and Bayhill Drive between Cherry Avenue and Elm Avenue. Topographic survey[1] prepared by BKF Engineers shows pipe collection systems that increase to 24 inches and 48 inches in Grundy Lane and Bayhill Drive, respectively, at their connections to the 72-inch main, however detailed pipe information (e.g. pipe size, slope, capacity, condition, etc.) are not available for all storm drain pipes within the Planning Area.

Pipeline capacity deficiencies in the 72-inch diameter trunk line that runs through the Planning Area were noted in the Master Plan. Additional downstream deficiencies, easterly of the Planning Area were also noted as part of this pipeline network for Watershed A. To date, no improvements have been constructed to address these deficiencies and funding has not been identified.

3.2 CITY OF SAN BRUNO STORM DRAIN MASTER PLAN

The City of San Bruno Storm Drain Master Plan, dated June 2014, was prepared specifically to address localized flooding throughout the City and to determine proposed improvements and construction costs for inclusion in a Stormwater Capital Improvement Plan (CIP). Figure 6 shows the proposed improvement projects from the Storm Drain Master Plan. Multiple options were identified in the Master Plan to address the capacity deficiencies in Watershed A described above. One proposed option identified in the Master Plan is to construct an enlarged detention basin (62.5 acre- feet of storage) located within the Crestmoor Canyon, located northwest and upstream

[1] YouTube Vesting Tentative Map and Phase 1 Entitlement Plans, dated October 2019

of the Planning Area, to limit the amount of flow to existing pipes. This option has since been determined to be infeasible by the City. The second option is the installation of a second, parallel, 72-inch pipeline north of and within the Planning Area along pipeline sections A-2, A-4, and A-5, as shown in Figure 6. Based upon the hydraulic modeling completed as part of the Master Plan, the additional 72-inch diameter pipeline is needed to carry the peak flows from a 25-year storm event. Pipeline sections A-2 and part of A-4 are located within Phase IV (1100 Grundy Lane) and Phase V (950 Elm Avenue and 999/1001 Bayhill Drive) of the YouTube development parcels.

Adding a second 72-inch pipeline or upsizing the existing 72-inch pipeline within the Planning Area will not completely address the storm drain capacity deficiencies that are outside the Planning Area. The Storm Drain Master Plan stated that substantial backwater occurs in the lower reaches of Watershed A, east of El Camino Real, near Highway 101, in part due to backwater in the San Bruno Channel which is tidally influenced. This backwater, when combined with peak storm discharge, causes localized flooding at Angus and 7th Avenue during the 25-year storm event that can only be partially addressed by upsizing of the storm drain pipe network. As shown in Figure 6, five pipe upgrades projects (named as A-projects) were identified in Watershed A to reduce flooding, two of which are in the Planning Area (Pipe ID #s 363, 365, 367, in the Master Plan), one of which is upstream, and two of which are downstream. The most substantial downstream project needed to mitigate flooding is Project A-1, which requires upsizing of the Belle Air storm drain by adding a third 9' x 5' Reinforced Concrete Box (RCB). The remaining four projects, inclusive of the 72-inch parallel pipe segments in Phase IV and V, are required due to localized sections of pipe being undersized for the 25-year design flow.

3.3 PHASE 1 DEVELOPMENT PROPOSED IMPROVEMENTS

Stormwater from Phase I Development[1] will be directed to on-site stormwater treatment facilities which are collected by piped private storm drain systems prior to discharging into the public storm drain system. Proposed treatment improvements include bioretention areas, flow-through planters, green-roofs, and pervious pavements that drain to native soil. The two building sites include bioretention planters adjacent to the buildings to collect roof runoff and landscape areas that direct infiltration to the underlying soil. Building 1 North also has a partially vegetated roof (green roof) and pervious pavement. Phase 1 Development flows will be directed to the proposed 24-inch public storm drain pipeline in Grundy Lane and existing stormwater collection system in Bayhill Drive between Cherry Avenue and Elm Avenue. Bioretention planters are planned for the treatment of street improvements in the realigned portions of Grundy Lane and the modified surface parking areas located on the 950 Elm Avenue parcel and 1100 Grundy Lane parcel. Refer to Figure 7A for the existing and proposed storm drain infrastructure in the public right-of-way, and Figure 7B for the anticipated tributary drainage areas.

Based on hydraulic capacity calculations and an allowance for potential additional flows from future phases of development, it is recommended that the storm drain pipe at Grundy Lane be upsized to a 30-inch diameter pipe. Pipe sizes, slopes, and capacity for the existing stormwater collection system in Bayhill Drive will need to be field verified and evaluated, but stormwater flows to these pipes are expected to be reduced from the pre-development condition as there is less contributing drainage area with the realignment of Grundy Lane. See Section 5.4 Hydraulic Analysis for further discussion on pipe sizing, pipeline capacity analysis and recommendations. Figure 7B provides a summary of the results.

3.4 PLANNING AREA PROPOSED IMPROVEMENTS

Future improvements within the Planning Area include the relocation of the existing 72-inch trunk line with the Phase IV and Phase V Developments in order to maximize the developable area on the parcels. See Figure 7A. The proposed pipeline relocation to the parcel boundaries will require large junction structures at the angle points of the

pipe alignment as it generally follows the property line. In addition, the Master Plan recommends installing a parallel 72" diameter pipeline as part of the CIP improvements identified in the 2014 SDMP. Constructing a larger, single conveyance structure to carry the 25-year storm peak flows as an alternative to the two parallel 72-inch pipelines could be an option if timing, funding and agreements between the developer and the City are in place. An updated hydraulic study and design evaluation shall be conducted to analyze the performance and confirm the feasibility of the proposed storm drain improvements to address existing capacity deficiencies.

Other improvements will include stormwater management facilities for each development to meet local, state and federal requirements for water quality treatment as well as flood control. While the specific improvements for future development are not known at this time, they are anticipated to be similar to the "C.3" post-construction water quality treatment measures that are planned for the Phase 1 Development, such as bioretention areas, flow-through planters, green-roofs and pervious pavements that drain to native soil. Stormwater runoff would be captured in drainage facilities or infiltrated into native soil to recharge groundwater. All drainage facilities would be designed to meet City of San Bruno Standards and drain to the existing public storm drain system.

4.0 HYDROLOGY AND LAND USE

4.1 IMPERVIOUS AND PERVIOUS SURFACES

The permeability of the ground surface is a key factor in quantifying the amount of stormwater runoff that can be expected from a contributing area. The change in the permeability of the ground surface in land development has a direct impact to the quantity of runoff. An increase in impervious surfaces can increase runoff resulting in increased peak flows to the storm drain system. A reduction in impervious surfaces can decrease the peak flows generated by surface water as more water drains into the soil or landscaping. Therefore, a comparison of pre-development impervious areas and post-development impervious areas is used to determine the project's impact on the storm drainage system.

Impervious (impermeable) surfaces are mainly artificial structures—such as buildings and pavements (roads, sidewalks, driveways and parking lots), that are covered by impenetrable materials such as asphalt and concrete.

Pervious (permeable) surfaces are mainly grass or soil surfaces that allow runoff to percolate into the ground relatively easily. This includes permeable paving which is a type of paving for vehicle and pedestrian pathways that allows for infiltration into infinite soil below.

Pre-project land use currently consists of a mix of buildings and surface parking lots (impervious surfaces) and areas of landscaping (pervious surface). It is estimated that the landscape areas are approximately 20% of the Planning Area and approximately 24% of the Phase I Development.

The proposed YouTube expansion project within the Bayhill Specific Plan Area development proposes larger buildings with extensive subsurface parking structures which limits opportunities for stormwater reduction from infiltration through pervious surfaces. For the purposes of addressing site hydrology and the comparison of pre-and post-project drainage evaluation, all surfaces above the parking substructure are considered impervious. State Water Board has provided feedback to the City staff that pervious pavement over any underground structure (impervious facility) is considered impervious; however, the gravel layer, depending on the depth, can be considered storage.

4.1.1 Specific Plan Area Development

The percent impermeability comparison presented in this report is based on ground level surfaces only and provides a means to estimate the likely change in stormwater quantity without introducing other measures to limit runoff. The existing conditions were based on an aerial image.

Figure 8 shows the general outline of existing and proposed development landscape areas (e.g. planting, green roof, pervious pavement that drain to native soil, etc.) which were used to quantify and compare pervious and impervious areas and relative impact to stormwater runoff. The existing percent impermeability of the Planning Area was estimated at approximately 80%. Based on a review of the planned open space, and greenway landscaped areas it is estimated that the percent impermeability of the Planning Area after Specific Plan buildout would be approximately 85%. This increase in impervious area is primarily due to the potential development of the currently undeveloped parcel adjacent to Highway 280 at the western end of the Planning Area.

4.1.2 Phase 1 Development

The Phase 1 development proposes the construction of two new buildings in the location of existing surface parking lots. Subterranean parking structures will be constructed to replace the surface lots. The new parking structures are more expansive than the building footprint and restrict areas for stormwater infiltration. The information provided for evaluating the Phase 1 Development pre- and post-development impervious areas consisted of a Vesting Tentative Map dated October 4, 2019, Preliminary Design Drawings dated October 4, 2019, 2019 and a memorandum dated August 29, 2019 from BKF titled “YouTube Phase 1 C.3 Narrative” along with the submitted “C.3 and C.6 Development Review Checklist” forms. A C.3 Checklist enumerating the pre-and post-construction impervious and pervious areas was submitted for each parcel affected by the Phase 1 Development. The C.3 Narrative and Checklists were provided to the City as part of the YouTube Vesting Tentative Map and Phase 1 plan submittal. The information provided on the Checklists was reviewed for consistency with the pervious and impervious areas identified on the design drawings. The Narrative and compiled data from the C.3 Checklists which describe the change in impervious areas, show that there is no increase. However, the preliminary design plans show that a portion of the proposed pervious pavement area is above the parking structure and therefore this area cannot be considered pervious as infiltration to native soils is limited. The estimated percent impermeability is 76% pre-project based on a review of aerial maps of the areas of parking lots, roadways and rooftops compared to the total Phase 1 development. This compares to 77% post-project impervious surfaces as detailed on the Phase 1 documents, therefore the initial review shows a potential increase in surface runoff.

5.0 STORMWATER RUNOFF CALCULATIONS

The evaluation of stormwater impacts is based on the change in impervious and pervious surfaces of the development. Calculations provided are for comparison of pre-development and post-development flows. The rational method was used to calculate the flow, Q, from Q=CiA. Where C is the drainage runoff coefficient, “i” is the intensity for the given design storm frequency and storm duration, and “A” is the drainage area.

5.1 PARAMETERS AND ASSUMPTIONS

The parameters used in the stormwater runoff calculations are summarized in the following tables and based on the assumptions as follows:

- Land Use and Impervious Areas: Based on the information available for the entire Specific Plan Area, primarily the allowable footprint of the subterranean parking structures, (Figure 3), which limits infiltration, and open space greenway plans (Figure 9), the impervious area increases from approximately 80% to 85%

percent of the total area. The project site percent imperviousness is closely related to the runoff coefficient "C" factor in the rational method calculation. The lower the "C" coefficient, the greater the site's infiltration capability. The high "C" factor areas such as rooftops and pavements have low infiltration and more surface runoff is generated. The runoff coefficients used in the calculations are in accordance with the City of San Bruno's Municipal Code for hydrology calculations and are based on the type of development. Parks and Open Areas have a "C" coefficient of 0.35 and Commercial and Paved Areas have a "C" of 0.95.

For the Phase 1 Development, land use areas were taken from preliminary design information provided by the City including the C.3 Narrative and Checklist forms dated October 4, 2019 prepared by YouTube for the Phase 1 Development. Based on the compiled Checklist information, the pre-development condition consists of approximately 688,083 square feet of impervious area. Post-development condition (Phase 1 Development) shows an increase in impervious area with approximately 9,000 square feet of pervious paving above the parking structure, which is considered impervious, in addition to the 688,083 square feet of proposed impervious area indicated on the Checklist forms. As a result, additional pervious area shall be allocated into the project to maintain the pre-project impervious surfaces. The calculations presented below reflect the increase of impervious areas based on the review of the preliminary design information.

- Design Storm: The 25-year and 100-year storm events were selected for consistency with the City's municipal code requirements for hydrology evaluation. (Per municipal code section 12.44.090, the 25-year storm is used for pipe sizing for the street storm drain system. Pipes shall be designed with the hydraulic grade line six inches below the flow line of the curb to avoid damage from a 50-year storm and the 100-year design storm shall be contained in the street right of way.)

- Rainfall Intensity: The rainfall intensity was obtained from the NOAA Atlas 14 precipitation frequency estimates. See attached Figure 10. A "Duration" of 10 minutes is used to be consistent with the City of San Bruno's municipal code for storm drainage calculations.

- Drainage Patterns: The drainage patterns are generally maintained from the pre-development condition. The Planning Area slopes from west to east, toward the San Francisco Bay. Runoff is collected in a conventional storm drain system that conveys storm water to a 72" diameter trunk line on the eastern portion of the site near Elm Avenue.

5.2 CALCULATIONS – SPECIFIC PLAN AREA

Hydrologic calculations to compare flow rates in the pre-project and post-project Planning Area conditions were prepared based on the standard Rational Method which utilizes several variables to estimate peak runoff flow rates for various storm events:

$Q = C_w iA$
Q = Flow rate [cfs]
C_w = Weighted Rational Runoff Coefficient
i = Rainfall Intensity [in/hr]
A = Area [acres]

A weighted C was calculated for both pre and post conditions. The National Oceanic and Atmospheric Administration's (NOAA) Precipitation Frequency Data Server was used to determine rainfall intensity for both the 25 and 100-year storm events. Based on a time of concentration of 10 minutes, rainfall intensity values for the 25 and 100-year storm event were 2.43 inches/hour and 3.08 inches/hour respectively per Figure 10.

5.2.1 Calculation of Weighted "C", Cw:

$$C_w = \frac{C_i A_i + C_p A_p}{A_T}$$

C_w =	Weighted runoff coefficient for drainage area	A_i =	Impervious Drainage Area (acres)
C_i =	Impervious Area Runoff Coefficient	A_p =	Pervious Drainage Area (acres)
C_p =	Pervious Area Runoff Coefficient	A_T =	Total Drainage Area (acres)

SPECIFIC PLAN AREA: PRE-DEVELOPMENT WEIGHTED "C":

Pervious Area, A_p =	18.44 ac	C_p=0.35
Impervious Area, A_i =	73.76 ac	C_i=0.95
Total Area, A_T =	92.2 ac	

$C_{W(pre)}$ = 0.83

SPECIFIC PLAN AREA: POST DEVELOPMENT WEIGHTED "C"

Pervious Area, A_p =	14.0 ac	C_p=0.35
Impervious Area, A_i =	78.2 ac	C_i=0.95
Total Area, A_T =	92.2 ac	

$C_{W(post)}$ = 0.86

5.2.2 CALCULATION OF 25-YEAR PEAK FLOW AND 100-YEAR PEAK FLOW, Q

Q = Peak Flow (cfs) for drainage area i = Intensity (in/hr) for the given design frequency
C_W = Weighted runoff coefficient A_T = Total Drainage Area (acre)

25 YEAR PRE-DEVELOPMENT RAINFALL PEAK FLOW

C_W =	0.83
i =	2.43 in/hr
A_T =	92.2 acres
$Q_{25\ year\ (pre)}$ =	**186.0 cfs**

25 YEAR POST-DEVELOPMENT RAINFALL PEAK FLOW

C_W =	0.86
i =	2.43 in/hr
A_T =	92.2 acres
$Q_{25\ year\ (post)}$ =	**192.7 cfs**

100 YEAR PRE-DEVELOPMENT RAINFALL PEAK FLOW

C_W =	0.83
i =	3.08 in/hr
A_T =	92.2 acres
$Q_{100\ year\ (pre)}$ =	**235.7 cfs**

100 YEAR POST-DEVELOPMENT RAINFALL PEAK FLOW

C_W =	0.86
i =	3.08 in/hr
A_T =	92.2 acres
$Q_{100\ year\ (post)}$ =	**244.2 cfs**

Based on this preliminary analysis, it is estimated that the peak flow runoff from the Bayhill Specific Plan area during full development is approximately 192.7 cubic feet per second (cfs). The estimated peak flow runoff from the existing site is approximately 186.0 cfs. Thus, the quantity increases from the existing condition by approximately 6.7 cfs under the assumptions presented for the 25-year storm event. This amount results in a 3.6% increase in peak flow runoff and contributes to an existing drainage system that is over capacity.

5.3 CALCULATIONS – PHASE 1 DEVELOPMENT

A weighted C was calculated for both pre and post Phase 1 Development conditions. The National Oceanic and Atmospheric Administration's (NOAA) Precipitation Frequency Data Server was used to determine rainfall intensity for both the 25 and 100-year storm events. Based on a time of concentration of 10 minutes, rainfall intensity values for the 25 and 100-year were 2.43 inches/hour and 3.08 inches/hour respectively per Figure 10.

5.3.1 Calculation of Weighted "C", C_W, $C_w = \frac{C_i A_i + C_p A_p}{A_T}$

C_w =	Weighted runoff coefficient for drainage area	A_i =	Impervious Drainage Area (acres)
C_i =	Impervious Area Runoff Coefficient	A_p =	Pervious Drainage Area (acres)
C_p =	Pervious Area Runoff Coefficient	A_T =	Total Drainage Area (acres)

Phase 1 - Pre-Development Weighted "C"

Pervious Area, A_p =	4.96 ac	C_p=0.35
Impervious Area, A_i =	15.80 ac	C_i=0.95
Total Area, A_T =	20.76 ac	
$C_{W(pre)}$ = 0.81		

PHASE 1 - POST DEVELOPMENT WEIGHTED "C"

Pervious Area, A_p =	4.76 ac	C_p=0.35
Impervious Area, A_i =	16.0 ac	C_i=0.95
Total Area, A_T =	20.76 ac	
$C_{W(post)}$ = 0.82		

5.3.2 CALCULATION OF 25-YEAR PEAK FLOW AND 100-YEAR PEAK FLOW, Q

Q = Peak Flow (cfs) for drainage area i = Intensity (in/hr) for the given design frequency
C_W = Weighted runoff coefficient A_T = Total Drainage Area (acres)

25 YEAR PRE-DEVELOPMENT RAINFALL PEAK FLOW

C_W =	0.81
i =	2.43 in/hr
A_T =	20.76 acres
$Q_{25\ year\ (pre)}$ =	**40.9 cfs**

25 YEAR POST-DEVELOPMENT RAINFALL PEAK FLOW

C_W =	0.82
i =	2.43 in/hr
A_T =	20.76 acres
$Q_{25\ year\ (post)}$ =	**41.4 cfs**

100 YEAR PRE-DEVELOPMENT RAINFALL PEAK FLOW

C_W =	0.81
i =	3.08 in/hr
A_T =	20.76 acres
$Q_{100\ year\ (pre)}$ =	**51.8 cfs**

100 YEAR POST-DEVELOPMENT RAINFALL PEAK FLOW

C_W =	0.82
i =	3.08 in/hr
A_T =	20.76 acres
$Q_{100\ year\ (post)}$ =	**52.4 cfs**

The calculations reflect an increase in runoff of approximately 0.5 cfs, or approximately 1%, with the increase in impervious area.

5.4 HYDRAULIC ANALYSIS

Hydraulic analysis is needed to evaluate the capacity of existing and proposed stormwater systems and their ability to collect and convey stormwater flows from Phase 1 Development and the Planning Area, however, due to limited information, only the proposed pipes in Grundy Lane were fully studied. Autodesk Hydraflow[2] was used to model the proposed pipes within Grundy Lane along with their respective tributary drainage areas to identify improvements to be constructed during Phase I to serve Phase I and future development. The hydraulic capacity analysis was based on the variables that were inputted into the Hydraflow model, which include but are not limited to the following: design flow quantity, pipe size, pipe slope, roughness coefficient based on pipe material, etc. The design flow quantity, Q, was determined using the Rational Method, consistent with the storm runoff calculation parameters noted in Section 5.3. The drainage areas, A, used to calculate the design flows were based on the proposed Phase I grading, utility and stormwater plans[1], hydrology and land use evaluation as described in Section 4.0, and estimate of future contributing drainage areas. It is assumed that future development of Phase II and IV will have drainage contribution to the Grundy Lane pipe network to account for drainage from the building setback areas and portions of the building roofs. Pipe size and slope were also based on the proposed utility plan

[2] Autodesk Hydraflow Extensions ® within Autodesk Civil 3D® is a hydrology and hydraulics modeling tool. Hydraflow utilizes the Manning Formula for sizing of circular pipes which is consistent with the City of San Bruno Municipal Code.

and the roughness coefficient was based on the use of reinforced concrete pipe, as required by the Municipal Code.

The hydraulic analysis results of the Phase 1 Development pipe system are shown in the "Proposed Pipe Flow & Capacity" table on Figure 7B. The design pipe fullness (depth/Diameter) criteria used for evaluating pipe capacity were set at ¾ to completely full for existing pipes and ½ full for new pipes during the peak flow of the design storm. As a result, 30-inch storm drain pipes are recommended for the realigned Grundy Lane, pipe segments G-L2, G-L3, and G-L4 as shown on Figure 7B. Capacity of existing pipes in Bayhill Drive, which carries a portion of the flows from the Phase 1 Development, could not be analyzed due to unknown pipe sizes and slopes. However, future flow quantity to the Bayhill Drive pipes is anticipated to be less than the pre-development condition as the tributary area has been reduced due to the realignment of Grundy Lane. Existing conditions of the remainder of the pipe networks within the Planning Area are also unknown and could not be analyzed; therefore, recommendations are not currently available. See Section 3.4 for proposed improvements to address existing capacity deficiency of the 72-inch main trunk line.

6.0 STORMWATER QUALITY

The City of San Bruno administers stormwater quality protection through the Municipal Regional Stormwater Permit (MRP) which is issued by the Regional Water Quality Control Board (San Francisco Bay Region) under the National Pollution Discharge Elimination System (generally referred to as the NPDES permit). The City is also a member of the San Mateo Countywide Water Pollution Prevention Program (SMCWPPP), which is a program created to coordinate pollution prevention programs and works with the City to continue their compliance and continued issuance of the stormwater discharge permits by the Regional Water Quality Control Board.

6.1 WATER QUALITY DURING CONSTRUCTION

Construction activities could generate dust, sediment, litter, oil and other pollutants that could temporarily contaminate water runoff from the site. Implementation of the developments, Phase 1 and the full Planning Area, are subject to the City's Municipal Code and Construction Site Control Program requirements. A Storm Water Pollution Prevention Plan (SWPPP) is required for all construction projects. Projects that have a land area disturbance of greater than 1 acre in size are also required to submit the SWPPP to the State Water Board, as well as a Notice of Intent for coverage under the statewide Construction General Permit (CGP). The SWPPP is required to be submitted prior to issuance of construction permits, including but not limited to demolition and grading permits, by the City of San Bruno. Compliance with the City's grading permit and the CGP will require use of temporary Best Management Practices (BMPs) to control soil erosion and sediment and restrict non-stormwater discharges from the construction site, as well as release of hazardous materials. The SWPPP is prepared by a Qualified SWPPP Developer (QSD) and implemented by a Qualified SWPPP Practitioner during construction and is required to be updated as needed based on project progression and changed conditions. The State Water Board requires an annual report and the annual report shall be provided to the City for reference as well. Compliance with the City and State regulatory requirements are to ensure that construction activities do not result in a violation of water quality standards or waste discharges requirements, or otherwise result in water quality degradation.

Interim or temporary site improvements, such as the proposed parking lots to be used during Phase 1 construction, shall also comply with water quality standards that provide pollutant control and reduce or limit surface runoff to pre-project conditions.

An assessment of groundwater impacts is covered in a separate technical memorandum.

6.2 POST CONSTRUCTION WATER QUALITY IMPACTS

The development of the Bayhill Specific Plan area, including the Phase I Development, is subject to the stormwater treatment requirements in Provision C.3 of the MRP. Per the MRP, the City of San Bruno is tasked with enforcement of the requirements for stormwater controls for development projects. Provision C.3 of the MRP requires that development projects mitigate impacts on water quality by incorporating "Low Impact Development" (LID) measures including site design, pollutant source control, stormwater treatment and flow control measures. LID treatment measures have been required on regulated projects since 2011. These treatment measures include "capture and re-use" or rainwater harvesting, infiltration and bioretention basins or flow-through planters and green roofs. The City of San Bruno is a member of the San Mateo County Water Pollution Prevention Program (SMCWPPP) and requires developers to use SMCWPPP guidance material for implementing LID and green infrastructure.

The MRP also requires permittees to comply with Provision C.10, Trash Load Reduction, to limit trash-related pollutants from entering receiving waters. Implementation of trash control measures and other actions to reduce trash loads from entering municipal storm drain systems is required to demonstrate compliance to meet the goal of 100 percent trash load reduction or no adverse impact to receiving waters from trash by July 2022. The City of San Bruno requires that all new development shall provide trash capture devices on all drain inlets that connect to the municipal storm drain system.

In addition, the City has recently adopted a Green Infrastructure Plan (GI Plan) for compliance with the MRP, Provision C.3.j.The GI Plan addresses long-term measures for the inclusion of vegetated or green landscape into public rights-of-way and public properties in additon to private developments. Green landscape in public and private properties is required by the MRP to address the stormwater quality impacts from paved roadways, sidewalks, parking lots and other areas where stormwater collects pollutants which would otherwise flow to the San Francisco Bay. In addition to capturing pollutants, green infrastructure slows and reduces runoff, and allows infiltration of stormwater for recharging of groundwater. The Bayhill Specific Plan is noted in the GI Plan as an opportunity for implementation of green infrastructure to further the long term goals of the GI Plan to reduce pollutants in the discharge of stormwater.

6.2.1 Phase 1 Development

The Phase 1 preliminary design documents including the "C.3 and C.6 Development Review Checklist" and Stormwater Control Plan drawings identify LID areas and methods for treatment of stormwater runoff. The Stormwater Control Plan also provides a LID treatment sizing summary table based on the combination flow and volume sizing method and an assumed ponding depth of 12 inches. The Phase 1 project proposes to utilize the bioretention method in "flow through planters" to treat both the roof runoff and on-site surface flows. The proposed vegetated "green" roof areas and pervious pavements that drain directly to native soil around the new building sites reduce the amount of impervious areas requiring treatment. The locations and sizes of the LID features are noted on the Stormwater Control Plan for the building sites, Phase 1 North and Phase 1 South as well as for Grundy Lane. Stormwater treatment facilities that provide infiltration into the underlying soils are limited due to the size (footprint) of the subterranean parking garages, which encompass a substantial portion of the developable property. This is a preliminary plan and will be updated with the final design plans to be submitted for construction permits. To determine compliance with C.3 regulations, the City will review the final design plans including grading plans and direction of stormwater flow, storm drain system utility plans, and stormwater treatment measure standard details. A Stormwater Control Plan Report, including updated C.3 and C.6 Development Review Checklist, a description of site design and source control measures, drainage management areas, stormwater treatment measure sizing calcuations, and a maintenance plan, shall be submitted with the final design plans.

Roadway runoff from the realignment of Grundy Lane (Part 1 and 3) would be directed to bioretention areas located in the street planter strip for compliance with C.3 regulations. The reduced pavement area within the right of way in Grundy Lane (Part 2) replaces impervious pavement areas with a linear landscape strip with new trees located between the street curb and sidewalk. This new streetscape would reduce surface water flows and promote infiltration through the landscaping into the underlying soil.

6.2.2 Specific Plan Area

Subsequent phases of development will likely utilize similar LID treatment methods as used in Phase 1 and will be required to follow the guidelines of the GI Plan for public area improvements as well as meet current regulatory requirements, at the time of each development, for stormwater managment. In addition to the bioretention planters, green roofs and permeable pavement used in Phase 1, other potential LID measures for future phases of the development may include rainwater harvesting and re-use for non-potable water uses, including irrigation. Given the site constraints of the subterreanan parking structures, it is expected that an increased use of green roofs or detention facilities will be necessary. These treatment measures are required to be included in the preliminary design phases of specific development proposals as part of the site design approval.

6.3 HYDROMODIFICATION

The Bayhill Specific Plan area adds or replaces more than 1 acre of impervious area but is in an Exempt Area per the Hydromodification Control Areas Map from Appendix H of the SMCWPPP C.3 Stormwater Technical Guidance. See Figure 11. Because the Planning Area is not located within a Hydromodification applicability area, it is not subject to Hydromodification requirements, which are intended to minimize downstream erosion in receiving waters.

7.0 CONCLUSIONS AND RECOMMENDATIONS

As discussed above, existing capacity deficiencies have been identified in the 72-inch diameter trunk line that runs through the Planning Area as well as storm drain infrastructure further downstream. The City's Storm Drain Master Plan concludes that upsizing the existing 72-inch pipeline within the Planning Area will not completely address the storm drain capacity deficiencies that are outside the Planning Area. Therefore, any increase in discharge flows from the Planning Area, including the Phase I Site, would exceed the downstream system capacity. Furthermore, the sizes and capacities of the existing stormwater collection system in Bayhill Drive and Cherry Avenue are unknown and require further study as part of future development.

7.1 IMPACTS

7.1.1 Hydrology and Storm Drain Impacts – Phase 1

The stormwater runoff calculations for pre-development peak flow and post-development peak flow show an increase in post-development peak flows. The recommended mitigations will require that the Phase 1 Development be designed to maintain or reduce stormwater discharge into the existing storm drain infrastructure. The increase in peak flow is a consequence of an increase in impervious surface areas. If maintaining or decreasing the amount of impervious area is not possible, then any increase in ground level impervious areas, can be offset by further increasing the amount of vegetated green roof areas (as shown on Phase 1 buildings) or by implementing on-site detention to maintain or decrease peak flows from pre-development conditions. There can be no net increase to peak flows given the current capacity constraint of the existing storm system. The project applicant, YouTube, has stated that they plan to provide additional pervious areas in the final design documents or otherwise demonstrate in a drainage analysis study that the final design will not increase flows from pre-project levels.

A Final Drainage Design Report is required as mitigation for the Phase 1 development ensuring that no increase in discharge flow is allowed and storm drain infrastructure is adequately sized, including detention facilities if required. Phase I documentation must include all project areas including the new surface parking areas located in Phase II and IV and the private multimodal center. The Drainage Report shall contain a hydrologic and hydraulic analysis to demonstrate that there will be no net increase in stormwater flows directed to the existing drainage infrastructure that is noted to have an existing capacity deficiency.

Construction phase impacts, including temporary surface parking, also require stormwater flows to be maintained at or below pre-construction levels. Construction staging areas and temporary parking areas will need to maintain pervious areas to maintain pre-development runoff conditions. Detention facilities can also be implemented to maintain pre-development runoff conditions. No groundwater pumping or dewatering for construction of subterranean parking is anticipated in Phase 1.

7.1.2 Water Quality Impacts for Phase 1 Development

The use of bio-retention planters, green roof areas and permeable pavements are noted in the Phase 1 preliminary design documents. A preliminary Stormwater Control Plan has been provided which documents the location and size of the treatment facilities. A final Stormwater Control Plan is required as part of the construction documents and will be reviewed by City staff for compliance with MRP requirements and for consistency with SMCWPPP's C.3 Stormwater Technical Guidance[3].

The Phase 1 Development preliminary design and project documents dated October 4, 2019, indicate that several stormwater treatment measures will be incorporated into the design for Phase 1 building sites, including pervious pavements, green roof areas, bio-retention planters and extensive landscaping at the public plaza areas and roadways. The plan for the realignment of Grundy Lane, associated reconfigured parking areas, and the multimodal transit hub have also been designed to incorporate bioretention treatment areas. Updated plans and calculations demonstrating compliance with regulatory requirements will be required with the final design subject to review for construction permits.

Construction phase impacts are addressed by implementing the guidelines and requirements of the Stormwater Pollution Prevention Plan (SWPPP). The SWPPP will be prepared by the applicant and submitted to the City for review and to the State Water Board for compliance with the statewide NPDES Construction General Stormwater permit. The SWPPP details best management practices for reducing erosion and preventing sediments and other pollutants from entering the storm drain system.

Groundwater impacts are addressed in a separate memorandum.

7.1.3 Hydrology and Storm Drain Impacts – Specific Plan

Based on the review of the maximum allowable development within the Bayhill Specific Plan Area, the lot coverage, subterranean parking layouts and proposed greenways, Kimley-Horn estimated that the percent impermeability could increase from approximately 80% to approximately 85%. Without mitigation, this could result in an increase in surface water runoff and stormwater discharge to the public storm drain system. While the potential increase in peak flows is less than 4%, these flows would exceed the capacity of the existing storm drain system. The existing 72-inch pipe near the eastern Planning Area boundary near Elm Avenue (Phases IV and V) and downstream

[3] The SMCWPPP C.3 Stormwater Technical Guidance is being updated and will be renamed the "C.3 Regulated Projects Guide". The new Guide will be available on the SMCWPPP website by March 2020.

conveyance facilities were reported to have existing capacity deficiencies in the City's 2014 Storm Drain Master Plan, such that development within the Planning Area must be designed for no increase in stormwater discharge. The Bayhill Specific Plan will need to include stormwater control measures in the project to limit the post-development runoff to the pre-development conditions as required to avoid impact to the existing storm drain system. Each development project will need to maintain or reduce stormwater discharge to the public storm drain system by limiting post-project impervious areas to be less than or equal to pre-development conditions, or mitigate for increased surface runoff by adding on-site detention facilities, capture and re-use programs, green roofs and/or other methods approved by the City. These measures are consistent with requirements for Low Impact Development and Green Infrastructure in the MRP.

A Final Drainage Design Report for each future proposed development should be required as mitigation ensuring that adequately sized storm drain infrastructure, including detention facilities, if required, are designed into each project and no increase in stormwater discharge to the public storm drain system is allowed.

Groundwater pumping and discharge associated with dewatering for the construction of the below grade parking structures is not anticipated to increase the peak flows into the storm drain system. The total maximum rate is 257 gallons per minute (gpm) which equates to less than one half of 1% of the total flows for the 25-year storm event. The groundwater discharge will be managed to avoid a major storm event as part of the SWPPP permit and standard construction practices. The estimated rates and volumes of construction dewatering and analysis of impacts is provided in the technical memorandum prepared by EKI.[4]

7.1.4 Water Quality Impacts - Specific Plan

Implementation of the Specific Plan would not violate any water quality standards or otherwise result in water quality degradation during operation because stormwater runoff from the Planning Area will be managed consistently with the provisions of the MRP. Construction phase impacts are addressed by implementing the guidelines and requirements of the Stormwater Pollution Prevention Plan (SWPPP).

Stormwater requirements mandate treating 100% of the water quality design flow and volume of runoff with low impact development (LID) measures. These measures typically include bioretention treatment in planters, rainwater harvesting and re-use, infiltration systems, green roofs and permeable pavements. A stormwater control plan is required for each development. Post-construction measures must meet the requirements of the MRP and the San Mateo County Water Pollution Prevention Program.

Incorporation of recommendations from the City's recently adopted Green Infrastructure Plan into the Specific Plan policies will align proposed developments with the City's long-term goals for pollutant reduction and reduced runoff and stormwater discharge from impervious areas associated with development. Types of treatment facilities that can be constructed in public spaces include bioretention planters in the roadway landscaping. Stormwater tree filters and pervious pavements are not encouraged in the public right-of-way due to the increased maintenance cost of these types of treatment facilities.

Groundwater impacts associated with dewatering for the construction of the below grade parking structures are addressed in a separate memorandum.

[4] Groundwater Assessment in Support of Bayhill Specific Plan Environmental Impact Report, dated 8/15/2019.

7.1.5 Cumulative Impact

The geographic area studied for cumulative hydrology and water quality impact analysis includes the Planning Area and its surrounding area within Watershed A. The geographic area is fully developed; therefore, buildout of cumulative projects would involve redevelopment of existing developed sites that contain substantial impervious surfaces, and these projects would be required to comply with the applicable city policies for stormwater discharge. Cumulative projects would be required to comply with applicable requirements in the statewide Construction General Stormwater Permit, City of San Bruno Municipal Code, and MRP standards to reduce hydrology and water quality impacts.

7.2 GENERAL RECOMMENDATIONS

Applicants for the Phase 1 Development and future projects under the Specific Plan, shall provide a Drainage Design Report for City approval before construction permits are issued containing a hydrologic analysis of existing and proposed peak flows which demonstrates that the project as designed will reduce or not increase stormwater peak flow volumes from the existing condition. Pipe sizing and hydraulic analysis consistent with the City of San Bruno's municipal code shall be included. A final stormwater quality analysis shall also be prepared based on the proposed development final design, identifying LID site design, source control, and treatment measures and sizing calculations in compliance with MRP requirements and consistent with SMCWPPP C.3 Stormwater Technical Guidance.

Site design, source control, and treatment measures for stormwater quality shall be subject to the review of the City. Design may include LID practices and the treatment measure options included in the City's Green Infrastructure Plan, SMCWPPP's Green Infrastructure Design Guide, and SMCWPPP's C.3 Stormwater Technical Guidance. These include green roofs, bio-retention areas and planters, tree well filters, rainwater harvesting for capture and re-use and permeable pavements that drain directly to underlying soil and recharge groundwater.

The Specific Plan polices should incorporate the guidelines of the Green Infrastructure Plan for public spaces including street rights of way. Biotreatment planter areas should be incorporated into the retrofitted streetscape within the Planning Area, including Grundy Lane (Part 2) and Bayhill Drive, to be consistent with the requirements of the MRP Provision C.3.j and the Green Infrastruction Plan.

7.2.1 Proposed Mitigation Measures

Mitigation Measure Hydro 1A: Prepare Drainage Report and Implement Stormwater Control Measures to Avoid Increase in Peak Flows

Applicants proposing development shall prepare Drainage Report(s) for City review and approval prior to issuance of a Grading, Building, Site Development or any construction permits. All development, including interim conditions during construction and interim conditions with temporary improvements, within the Planning Area is required to address stormwater management and implement stormwater control measures, including but not limited to on-site detention facilities, capture and re-use measures, green roofs and/or other measures approved by the City, designed to maintain or reduce current, pre-development, surface runoff and stormwater discharge to the public storm drain system.

These Drainage Report(s) shall contain the following:

- Verification of existing pipe network including pipe size, elevation, material and condition including determination of the size and capacity of all elements of the existing stormwater collection system in Bayhill Drive and Cherry Avenue.
- Hydrologic analysis of construction period conditions and implementation of all temporary facilities necessary during construction to avoid increases in peak flows.
- Hydrologic analysis of existing and proposed peak flows that accounts for all areas that will be disturbed by the new development.
- Hydraulic analysis for evaluating pipe capacity and sizing of new pipes. The capacity of existing pipes that are proposed for re-use and new pipes shall be sized in accordance with the City's methodology, as noted in the municipal code or otherwise approved by the City Engineer. New pipes in the public right of way, if required, shall be RCP and have a minimum size of 15 inches. Applicants shall implement all permanent facilities necessary to avoid increases in operational peak flows.

Mitigation Measure Hydro 1B – Dedicate Storm Drain easements for Public Infrastructure

All storm drain pipes and related structures constructed as part of the City of San Bruno's stormwater conveyance system shall be contained within an easement dedicated to the City of San Bruno if the storm drain improvements are located outside of the public right of way. Storm Drain easements shall have a minimum width in accordance with the following:

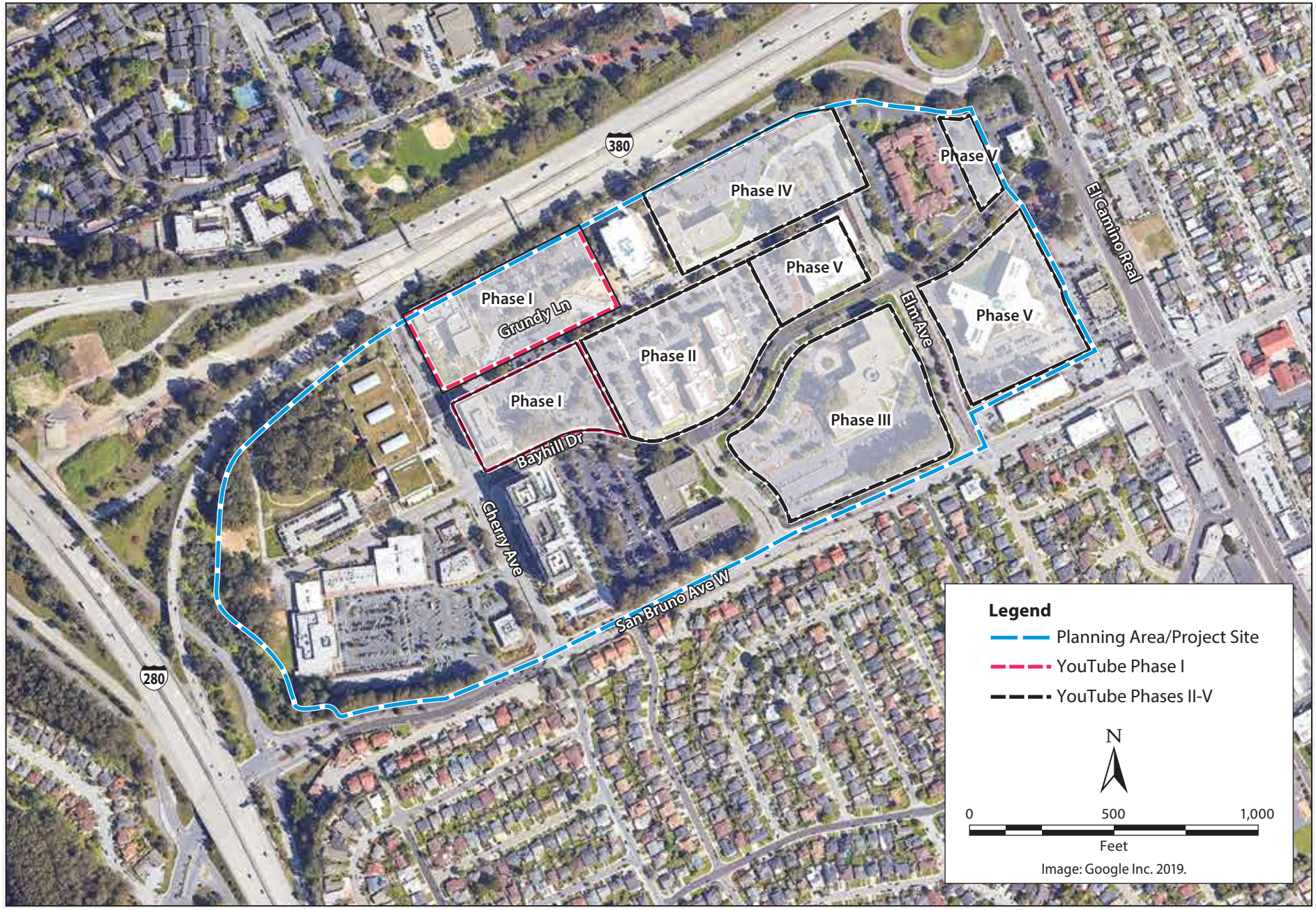
- Minimum clearance between Outside Diameter (O.D.) of pipe to easement line shall be five (5) feet.
- Minimum clearance between pipes (O.D. to O.D) shall be five (5) feet.
- Minimum clearance between outside of structure to easement line shall be four (4) feet.
- Easement width must meet above requirements but shall not be narrower than fifteen (15) feet.



Figure 1 Vicinity Map

City of San Bruno Bayhill Specific Plan

Kimley»Horn



Source: ICF 2019

Figure 2 Phasing Map
City of San Bruno Bayhill Specific Plan

Kimley»Horn



Figure 3 Potential Subterranean Parking Areas

City of San Bruno Bayhill Specific Plan

Kimley»Horn

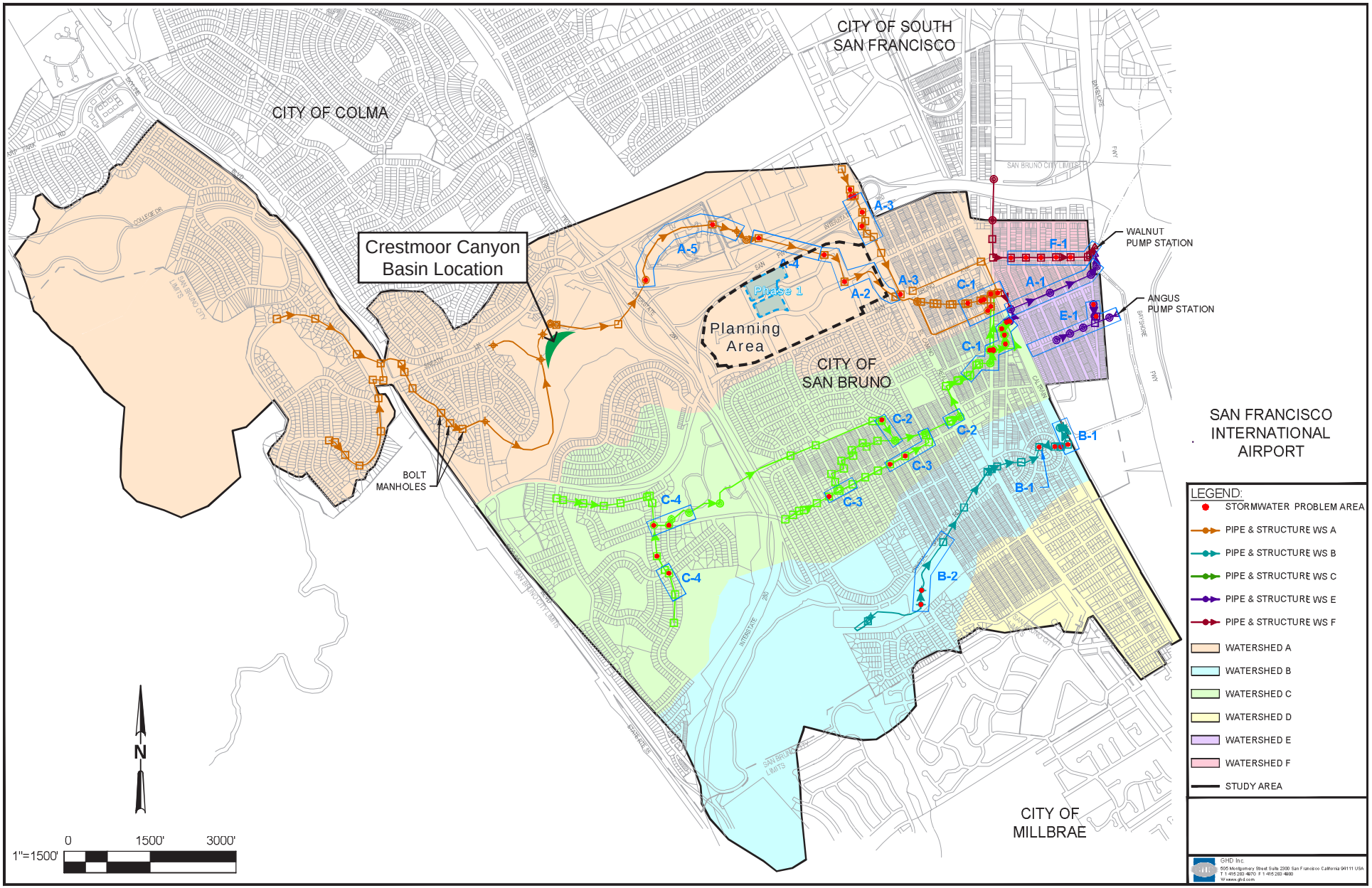


Source: City of San Bruno, Storm Drain Master Plan, 2014

Figure 4 Existing Storm Drain Network

City of San Bruno Bayhill Specific Plan

Kimley»Horn

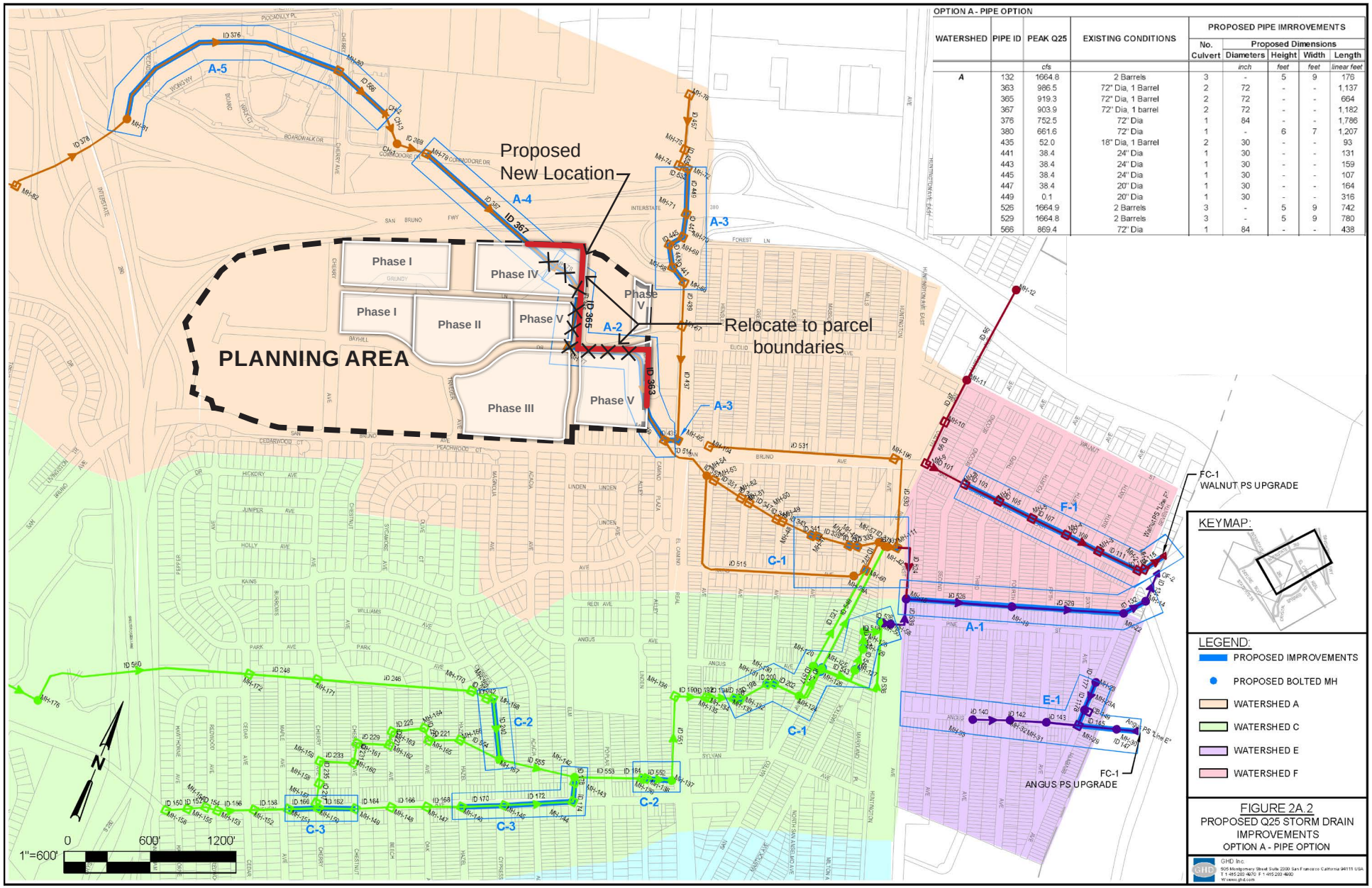


Source: City of San Bruno, Storm Drain Master Plan, 2014

Figure 5 Storm Drain Master Plan Program Areas

City of San Bruno Bayhill Specific Plan

Kimley»Horn



Source: City of San Bruno, Storm Drain Master Plan, 2014

Figure 6 Storm Drain Master Plan Proposed Improvements (Pipe Option)

City of San Bruno Bayhill Specific Plan

Kimley»Horn

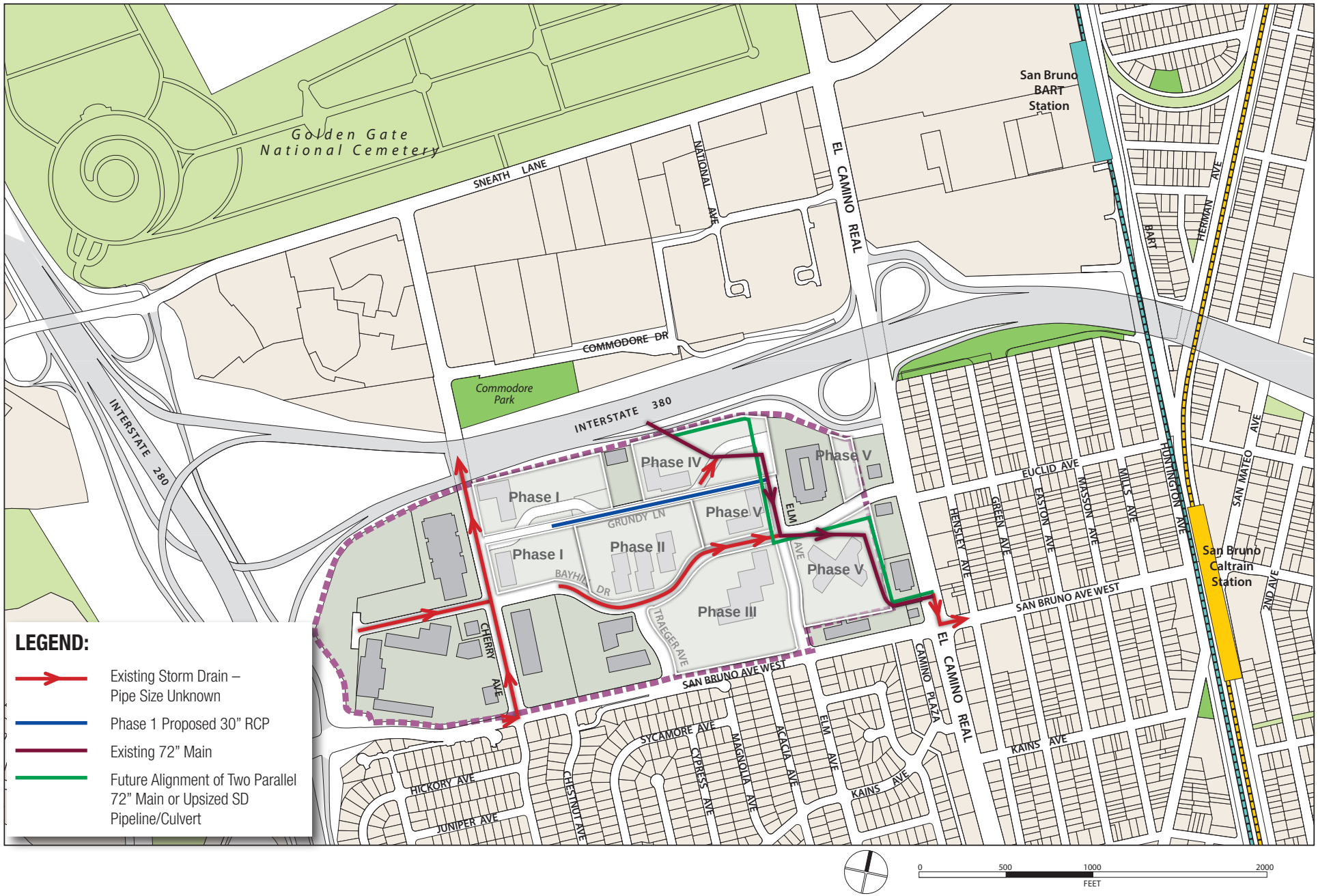


Figure 7A Storm Drain System

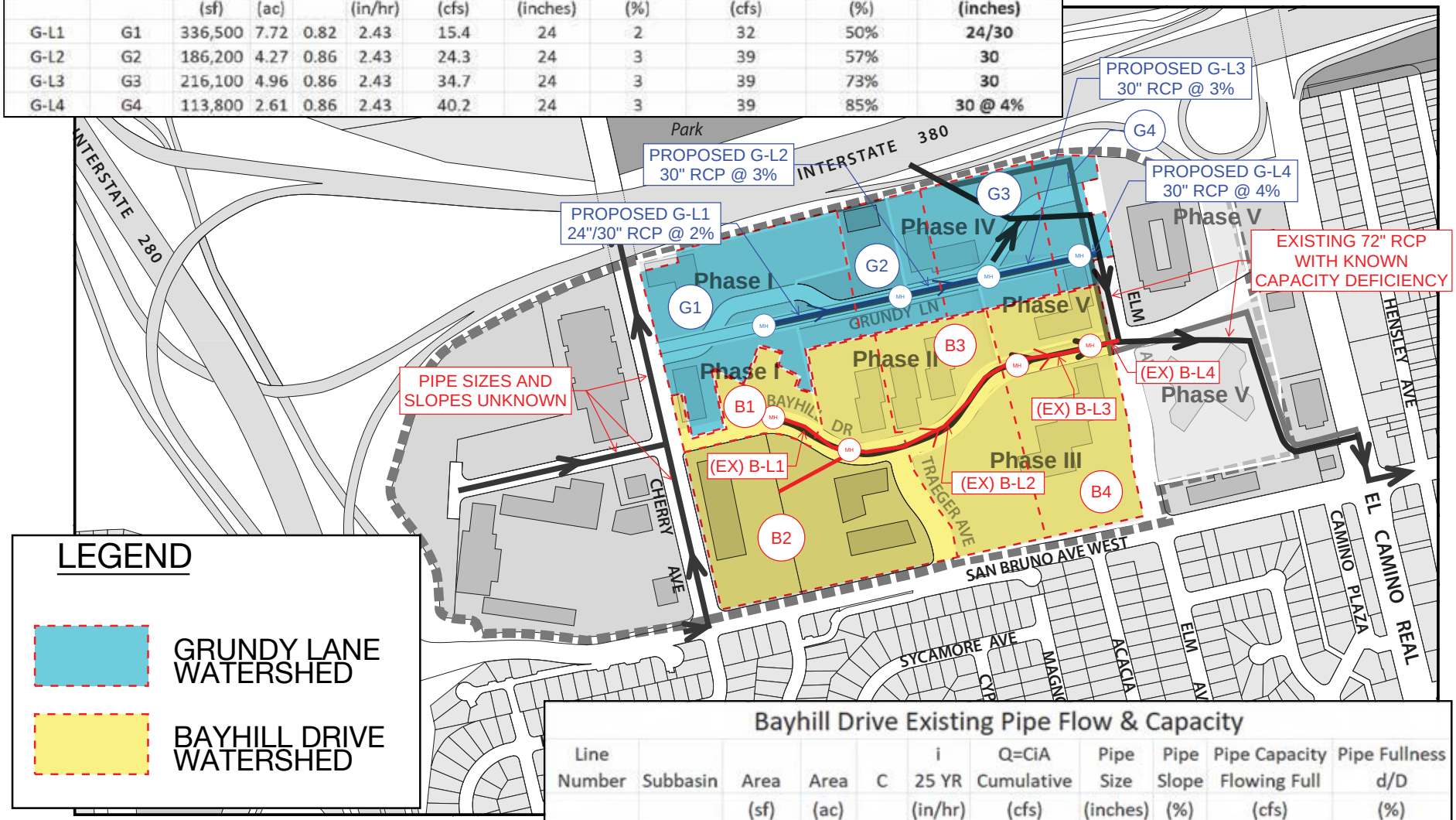
City of San Bruno Bayhill Specific Plan

Kimley»Horn

Grundy Lane Proposed Pipe Flow & Capacity

Line Number	Subbasin	Area (sf)	Area (ac)	C	i 25 YR (in/hr)	Q=CiA Cumulative (cfs)	Pipe Size (as designed*) (inches)	Pipe Slope (as designed*) (%)	Pipe Capacity Flowing Full (cfs)	Pipe Fullness d/D (%)	Recommended Pipe Size (inches)
G-L1	G1	336,500	7.72	0.82	2.43	15.4	24	2	32	50%	**24/30**
G-L2	G2	186,200	4.27	0.86	2.43	24.3	24	3	39	57%	**30**
G-L3	G3	216,100	4.96	0.86	2.43	34.7	24	3	39	73%	**30**
G-L4	G4	113,800	2.61	0.86	2.43	40.2	24	3	39	85%	**30 @ 4%**

*BASED ON DRAWINGS PROVIDED BY BKF ENGINEERING CALLED YOUTUBE PHASE 1 REVISION 4 DATED 10/04/2019.



Bayhill Drive Existing Pipe Flow & Capacity

Line Number	Subbasin	Area (sf)	Area (ac)	C	i 25 YR (in/hr)	Q=CiA Cumulative (cfs)	Pipe Size (inches)	Pipe Slope (%)	Pipe Capacity Flowing Full (cfs)	Pipe Fullness d/D (%)
B-L1	B1	99,000	2.27	0.86	2.43	4.7	unknown, field verification needed			
B-L2	B2	526,500	12.09	0.86	2.43	30.0	unknown, field verification needed			
B-L3	B5	306,500	7.04	0.86	2.43	44.7	unknown, field verification needed			
B-L4	B6	363,500	8.34	0.86	2.43	62.2	unknown, field verification needed			

Figure 7B Storm Drain System Analysis
City of San Bruno Bayhill Specific Plan

Kimley»Horn

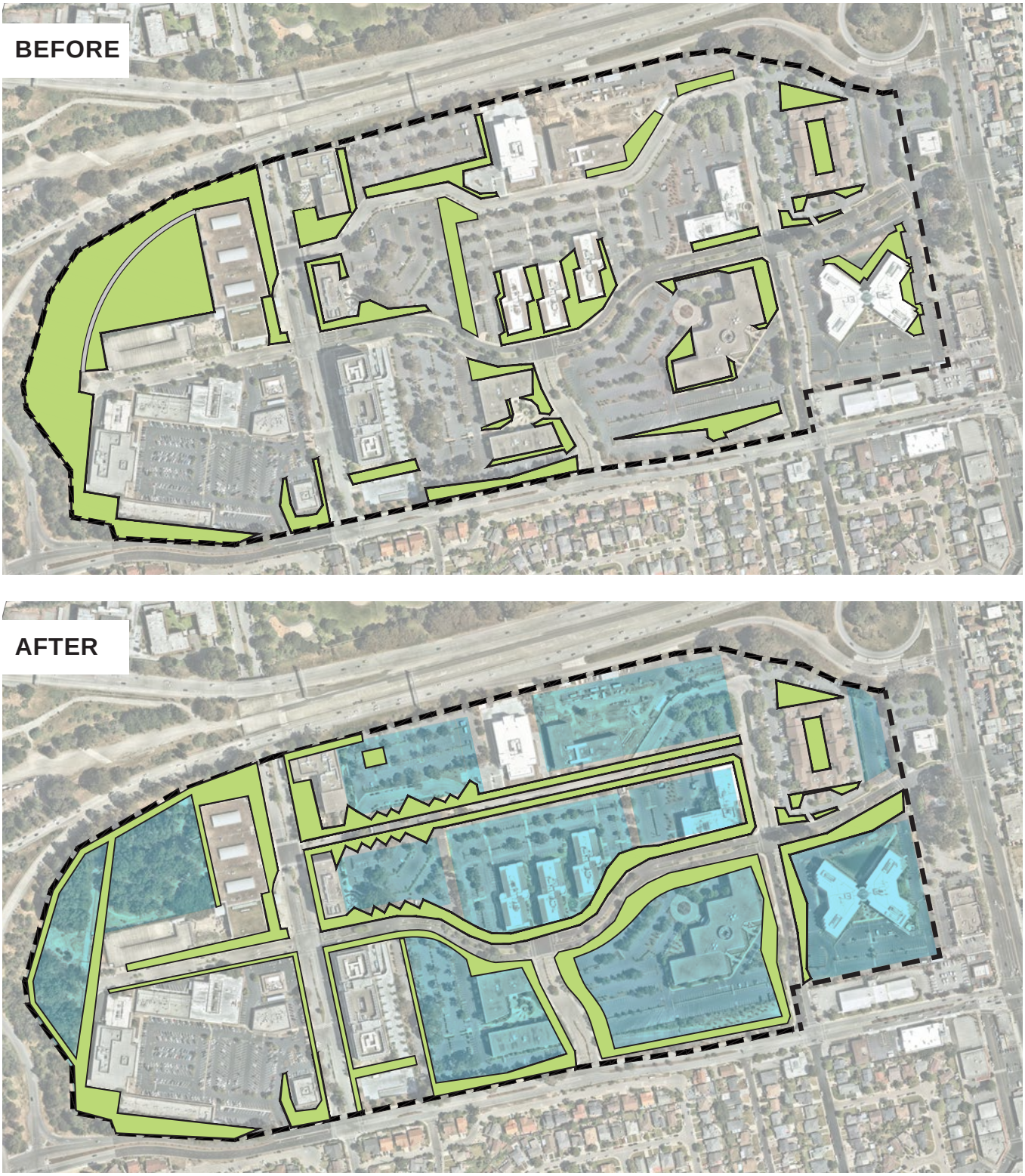
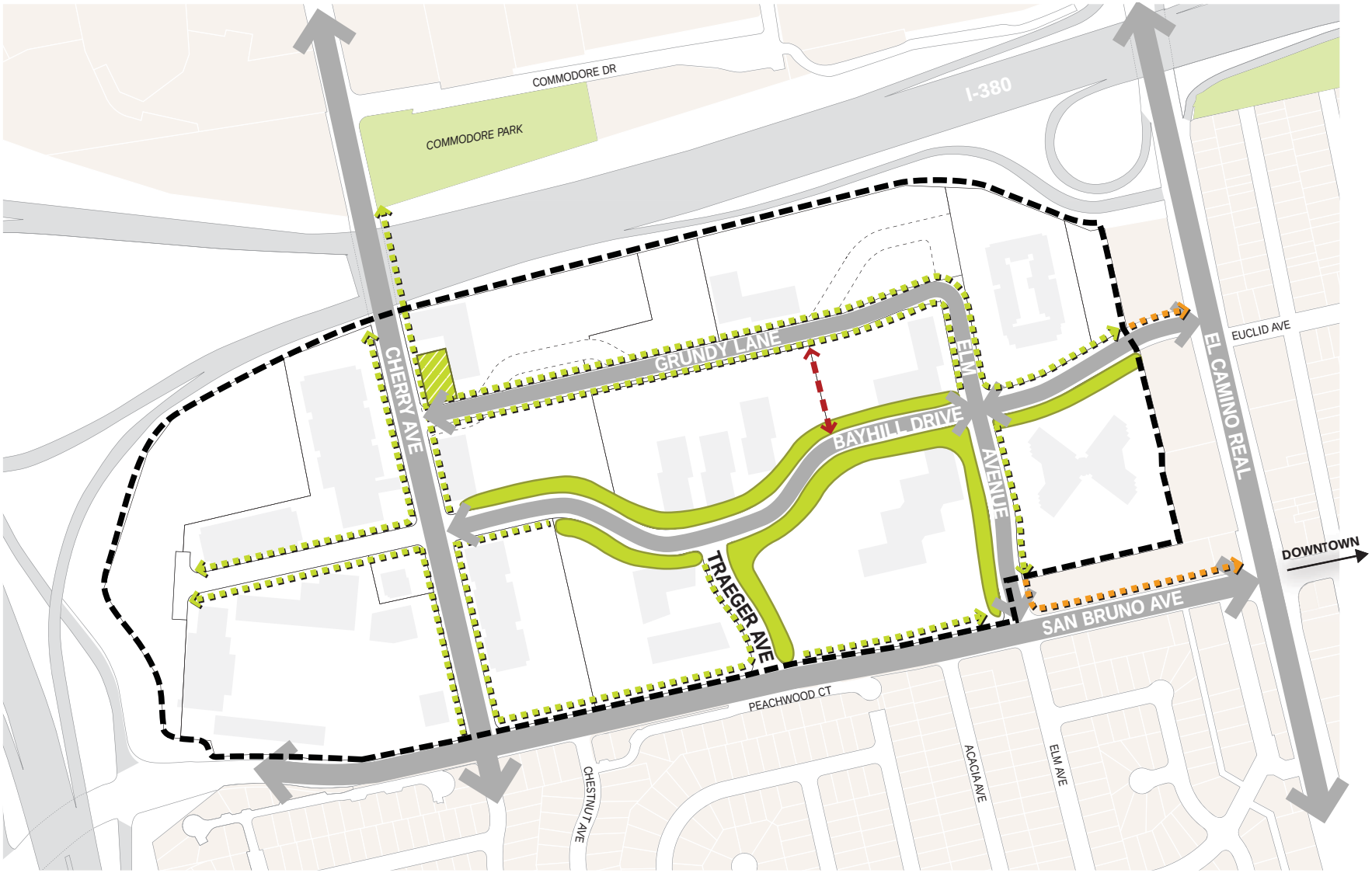


Figure 8 Before and After Connected Landscape Areas
City of San Bruno Bayhill Specific Plan

Kimley»Horn



Source: Bottomley and Associates

Figure 9 Public Realm Concept
City of San Bruno Bayhill Specific Plan

Kimley»Horn

NOAA Atlas 14, Volume 6, Version 2
Location name: San Bruno, California, USA*
Latitude: 37.6297°, Longitude: -122.422°
Elevation: 75.35 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	1.64 (1.45-1.87)	1.98 (1.75-2.27)	2.45 (2.16-2.81)	2.83 (2.47-3.29)	3.38 (2.83-4.09)	3.83 (3.12-4.75)	4.30 (3.38-5.50)	4.79 (3.64-6.35)	5.47 (3.96-7.64)	6.04 (4.18-8.80)
10-min	1.18 (1.04-1.34)	1.42 (1.25-1.62)	1.75 (1.54-2.01)	2.03 (1.77-2.35)	2.43 (2.03-2.93)	2.74 (2.23-3.41)	3.08 (2.42-3.94)	3.43 (2.61-4.55)	3.92 (2.84-5.48)	4.33 (2.99-6.31)
15-min	0.948 (0.840-1.08)	1.14 (1.01-1.31)	1.41 (1.24-1.62)	1.64 (1.43-1.90)	1.96 (1.64-2.37)	2.21 (1.80-2.75)	2.48 (1.96-3.18)	2.76 (2.10-3.66)	3.16 (2.29-4.42)	3.49 (2.42-5.08)
30-min	0.650 (0.576-0.740)	0.784 (0.694-0.896)	0.968 (0.854-1.11)	1.12 (0.980-1.30)	1.34 (1.12-1.62)	1.52 (1.23-1.88)	1.70 (1.34-2.18)	1.89 (1.44-2.51)	2.17 (1.57-3.03)	2.39 (1.66-3.48)
60-min	0.459 (0.407-0.524)	0.555 (0.491-0.634)	0.685 (0.603-0.785)	0.794 (0.693-0.920)	0.949 (0.793-1.15)	1.07 (0.872-1.33)	1.20 (0.948-1.54)	1.34 (1.02-1.78)	1.53 (1.11-2.14)	1.69 (1.17-2.46)
2-hr	0.336 (0.298-0.383)	0.404 (0.357-0.460)	0.494 (0.436-0.567)	0.572 (0.498-0.662)	0.680 (0.568-0.822)	0.766 (0.623-0.950)	0.856 (0.675-1.10)	0.951 (0.724-1.26)	1.09 (0.784-1.52)	1.19 (0.826-1.74)
3-hr	0.278 (0.246-0.316)	0.333 (0.295-0.381)	0.409 (0.361-0.469)	0.473 (0.412-0.547)	0.562 (0.469-0.679)	0.633 (0.514-0.786)	0.707 (0.557-0.905)	0.785 (0.598-1.04)	0.895 (0.647-1.25)	0.984 (0.682-1.44)
6-hr	0.195 (0.172-0.222)	0.235 (0.208-0.269)	0.290 (0.256-0.333)	0.337 (0.293-0.390)	0.401 (0.335-0.485)	0.452 (0.368-0.562)	0.506 (0.399-0.648)	0.563 (0.428-0.746)	0.642 (0.464-0.897)	0.705 (0.489-1.03)
12-hr	0.124 (0.110-0.141)	0.153 (0.136-0.175)	0.193 (0.170-0.221)	0.226 (0.197-0.262)	0.272 (0.228-0.329)	0.309 (0.251-0.384)	0.347 (0.274-0.445)	0.387 (0.295-0.514)	0.444 (0.321-0.620)	0.488 (0.338-0.712)
24-hr	0.080 (0.073-0.091)	0.102 (0.092-0.115)	0.130 (0.117-0.147)	0.154 (0.138-0.176)	0.187 (0.162-0.220)	0.213 (0.180-0.256)	0.240 (0.198-0.296)	0.268 (0.215-0.340)	0.307 (0.237-0.406)	0.338 (0.252-0.463)
2-day	0.051 (0.046-0.058)	0.064 (0.058-0.073)	0.082 (0.074-0.093)	0.096 (0.086-0.110)	0.116 (0.101-0.137)	0.132 (0.112-0.159)	0.148 (0.122-0.183)	0.165 (0.132-0.209)	0.188 (0.145-0.249)	0.207 (0.154-0.283)
3-day	0.039 (0.035-0.044)	0.049 (0.044-0.055)	0.061 (0.055-0.070)	0.072 (0.065-0.082)	0.087 (0.075-0.102)	0.098 (0.083-0.118)	0.110 (0.091-0.136)	0.122 (0.098-0.155)	0.139 (0.107-0.184)	0.152 (0.113-0.208)
4-day	0.032 (0.029-0.036)	0.040 (0.036-0.045)	0.051 (0.046-0.057)	0.059 (0.053-0.068)	0.071 (0.062-0.084)	0.080 (0.068-0.097)	0.090 (0.074-0.111)	0.100 (0.080-0.126)	0.113 (0.087-0.149)	0.123 (0.092-0.169)
7-day	0.023 (0.021-0.026)	0.029 (0.026-0.033)	0.037 (0.033-0.041)	0.043 (0.038-0.049)	0.051 (0.044-0.060)	0.058 (0.049-0.069)	0.064 (0.053-0.079)	0.071 (0.057-0.090)	0.080 (0.062-0.106)	0.087 (0.065-0.119)
10-day	0.018 (0.016-0.020)	0.023 (0.021-0.026)	0.029 (0.026-0.033)	0.034 (0.030-0.038)	0.040 (0.035-0.047)	0.045 (0.038-0.054)	0.050 (0.041-0.062)	0.055 (0.044-0.070)	0.062 (0.048-0.082)	0.067 (0.050-0.092)
20-day	0.012 (0.011-0.013)	0.015 (0.014-0.017)	0.019 (0.017-0.021)	0.022 (0.020-0.025)	0.026 (0.022-0.031)	0.029 (0.025-0.035)	0.032 (0.026-0.039)	0.035 (0.028-0.044)	0.039 (0.030-0.051)	0.042 (0.031-0.057)
30-day	0.010 (0.009-0.011)	0.012 (0.011-0.014)	0.015 (0.014-0.017)	0.018 (0.016-0.020)	0.021 (0.018-0.025)	0.023 (0.020-0.028)	0.025 (0.021-0.031)	0.028 (0.022-0.035)	0.030 (0.023-0.040)	0.032 (0.024-0.044)
45-day	0.008 (0.007-0.009)	0.010 (0.009-0.011)	0.012 (0.011-0.014)	0.014 (0.013-0.016)	0.017 (0.015-0.020)	0.019 (0.016-0.022)	0.020 (0.017-0.025)	0.022 (0.018-0.028)	0.024 (0.018-0.032)	0.025 (0.019-0.035)
60-day	0.007 (0.006-0.008)	0.009 (0.008-0.010)	0.011 (0.010-0.013)	0.013 (0.012-0.015)	0.015 (0.013-0.018)	0.017 (0.014-0.020)	0.018 (0.015-0.022)	0.019 (0.015-0.024)	0.021 (0.016-0.028)	0.022 (0.016-0.030)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

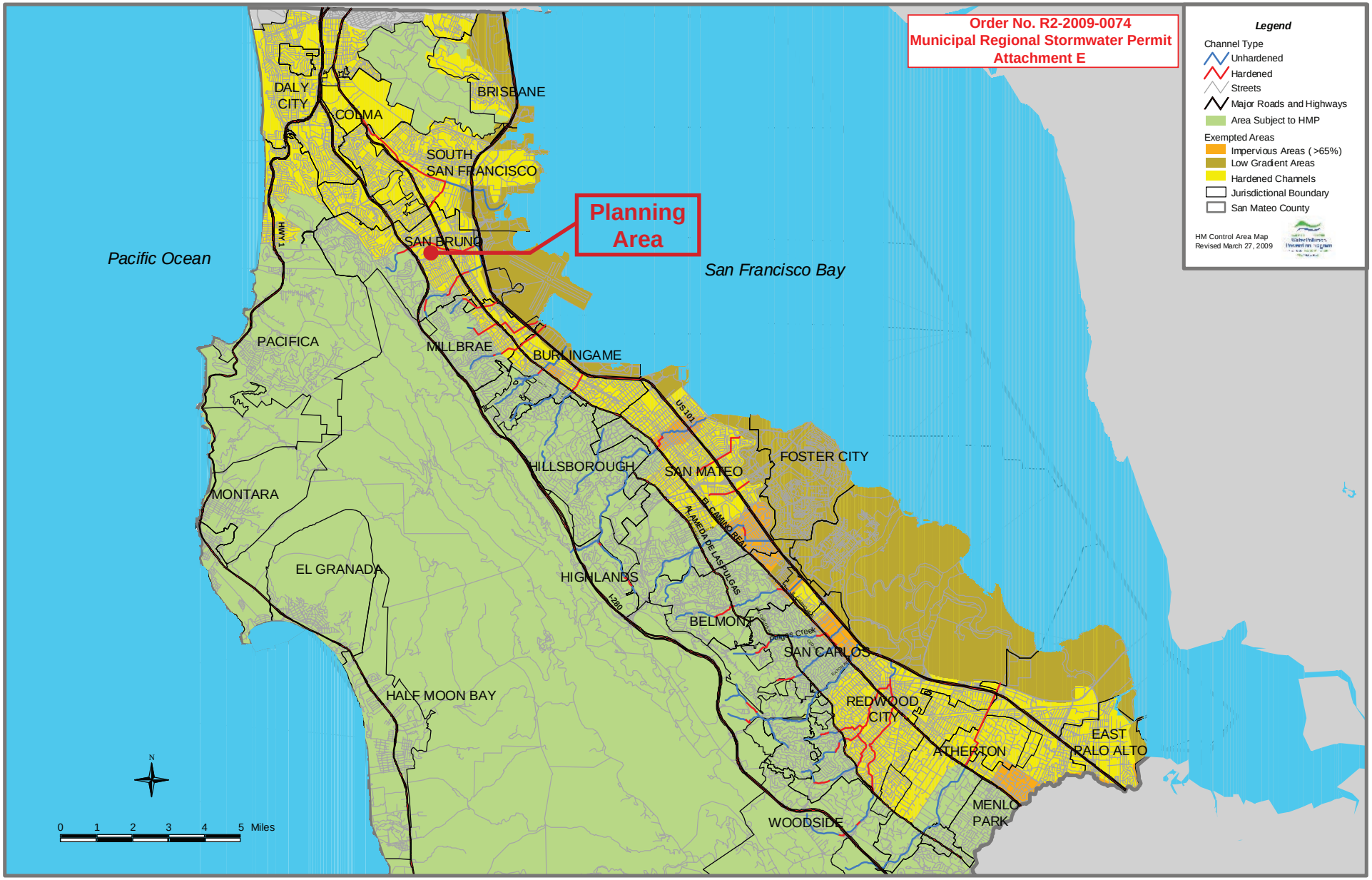


Figure 11 Municipal Regional Stormwater Permit

City of San Bruno Bayhill Specific Plan

Kimley»Horn

Appendix 3.5-2

Groundwater Assessment

eki environment & water

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13 March 2020

MEMORANDUM

To: Hae Won Ritchie, City of San Bruno Department of Public Works

From: Anona Dutton, P.G., C.Hg, EKI Environment & Water, Inc. (EKI)
John Fio, EKI
Kristyn Lindhart, EKI

Subject: **Revised Groundwater Assessment in Support of Bayhill Specific Plan Environmental Impact Report**
City of San Bruno
(EKI B90090.00)

The City of San Bruno (City) has requested that EKI Environment & Water, Inc. prepare this technical memo (TM) related to groundwater conditions and potential impacts related to the development of the Bayhill Specific Plan (also referred to herein as the "Project"). This TM is intended to support development of portions of the Environmental Impact Report (EIR) that is being prepared pursuant to the California Environmental Quality Act (CEQA) for the Project.

1. BACKGROUND

We understand that the EIR is providing program-level analysis of the Bayhill Specific Plan (which has a 15- to 20-year build out over five phases) and project-level analysis of Phase 1 of the Project. The Bayhill Specific Plan contemplates approximately 2.46 million square feet (sq ft) of new commercial and potentially residential development, with significant subterranean parking. Phase 1 includes 440,000 sq ft of new offices, with two underground parking garages that will be constructed to depths of 47 or more feet below ground surface (ft bgs). Dewatering is not anticipated to be needed for Phase 1 but is anticipated to be required during construction of several of the other planned subterranean garages throughout the five phases; however, due to the long-term costs and monitoring typically associated with long-term dewatering, EKI understands that the garages will be constructed to be water proof.

A key concern expressed by the City is that dewatering for the construction of the parking garages could potentially impact local groundwater. As such, the City has asked EKI to evaluate Appendix G CEQA checklist questions X.a, X.b and X.e[1]. Specifically,

- Would the project: (a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?
- Would the project: (b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

[1] http://resources.ca.gov/ceqa/docs/2019_CEQA_Statutes_and_Guidelines.pdf, accessed 15 July 2019.

- Would the project: (e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

2. EXISTING CONDITIONS

2.1 Regulatory Setting

2.1.1 Federal

The following section summarizes some of the key regulations that inform the analysis of potential impacts discussed herein.

2.1.1.1 Clean Water Act Section 402—National Pollutant Discharge Elimination System.

The Federal Clean Water Act (CWA) was enacted with the primary purpose of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters. The CWA directs states to establish water quality standards for all "waters of the United States" and to review and update such standards on a triennial basis.

The U.S. Environmental Protection Agency (EPA) has delegated responsibility for implementation of portions of the CWA, including water quality control planning and control programs, such as the National Pollutant Discharge Elimination System (NPDES) program, to the State Water Resources Control Board (State Water Board) and the Regional Water Quality Control Board (Regional Water Board). The State Water Board establishes statewide policies and regulations for the implementation of water quality control programs mandated by Federal and State water quality statutes and regulations. The Regional Water Boards develop and implement water quality control plans that identify the beneficial uses of surface and ground waters, water quality characteristics, and water quality problems.

The State Water Board's Construction General Permit for Stormwater (Order 2009-0009-DWQ) covers discharge of basic construction dewatering water to surface water and sets water quality standards for sediment in discharge water.

The Regional Water Board's Fuel and Volatile Organic Compound (VOC) General Permit Order No. R2-2017-0048, which became effective on 1 January 2019, covers construction dewatering and discharge to surface water where water quality impacts are present and sets treatment, monitoring, and reporting requirements.

2.1.2 State

2.1.2.1 Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne Act) is established and implemented by the State Water Board and nine Regional Water Boards. The State Water Board is the primary State agency responsible for protecting the quality of the State's surface and groundwater supplies, or "waters of the State." Waters of the State are defined more broadly than "waters of the United States;" they are defined as any surface water or groundwater, including saline waters, within the boundaries of the State. This includes waters in both natural and artificial channels. It also includes all surface waters that are not

waters of the United States or non-jurisdictional wetlands, which are essentially distinguished by whether they are navigable. If waters are not navigable, then they are considered to be isolated and, therefore, fall under the jurisdiction of only the Porter-Cologne Act and not the CWA. The Regional Water Boards are responsible for implementing CWA Sections 401, 402, and 303(d), as previously mentioned and described in more detail below.

The Project lies within the jurisdiction of the San Francisco Bay Regional Water Board. The San Francisco Bay Regional Water Board is responsible for the protection of beneficial uses of water resources in the San Francisco Bay Basin, which includes Alameda, Contra Costa, San Francisco, Santa Clara (north of Morgan Hill), San Mateo, Marin, Sonoma, Napa, and Solano Counties. The Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) was last updated in 2011[2].

The Basin Plan also establishes beneficial water uses for groundwater basins within the region. The Westside Groundwater Basin (WGB) underlies the Specific Plan Area and is listed in the Basin Plan as providing existing beneficial uses that include municipal and domestic water supply, industrial process water supply, and industrial service water supply, and potential beneficial uses that include agricultural water supply.

2.1.2.2 Sustainable Groundwater Management Act

In 2014, the California State Legislature enacted the Sustainable Groundwater Management Act (SGMA), with subsequent amendments in 2015. The SGMA requires the formation of Groundwater Sustainability Agencies (GSAs) and the development and implementation of Groundwater Sustainability Plans (GSPs) for groundwater basins that are designated by the California Department of Water Resources (DWR) as medium or high priority. SGMA defines sustainable groundwater management as the "management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results". Undesirable results are defined by SGMA as any of the following effects caused by groundwater conditions occurring throughout a basin:

- Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply;
- Significant and unreasonable reduction of groundwater storage;
- Significant and unreasonable seawater intrusion;
- Significant and unreasonable degraded water quality;
- Significant and unreasonable land subsidence; and/or
- Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

The Westside Groundwater Basin is currently categorized by DWR as a very low priority basin (DWR, 2019). As such, the WGB is not subject to the requirements of SGMA. However, as discussed below, the WGB has been actively managed for years, including the establishment of pumping limitations.

2.1.3 Local

As described below, several groundwater management programs are actively implemented within the Westside Groundwater Basin that have relevance to the City of San Bruno.

[2] https://www.waterboards.ca.gov/~rwqcb2/basin_planning.html, accessed 24 July 2019.

2.1.3.1 South Westside Basin Groundwater Management Plan

The South Westside Basin is the portion of the WGB that is located south of San Mateo County (Figure 1).The South Westside Basin Groundwater Management Plan (GWMP) was completed in July 2012 as a joint effort between California Water Service Company (Cal Water), the San Francisco Public Utilities Commission, and the Cities of Daly City and San Bruno that superseded prior groundwater management and planning efforts (WRIME, 2012). The GWMP was prepared pursuant to Assembly Bill 3030 (AB 3030; codified in California Water Code (CWC) §10750 et seq.).[3]

The goal of the GWMP is to ensure a sustainable, high quality, reliable water supply at a fair price for beneficial uses achieved through local groundwater management (WRIME, 2012). The GWMP development was supported by a companion effort by the City of Daly City to develop a numerical groundwater model for the WGB. The GWMP includes the following elements:

- Groundwater Storage and Quality Monitoring
- Control of Saltwater Intrusion
- Conjunctive Use
- Recycled Water
- Source Water Protection

Among other things, the GWMP provides steps for monitoring water quality and quantity in the South Westside Basin. Each groundwater well identified in the GWMP has defined triggers for overdraft, seawater intrusion, and various water quality measures. The GWMP also identifies two levels of trigger thresholds for each groundwater well based on historical water levels, and actions to address the trigger that is met.

2.1.3.2 Regional Groundwater Storage and Recovery Project

In a joint effort between SFPUC, Cal Water, Daly City, and San Bruno, the Regional Groundwater Storage and Recovery Project (GSR Project) was developed to support groundwater and surface water management in the South Westside Basin and improve the reliability of the San Francisco Regional Water System (RWS) (San Bruno, 2016). The GSR Project agreement was signed in December 2014 following two phases of successful pilot programs. As part of the GSR Project agreement, the municipal pumpers within the South Westside Basin agreed to self-limit pumping to no more than 6.9 million gallons per day (MGD), of which San Bruno's designated quantity is an annual average rate of 2.1 MGD or 2,352 acre-feet per year (AFY).

Under the GSR Project, the SFPUC will provide supplemental RWS water to San Bruno and the other "Partner Agencies" (i.e., Cal Water and Daly City) during normal and wet years and in turn the Partner Agencies will reduce their groundwater pumping in their own wells to allow the WGB to recharge.[4] During dry years, the Partner Agencies may pump from GSR Project wells in addition to their own wells up to

[3] AB 3030 provided a systematic procedure to develop a groundwater management plan by local agencies overlying DWR Bulletin 118 groundwater basins. Upon adoption of such plan, these agencies could possess the same authority as a water replenishment district to "fix and collect fees and assessments for groundwater management" (CWC §10754) (WRIME, 2012).

[4] Supplemental deliveries do not count towards the Member Agencies' Individual Supply Guarantee.

designated quantities. The in-lieu recharge (i.e., "put") and additional groundwater pumping from GSR wells (i.e., "take") under the GSR project are tracked under the Westside Basin Storage Account. Production wells in the WGB are considered to be either a GSR Well Facility or a Partner Agency Facility, where only production from GSR Well facilities is tracked under the GSR Project[5].

The GSR Project is one of the SFPUC's Water Supply Improvement Program (WSIP) projects and provides additional dry-year water supply to help achieve the WSIP goals to increate RWS supply reliability. The GSR Project consists of the construction of up to 16 new recovery wells and associated facilities, such as pumping systems, pipelines, and chemical treatment equipment. Construction of the GSR Project began in April 2015 and is anticipated to be complete in winter 2021 (SFPUC, 2019a).

2.1.3.3 San Mateo County Pollution Prevention Program

The San Mateo County Pollution Prevention Program provides best management Practices (BMPs) for construction dewatering. Those BMPs state "If the pumping time is more than 24 hours and the flow rate is greater than 20 gallons per minute (gpm), call your local agency for guidance."

2.1.3.4 San Bruno Municipal Code

The following San Bruno City Code sections are relevant to consideration of the hydrology and water quality impacts of the Project that are addressed herein.

- **10.12.150.d (Municipal Services, Water Quality Control, General Discharge Requirements)**: "regulates discharge of groundwater to sanitary sewer, which is prohibited with a few exceptions including construction dewatering if discharge to storm sewer is not possible.
- **10.18.065 (Municipal Services, Storm Water Management and Discharge Control):** prohibits discharge of non-stormwater to the city storm sewer system, with exceptions including uncontaminated pumped groundwater and foundation and footing drains where a NPDES permit is obtained.

2.1.3.5 San Bruno General Plan

The following San Bruno General Plan policies are relevant to consideration of the hydrology and water quality impacts of the Project that are addressed herein.

- **ERCRC-D** Reduce pollution levels within the surface water that San Bruno discharges into the San Mateo County Flood Control District, then into San Francisco Bay.
- **ERCRC-4** Encourage the use of Best Management Practices in conserving the City's valuable water supply sources.
- **ERCRC-19** Regulate new development--specifically Industrial uses--as well as construction and demolition practices to minimize pollutant and sediment concentrations in receiving waters and ensure water bodies within San Bruno and surface water discharged into San Francisco Bay meets or exceeds relevant regulatory water quality standards.

[5] Since the GSR Agreement addresses City and SFPUC wells, the agreement is assumed to not pertain to wells installed by private parties to conduct construction dewatering. The City is confirming this interpretation.

- **ERCRC-20** Require implementation of Best Management Practices to reduce accumulation of non-point source pollutants in the drainage system originating from streets, parking lots, residential areas, businesses, and industrial operations.
- **ERCRC-23** Regulate new development to minimize storm water runoff rates and volumes generated by impervious surfaces, and maximize recharge of local groundwater aquifers when feasible. Utilize the recommendations provided in the Bay Area Stormwater Management Agency's Start at the Source Design Guidance Manual for Stormwater Quality Protection.
- **ERCRC-24** Require that new development incorporate features into site drainage plans that reduce impermeable surface area and surface runoff volumes. Such features may include:
    - Additional landscaped areas including canopy trees and shrubs;
    - Reducing building footprint;
    - Removing curbs and gutters from streets and parking areas where appropriate to allow stormwater sheet flow into vegetated areas;
    - Permeable paving and parking area design;
    - Stormwater detention basins to facilitate infiltration; and
    - Building integrated or subsurface water retention facilities to capture rainwater for use in landscape irrigation and other non-potable uses.
- **HS-23** Ensure appropriate clean-up of all former commercial and industrial sites according to relevant regulatory standards prior to reuse.
- **HS-30** Regulate development on sites with known or suspected contamination of soil and/or groundwater to ensure that construction workers, the public, future occupants, and the environment are adequately protected from hazards associated with contamination, in accordance with federal, State, and local rules, regulations, policies, and guidelines.

2.2 Environmental Setting

2.2.1 Regional Setting

The Westside Groundwater Basin (DWR Basin No. 2-35) underlies the Specific Plan Area, as shown on Figure 1. The WGB covers an area of approximately 25,400 acres and is separated from the Lobos Basin to the north by a northwest trending bedrock ridge through the northeastern part of Golden Gate Park. The San Bruno Mountains bound the WGB on the east. The San Andreas Fault and Pacific Ocean form its western boundary and its southern limit is defined by a bedrock high that separates it from the San Mateo Plain Subbasin. The WGB is connected to the Pacific Ocean on the northwest and San Francisco Bay on the southeast (WRIME, 2012).

Geologically, the WGB is comprised of two formations, consisting of bedrock and unconsolidated materials. The impermeable bedrock is composed of consolidated sediment of the Franciscan Complex and the Great Valley Sequence of late Jurassic and Cretaceous age. Unconsolidated materials overlying the bedrock comprise the water bearing formations. These consist of dune sands, the Colma Formation of Pleistocene age, and the Merced Formation of Pleistocene/ Pliocene age (Phillips and others, 1993; DWR, 2006).

Groundwater used for water supply within the WGB is generally pumped from the Merced and Colma formations. The Merced Formation is composed of sand and thin interbedded silt and clay layers of shallow marine depositional origin. The Colma Formation overlies the Merced Formation and consists of fine-grained sand, silty sand, and inter-fingered clay layers (DWR, 2006). Water is produced from the coarse-grained layers within these complex, layered formations (WRIME, 2012).

The WGB is subdivided for management purposes into northern and southern portions by the county line separating San Francisco and San Mateo counties. The county-line boundary between the "North Westside Basin" and the "South Westside Basin" does not have hydrogeological significance other than influencing the jurisdictional distribution of groundwater pumping. No geologic features restrict groundwater flow between the northern and southern parts of the WGB (SFPUC, 2016). Groundwater pumping has historically provided up to 50% of local water supply in the South Westside Basin for the communities of San Bruno, Daly City, and South San Francisco (WRIME, 2012), although current usage is significantly less as a proportion.

The WGB is not adjudicated and, in its recent evaluation of California groundwater basins, DWR determined that the WGB is not in overdraft and is a low priority basin (DWR, 2019). Recent evaluations by others have also found that current pumping is estimated to be within the basin's safe yield (WRIME, 2012).

2.2.2 Specific Plan Area

The Specific Plan Area includes a 92.2-acre area which is bounded by Interstate 380 to the north, El Camino Real to the east, San Bruno Avenue to the south and Interstate 280 to the west, excluding five parcels fronting El Camino Real and San Bruno Avenue that are included in the City's Transit Corridors Specific Plan Area. The land surface elevation is the greatest on the western side of the Specific Plan Area (~160 feet mean sea level, ft msl) and decreases across the Specific Plan Area, with the lowest elevation (~40 ft msl) being on the most eastern side of the Specific Plan Area.

Similarly, the groundwater elevation is the greatest on the western side of the Specific Plan Area (~110 ft msl) and gradually gets shallower on the eastern side of the Bayhill Specific Plan Site (~8 ft msl) as seen in Figure 2. The inferred groundwater elevation was based on the most recent existing data from the 2018 *ENGEO Preliminary Geotechnical Report for Environmental Impact Report Review* and wells at four Geotracker Sites (T0608100660, T0608100126, T0608100147, and T0608100537). Seasonal fluctuations in the local water table are expected, but the magnitude is unknown.

The Specific Plan Area is proposed to be developed in five phases (refer to Figure 3):

- Phase 1 includes Garages 1 and 3 with a buildout date of 2022.
- Phase 2 includes Garage 4 with a buildout date of 2023.
- Phase 3 includes Garage 7 with a buildout date of 2025.
- Phase 4 includes Garage 2 with a buildout date of 2030.
- Phase 5 includes Garages 5, 8 and 9 with a buildout date of 2035.
- Additional proposed Garages 6, 10, and 11 with construction dates to be determined.

Based on the inferred groundwater elevation, the proposed Garages 10, 11, 7, 2, 5, 8 and 9 will likely be constructed to depths that will intercept the water table and will require dewatering during construction

activities and water proofing construction thereafter. The preliminary dewatering analysis is discussed in Section 3.3 and in detail in Appendix A.

2.2.3 Phase 1 Site

The Phase 1 Site includes an area of 8.15-acres and is comprised of two separate parcels (020-015-020, 020-011-230) with two proposed parking garages (garages 1 and 3). The Phase 1 Site is bounded by Interstate 380 to the north, Grundy Lane to the south and Cherry Avenue to the west. The Phase 1 Site is relatively flat with a slightly lower elevation at the eastern side of the Site. The land surface elevation ranges from approximately 105 ft msl to 95 ft msl. The inferred groundwater elevation below the Phase 1 Site ranges from approximately 55 ft msl to 40 ft msl (see Figure 2). Based on currently available information, it appears that the proposed garages that will be constructed as part of Phase 1 will be completed above the water table and will not require dewatering during construction activities. However, as above, seasonal variations in the water table could change this preliminary finding.

3. TECHNICAL ASSESMENT OF POTENTIAL ISSUES ASSOCIATED WITH PROJECT DEWATERING OPERATIONS

3.1 Estimate of Construction Dewatering Rates and Volumes

Based on the available information, it appears that Phases 1 and 2 most likely will not require dewatering during construction activities. However, Phases 3, 4 and 5 will likely require dewatering of five garages (Garages 2, 5, 7, 8, and 9). There are two additional garages (10 and 11) that will likely require dewatering, but are not part of the currently-identified construction phases.

Construction dewatering information was not provided to EKI. Therefore, as described in Appendix A, construction dewatering volumes, discharge rates, and groundwater level changes due to construction dewatering were preliminarily estimated using Project design information, the estimated depth to the water table beneath the Specific Plan Area, representative aquifer parameters obtained from the San Bruno portion of Westside Basin Groundwater-Flow Model, and equations that simulate well-aquifer hydraulics.

As an example, for Phase 3 (Garage 7), the footprint of the planned subterranean garage is about 430,000 sq ft, and site conditions indicate about 20 acre-feet (AF) of water must be extracted initially to lower the water table 15 feet to the desired excavation depth (i.e., the estimated volume for construction dewatering assumes a drainable porosity equal to the specific yield from the Westside Basin Groundwater-Flow Model, which is 14%). Additional water must be extracted during the maintenance period until construction is complete.

The rate of discharge required to achieve 15 feet of drawdown depends on the number of dewatering wells and their yields. Assuming one month of continuous extraction is required to remove the estimated volume, the approximate discharge rate for the initial month is about 154 gallons per minute (gpm). After the target drawdown of 15 feet is achieved, we conservatively assumed that 25% to 50% of the initial extraction rate is required for maintenance purposes to remove groundwater that seeps from exposed

portions of the excavation walls, its base, or other unsealed areas[6]. Therefore, the estimated annual average discharge of construction dewatering over the one-year construction period is about 66 gpm. The corresponding total volume of water removed during the one-year construction period is estimated to be 106 AF. A similar process was followed to estimate the construction dewatering volumes and discharge rates during all of the construction phases. The results are summarized in Table 1. Additional detail and supporting calculations are provided in Appendix A.

Table 1
Summary of Estimated Dewatering Rates and Volumes

Construction Phase	Assumed Dewatering Period (months)		Construction Dewatering Discharge Rate (gpm)			Estimated Dewatering Volume (AF)
	Initial	Maintenance	Initial	Maintenance	Average Annual	
Phase 1 Garages 1 & 3	*No construction dewatering anticipated*					
Phase 2 Garage 4	*No construction dewatering anticipated*					
Phase 3 Garage 7	1	11	154	58	66	106
Phase 4 Garage 2	1	11	160	60	68	110
Phase 5 Garage 5	1	11	147	37	46	74
Phase 5 Garage 8	1	11	257	64	80	130
Phase 5 Garage 9	1	11	44	17	19	30
Garage 10	1	11	127	48	54	88
Garage 11	1	11	70	26	30	49
Total	--	--	--	--	--	**587**

However, we note that, depending on the actual site conditions encountered and the associated groundwater extraction rates and durations, the actual dewatering rates and volumes could be

[6] The assumed reduction in required dewatering volumes assumes that, consistent with EKI's understanding of typical construction practices, efforts will be made during construction to minimize groundwater seepage into the excavation (e.g., shoring). Maintenance dewatering discharge rates are assumed to differ based on the presence of impermeable boundaries. For detailed information on estimated dewatering discharge rates and volumes refer to Appendix A

significantly different than those estimated herein.

3.2 Identification of Potential Sensitive sites

3.2.1 Water Quality Sites and Issues of Concern

A preliminary evaluation of contaminated sites in the vicinity of the planned Specific Plan Area was performed utilizing GeoTracker, EnviroStor, and the *Phase I Environmental Site Assessment, 900 and 1000 Cherry Avenue, San Bruno, California* (Phase I ESA; Iris, 2015). Generally, the majority of currently or formerly contaminated sites located near, or co-located with, the Specific Plan Area are closed leaking underground storage tank (LUST) sites that likely do not present a serious concern for mobilization of contaminants due to construction dewatering; these sites are not shown on Figure 3.

A potentially problematic contaminated site exists at 999-1001 Bayhill Drive, titled the "Bayhill 7 Facility" on GeoTracker (see Figure 3). The Bayhill 7 Facility is located within the planned Phase 5 construction footprint. According to GeoTracker, an elevator hydraulic fluid leak was discovered at the Bayhill 7 Facility in 2004, followed by excavation of impacted soil. Further investigation in 2005 showed residual petroleum hydrocarbons in soil and groundwater at the Bayhill 7 Facility, but these impacts were deemed not a risk to public health and the environment. The Bayhill 7 Facility was closed under the San Mateo County Health Department Groundwater Protection Program (GPP) in 2009 with the condition that any proposed change in land use or proposed soil or groundwater removal activity be reviewed by the GPP (GPP, 2009); see letter included as Appendix B. Present conditions at the Bayhill 7 Facility are unknown.

Additionally, according to publicly available documents on GeoTracker, VOCs are present in groundwater to the east/southeast and within 450 feet of the planned Phase 5 construction footprint at 709 Camino Plaza. The 709 Camino Plaza site is titled "Mills Park Cleaners" on GeoTracker (see Figure 3). Tetrachloroethylene (PCE) is listed as the primary potential contaminant of concern.

Finally, we note that there is dry cleaner (Bayhill Plaza Cleaners) located immediately upgradient of the planned Phase I Site. Based on a search of GeoTracker and EnviroStor, as well as the environmental database review presented in the Phase I ESA, there do not appear to have been any investigations into any possible groundwater impacts associated with this active dry cleaning operation.

3.2.2 Planned Replacement Well 21

The City of San Bruno is planning to construct a new public water supply well (Proposed Well 21) approximately 300 feet north of the Specific Plan Area. The well site is located north of Interstate 380, east of Commodore Park and south of Commodore Drive West (see Figure 3). The well is planned to be competed to a depth of 500 ft bgs with a screened interval from 420 to 500 ft bgs. Proposed Garage 2, which will require dewatering, is located only 300 feet from the proposed well site.

3.3 Estimate of Groundwater Impacts from Dewatering Operations

As a measure of the potential impacts caused by the planned construction dewatering activity, the estimated water level drawdown at potentially sensitive sites within, and in the vicinity of, the Specific Plan Area are estimated, as shown on Figure 4.

For this analysis we conservatively evaluated the maximum drawdowns at each of the sensitive sites after one year, assuming a construction dewatering scenario that included one month of initial dewatering and 11 months of maintenance dewatering (see Table 1). For the dewatering analysis we placed a hypothetical dewatering well in the middle of each garage, see Appendix A for further details. As shown on Figure 4 and in Table 2, under this scenario, the absolute groundwater level impacts appear to be relatively minor at the known sensitive sites (i.e., less than five feet of impact), with the exception of Bayhill 7 Facility. Phase 5 includes the construction of three garages (5, 8 and 9). Garage 8 is planned to be constructed where the Bayhill 7 Facility is located, therefore the drawdown seen in Table 2 for Phase 5 includes the drawdown needed for construction of the garage (40 ft) and the additional drawdown due to simultaneous dewatering activities at garages 5 and 9 (3.92 ft). It is expected that once dewatering efforts cease, the water levels at the sensitive sites will return to pre-construction conditions. However, as explored in Section 4.2, even the minimal and short-term drawdown associated with construction dewatering may impact the migration of impacted groundwater.

Table 2
Summary of Estimated Drawdown at Sensitive Sites During Dewatering

Construction Phase	Estimated Drawdown at Sensitive Sites (ft)			
	Bayhill Plaza Cleaners	Proposed Well 21	Bayhill 7 Facility	Mills Park Cleaners
Phase 1	*No construction dewatering anticipated*			
Phase 2	*No construction dewatering anticipated*			
Phase 3	0.89	0.95	2.53	1.04
Phase 4	0.77	3.65	2.12	0.53
Phase 5	1.34	3.50	43.92 (a)	3.55
Additional Garages	3.85	0.57	0.31	0.10

Notes:

(a) Sensitive site Bayhill 7 Facility is located where the proposed Garage 8 is planned (see Figure 4). Garage 8 needs to be dewatered approximately 40 ft (i.e., the garage is proposed to be 50 ft deep and the water table is approximately 10 ft bgs). The water table is shallowest on the eastern side of the Specific Plan Area (see Figure 2) therefore the garages on the eastern side of the Specific Plan Area require more dewatering. The drawdown at Bayhill 7 Facility during Phase 5 is equal to the depth needed to dewater Garage 8 (40 ft) and the additional drawdown due to simultaneous dewatering activities at Garages 5 and 9 (i.e., an additional 3.92 ft).

We note that, depending on the actual site conditions encountered and associated groundwater extraction rates and durations, the actual drawdown and migration of groundwater at the sensitive sites could be significantly different than that estimated herein.

4. EVALUATION OF ENVIRONMENTAL IMPACTS – PROGRAM LEVEL

4.1 Thresholds of Significance

The assessment of environmental Impacts of the Bayhill Specific Plan is based on Appendix G CEQA checklist questions X.a, X.b and X.e[7]. Specifically,

- Would the project: (a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?
- Would the project: (b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?
- Would the project: (e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

4.2 Impacts and Mitigation Measures

Would the project: (a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

Preliminary Findings. Dewatering is anticipated during construction of Phases 3 through 5, as well as during construction of Garages 9 and 10. The Bayhill 7 Facility site is co-located with the Phase 5 construction footprint. Therefore, Phase 5 construction plans will likely need to be reviewed by the GPP to determine impacts to water quality, as well as any waste discharge requirements during dewatering. Additionally, it is projected that during Phase 3 and Phase 4 there will be a water level drawdown of more than two feet at the Bayhill 7 Facility site (see Table 2). As such, we would recommend that the GPP be notified of the planned activities associated with the Specific Plan Area redevelopment.

The Mills Park Cleaners Site has soil and groundwater impacted by VOCs. The projected water level drawdown at this site ranges from 0.10 to 3.55 ft (see Table 2 and Figure 4). The greatest impact is estimated to occur during Phase 5 construction. Based on the estimated change to the gradient over the one year of construction dewatering, it is assumed that the current VOC plume could theoretically migrate almost 500 feet and reach the garage[8]. As such, we recommend that conditions at the Mills Park Cleaners

[7] http://resources.ca.gov/ceqa/docs/2019_CEQA_Statutes_and_Guidelines.pdf, accessed 15 July 2019.

[8] The VOC plume at the Mills Park Cleaner Site is located approximately 450 feet away from Garage 8. Previous water level elevation maps for the shallow water bearing zone indicate the horizontal gradient influencing plume migration was about 0.01 and to the southeast, away from the proposed garage location. Under dewatered conditions, the flow direction reverses from the southeast to the northwest and toward the garage, and the corresponding gradient under the maximum drawdown condition increases to about 0.09. Using the Darcy equation and the maximum gradient (the gradient calculated using the minimum groundwater elevation at the garage excavation and the maximum groundwater elevation at the plume edge), the estimated groundwater velocity is about 1.3 ft/day. Applying the velocity for the entire year, a particle of water near the plume edge could move almost 500 feet and reach the garage. However, this time-of-travel calculation is for a particle of water and does not include natural attenuation of dissolved constituents by sediment-constituent interactions which can substantially retard plume migration. Moreover, the calculation applies the maximum gradient to the entire 12-month dewatering period; the actual gradient would decreases with time as dewatering lowers groundwater elevations in the areas that surround

Site be monitored closely during all dewatering operations to ensure that significant changed conditions are not encountered, and that there be at least periodic sampling and chemical analysis of dewatering operation discharge.

If petroleum hydrocarbons or VOCs are detected in Phase 3 through 5 dewatering water, a Fuel and VOC General Permit must be obtained by the Regional Water Board prior to discharge of dewatering water to the storm drain. Per the Fuel and VOC General Permit, dewatering water must be fully characterized for a suite of contaminants of potential concern, after which treatment needs must be assessed and designed prior to permit approval. The Fuel and VOC General Permit also requires ongoing water quality monitoring and reporting, along with payment of an annual fee.

If petroleum hydrocarbons or VOCs are not detected in Phase 3 through 5 dewatering water, a Construction General Permit for Stormwater must be obtained from the State Water Board prior to discharge of dewatering water to the storm drain. Depending on the risk level determination for each phase of construction, monitoring and reporting of various water quality parameters, including pH and turbidity, may be required.

Recommended Mitigation. Potential water quality impacts may be encountered or incurred during construction dewatering. Appropriate notification, monitoring and permitting steps must be followed to mitigate any potential impacts, including coordination and contingency planning with the appropriate permitting and regulatory agencies.

Would the project: (b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Preliminary Findings. As shown in Table 1, the maximum amount of water expected to be dewatered from the Specific Plan Area in any given year is estimated to be 130 AF[9], which is approximately 1.5% of the total annual groundwater extractions from the South Westside Basin (8,564 AF) [10].

The total volume of groundwater anticipated to be extracted for dewatering purposes at the Specific Plan Area is estimated to be approximately 587 AF (see Table 1) over the 20-year Project buildout (30 AFY). This volume is approximately 0.35% of the projected annual groundwater extractions from the South Westside Basin (30 AFY/8,564 AFY = 0.35%)[11]. As such, the incremental volume of extraction associated

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the excavation. The time-of-travel calculation is therefore considered very conservative, and the estimated travel distance for dissolved VOCs at the end of 12-months is probably substantially less than the distance to the garage.

[9] As shown in Table 1, if Garage 8 of Phase 3 is dewatered within one year, the total estimated dewatering volume is 130 AF.

[10] Total groundwater extractions from the South Westside Basin in 2010 were 8,564 AFY, see Table 3.1 of the South Westside Basin Groundwater Management Plan, July 2012.

[11] This calculation takes the estimated total Project extraction of 587 AF and divides that over a 20-year period to get approximately 30 AFY. This calculation further assumes that 8,564 AF (the 2010 extraction rate) will continue to be extracted from the South Westside Basin each year for the next 20 years. Taken together, the yearly average dewatering volume (30 AF) is estimated to be approximately 0.35% of the annual groundwater extractions from the South Westside Basin (8,564 AF).

with dewatering operations during construction is not anticipated to impede sustainable groundwater management within the WGB.

The Proposed Well 21 is planned to be completed to a depth of 500 ft bgs with a screened interval from 420 to 500 ft bgs. During dewatering, the estimated drawdown at this well ranges from 0.57 to 3.65 ft. Since the well will be pulling water from 420 ft bgs, the drawdown from the dewatering efforts are anticipated to have a negligible effect on the water supply generated at this well.[12] We also note that, based on water level measurements collected in a nearby well (CUP-44-1 MW460), there is an average seasonal fluctuation of groundwater levels in the deep aquifer of approximately 10 ft throughout the year.[13]

The Specific Plan Area (92.2 acres) is less than 1% of the WGB area (25,400 acres). Given the already developed condition of the Specific Plan Area, development allowed by the Bayhill Specific Plan is not expected to result in a substantial increase in impervious surface area such that it would substantially interfere with groundwater recharge such that the Project would impede sustainable groundwater management of the WGB.

Recommended Mitigation. No significant impact has been identified; no mitigation is recommended.

Would the project: (e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Preliminary Finding. As shown in Table 1, the maximum amount of water expected to be dewatered from the Specific Plan Area in any given year is estimated to be 130 AF[14], which is approximately 1.5% of the total annual groundwater extractions from the South Westside Basin (8,564 AF) [15].

The total volume of groundwater anticipated to be extracted for dewatering purposes at the Specific Plan Area is estimated to be approximately 587 AF (see Table 1) over the 20-year Project buildout (or 30 AFY). This volume is approximately 0.35% of the projected total groundwater extractions from the South Westside Basin over that same 20-year time period[16].

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[12] According to the 2018 Annual Groundwater Monitoring Report for the Westside Basin (SFPUC, 2019b) the depth to water in the area of where proposed Well 21 will be located was approximately 270 ft bgs. This leaves a water column of approximately 150 ft above the screened interval of the proposed well and therefore a drawdown of 3.65 ft will not expose the screened interval. Additionally, the proposed Well 21 will be pulling water from the primary production aquifer, not the shallow aquifer.

[13] CUP-44-1 MW460 water level data from the 2018 Annual Groundwater Monitoring Report for the Westside Basin (SFPUC, 2019b). Seasonal fluctuation was calculated using water level data collected between 2009 and 2014.

[14] As shown in Table 1, if Garage 8 of Phase 3 is dewatered within one year, the total estimated dewatering volume is 130 AF.

[15] Total groundwater extractions from the South Westside Basin in 2010 were 8,564 AFY, see Table 3.1 of the South Westside Basin Groundwater Management Plan, July 2012.

[16] This calculation takes the estimated total Project extraction of 587 AF and divides that over a 20-year period to get approximately 30 AFY. This calculation further assumes that 8,564 AF (the 2010 extraction rate) will continue to be extracted from the South Westside Basin each year for the next 20 years. Taken together, the yearly average dewatering volume (30 AF) is estimated to be approximately 0.35% of the annual groundwater extractions from the South Westside Basin (8,564 AF).

These extraction volumes are not anticipated to obstruct implementation of a sustainable groundwater management plan or a water quality control plan for the WGB since they represent such a comparatively small amount of water.

Recommended Mitigation. No significant impact has been identified; no mitigation is recommended.

5. EVALUATION OF ENVIRONMENTAL IMPACTS – PHASE 1

5.1 Thresholds of Significance

The assessment of environmental Impacts of the Bayhill Specific Plan is based on Appendix G CEQA checklist questions X.a, X.b and X.e[17]. Specifically,

- Would the project: (a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?
- Would the project: (b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?
- Would the project: (e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

5.2 Impacts and Mitigation Measures

Would the project: (a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

Preliminary Finding. Dewatering is not planned during Phase 1 construction since excavation depths during Phase 1 are not anticipated to extend below the anticipated groundwater level encountered at the Phase 1 Site. Additionally, no known contaminated sites are co-located with or located within the immediate vicinity of the planned Phase 1 construction. Therefore, it is not anticipated that Phase 1 construction will have a significant impact on water quality, waste discharge requirements, or surface and groundwater quality.

Recommended Mitigation. No significant impact has been identified; no mitigation is recommended.

Would the project: (b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Preliminary Findings. Dewatering is not planned during Phase 1 construction. As such, Phase 1 is not anticipated to decrease groundwater supplies locally and within the Westside Groundwater Basin.

[17] http://resources.ca.gov/ceqa/docs/2019_CEQA_Statutes_and_Guidelines.pdf, accessed 15 July 2019.

The Phase 1 Site area (8.15 acres) is less than 1% of the WGB area (25,400 acres). Given the already developed condition of the Phase 1 Site, development is not expected to result in a substantial increase in impervious surface area such that it would substantially interfere with groundwater recharge or impede sustainable groundwater management of the WGB.

Recommended Mitigation. No significant impact has been identified; no mitigation is recommended.

Would the project: (e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Preliminary Finding. Dewatering is not planned during Phase 1 construction since excavation depths during Phase 1 are not anticipated to extend below the anticipated groundwater level encountered at the Phase 1 Site. Therefore, it is not anticipated that Phase 1 construction will obstruct implementation of a sustainable groundwater management plan or a water quality control plan.

Recommended Mitigation. No significant impact has been identified; no mitigation is recommended.

6. EVALUATION OF ENVIRONMENTAL IMPACTS – "MAXIMUM POTENTIAL" SCENARIO

6.1 Estimate of Construction Dewatering Rates and Volumes

Construction dewatering information was not provided to EKI and there is significant uncertainty regarding the estimates presented above in Sections 3.1. Therefore, as described in Appendix A, a "maximum potential" scenario was developed to estimate potential construction dewatering volumes, discharge rates, and groundwater level changes due to construction dewatering. Specifically, the following is assumed:

- All seven garages will be dewatered simultaneously;
- The garages will initially be dewatered in a one-month period and will require the highest maintenance rate (50% of the initial dewatering rate) for eleven months; and
- The construction dewatering discharge rate for each hypothetical dewatering well is based on the footprint of the planned subterranean garage, the dewatering depth required for each garage, and aquifer properties[18].

Using the assumptions above, and based on the analysis presented in Appendix A, the estimated total discharge rate for the initial month of dewatering totals 959 gpm, as seen below in Table 3. The estimated total discharge rate for the 11-month maintenance period is 478 gpm. Therefore, the total annual average discharge of construction dewatering water over the one-year construction period from all of the garages is estimated to be 519 gpm.

The corresponding total volume of water removed from each garage during the year of construction is estimated to range from 38 AF (Garage 9) to 224 AF (Garage 8) with a total of 837 AF of water being removed.

[18] We note that the aquifer properties are another significant source of uncertainty which could impact potential dewatering rates and volumes.

Table 3
Summary of Estimated Dewatering Rates and Volumes Under the "Maximum Potential" Scenario

Garage	Assumed Dewatering Period (months)		Construction Dewatering Discharge Rate (gpm)			Estimated Dewatering Volume (AF)
	Initial	Maintenance	Initial	Maintenance	Average Annual	
2	1	11	160	80	87	140
5	1	11	147	73	79	128
7	1	11	154	77	83	134
8	1	11	257	128	139	224
9	1	11	44	22	24	38
10	1	11	127	63	69	111
11	1	11	70	35	38	62
Total	**--**	**--**	**959**	**478**	**519**	**837**

6.2 Estimate of Groundwater Impacts from Dewatering Operations

As a measure of the potential maximum impact of dewatering operations, the estimated water level drawdown at potentially sensitive sites within, and in the vicinity of, the Specific Plan Area are estimated below in Table 4 and shown on Figure 5.

For this dewatering analysis a hypothetical dewatering well was placed in the middle of each garage and pumped simultaneously for a year period (see Appendix A for further details). Under this scenario, the absolute groundwater level impacts are greater than the phased scenarios, but the duration of the impact is limited (i.e., less than one year). It is expected that once dewatering efforts cease, the water levels at the sensitive sites will eventually return to pre-construction conditions. However, as explored in Section 6.4, even the short-term drawdown associated with construction dewatering may impact the migration of impacted groundwater.

Table 4
Summary of Estimated Drawdown at Sensitive Sites During Dewatering
Under the "Maximum Potential" Scenario

Construction Phase	Estimated Drawdown at Sensitive Sites (ft)			
	Bayhill Plaza Cleaners	Proposed Well 21	Bayhill 7 Facility	Mills Park Cleaners
All garages dewatered simultaneously	8.82	12.2	52.2 (a)	7.85

Note:

(a) Sensitive site Bayhill 7 Facility is located where the proposed Garage 8 is planned (see Figure 4). Garage 8 needs to be dewatered approximately 40 ft (i.e., the garage is proposed to be 50 ft deep and the water table is approximately 10 ft bgs). The water table is shallowest on the eastern side of the Specific Plan Area therefore the garages on the eastern side of the Specific Plan Area require more dewatering. The drawdown

at Bayhill 7 Facility is equal to the depth needed to dewater Garage 8 (40 ft) and the additional drawdown due to simultaneous dewatering activities (i.e., an additional 12.2 ft).

We note that, depending on the actual site conditions encountered and associated groundwater extraction rates and durations, the actual drawdown and migration of groundwater at the sensitive sites could be significantly different than that estimated herein.

6.3 Threshold of Significance

The assessment of environmental Impacts of the Bayhill Specific Plan is based on Appendix G CEQA checklist questions X.a, X.b and X.e[19]. Specifically,

- Would the project: (a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?
- Would the project: (b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?
- Would the project: (e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

6.4 Impacts and Mitigation Measures

Would the project: (a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

Preliminary Findings. The Bayhill 7 Facility site is co-located with the Garage 8 construction footprint. Therefore, the simultaneous dewatering construction plans will likely need to be reviewed by the GPP to determine impacts to water quality, as well as any waste discharge requirements during dewatering. Additionally, under this scenario, it is projected there will be a water level drawdown of more than ten feet at the Bayhill 7 Facility site (see Table 4). As such, we would recommend that the GPP be notified of the planned activities associated with the Specific Plan Area redevelopment.

The Mills Park Cleaners Site has soil and groundwater impacted by VOCs. The projected water level drawdown at this site under this scenario is 7.85 ft (see Table 4). Based on the estimated change to the gradient over the one year of construction dewatering, it is assumed that the current VOC plume could theoretically migrate 500 feet and reach Garage 8[20]. As such, per Section 4.2 (Impacts and Mitigation Measures), it is recommended that conditions at the Mills Park Cleaners Site be monitored closely during all dewatering operations to ensure that significant changed conditions are not encountered, and that there be at least periodic sampling and chemical analysis of dewatering operation discharge.

If petroleum hydrocarbons or VOCs are detected in the dewatering water, a Fuel and VOC General Permit must be obtained by the Regional Water Board prior to discharge of dewatering water to the storm drain.

[19] http://resources.ca.gov/ceqa/docs/2019_CEQA_Statutes_and_Guidelines.pdf, accessed 15 July 2019.

[20] The VOC plume at the Mills Park Cleaner Site is located approximately 450 feet away from Garage 8. Previous water level elevation maps for the shallow water bearing zone indicate the horizontal gradient influencing plume migration was about 0.01 and to the southeast, away from the proposed garage location. Under dewatered conditions, the flow direction reverses from the southeast to the northwest and toward the garage, and the

Per the Fuel and VOC General Permit, dewatering water must be fully characterized for a suite of contaminants of potential concern, after which treatment needs must be assessed and designed prior to permit approval. The Fuel and VOC General Permit also requires ongoing water quality monitoring and reporting, along with payment of an annual fee.

If petroleum hydrocarbons or VOCs are not detected in the dewatering water, a Construction General Permit for Stormwater must be obtained from the State Water Board prior to discharge of dewatering water to the storm drain. Depending on the risk level determination for each phase of construction, monitoring and reporting of various water quality parameters, including pH and turbidity, may be required.

Recommended Mitigation. Consistent with the recommendation in Section 4.2 (Impacts and Mitigation Measures), potential water quality impacts may be encountered or incurred during construction dewatering. Appropriate notification, monitoring and permitting steps must be followed to mitigate any potential impacts, including coordination and contingency planning with the appropriate permitting and regulatory agencies.

Would the project: (b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Preliminary Findings. The Specific Plan Area (92.2 acres) is less than 1% of the WGB area (25,400 acres). Given the already developed condition of the Specific Plan Area, development allowed by the Bayhill Specific Plan is not expected to result in a substantial increase in impervious surface area such that it would substantially interfere with groundwater recharge or impede sustainable groundwater management of the WGB.

The total volume of groundwater anticipated to be extracted for dewatering purposes at the Specific Plan Area for this scenario is anticipated to be 837 AF. This volume is approximately 9.8% of the total yearly groundwater extractions from the South Westside Basin (8,564 AF).[21] While this volume of extraction is close to 10% of the total groundwater extractions from the South Westside Basin, given its short duration, it is not anticipated to significantly decrease groundwater supplies locally and within the WGB.

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corresponding gradient under the maximum drawdown condition increases to about 0.1. Using the Darcy equation and the maximum gradient (the gradient calculated using the minimum groundwater elevation at the garage excavation and the maximum groundwater elevation at the plume edge), the estimated groundwater velocity is about 1.4 ft/day. Applying the velocity for the entire year, a particle of water near the plume edge could move more than 500 feet and reach the garage. However, this time-of-travel calculation is for a particle of water and does not include natural attenuation of dissolved constituents by sediment-constituent interactions which can substantially retard plume migration. Moreover, the calculation applies the maximum gradient to the entire 12-month dewatering period; the actual gradient would decrease with time as dewatering lowers groundwater elevations in the areas that surround the excavation. The time-of-travel calculation is therefore considered very conservative, and the estimated travel distance for dissolved VOCs at the end of 12-months is probably substantially less than the distance to the garage.

[21] Total groundwater extractions from the South Westside Basin in 2010 were 8,564 AFY, see Table 3.1 of the South Westside Basin Groundwater Management Plan, July 2012.

The Proposed Well 21 is planned to be completed to a depth of 500 ft bgs with a screened interval from 420 to 500 ft bgs. During the dewatering period, the estimated drawdown at this well is projected to be as much as 12.2 ft. Based on water level measurements collected in a nearby well (CUP-44-1 MW460) there is an average seasonal fluctuation of groundwater levels of approximately 10 ft throughout the year.[22] The estimated short-term drawdown of 12.2 ft therefore is generally similar to rates of the natural seasonal fluctuation and would not be expected to substantially decrease groundwater supplies. Further, since the well will be pulling water from 420 ft bgs, the drawdown from the short-term dewatering efforts is not anticipated to have a significant effect on the water supply generated at this well.[23]
Recommended Mitigation. Taken on its own, even the dewatering volumes anticipated under this "maximum potential" scenario are not expected to have a long-term impact on groundwater sustainability within the WGB. However, in order to ensure that is the case, it is recommended that the Project dewatering be required to be phased such that extractions do not exceed more than 2.5% of total pumping from the South Westside Basin (e.g., less than 200 AF per year and less than 1,000 AF over five years).

Would the project: (e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Preliminary Findings. The total volume of groundwater anticipated to be extracted for dewatering purposes at the Specific Plan Area for this scenario is anticipated to be 837 AF. This volume is approximately 9.8% of the total yearly groundwater extractions from the South Westside Basin (8,564 AF).[24] While this volume of extraction is close to 10% of the total groundwater extractions from the South Westside Basin, given its short duration, it is not anticipated to significantly conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Recommended Mitigation. Taken on its own, even the dewatering volumes anticipated under this "maximum potential" scenario are not expected to have a long-term impact on groundwater sustainability within the WGB. However, in order to ensure that is the case, it is recommended that the Project dewatering be required to be phased such that extractions do not exceed more than 2% of total pumping from the South Westside Basin (i.e., less than 200 AF per year and less than 1,000 AF over five years).

7. GENERAL RECOMMENDATIONS FOR CONSIDERATION RELATED TO CONSTRUCTION DEWATERING

Per the City's request, based on the preliminary analysis conducted to date, the City may consider the following general recommendations related to management of all construction dewatering activities within the City.

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[22] CUP-44-1 MW460 water level data from the 2018 Annual Groundwater Monitoring Report for the Westside Basin (SFPUC, 2019b). Seasonal fluctuation was calculated using water level data collected between 2009 and 2014.
[23] According to the 2018 Annual Groundwater Monitoring Report for the Westside Basin (SFPUC, 2019b) the depth to water in the area of where proposed Well 21 will be located was approximately 270 ft bgs. This leaves a water column of approximately 150 ft above the screened interval of the proposed well and therefore a drawdown of 12.2 ft will not expose the screened interval. Additionally, the proposed Well 21 will be pulling water from the primary production aquifer not the shallow aquifer.
[24] Total groundwater extractions from the South Westside Basin in 2010 were 8,564 AFY, see Table 3.1 of the South Westside Basin Groundwater Management Plan, July 2012.

1. Require Project proponents to provide estimates of construction dewatering duration, rates, volumes and methods as part of project consideration. If anticipated or observed rates exceed or approach 2.5% of total pumping from the South Westside Basin (i.e., less than 200 AF per year and less than 1,000 AF over five years), additional analysis must be required to assess potential impacts.
2. Require the installation of monitoring wells to measure water levels and water quality, prior to and during dewatering activities, with a focus on potential constituents of concern based on permitting requirements and known or suspected water quality impacts within or near the development site.
3. Require water proof garages such that dewatering activities are not on-going.
4. Require updated evaluations radius of impact and estimated volume of dewatering water once construction dewatering efforts are underway and site conditions are better understood. If anticipated or observed rates exceed or approach than 2.5% of total pumping from the South Westside Basin (i.e., less than 200 AF per year and less than 1,000 AF over five years), additional analysis must be required to assess potential impacts.
5. Limit volume, rates or timing of dewatering water discharge based on City storm drain or other utility capacity constraints, as applicable.
6. Require dewatering to occur in phases such that extraction rates do not exceed 2.5% of total pumping from the South Westside Basin (i.e., less than 200 AF per year and less than 1,000 AF over five years).

As additional information, a summary of dewatering requirements for other local cities is included as Appendix C.

TABLES

Table 1. Summary of Estimated Dewatering Rates and Volumes

Table 2. Summary of Estimated Drawdown at Sensitive Sites During Dewatering

Table 3. Summary of Estimated Dewatering Rates and Volumes Under the “Maximum Potential Scenario”

Table 4. Summary of Estimated Drawdown at Sensitive Sites During Dewatering under the “Maximum Potential Scenario”

FIGURES

Figure 1. Proposed Project Location in the Westside Basin

Figure 2. Profile View of Proposed Site with Inferred Groundwater Elevation

Figure 3. Proposed Subterranean Parking Garages, Bayhill Specific Plan

Figure 4. Estimated Drawdown at Sensitive Sites

Figure 5. “Maximum Potential Scenario” Estimated Drawdown at Sensitive Sites, Bayhill Specific Plan

APPENDICES

Appendix A. Bayhill Specific Plan Dewatering Analysis

Appendix B. Bayhill 7 Facility Site Closure Letter

Appendix C. Palo Alto Guidance Document and Summary of Dewatering Requirements for Local Cities

REFERENCES

CEQA, 2019. California Environmental Quality Act Statute and Guidelines 2019, accessed 24 July 2019.

DWR, 2006. California's Groundwater Bulletin 118, Westside Groundwater Basin, dated January 2006.

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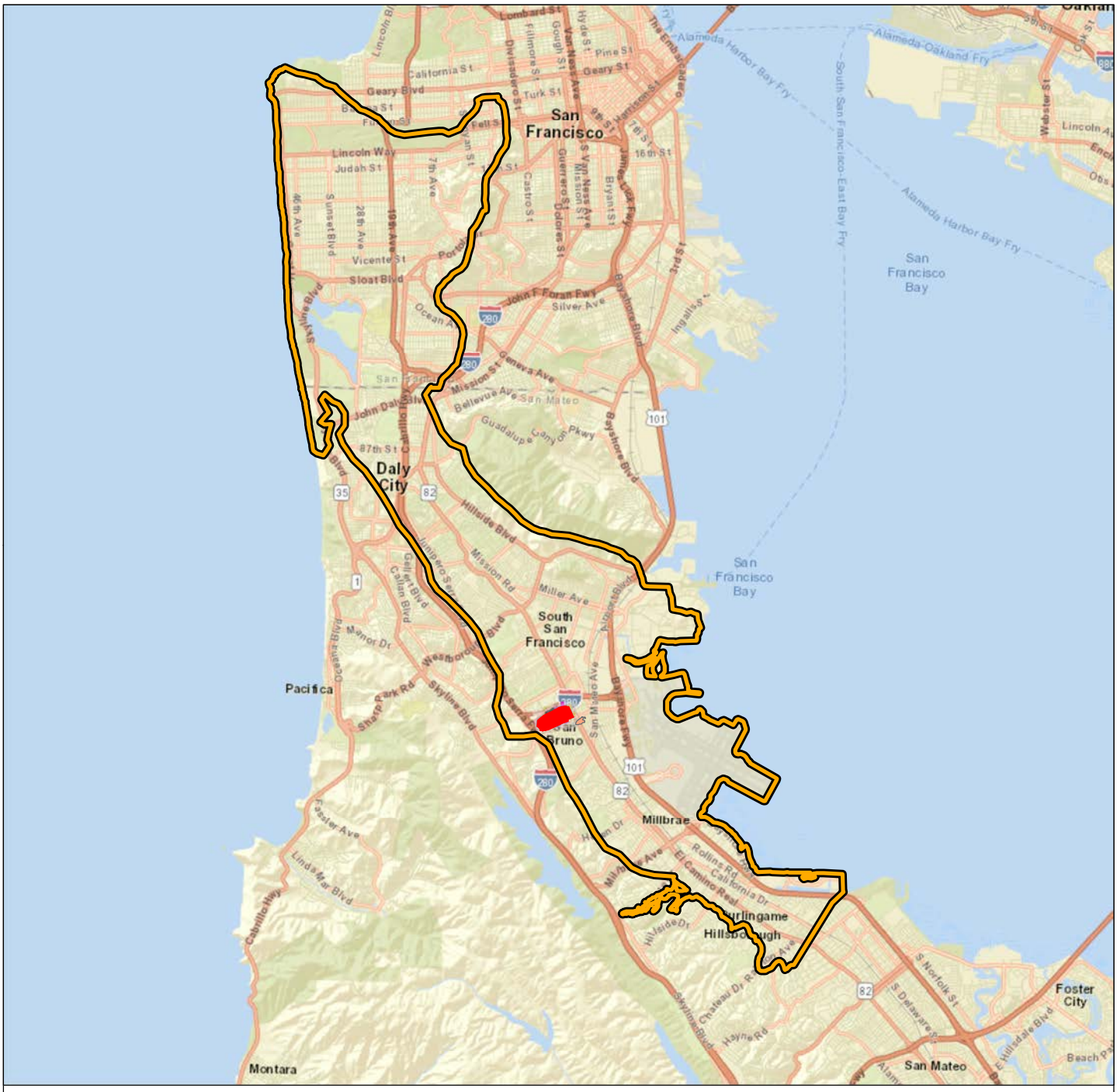
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Legend

Proposed Project Planning Area

Westside Groundwater Basin (DWR Basin No. 2-35)

Notes

1. All locations are approximate.

N

0 2 4

Miles

Proposed Project Location in the Westside Basin

DRAFT

Sources

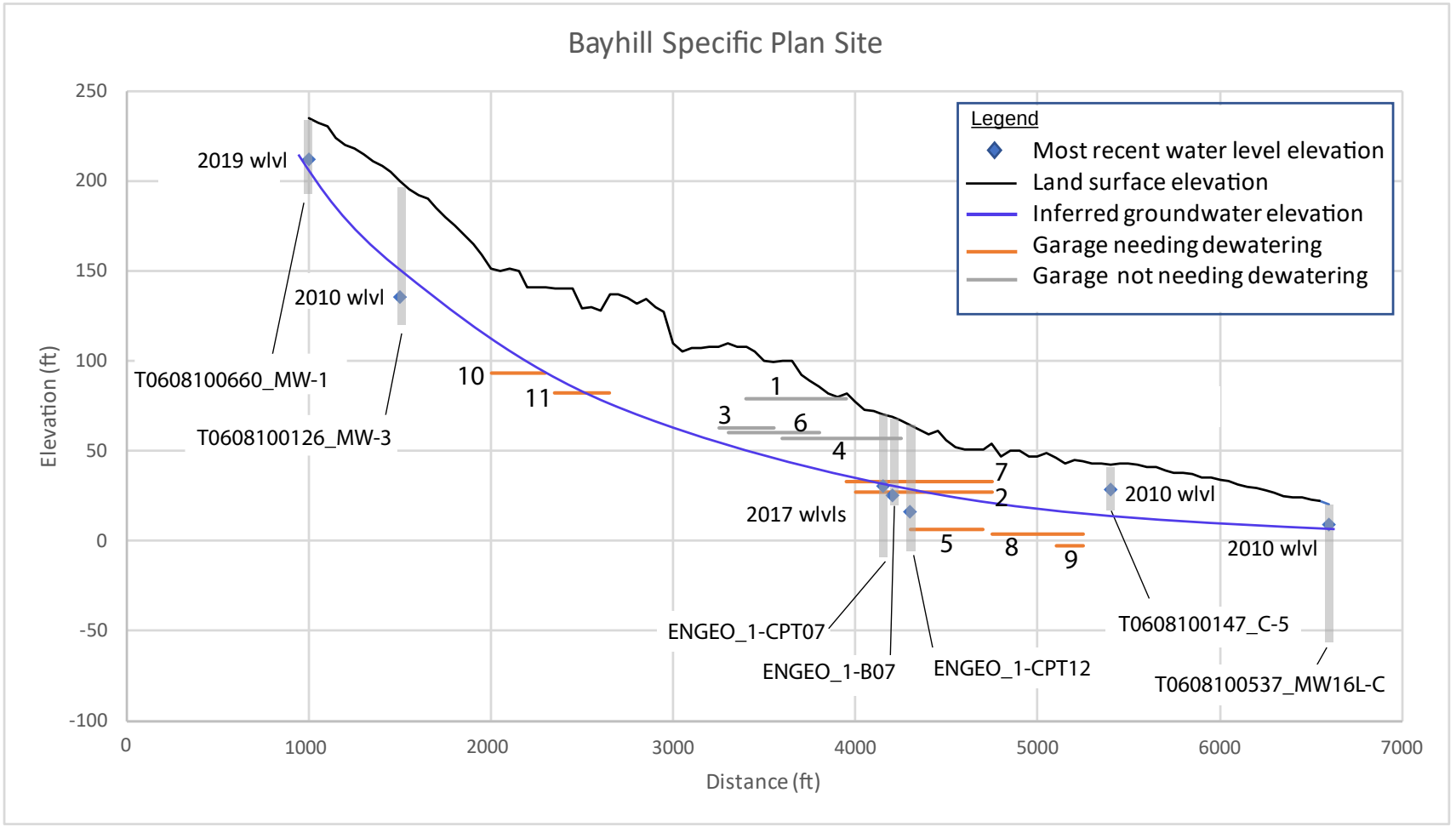
1. DWR groundwater basins are based on the boundaries defined in California's Groundwater, Bulletin 118 - updated 11 February 2019.
2. Basemap is ESRI's ArcGIS Online world topopgraphic map, obtained 17 July 2019.

eki environment & water

Bayhill Development
San Bruno, CA
March 2020
B90090.00

Figure 1

Path: X:\B90090\Maps\Fig1_Regional.mxd



Abbreviations

GWE = Groundwater Elevation
wlvls = waterlevels

Notes

1. All locations are approximate.
2. Groundwater elevation is inferred from most recent water level data.

Sources

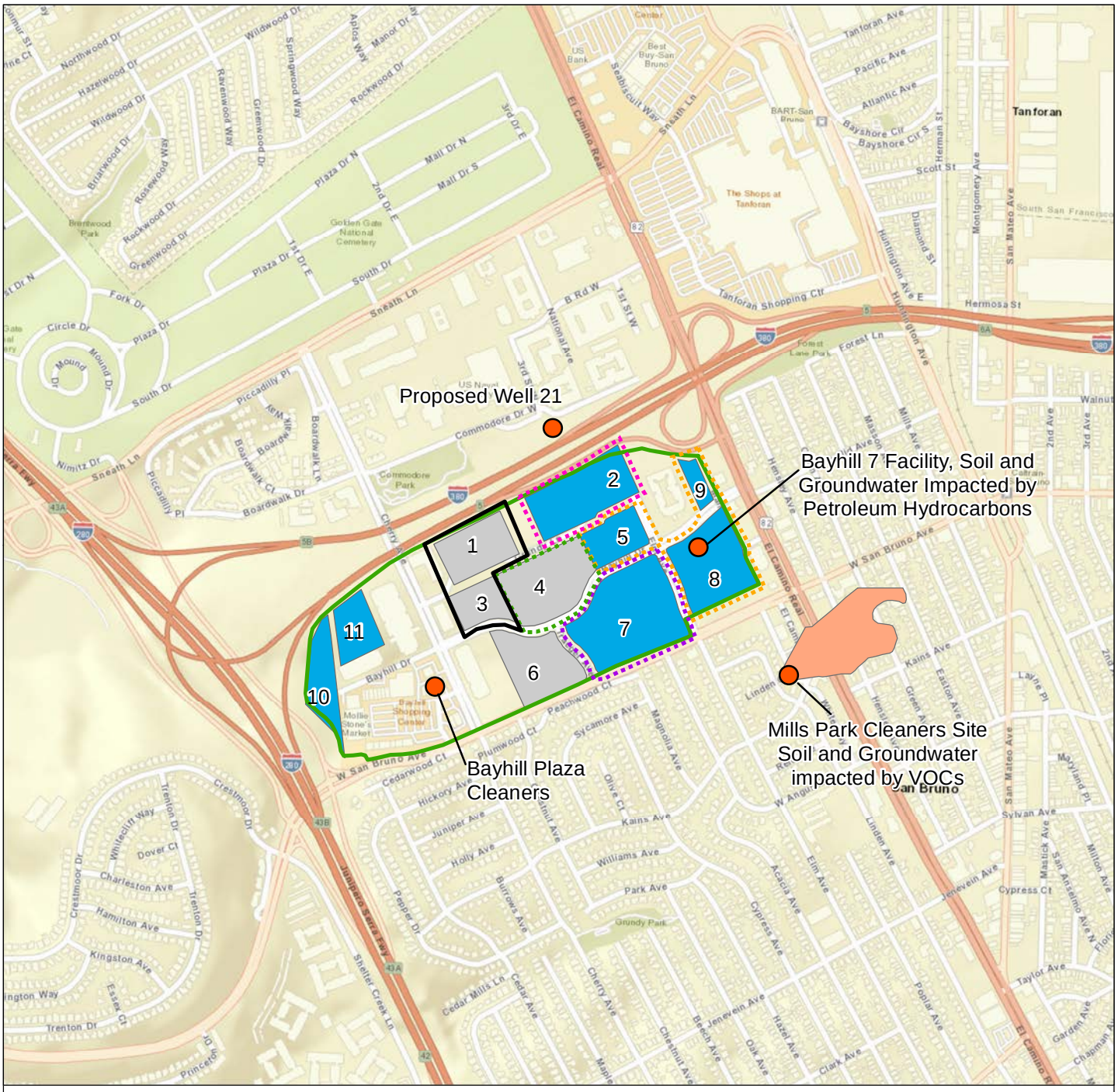
1. Water level data from 2018 ENGEO, Preliminary Geotechnical Report for Environmental Impact Report Review and Geotracker sites: https://geotracker.waterboards.ca.gov/

Profile View of Proposed Site with Inferred Groundwater Elevation

Bayhill Development
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March 2020
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Figure 2

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Legend

- Sensitive Sites
- Specific Plan Area
- PCE Plume 2017

Proposed Garages

- No Dewatering Needed
- Dewatering Needed

Construction Phases

- Phase 1 - Buildout 2022
- Phase 2 - Buildout 2023
- Phase 3 - Buildout 2025
- Phase 4 - Buildout 2030
- Phase 5 - Buildout 2035

Notes

1. All locations are approximate.

N

0 1,000 2,000

Feet

Sources

1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 17 July 2019.

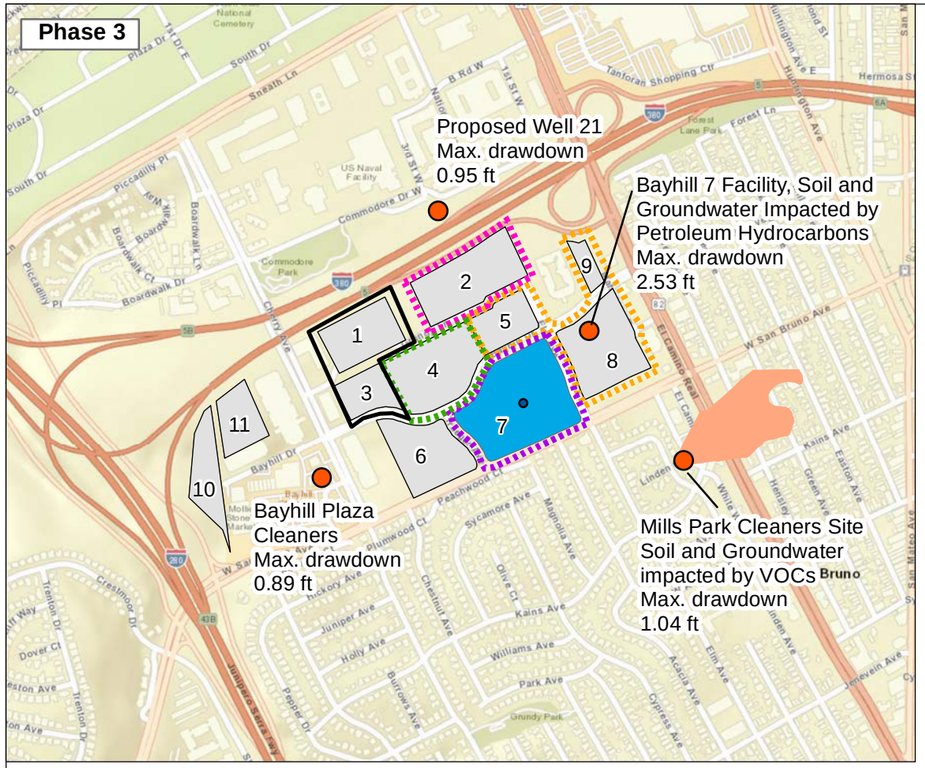
Proposed Subterranean Parking Garages
Bayhill Specific Plan

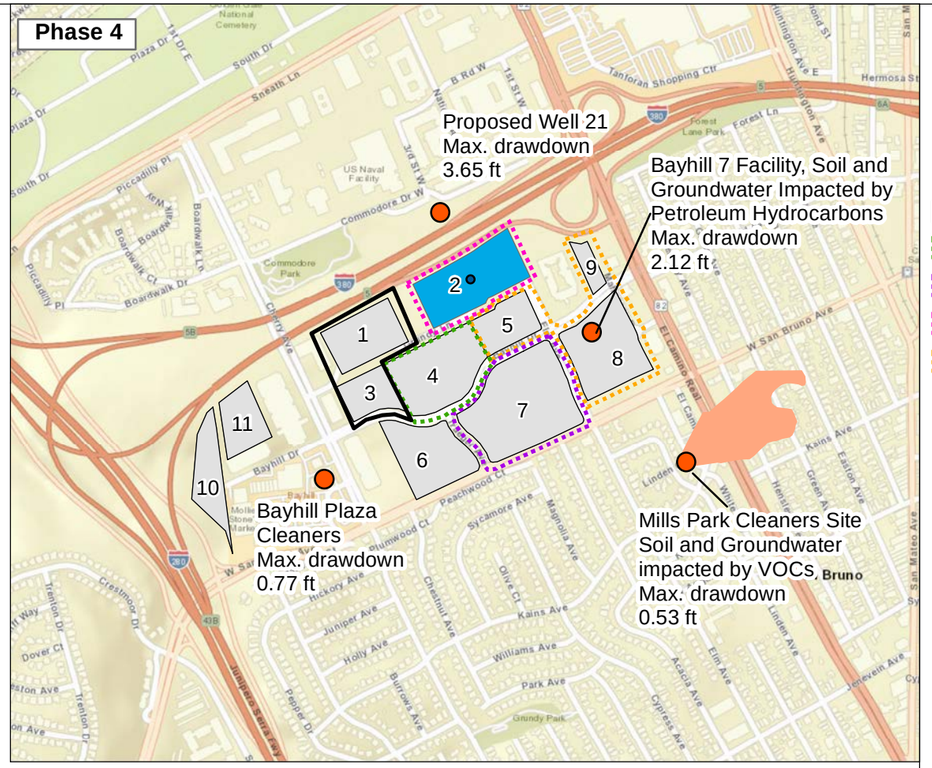
DRAFT

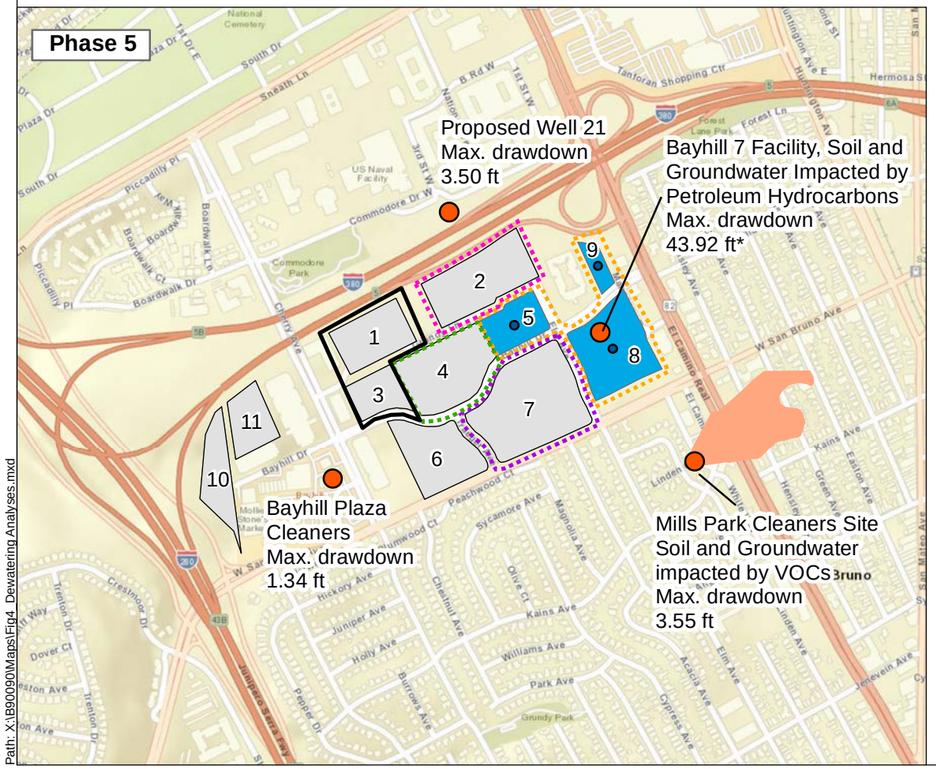
Bayhill Development
San Bruno, CA
March 2020
B90090.00

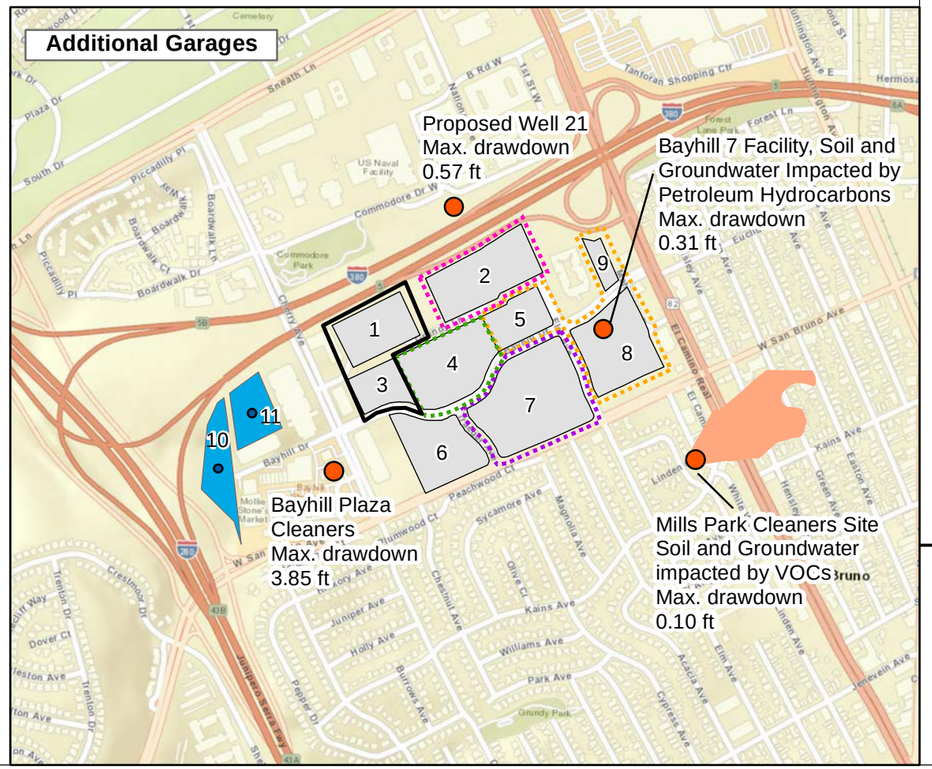
Figure 3

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Legend

- Hypothetical Dewatering Well
- Sensitive Sites
- PCE Plume 2017

Construction Phases

- Phase 1 - Buildout 2022
- Phase 2 - Buildout 2023
- Phase 3 - Buildout 2025
- Phase 4 - Buildout 2030
- Phase 5 - Buildout 2035

Proposed Garage

- Not being dewatered during current phase
- Dewatering needed during current phase

Abbreviations

ft = feet
Max. = Maximum
PCE = Tetrachloroethylene
VOCs = Volatile organic compounds

Notes

1. All locations are approximate.
2. Sensitive site Bayhill 7 Facility is located where proposed garage 8 is. The drawdown is equal to the depth needed to dewater garage 8 for construction activities.

Sources

1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 25 July 2019.

N

0 1,000 2,000
Feet

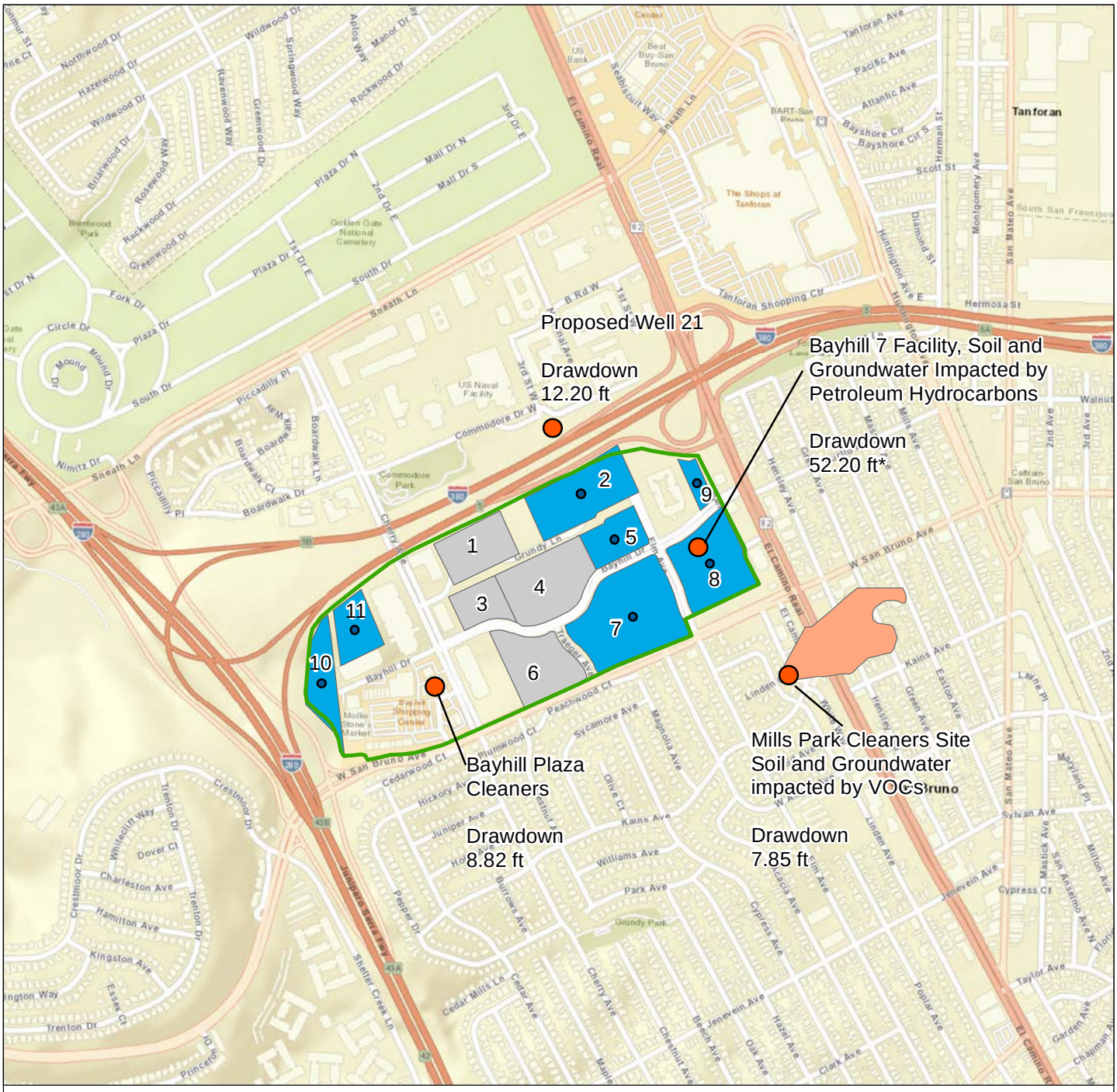
DRAFT

Estimated Drawdown at Sensitive Sites

Bayhill Development
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March 2020
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Figure 4

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Path: X:\B90090\Maps\Fig4_Dewatering Analyses.mxd



Legend

- Sensitive Site
- Hypothetical Dewatering Well
- Specific Plan Area
- PCE Plume 2017

Proposed Garages

- No Dewatering Needed
- Dewatering Needed

Notes
1. All locations are approximate.

N

0 1,000 2,000
Feet

Sources
1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 17 July 2019.

"Maximum Potential Scenario"
Estimated Drawdown at Sensitive Sites
Bayhill Specific Plan

DRAFT

Bayhill Development
San Bruno, CA
March 2020
B90090.00

Figure 5

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Path: X:\B90090\Maps\Fig5_Cumulative drawdown analysis.mxd

APPENDIX A

BAYHILL SPECIFIC PLAN DEWATERING ANALYSIS

13 March 2020

APPENDIX A
BAYHILL SPECIFIC PLAN DEWATERING ANALYSIS

Included herein is a summary of the dewatering analysis approach and assumptions used to estimate the dewatering effects throughout each construction phase of the Bayhill Specific Plan (also referred to herein as the "Project") development, shown in Figure 1. Given the high degree of uncertainty at this time, a range of values is presented for all projected pumping rates and drawdown estimates.

1. BACKGROUND

The proposed garage depths in Phases 3, 4 and 5 of Project construction, as well as two additional garages that are not part of the currently-identified construction phases, intercept the water table and will require dewatering during construction (see Figure 2). In order to achieve and maintain the necessary drawdown within the garages, groundwater extractions are needed across the construction sites. Hence, an estimation of the total dewatering volume and required pumping rate to maintain the water table level below the garage depth is required for each phase of the Project construction.

Construction dewatering information was not provided. Therefore, construction dewatering volumes, discharge rates, and groundwater level changes due to construction dewatering were preliminarily estimated using Project design information, estimated depth to the water table beneath the Specific Plan Area, representative aquifer parameters obtained from the San Bruno portion of Westside Basin Groundwater-Flow Model (HydroFocus Inc., 2017), and equations that simulate well-aquifer hydraulics. Specifically, the water storage and transmitting properties of shallow zone water-bearing sediments were represented as follows: specific yield (0.14), hydraulic conductivity (2 feet per day), and assumed shallow aquifer thickness (300 feet).

We note that, depending on the actual site conditions encountered and associated groundwater extraction rates and durations, the actual dewatering rates and volumes could be significantly different than those estimated herein.

2. ESTIMATED DEWATERING VOLUME

The first step of the dewatering analysis estimated the total volume of dewatering needed for the construction of the garages. The dewatering volume is comprised of: (1) the "initial dewatering volume", which is the volume of water within the garage area and its excavation depth that must be extracted to dewater the garage excavation area, and (2) the "construction maintenance volume", which is the volume of water that will seep into the garage excavation from exposed portions of the excavation walls, its base, or other unsealed areas during construction and must be extracted.

The initial dewatering volume was calculated by multiplying the garage footprint area, the saturated depth interval of sediments planned for excavation, and the aquifer properties.[1] Assuming the construction period is one year, and that one to three months of continuous extraction is required to remove the initial dewatering volume, the "initial pumping rate" was calculated by dividing the initial

[1] The water storage and transmitting properties of shallow zone water-bearing sediments were represented by the specific yield and hydraulic conductivity, respectively. The values for specific yield (0.14), hydraulic conductivity (2 feet per day), and assumed shallow aquifer thickness (300 feet) were obtained from the Westside Groundwater Basin Model (HydroFocus Inc., 2017).

dewatering volume by the assumed range of potential initial extraction periods (one-, two-, or three months).

The maintenance pumping rate could range between 25% and 50% of the initial pumping rate and that such pumping rates would be required throughout the remainder of the one-year construction period (eleven to nine months, respectively). As shown in Table A-1, for most construction phases, the assumed maintenance pumping rate was assumed to be the average percentage based on the low and high rates (i.e., 37.5%). For certain garages, where the presence of impermeable boundaries from previously constructed garages becomes a factor, the assumed low maintenance pumping rate (25%) was used.

Table A-1
Summary of Estimated Dewatering Rates and Volumes

Construction Phase	Assumed Dewatering Period (months)		Construction Dewatering Discharge Rate (gpm)					Total Dewatering Volume (AF)
	Initial	Maintenance	Initial	Maintenance			Average Annual	
				Low (25%)	High (50%)	Average (37.5%)		
Phase 1	*No construction dewatering anticipated*							
Phase 2	*No construction dewatering anticipated*							
Phase 3 Garage 7[a]	**1**	**11**	**154**	--	--	**58**	**66**	**106**
	2	10	77	--	--	29	37	60
	3	9	51	--	--	19	27	44
Phase 4 Garage 2[a]	**1**	**11**	**160**	**--**	**--**	**60**	**68**	**110**
	2	10	80	--	--	30	38	62
	3	9	53	--	--	20	28	46
Phase 5 Garage 5[b]	**1**	**11**	**147**	**37**	**--**	**--**	**46**	**74**
	2	10	73	18	--	--	27	44
	3	9	49	12	--	--	21	35
Phase 5 Garage 8[b]	**1**	**11**	**257**	**64**	**--**	**--**	**80**	**130**
	2	10	128	32	--	--	48	78
	3	9	86	21	--	--	37	61
Phase 5 Garage 9[a]	**1**	**11**	**44**	**--**	**--**	**17**	**19**	**30**
	2	10	22	--	--	8	10	17
	3	9	15	--	--	6	8	12
Garage 10[a]	**1**	**11**	**127**	**--**	**--**	**48**	**54**	**88**
	2	10	63	--	--	24	30	49
	3	9	42	--	--	16	22	36
Garage 11[a]	**1**	**11**	**70**	**--**	**--**	**26**	**30**	**49**
	2	10	35	--	--	13	17	27
	3	9	23	--	--	9	12	20

Note: Scenarios in **bold** were utilized to calculate maximum drawdown due to construction dewatering and are used as the basis of the summary results presented in the Technical Memorandum.

(a) Assumed maintenance pumping rate equals 37.5% of initial pumping rate.
(b) Assumed maintenance pumping rate equals 25% of initial pumping rate.

Actual groundwater extraction rates, pumping duration, and dewatering volumes will depend on actual site conditions, which may vary from the assumed conditions used to calculate the results reported in Table A-1.

3. ESTIMATED DRAWDOWN

The possible impacts from dewatering operations at the Sensitive Sites shown on Figure 3 were estimated by calculating the drawdown resulting from the extraction of groundwater for construction dewatering. The drawdown distribution from pumping was estimated using Papadopulos and Cooper's drawdown solution for pumping from a large-diameter well (Papadopulos, 1967). This approach represents the excavation as a hypothetical dewatering well, with a casing area equal to the footprint of the proposed garage excavation. The model AQTESOLV (Duffield, 2007) was used to solve the equations and simulate the relationship between pumping rate, extraction period, and drawdown.

Table A-2 shows the maximum drawdown at the Sensitive Sites (refer to Figure 4) identified in the vicinity of the Project. These drawdown estimates assume one month of initial dewatering pumping followed by 11 months of maintenance pumping. The drawdown estimated in Phase 5 and the Additional Garages assumes that the multiple garages include din those phases will be dewatered at the same time; if those garages are dewatered sequentially, the drawdown would be less.

Table A-2
Estimated Maximum Drawdown at Select Sites at the End of Dewatering Operations

Construction Phase	Estimated Drawdown After One-Year at Sensitive Sites (feet, ft)			
	Bayhill Plaza Cleaners	Proposed Well 21	Bayhill 7 Facility	Mills Park Cleaners
Phase 1	*No construction dewatering anticipated*			
Phase 2	*No construction dewatering anticipated*			
Phase 3	0.89	0.95	2.53	1.04
Phase 4	0.77	3.65	2.12	0.53
Phase 5	1.34	3.50	43.92 (a)	3.55
Additional Garages	3.85	0.57	0.31	0.10

Notes:

(a) The Bayhill 7 Facility is located where the proposed Garage 8 is planned. Garage 8 needs to be dewatered approximately 40 ft (i.e., the garage is proposed to be 50 ft deep and the water table is approximately 10 ft bgs). The drawdown at the Bayhill 7 Facility during Phase 5 is equal to the depth needed to dewater Garage 8 (40 ft) and the additional drawdown due to simultaneous dewatering activities at Garages 5 and 9 (i.e., an additional 3.92 ft).

Actual construction de-watering requirements, drawdowns, and changes in groundwater-flow patterns depend on site conditions, which may vary from the assumed conditions used to calculate the results reported in Table A-2.

4. MAXIMUM POTENTIAL SCENARIO

A "maximum potential scenario" was developed to estimate the maximum potential construction dewatering volumes, discharge rates, and groundwater level changes due to construction dewatering, assuming the following: (1) All seven garages will be dewatered simultaneously; (2) The garages will initially be dewatered in a one-month period and will require the highest maintenance rate (50% of the initial dewatering rate) for eleven months; and (3) the construction dewatering discharge rate for each hypothetical dewatering well is based on the footprint of the planned subterranean garage, the dewatering depth required for each garage, and aquifer properties[2].

As described in Section 2, the first step of the dewatering analysis is to estimate the total volume of dewatering needed for the construction of the garages. The dewatering volume is comprised of the initial dewatering volume, which is the volume of water within the garage area and its excavation depth, and the construction maintenance volume, which is the volume of water pumped that seeps into the garage excavation from exposed portions of the excavation walls, its base, or other unsealed areas during construction.

The initial dewatering volume was calculated by multiplying the garage footprint area, the saturated depth interval of sediments planned for excavation, and their aquifer properties.[3] Assuming the construction period is one year, and that one month of continuous extraction is required to remove the initial dewatering volume, the initial pumping rate was calculated by dividing the initial dewatering volume by the extraction period. The maintenance pumping rate is assumed to be 50% of the initial pumping rate and to be required throughout the remaining eleven months of the one-year construction period. The resultant dewatering discharge rates and volumes are summarized below in Table A-3 (refer to Figure 5).

Table A-3
Summary of Estimated Dewatering Rates and Volumes Under the "Maximum Potential Scenario"

Garage	Assumed Dewatering Period (months)		Construction Dewatering Discharge Rate (gpm)			Estimated Dewatering Volume (AF)
	Initial	Maintenance	Initial	Maintenance (50%)	Average Annual	
2	1	11	160	80	87	140
5	1	11	147	73	79	128
7	1	11	154	77	83	134

[2] We note that the aquifer properties are another significant source of uncertainty which could impact potential dewatering rates and volumes.

[3] The water storage and transmitting properties of shallow zone water-bearing sediments were represented by the specific yield and hydraulic conductivity, respectively. The values for specific yield (0.14), hydraulic conductivity (2 feet per day), and assumed shallow aquifer thickness (300 feet) were obtained from the Westside Groundwater Basin Model (HydroFocus Inc., 2017).

8	1	11	257	128	139	224
9	1	11	44	22	24	38
10	1	11	127	63	69	111
11	1	11	70	35	38	62
Total	**--**	**--**	**959**	**478**	**519**	**837**

As described in Section 3, the drawdown distribution from pumping was estimated using Papadopulos and Cooper's drawdown solution for pumping from a large-diameter well (Papadopulos, 1967). For this scenario, each garage excavation was represented as a hypothetical dewatering well (seven wells total), with casing areas equal to each footprint of the proposed garage excavations. AQTESOLV (Duffield, 2007) was employed to solve the equations and simulate the relationship between pumping rates, extraction periods, and drawdowns.

The drawdown results at each Sensitive Site after simultaneously dewatering the seven wells during the one year-construction period are summarized below in Table A-4.

Table A-4
Summary of Estimated Drawdown at Sensitive Sites During Dewatering
Under the "Maximum Potential" Scenario

Construction Phase	Estimated Drawdown at Sensitive Sites (ft)			
	Bayhill Plaza Cleaners	Proposed Well 21	Bayhill 7 Facility	Mills Park Cleaners
All garages dewatered simultaneously	8.82	12.2	52.2 (a)	7.85

Note:

(a) Sensitive site Bayhill 7 Facility is located where the proposed Garage 8 is planned. Garage 8 needs to be dewatered approximately 40 ft (i.e., the garage is proposed to be 50 ft deep and the water table is approximately 10 ft bgs). The drawdown at Bayhill 7 Facility is equal to the depth needed to dewater Garage 8 (40 ft) and the additional drawdown due to simultaneous dewatering activities (i.e., an additional 12.2 ft).

5. REFERENCES

Glenn M. Duffield, AQTESOLV for Windows Version 4.5 User's Guide. HydroSOLVE Inc, dated 2007.

HydroFocus, Inc., 2017, Westside Basin Groundwater-Flow Model: Extended and Updated Model Simulation Results, Version 4.1 (1959-2014). Prepared for City of Daly City, dated March 2017.

Papadopulos, I. S., and Cooper, H. H. (1967), Drawdown in a well of large diameter. Water Resources. Res., 3 (1), 241 -244.

APPENDIX B

BAYHILL 7 FACILITY SITE CLOSURE LETTER

13 March 2020

SAN MATEO COUNTY
HEALTH SYSTEM

June 16, 2009

APN # 020-019-070
SMCo Site # 889060

Tom Leonard
Chief Building Official
City of San Bruno
567 El Camino Real
San Bruno, CA 94066

SUBJECT: RESIDUAL HYDROCARBONs AT BAYHILL 7 FACILITY, 999-1001 BAYHILL DRIVE, SAN BRUNO, CA 94066

Dear Mr. Leonard:

The attached case closure letter was prepared by the San Mateo County Health Department Groundwater Protection Program (GPP) with the tacit approval of the California Regional Water Quality Control Board (CRWQCB). Although site closure was granted, a small amount of hydraulic oil-affected soil and groundwater exists near the #2 Elevator at the subject site (see attached Figure). Although these hydrocarbons do not appear to pose a risk to public health and the environment under existing land use conditions, changes in land use or removal of soil and groundwater from the affected area may create a risk. Therefore, any proposed change in land use or proposed soil or groundwater removal activity at or in close proximity to the subject site must be submitted to the GPP for our review under government code section 65850.2 so we can evaluate whether the residual contaminates will likely pose a risk to public health and the environment if the proposed activities are implemented. The costs to evaluate the potential public health or environmental impacts of the proposed land use or construction activity in relation to the residual contaminants will be billed directly to the entity responsible for submitting the documents for review.

Please call me at (650) 372-6298 if you have any questions. Thank you for your cooperation.

Sincerely,

Jacob Madden
Hazardous Materials Specialist
Groundwater Protection Program

attachment

cc: CA-Bayhill 4-7 Limited Partnership, Paul Saccone, Two North Riverside Plaza, Suite 2100, Chicago, IL 60606
James Soutter, Equity Offices, James_Soutter@equityoffice.com
Paul King, RGA Environmental, pdking0000@aol.com

SAN MATEO COUNTY
HEALTH SYSTEM

June 11, 2009

APN # 020-019-070
SMCo Site # 889060

CA-Bayhill 4-7 Limited Partnership
Attention: Paul Saccone
Two North Riverside Plaza, Suite 2100
Chicago, IL 60606

SUBJECT: CASE CLOSURE, REMEDIAL ACTION OVERSIGHT, BAYHILL 7 FACILITY, 999-1001 BAYHILL DRIVE, SAN BRUNO, CA 94066

Dear Mr. Saccone,

This letter confirms the completion of site investigation and remedial action activities for the release of waste formerly located at the above-described location. Thank you for your cooperation throughout this investigation. Your willingness and promptness in responding to our inquiries concerning the release of waste are greatly appreciated.

Based on information in the above-referenced file, and with the provision that the information provided to this agency was accurate and representative of site conditions, this agency finds that the site investigation and remedial action carried out at the above-referenced site satisfies the cleanup goal requirements of the remedial action agreement between the responsible party and San Mateo County Environmental Health as outlined in Section 101480 of the Health and Safety Code, and that no further action related to the release of waste at the site is required.

This notice is issued pursuant to subdivision (e) of Section 101480 of the Health and Safety Code. Please contact our office if you have any questions regarding this matter.

Sincerely,

Dean D. Peterson, PE, REHS
Director, Environmental Health

cc: RWQCB
SWRCB
James Soutter, Equity Offices, James_Soutter@equityoffice.com
Paul King, RGA Environmental, pdking0000@aol.com

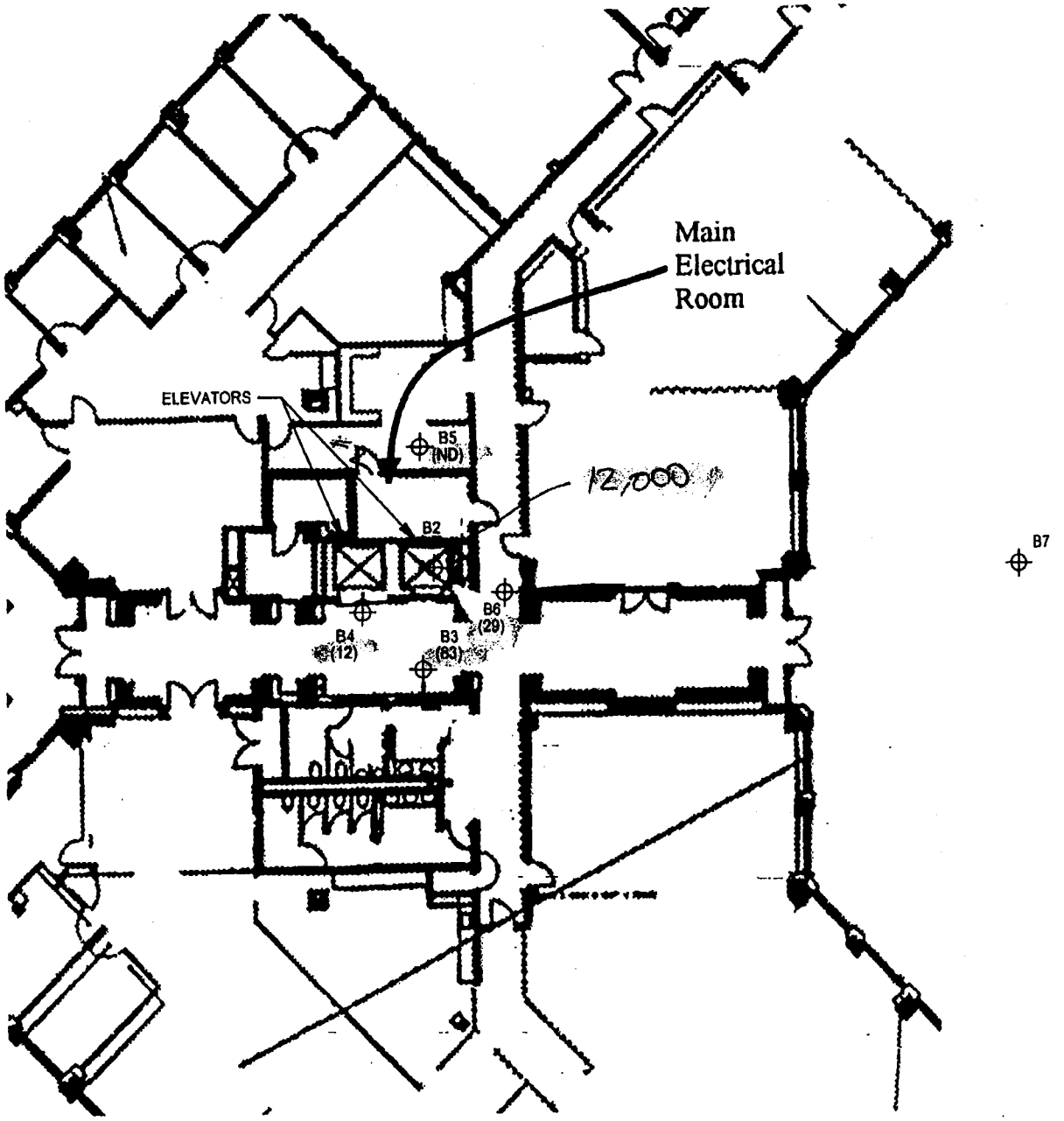


Figure 2
Site Plan Detail
TPH as Hydraulic Oil Concentration in Soil at 20 Feet Below Ground Surface
999-1001 Bayhill Drive
San Bruno, California

N

Base Map From: Equity Office Properties October, 2004	RGA Environmental, Inc. 1466 66th St. Emeryville, CA 94608	0 10 20 SCALE IN FEET

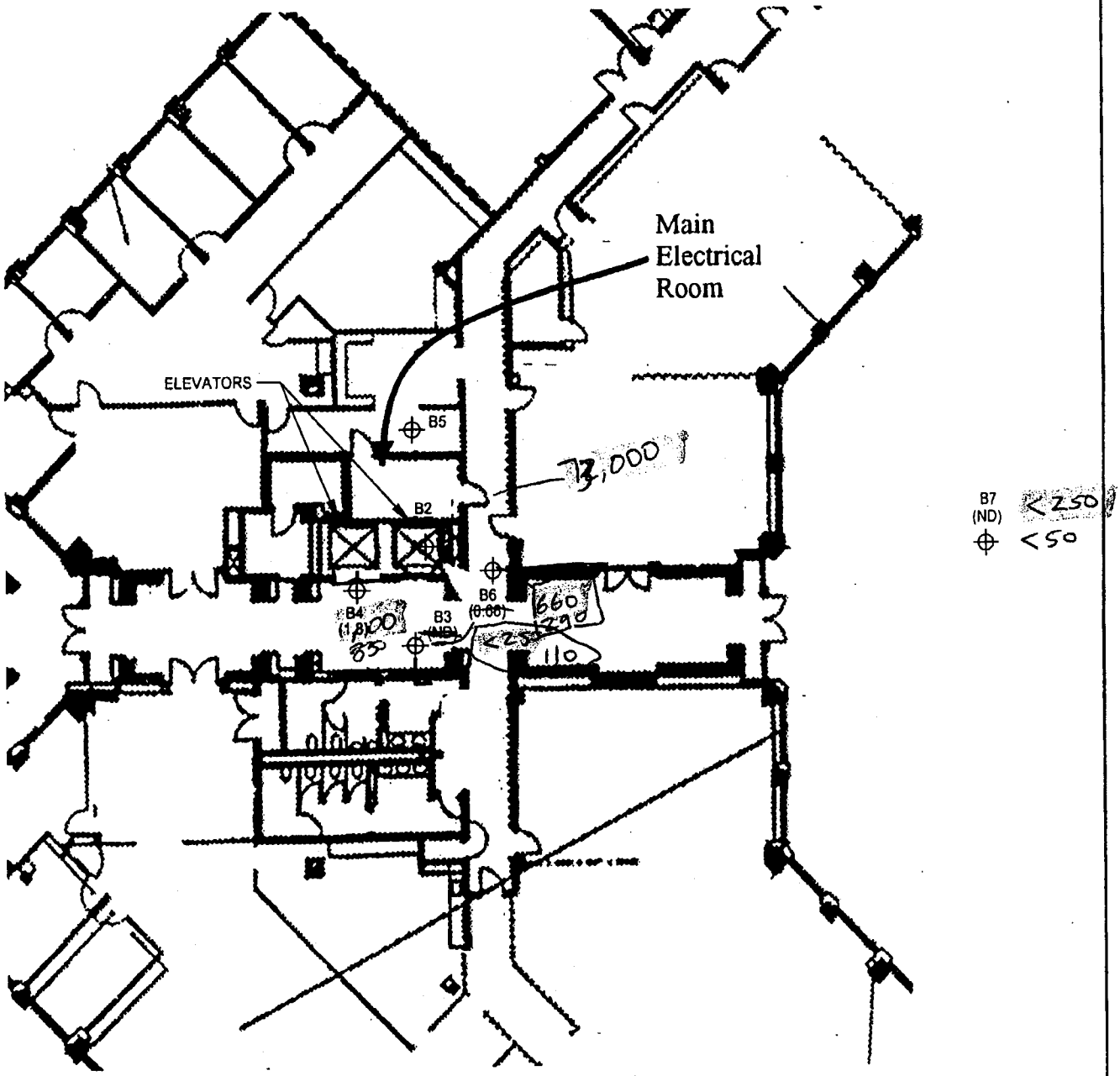


Figure 3
Site Plan Detail
TPH as Hydraulic Oil Concentration in Groundwater
999-1001 Bayhill Drive
San Bruno, California

Base Map From: Equity Office Properties October, 2004	RGA Environmental, Inc. 1466 66th St. Emeryville, CA 94608	0 10 20 SCALE IN FEET

APPENDIX C

PALO ALTO GUIDANCE DOCUMENT AND SUMMARY OF DEWATERING REQUIREMENTS FOR LOCAL CITIES

13 March 2020

eki environment & water

577 Airport Blvd. Suite 500
Burlingame, CA 94010
(650) 292-9100
ekiconsult.com

APPENDIX C - PALO ALTO GUIDANCE DOCUMENT AND SUMMARY OF DEWATERING REQUIREMENTS FOR LOCAL CITIES

The below summary provides information related to dewatering requirements for several cities located in the San Francisco Bay Area.

1. SUMMARY OF DEWATERING REQUIREMENTS

1.1 Palo Alto

In February 2016, the City of Palo Alto established requirements "designed to minimize and standardize the process of pumping and discharge of groundwater from dewatering of below ground structures (e.g., basement or parking garage) during construction" (City of Palo Alto, 2018). Since February 2016, several enhancements to the requirements have been codified in the Palo Alto Municipal Code. Existing requirements can be found in section 16.28.155 of the Palo Alto Municipal Code. In April 2018, the City of Palo Alto published a document titled *Regulations for Groundwater Dewatering during Construction of Below Ground Structures, A How-to Guide to Meeting City of Palo Alto Dewatering Requirements* (City of Palo Alto, 2018), which is attached to this Appendix as Attachment A. City of Palo Alto dewatering requirements generally necessitate, in some situations, the study of site hydrology prior to dewatering, attainment of a dewatering permit through the City of Palo Alto, limitation of dewatering water discharge rate to surface water, and project status reporting. Detailed requirements can be found in Attachment A of this appendix.

1.2 Other Cities

The following city and municipal code sections for San Francisco Bay Area cities are relevant to discharge of construction dewatering water.

1.2.1 Mountain View

- **35.32.3.2 (Water, Sewage and Other Municipal Services, Discharge to curbside gutter, storm sewer, storm drain or natural outlets):** provides authority to regulate the quality and quantity of water discharged into the storm drain to the fire chief.
- **35.32.3.3 (Water, Sewage and Other Municipal Services, Discharge to curbside gutter, storm sewer, storm drain or natural outlets):** allows discharge of construction dewatering water into the storm sewer collection system, provided it does not contain organic solvents and is filtered prior to entry into the system.

1.2.2 South San Francisco

- **14.08.210.d (Water and Sewage, Water Quality Control, General Discharge Requirements):** regulates discharge of groundwater to sanitary sewer, which is prohibited with a few exceptions including construction dewatering if discharge to storm sewer is not possible.

- **14.04.140 and .150 (Stormwater Management and Discharge Control, Discharge of Pollutants / Exceptions to Discharge prohibition):** prohibits discharge of non-stormwater to the city storm sewer system, with exceptions including uncontaminated pumped groundwater and foundation and footing drains where a NPDES permit is obtained.

1.2.3 Daly City

- **14.08.020 (Storm Water Management and Discharge Control, Discharge Regulations and Requirements, Exceptions to Discharge Prohibition):** prohibits discharge of non-stormwater to the city storm sewer system, with exceptions including uncontaminated pumped groundwater and foundation and footing drains where a NPDES permit is obtained.

1.2.4 San Mateo

- **7.38.150 (Health, Sanitation, and Public Nuisances, Sanitary Sewer Use, Discharge of Groundwater):** regulates discharge of groundwater to sanitary sewer, which is prohibited with a few exceptions including construction dewatering if discharge to storm sewer is not possible.
- **7.39.090** (**Health, Sanitation, and Public Nuisances, Stormwater Management and Discharge Control):** prohibits discharge of non-stormwater to the city storm sewer system, with exceptions including uncontaminated pumped groundwater and foundation and footing drains where a NPDES permit is obtained.

1.2.5 Sunnyvale

- **12.12.050 (Water and Sewers, Sewer Use Regulations, Prohibitions on discharge of storm drainage and groundwater into sewer – exceptions):** regulates discharge of groundwater to sanitary sewer, which is prohibited with a few exceptions including construction dewatering if discharge to storm sewer is not possible.
- **12.60.070 (Water and Sewers, Stormwater Management, Discharge Prohibitions):** similar to San Bruno 10.18.065.

ATTACHMENTS

Attachment A. City of Palo Alto Groundwater Dewatering Guidance Document

2. REFERENCES

City of Palo Alto, 2018, Regulations for Groundwater Dewatering during Construction of Below Ground Structures. City of Palo Alto, dated April 2018.

ATTACHMENT A
CITY OF PALO ALTO GROUNDWATER DEWATERING GUIDANCE DOCUMENT

CITY OF PALO ALTO

Regulations for Groundwater Dewatering during Construction of Below Ground Structures

A How-to Guide to Meeting City of Palo Alto Dewatering Requirements

I. BACKGROUND

In recent years, concerns that temporary construction-related groundwater dewatering may be wasting water, potentially damaging structures, trees and vegetation, and depleting or altering the flow of groundwater, have arisen. In response, the City of Palo Alto (City) established new requirements in February 2016 designed to minimize and standardize the process of pumping and discharge of groundwater from dewatering of below ground structures (e.g., basement or parking garage) during construction.

After assessing the results of new groundwater dewatering regulations from the 2016 and 2017 Construction Seasons, the City Council approved several enhancements to the dewatering policy that were codified in the Palo Alto Municipal Code and went into effect in May 2017, and again in December 2017 (Attachment 1). The 2017 changes include improving Fill Station performance, monitoring actual groundwater elevation changes during the entire dewatering season, assessing impacts on nearby structures, clarifying reporting requirements, and enhancing the Geotechnical (now Hydrogeological) Study (Study). This guide provides further explanation regarding the most recent code changes (which became effective on February 21, 2018) and is intended to assist project applicants in meeting code requirements.

II. GENERAL GROUNDWATER DEWATERING REQUIREMENTS

Note that this document is in reference to ***temporary groundwater dewatering during construction of below ground structures***. This document does not contain information regarding dewatering of ***existing*** below ground structures in the City of Palo Alto. Temporary construction-related groundwater dewatering (dewatering) may be conducted using 1) groundwater exclusionary techniques (e.g., secant or cut-off wall), or 2) controlled groundwater pumping, otherwise known as drawdown well dewatering. The City's Public Works Department (Public Works) does not allow open pit dewatering of groundwater during construction; however, it may be allowed, if water quality limits are met, for removal of rainwater if it has accumulated at the bottom of an excavation site. If rainwater dewatering is required, the project manager/applicant must contact the City's Watershed Protection Group at (650) 329-2122 before discharging to the City's storm drain system.

Attachment 2 provides applicants a basic flow chart to understand the City's compliance process regarding the two types of allowed construction dewatering. To assist the City in determining whether dewatering will likely be required in the construction of below ground structures, the project applicant must submit a Geotechnical Report (separate from the Hydrogeological Study described below) prior to the Building Permit application. In addition, if the deepest excavation will be within five feet of the anticipated groundwater level submitted in the Geotechnical Report, the contractor must determine the depth to groundwater immediately prior to submittal of the Excavation and Grading Permit.

If groundwater is found to be within two feet of the deepest excavation, a drawdown well dewatering system or cutoff wall must be installed. Regardless of this testing, if groundwater is actually encountered during construction (and the applicant does not have a dewatering permit), the contractor must immediately stop all work and must meet all of the following requirements prior to resuming work.

The City's dewatering season is April 1 through October 31 due to the capacity of the City's storm drain system. Dewatering to the sanitary sewer system will be allowed only under special circumstances and with a discharge permit obtained through Public Works' Watershed Protection Group. During the dewatering season, sites will be allowed to dewater for a 12-week time period, including a two-week start-up period. The two-week start-up period is intended to provide adequate time for the contractor to meet the City's dewatering requirements as well as City staff to inspect and approve the equipment set-up and discharge quantity and quality. At the end of the two-week start-up period, compliance with all performance standards and water quality standards shall be demonstrated in order to continue dewatering.

Residential sites are expected to complete dewatering within the allotted time period, but may be allowed to continue dewatering beyond 12 weeks only under special circumstances and if approved by the City Engineer. For large, non-residential sites, City staff will consider allowing groundwater discharges to occur (to the storm drain system) from November 1 to March 31 if 1) the discharge is limited to ≤ 10 gallons per minute *or* 2) the applicant can provide sufficient evidence that the receiving storm drain line and water body has sufficient capacity to accommodate a 10-year, 6-hour storm event in addition to the dewatering discharge.

Where dewatering is required, applicants shall conduct dewatering in full compliance with the provisions of Chapter 16.28 (Excavation, Grading and Fills) as well as Chapter 9.10 (Noise) of the City's Municipal Code, the regulations in this guide, and other permit conditions established by City staff. Due to the complexity of dewatering projects, City staff may impose and enforce additional requirements when or after a permit is issued in order to ensure public safety, ensure the condition of its infrastructure, or to protect the water quality of downstream water bodies. During the period of construction and dewatering discharge, project applicants/permittees are expected to promptly implement actions identified and required by City staff, including, but not limited to, notices of non-compliance and directives requiring immediate cessation of discharge. Administrative penalties may be put into effect for sites not in compliance with City requirements, and will accrue if the applicant does not comply as requested by the City. A cessation order may be issued for reasons including, but not limited to: capacity issues in the storm drain or sanitary sewer systems; storm drain or sanitary sewer system failures; excess flow entering the Palo Alto Regional Water Quality Control Plant, including exceptional storm events; emergency or routine maintenance of City infrastructure; and protection of the environment, public health, safety and welfare.

III. GROUNDWATER EXCLUSIONARY TECHNIQUE REQUIREMENTS

If the rate of groundwater discharge is greater than thirty gallons per minute for residential sites, groundwater exclusionary techniques cannot be used, and the requirements of Subsections IV (below) shall be followed.

When groundwater exclusionary techniques are utilized, applicants must submit to the City a Dewatering Permit packet with Grading and Excavation Permit application (after planning entitlement is issued). The Grading and Excavation Permit for a project will not be issued until all required submittals related to dewatering have been submitted, reviewed and approved by Public Works Engineering staff. The (Exclusionary Techniques) Dewatering Packet (Attachment 3) shall include the following: 1) Cover Page and 2) Inspection Checklist. Groundwater exclusionary techniques shall be conducted in compliance with the following:

A. The rate of discharge of groundwater shall be limited to thirty gpm or less for.

B. The Dewatering Plan shall be followed at all times when removal of groundwater from the project site is required and must focus on using the pumped groundwater to the maximum extent possible. When feasible, the primary focus of discharge shall be to percolate the discharge onto the construction property where pumping is occurring rather than into the storm drain system. Groundwater may be discharged on neighboring properties located on the same side of the street if the property owners provide permission. This should be handled between the project applicant and the property owners without facilitation or further approval from the City.

C. A Traffic Control Plan, which must be followed during the entire dewatering period may be required with the Grading Permit Application and be followed. The traffic control plan shall include, among other provisions, an appropriate schedule for an attendant to be present on the street during the period of the installation of the groundwater exclusionary technique.

D. The applicant shall install a groundwater monitoring well at the site. It shall be at the farthest feasible point on the construction site from the underground structure. Initial groundwater level results must be included in the dewatering plan (same data point as the one required prior to grading and excavation permit application).

E. Project status reporting: During the construction period of the underground structure, the applicant must submit periodic groundwater level reports and have the data available per request. At minimum, monitoring well data shall be collected daily for the first two weeks of the 12-week period and weekly thereafter. A final report shall be submitted two weeks after pumping ceases. All status reports should be submitted to Public Works Engineering staff at the Development Resource Center. Questions should be directed to pwecips@CityofPaloAlto.org.

IV. CONTROLLED GROUNDWATER PUMPING (WITHOUT A SECANT OR CUT-OFF WALL) REQUIREMENTS

When controlled groundwater pumping techniques are utilized, applicants must submit to the City a Dewatering Permit Packet with the Street Work and Grading and Excavation Permit applications (after planning entitlement is issued). Once all required submittals have been reviewed and approved by Public Works Engineering staff, the applicant may be issued the Grading and Excavation Permit, a Dewatering Permit, and a Street Pork permit; a Dewatering Permit must be obtained before any discharge from the site occurs. Note that for residential projects, the grading and excavation permit is only issued concurrently with the

Building Permit. While discharging to the storm drain system, construction work on the underground structure shall be continuous and occur daily, with the contractor making progress towards completion of the underground structure without delay and following the detailed construction schedule provided in the Dewatering Permit packet.

In addition to what is required for exclusionary techniques (aside from the cut-off wall itself and the 30 gpm limitation), a Hydrogeological Study and an in-depth Groundwater Use Plan must also be submitted. Refer to the Controlled Groundwater Pumping Dewatering Permit Packet in Attachment 4 for more information. The following provides additional details regarding the City's controlled groundwater pumping requirements:

As with exclusionary techniques, the applicant shall install a groundwater monitoring well at a farthest feasible point on the construction site from the underground structure. Initial groundwater level results must be included in the Hydrogeological Study. During the construction period of the underground structure, the applicant must submit periodic groundwater level reports and have the data available per request. At minimum, monitoring well data shall be conducted daily for the first two weeks of the 12-week period and weekly thereafter. At the end of the start-up period or thereafter, if drawdown results are greater than anticipated, the applicant shall submit a revised Dewatering Hydrogeological Study and any revised conclusions on impacts of the groundwater drawdown.

A. Dewatering Hydrogeological Study - The purpose of this Study is to determine the initial, pre-construction groundwater levels as well as the impacts of groundwater pumping on the site and surrounding area. The Study should include the radius of influence (i.e. extent of cone of depression) from each dewatering well (if more than one is installed on-site) as a function of time, based on local soil and groundwater conditions. Avoidance measures are to be employed to the maximum extent practicable to minimize the flow rate and duration of the pumping. The Study shall be stamped by a California licensed Hydrogeologist or equivalent and submitted to the City as part of the Dewatering Packet. The Study should also include the following items:

   i. A description and cross section(s) of the cone(s) of depression of on-site monitoring well(s) as well as any nearby dewatering sites within a 400-foot radius of the property that may interact with or be influenced by the dewatering activity at the site. The location of the monitoring well(s) and nearby sites should also be shown on a map.

   ii. Verify the anticipated drawdown curve with a pump test performed on monitoring well(s) installed on the project site. Though the City is not currently requiring a particular type of pump test, the type used should be authorized and approved by a California licensed Hydrogeologist. Using the pump test and any other relevant data, the report shall state the anticipated pumping flow rate as well as the total amount of water due to be pumped for the 12 week dewatering period; daily pumped totals shall also be included. Following the two-week start-up period, the dewatering, pumping rates and maximum amount of water pumped on a daily basis shall be limited to the values calculated in the verification study.

   iii. Prior to pouring a basement slab, groundwater may be pumped no

deeper than three feet below the depth of the slab, measured at the center. After the slab is poured, groundwater may be pumped no deeper than one foot below the center. These values can be extrapolated using the (verified) drawdown curves and the on-site monitoring well data points.

B. Groundwater Use Plan (Plan) shall illustrate how the pumped groundwater will be used to the maximum extent practicable. Two required components of this plan are the 1) groundwater flow meter and sediment settling tank system and 2) the Fill Station. Both components must be inspected and approved by City staff before applying for a Controlled Groundwater Pumping Dewatering Permit. The inspections are documented via the Inspection Checklist (Attachment 4), which **must** be signed by a Public Works Inspector prior to issuing the Grading Permit, Dewatering Permit, and associated Building Permit; no Dewatering Permit will be issued without a Public Works Inspector–signed Checklist. At a minimum, the Plan should include the items below; however, the applicant should be creative in its plan to use the pumped groundwater and shall adhere to the Plan throughout the dewatering period.

   i. Groundwater flow meter and sediment settling tank system:
      1. Provide an accurate and **safely-accessible** flow meter with a data logger in good working condition at the inlet of the tank. Both flow rate and total flow measurements shall be easily readable. Before any water is pumped, the initial flow meter reading shall be checked and approved by the Watershed Protection Inspector (WP Inspector) as part of the initial dewatering approval process. The WP Inspector will collect regular meter readings on a daily basis during the two-week start-up period and weekly thereafter.
      2. Design the tank system so that the storage tank is always at minimum one-half full during the entire dewatering period to facilitate water truck usage.
      3. During the start-up period, once the tank is at least half-full and before any discharge of groundwater, contact Watershed Protection at (650) 329-2122 for an initial inspection and for water quality testing. For non-(contaminated) plume areas, basic measurements will generally include pH, conductivity and turbidity.
      4. After the Watershed Protection Inspector collects water quality samples and provides a clearance that the sample is within limits, the tank should be drained to the property while waiting to obtain the Dewatering Permit Packet from Public Works Engineering. Consult the Inspector for assistance. Provide a screen or a type of translucent covering over the tank for mosquito management. City staff may require the use of Bacillus thuringiensis israelensis (Bti), a naturally occurring soil bacterium that effectively kills mosquito larvae, if necessary.

5. Settling tank set-up:
    - The area surrounding the tank should be kept clear at all times, with a **safe** and **accessible** pathway to the meter and tank.
    - The edge of the tank should not be at the edge of the excavation area, as it may lead to unsafe conditions.
    - Temporary power source for pump(s) should have an "in-use" cover and should be placed in an area that will be minimally impacted by weather.
    - Provide signage that reads "Non-Potable Discharge" at the discharge point.

ii. A Fill Station shall be established to provide the City and nearby residents and business owners the opportunity to use the pumped groundwater to minimize the amount discharged to the storm drain system. The Fill Station should include two points for water distribution: a truck-filling outlet for water truck irrigation of sites in the City and a fill-up outlet for neighboring properties. Detailed information about the fill station and its components is listed below. A comprehensive detailed fill station plan should be included in the Groundwater Use Plan to be reviewed by staff as part of the Dewatering Permit Packet submittal. When the Fill Station is ready, contact Public Works Engineering Inspection staff (PWE Inspector) at (650) 496-6929 for an inspection of both the Fill Station and settling tank system and contact Building Inspection staff at (650) 444-6173 for an Electrical Safety Check. Inspectors must check off and sign the Inspection Checklist. The following is required in the Fill Station Plan:

1. Location and set-up:
    - Locate the Fill Station outside the site construction fence to allow 24-hour access. The construction site should be locked outside of normal construction hours.
    - A lock is not required at the Fill Station, but if the applicant deems it necessary, a combination lock should be used with the combination of *2*, *4*, *6*, *8*.
    - Truck fill area: provide a 2.5-inch hydrant fitting hose connection with a 50-foot traffic-rated hose.
    - Neighboring properties fill outlet: provide at least two 100-foot (minimum) hoses arranged on reels and connected to standard hose bibs. Hose bibs shall produce a minimum of 10gpm at the end of each 100 foot hose simultaneously. The applicant shall allow adjacent properties to use hoses connected to the fill station(s). If used and as needed, applicant must provide ADA-compliant bridges across sidewalks. Hoses shall be placed in a manner that is safe to the public and does not cause damage to neighboring or City property, and shall not cross the street. The City may modify these requirements as circumstances require.

- As with the tank system, the fill station shall include accurate and safely accessible flow meters with data loggers in good working condition at the outlet point of the Fill Station outlet points to log water reuse. Both flow rate and total flow measurements shall be easily readable. The initial flow meter reading should be noted before any water is pumped, which shall be checked and approved by the PWE Inspector as part of the initial dewatering approval process. The WPG Inspector will collect regular meter readings on a daily basis during the two-week start-up period and weekly thereafter.
- Supply log sheets and a pen for truck drivers to show the date and amount of each fill-up.
- The temporary power source needed for the Fill Station should be placed inside the locked construction area (and NOT in the Fill Station), if possible. If needed, a switch to power on the pump station may be placed inside the fill station cabinet, only with an installed in-use cover. Two switches should be used, one for the truck-fill hose and one for the residential hose area. These switches should be appropriately and clearly labeled.
- Provide easy-to-read signage for the Fill Station (including "Do not Drink") and directions explaining how to use it.
- For the hose bibs, provide signage that reads "No Hoses Crossing Street, Sidewalk and Private Properties."

2. The applicant must demonstrate maximum 10-minute fill time for a ~2700 gallon water truck to obtain staff approval.
3. Prior to the commencement of dewatering activities, the applicant shall notify occupants of neighboring properties of the temporary availability of water. Contact Public Works Engineering staff (650 329-2496, Option 8) for copies of door hangers to be used for notification. Door hangers must be removed after 24 hours.

iii. Irrigation of sites: The applicant is responsible for having pumped groundwater delivered to nearby parks and schools as requested by the City. The applicant shall contract with or otherwise provide water truck service to deliver water as directed by the City on a regular basis as described below. The City's Urban Forestry staff should be contacted by the truck service company at (650) 496-5986 to determine a list of sites to be irrigated. During the first six weeks of dewatering activities (not including the two-week start-up period), water should be trucked one full day (8 hours) per week from the project site to the irrigation sites. This shall increase to five days per week (8 hours per day) during the remaining 4 weeks of the dewatering period.

iv. On-site Use of Groundwater: Pumped groundwater should be used on the construction site when possible, such as for controlled infiltration, irrigation of existing landscaping, dust suppression and other determined

construction needs.

C. A Pre-construction Building Condition Survey and Report of structures located on adjacent parcels prepared by a licensed surveyor and meeting City standards must be included in the Dewatering Application Packet. The applicant is responsible for obtaining permission from neighboring property owners to enter their property to take survey points of the building interior. If permission is not granted, City staff should be notified; however, interior survey points are not required in order to obtain a Dewatering Permit. The survey shall include a photographic and narrative report on the external condition of each structure as well as surveyed and marked elevations of adjacent parcels, with particular attention to the condition of concrete foundations, structural connections, brickwork, plasterwork and other architectural finishes that are susceptible to cracking. The report shall assess the likelihood that the proposed dewatering would cause effects (including but not limited to settlement or movement) on off-site private or public structures or infrastructure, including the right-of-way, easements, and utilities within public utility easements, and the health or viability of vegetation or trees. To the extent that the report concludes that off-site effects are reasonably likely to occur, the applicant shall identify avoidance measures to be implemented that will minimize the type and severity of those effects, and shall develop a monitoring plan to assess any actual effects on vegetation, trees, structures and infrastructure.

F. Project status reporting: During the construction period of the underground structure, the applicant must submit periodic reports and have the data available per request. Report contents and submittal frequency requirements are listed below. All status reports should be submitted via email to the Public Works Engineering staff who has been working on your project and who issued the Excavation and Grading permit. Questions should be directed to pwecips@CityofPaloAlto.org.

1) Monitoring well levels: At minimum, monitoring well data shall be collected daily for the first two weeks (start-up period) of the 12-week period and weekly thereafter. Status reports should be submitted weekly during start-up period and monthly thereafter. A final report shall be submitted two weeks after pumping ceases.

2) Flow meter readings: At minimum, monitoring well data shall be collected daily for the first two weeks (start-up period) of the 12-week period and weekly thereafter. Status reports should be submitted weekly during start-up period and monthly thereafter. A final report shall be submitted two weeks after pumping ceases.

3) Survey data (see subsection IV.C. above). Once dewatering commences, survey data should be collected and reported weekly during the two-week start-up period and monthly thereafter. Note that the information will be made available to the public upon request.

V. ADDITIONAL REQUIREMENTS FOR TEMPORARY CONSTRUCTION-RELATED GROUNDWATER DEWATERING IN GROUNDWATER (CONTAMINATED) PLUME AREAS

Certain areas in the City have contaminated groundwater plumes due to previous land use. To determine if a site is in or nearby one of these areas, refer to the Attachment 5 figure. Dewatering sites in these areas must be carefully managed to ensure pumped groundwater does not enter the City's storm drain system nor that it is used by members of the public without being treated. Therefore, Fill Stations are not required at these sites. However, the same flow meter/data logger requirements described in Section IV (B.i.) shall still be followed in order to account for the amount of groundwater pumped from the site.

Construction of below ground structures in these areas triggers treatment requirements (in addition to sediment settlement) before discharging to the City's storm drain system in order to protect the water quality of downstream creeks and the SF Bay. Because of site complexities, specific requirements may vary site by site. Therefore, for any site in or within 500 feet of the edge of a plume, contact the City's Watershed Protection Group at (650) 329-2122 for guidance and requirements on sampling, treatment and disposal of temporary construction-related groundwater. Sampling groundwater for contaminants prior to initial discharge will be required, and potentially at intervals during dewatering. For all required sampling, the contractor must retain an independent testing firm to collect and process samples. Finally, the applicant should contact the Regional Water Quality Control Board (Water Board) to ensure additional state agency requirements are met. Note that compliance with the City does not imply compliance with the Water Board.

ATTACHMENTS

ATTACHMENT 1: COMPARISON OF MARCH 2017 AND FEBRUARY 2018 CHANGES:
GROUNDWATER DEWATERING ORDINANCE (Section 16.28 of the P.A.M.C.)

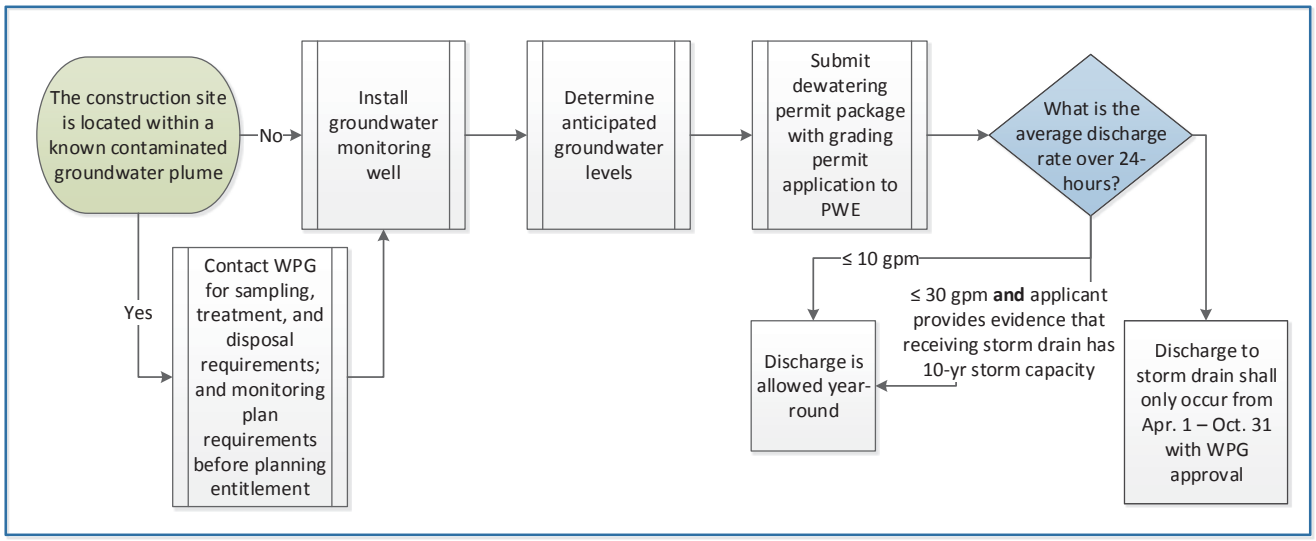
CATEGORY	MARCH 2017 ORDINANCE	FEBRUARY 2018 ORDINANCE REVISION
GROUNDWATER EXCLUSIONARY TECHNIQUE	Optional for all projects.	Optional for all projects.
	No specific requirements presented for the installation or during subsequent construction.	Requires a traffic control plan with a schedule for an attendant during the installation. Requires a groundwater monitoring well located at the farthest feasible point.
PRE-CONSTRUCTION BUILDING CONDITION SURVEY OF NEIGHBORING STRUCTURES	Not included	Requires evaluation of existing condition of neighboring structures as well as evaluation of likelihood of dewatering impacts to the neighboring structures, trees, and vegetation.
FILL STATION	While not expressly described in ordinance, the City Guidelines required applicant's trucking of water one day per week during entire dewatering period.	The previous Guidelines are clarified in the Ordinance. In addition, trucking of water must increase to five days per week after six weeks of dewatering period (not including two-week start-up period).
LIMITS OF DISCHARGES TO DRY SEASON	Discharges to storm or sanitary drains only allowed April 1st through October 31st.	Provides a provision, case-by-case, to consider allowing discharge from November 1 to March 31st if (1) the discharge is limited to ≤ 10 gallons per minute or (2) the receiving storm drain line would have sufficient capacity for a 10-year storm. Discharges subject to cessation orders from the City.
LIMITS TO PUMPING DEPTH	Not included	Prior to pouring a basement slab, groundwater may be pumped no deeper than three feet below the depth of the slab, measured at the center. After the slab is poured, groundwater may be pumped no deeper than one foot below the center.

CATEGORY	MARCH 2017 ORDINANCE	FEBRUARY 2018 ORDINANCE REVISION
PRE-DEWATERING TECHNICAL STUDY	Required Geotechnical Study but the details were not expressly described in ordinance.	Renamed a Dewatering Hydrogeological Study and incorporated details from the 2017 City Guidelines to clarify content of the study.
VERIFICATION OF DEWATERING STUDY	Required verification via pump test and project site monitoring wells.	Clarified that after the 2 week start-up, the pumping rates and volume pumped shall be limited by the values calculated in the study.
MEASUREMENTS DURING DEWATERING	Required periodic measurements as required by the City.	Clarified that measurements include periodic groundwater level monitoring and weekly surveys of adjacent buildings.
GROUNDWATER USE PLAN	Not expressly described in ordinance but was included in City Guidelines.	Ordinance clarifies the Use Plan requirements based on the 2017 guidelines and field observations during 2017 construction season.
DEWATERING PLAN AND STREET WORKS PERMIT	Not expressly described in ordinance.	Clarifies required submittals if there is a planned storm drain discharge.
EXCEPTIONAL WASTE DISCHARGE PERMIT APPLICATION	Not expressly described in ordinance.	Clarifies required submittals if there is a planned sewer discharge.

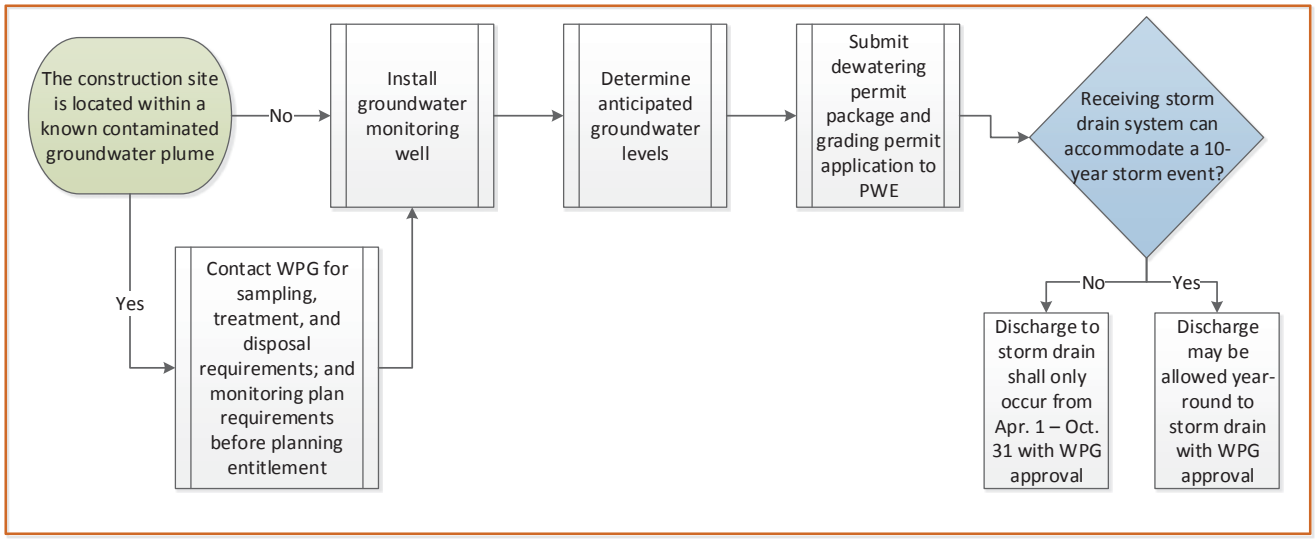
Attachment 2:

Groundwater Dewatering Regulations for Construction of Below Ground Structures

Groundwater Exclusionary Techniques



Controlled Groundwater Pumping



Additional Information

PWE – Public Works Engineering
WPG – Watershed Protection Group

For more information contact:
City of Palo Alto, Public Works Engineering – (650) 329-2496 Option 8, cityofpaloalto.org
City of Palo Alto, Watershed Protection Group – (650) 329-2122
Palo Alto Regional Water Quality Control Plant – (650) 329-2598, cleanbay.org

Refer to *Regulations for Groundwater Dewatering During Construction of Below Ground Structures* for more information.

Attachment 3: Groundwater Exclusionary Techniques Dewatering Packet

1) Cover Page

2) Dewatering Inspection checklist

DEWATERING PERMIT – GROUNDWATER EXCLUSIONARY TECHNIQUE

PUBLIC WORKS
Engineering Services Division
pwecips@cityofpaloalto.org – 650.329.2496 Ext.8 – Inspection: 650.496.6929

Related Permits:

LOCATION OF WORK:
CONSTRUCTION TYPE:
DESCRIPTION OF WORK:

PERMITTEE/CONTRACTOR
Name:
Company:
Address:
Contractor's License Number:
Phone:
Email:
Dewatering Sub-contractor:
Sub-contractor Phone:

Date

EXPECTED START DATE: **EXPECTED COMPLETION DATE:**

PERMIT EXPIRATION DATE: _____

Attachment Name	Page
☐ Exclusionary Technique Plan	1
☐ Groundwater Use Plan	2
☐ Traffic Control	3
☐ Completed Inspection Checklist – Groundwater Exclusionary Technique	4

Contact Public Works Inspection minimum 24 hours prior to starting work: 650-496-6929

Permittee affirms that the facts stated heron are true and agrees that they, their agents, employees, and contractors shall perform all work described heron in conformance with ordinances and standard specifications of the City of Palo Alto, all pertinent state laws and to the plans specifications approved by the City Engineer. The work allowed in this permit shall be performed by an appropriately licensed contractor as required in the Palo Alto Municipal Code. The Permittee shall pay the cost of all soils investigation and compaction tests, and shall reimburse the city for any services provided as may be required by the City Engineer, Utilities Department, or Police Department. Permittee further agrees to hold the City of Palo Alto, its officers, agents, and employees harmless from all costs and damages which might arise from the Permittee's use or occupancy of the public right-of-way. The Permittee also agrees to maintain required insurance coverage through the closure of the permit and sign off by the Public Works Inspector. This permit is subject to all attached conditions made part of the permit document and may be revoked at any time for violation of any of these conditions.

Inspector _____

The dewatering season is from April 1 to October 31. If dewatering occurs past permit expiration or outside the dewatering season, administrative fines may occur. Refer to Dewatering Regulations and Guidelines for more information.

Applicant Signature _____

Printed_____

Permit Issued By _____
(Initials)

Permit Issuer _____ _____
Date

Revised 4/10/2018

GROUNDWATER DEWATERING INSPECTION CHECKLIST

CITY OF PALO ALTO

PUBLIC WORKS INSPECTION
Engineering Services Division
pwecips@cityofpaloalto.org – 650.329.2496 Ext. 8 – Inspection: 650.496.6929

ALL CONDITIONS *MUST* BE CHECKED 'YES' BEFORE A GRADING PERMIT AUTHORIZING GROUNDWATER DEWATERING CAN BE PROCESSED AND ISSUED. THE INSPECTOR WILL SIGN THIS FORM AND PROVIDE IT TO THE CONTRACTOR. THE CONTRACTOR MAY THEN SUBMIT THIS INSPECTION FORM TO PUBLIC WORKS STAFF AT THE DEVELOPMENT CENTER AND OBTAIN A GRADING & DEWATERING PERMIT AUTHORIZING THE START OF DEWATERING OPERATIONS.

Address: _____

Contractor: _____ **Phone:** _____

Required Water Station Features	Yes	No	Additional Comments
If the fill station is secured by a lock with 4 digit lock combination, then the combination should be 2,4,6,8			
Log sheets with pen in box			
Minimum 50', 2.5" hose in box with hydrant fittings for water truck filling			
At least 2 hose bibs outside the fill station box with 2, 100' hoses providing a minimum of 10 GPM each, simultaneously			
GFI outlet inside or electrical connection outside of box			
"In-use" cover over switch/outlet in box if in the fill station			
Electrical Safety Check (from Building Inspector, phone: 650.444.6173. Alternate - Bud Starmer: 650-444-6175)			
"Water Filling Station, Non-Potable Water, Do Not Drink" sign on fill station door box with Public Works phone number: 650.329.2496			
"No Hoses Crossing Street and Sidewalk and Private Property " sign at hose bibs			
Switches labeled – bibs and hose; instructions for use			
* "Non-potable Discharge" sign on the discharge point			
* Water quality test – acceptable for discharge to storm drain (from Inspector, phone number: 650.617.3165)			
* Flow meters showing instantaneous and total flow at inlet point of settling tank			
* Verify flow meters are starting at Zero or a start-up reference starting point			
* Flow meters easily readable and in a safe location; one at inlet of settlement tank and one at fill station (if fill station is required)			
Pump is operational (tested personally by a PW inspector)			
Hose bib is operational (tested personally by a PW inspector)			
* No diesel or gas generator pumps – electric pumps only			
Door Hangers			
Monitoring wells – 1, farthest onsite point from structure			
Demonstrate maximum of 10-minute fill time for a ~2700 gallon water truck			
Demonstrate 10 GPM flow rate from both 100' hoses simultaneously			
Received initial survey plan and data from adjacent structures			

Date

PW Inspector Passed By

*Only requirements for Groundwater Exclusionary Technique. Controlled Groundwater Pumping must comply with entire checklist.

Additional Comments:

Attachment 4: Controlled Groundwater Pumping Dewatering Packet

1) Cover Page

2) Hydrogeological Study Worksheet

3) Dewatering Inspection Checklist

DEWATERING PERMIT – CONTROLLED GROUNDWATER PUMPING

PUBLIC WORKS
Engineering Services Division
pwecips@cityofpaloalto.org – 650.329.2496 Ext.8 – Inspection: 650.496.6929

Related Permits:

LOCATION OF WORK:
CONSTRUCTION TYPE:
DESCRIPTION OF WORK:

PERMITTEE/CONTRACTOR
Name:
Company:
Address:
Contractor's License Number:
Phone:
Email:
Dewatering Sub-contractor:
Sub-contractor Phone:

Date

EXPECTED START DATE: **EXPECTED COMPLETION DATE:**

PERMIT EXPIRATION DATE: _____

Attachment Name	Page
☐ Dewatering Hydrogeological Study & Accompanying Worksheet	1 2
☐ Groundwater Use Plan	
☐ Completed Inspection Checklist	3
☐ Pre-Construction Survey & Report	4 5

Contact Public Works Inspection minimum 24 hours prior to starting work: 650-496-6929

Inspector _____

Permittee affirms that the facts stated heron are true and agrees that they, their agents, employees, and contractors shall perform all work described heron in conformance with ordinances and standard specifications of the City of Palo Alto, all pertinent state laws and to the plans specifications approved by the City Engineer. The work allowed in this permit shall be performed by an appropriately licensed contractor as required in the Palo Alto Municipal Code. The Permittee shall pay the cost of all soils investigation and compaction tests, and shall reimburse the city for any services provided as may be required by the City Engineer, Utilities Department, or Police Department. Permittee further agrees to hold the City of Palo Alto, its officers, agents, and employees harmless from all costs and damages which might arise from the Permittee's use or occupancy of the public right-of-way. The Permittee also agrees to maintain required insurance coverage through the closure of the permit and sign off by the Public Works Inspector. This permit is subject to all attached conditions made part of the permit document and may be revoked at any time for violation of any of these conditions.

The dewatering season is from April 1 to October 31. If dewatering occurs past permit expiration or outside the dewatering season, administrative fines may occur. Refer to Dewatering Regulations and Guidelines for more information.

Applicant Signature _____

Printed_____

Permit Issued By _____
(Initials)

Permit Issuer _____ _____
Date

Revised 4/10/2018

DEWATERING HYDROGEOLOGICAL STUDY WORKSHEET & DEWATERING PLAN

Which Projects Must Complete This Worksheet?

Applicants for **all projects** anticipating the need to perform construction dewatering via groundwater pumping must complete this worksheet.

Please note that this information must be stamped by a California licensed Hydrogeologist (or equivalent) and will be made available to the public.

1. PROJECT INFORMATION

Project Name: _____ APN: _____

Project Address: _____

Applicant Name/ Developer: _____

Geotechnical Engineer: _____

Project Description: _____

_____

2. SITE ASSESMENT

Hydrogeological Study provided[1][2][3][4] (see guidelines for specific requirements) : ☐ Yes ☐ No

a. Depth to groundwater: _____

b. Maximum depth of excavation (including utilities, pits, shafts, etc.): _____

c. Proposed maximum depth of dewatering wells/pumping: _____

d. Size and anticipated flow from each pump: _____

e. Anticipated dewatering flow rate and total dewatering duration: _____

f. Control to be utilized: ☐Settling Tank ☐Turbidity Curtain ☐Other (describe): _____

g. Location of anticipated discharge including final receiving water (creek name or Bay): _____

h. All wells and other dewatering sites within a 400 foot radius (roughly one City block) of the property that may interact with dewatering activity, using information available from the City, show the exact location of these dewatering sites.

Map attached: ☐ Yes ☐ N/A (no wells or other dewatering sites within 400 foot radius)

i. Include a schematic diagram showing pipe and pump sizes and locations and sizes of all tanks, fill station, pipe route to nearest storm drain inlet (including flexible and rigid pipe locations), and all street and sidewalk impacts including trenching, saw cuts, and asphalt patching between project site and storm drain inlet.

Schematic attached: ☐ Yes ☐ No

j. Determine the radius of influence (i.e. extent of cone of depression) from each dewatering well as a function of time, based on local soil and groundwater conditions. Prepare a map and cross sections of the cone(s) of depression.

Map and cross sections attached: ☐ Yes ☐ No

k. State whether it is reasonably likely that the proposed dewatering will cause effects (including settlement or movement) on off-site structures or infrastructure, including the right of way, easements, and utilities within public utility easements. ☐ Yes ☐ No

[1] The Hydrogeological Study must include verification of the anticipated drawdown curve with a pump test using a minimum of one actual well, by the end of the two week start-up period.

[2] Cone Penetrometer Tests (CPT) is also encouraged to verify soils data. The actual pumping rates, following the two week start-up period, shall be limited to the rates used in in the verification. The maximum amount of water pumped over the ten week period, (excluding the two week start- up period) shall be limited to that calculated during verification.

[3] The ground water level must be measured at a distance representative of the distance to the nearest structure on an adjacent parcel, or farthest feasible point on the subject site. This monitoring shall be daily for the first week (including the two week start-up period), then weekly thereafter. If drawdown results are greater than anticipated by the Hydrogeological Study at the end of the two week start-up period or thereafter, a revised Hydrogeological Study and any revised conclusions on impacts of the groundwater drawdown must be submitted.

[4] The Hydrogeological Study and verification shall not be required if the dewatering pumping is continuously limited to 30 gallons per minute (gpm) or less following the two week start-up period. This could be accomplished through installation of groundwater cut-off walls (such as secant walls) or similar construction techniques. Additionally, the contractor need only provide off-site hauling of water sufficient to meet the needs of adjacent neighbors, as opposed to the one-day per week requirement for 2016.

l. State whether it is reasonably likely that the proposed dewatering will reduce the amount of water taken up by any vegetation or trees to a level that will affect the health or viability of the vegetation or trees. Utilize an Urban Forestry Sub Consultant (certified arborist) to verify any such effects on trees. ☐ Yes ☐ No

3. MONITORING PLAN (All applicants must fill out this section)

Describe monitoring plan to assess any actual effects on vegetation, trees, structures and infrastructure.

4. ENGINEER CERTIFICATION: The hydrogeological study, description and extent of cone of depression, and determination of offsite effects must be stamped by a California licensed Hydrogeologist (or equivalent).

Hydrogeological
Report Prepared By: _____

Stamp with Signature:

5. APPLICANT CERTIFICATION: I acknowledge the following dewatering requirements:

☐ Fill Stations: Must demonstrate a maximum 10-minute, 2700 gallon truck fill time and 2 simultaneous, 100' hose, 10 gallons per minute (gpm) deliveries (for each hose) during the two week start up period defined below. Storage tank designed to be at least one-half full. Ongoing metering of instantaneous and total flow of fill stations required.

☐ Pump for no more than 10 weeks for residential sites. A two week start-up period ahead of the 10 weeks is allowed. At the end of the two week startup period, compliance with all performance standards and water quality standards shall be demonstrated.

☐ Report on all measurements and requirements (reports due daily for the first two weeks and weekly thereafter, and then a final report at the end of pumping). Refer to status reporting in regulations.

☐ At the center of the basement excavation (center of where the slab will be), the groundwater shall be pumped no deeper than 3 feet below the depth of excavation/bottom of slab, following the two week start-up period. Once the slab is poured, the depth to groundwater at the center of the slab shall be 1 foot.

☐ Offer to water trees/plants on adjacent properties and do so if requested. Refer to regulations.

☐ Prior to anypumping, survey and mark land elevations on structures on adjacent parcels (assuming permission is obtained) – results due daily for the first two weeks and weekly thereafter. Refer to Regulations.

Applicant Name: _____

Applicant Signature: _____

GROUNDWATER DEWATERING INSPECTION CHECKLIST

CITY OF PALO ALTO

PUBLIC WORKS INSPECTION
Engineering Services Division
pwecips@cityofpaloalto.org – 650.329.2496 Ext. 8 – Inspection: 650.496.6929

ALL CONDITIONS *MUST* BE CHECKED 'YES' BEFORE A GRADING PERMIT AUTHORIZING GROUNDWATER DEWATERING CAN BE PROCESSED AND ISSUED. THE INSPECTOR WILL SIGN THIS FORM AND PROVIDE IT TO THE CONTRACTOR. THE CONTRACTOR MAY THEN SUBMIT THIS INSPECTION FORM TO PUBLIC WORKS STAFF AT THE DEVELOPMENT CENTER AND OBTAIN A GRADING & DEWATERING PERMIT AUTHORIZING THE START OF DEWATERING OPERATIONS.

Address: _____

Contractor: _____ **Phone:** _____

Required Water Station Features	Yes	No	Additional Comments
If the fill station is secured by a lock with 4 digit lock combination, then the combination should be 2,4,6,8			
Log sheets with pen in box			
Minimum 50', 2.5" hose in box with hydrant fittings for water truck filling			
At least 2 hose bibs outside the fill station box with 2, 100' hoses providing a minimum of 10 GPM each, simultaneously			
GFI outlet inside or electrical connection outside of box			
"In-use" cover over switch/outlet in box if in the fill station			
Electrical Safety Check (from Building Inspector, phone: 650.444.6173. Alternate - Bud Starmer: 650-444-6175)			
"Water Filling Station, Non-Potable Water, Do Not Drink" sign on fill station door box with Public Works phone number: 650.329.2496			
"No Hoses Crossing Street and Sidewalk and Private Property " sign at hose bibs			
Switches labeled – bibs and hose; instructions for use			
* "Non-potable Discharge" sign on the discharge point			
* Water quality test – acceptable for discharge to storm drain (from Inspector, phone number: 650.617.3165)			
* Flow meters showing instantaneous and total flow at inlet point of settling tank			
* Verify flow meters are starting at Zero or a start-up reference starting point			
* Flow meters easily readable and in a safe location; one at inlet of settlement tank and one at fill station (if fill station is required)			
Pump is operational (tested personally by a PW inspector)			
Hose bib is operational (tested personally by a PW inspector)			
* No diesel or gas generator pumps – electric pumps only			
Door Hangers			
Monitoring wells – 1, farthest onsite point from structure			
Demonstrate maximum of 10-minute fill time for a ~2700 gallon water truck			
Demonstrate 10 GPM flow rate from both 100' hoses simultaneously			
Received initial survey plan and data from adjacent structures			

Date

PW Inspector Passed By

*Only requirements for Groundwater Exclusionary Technique. Controlled Groundwater Pumping must comply with entire checklist.

Additional Comments:

Appendix 3.7-1

Noise Supporting Data

Fieldwork

Noise Measurement Data

Fieldwork

Long Term Data

LT-1 (Meter 6) Raw Data

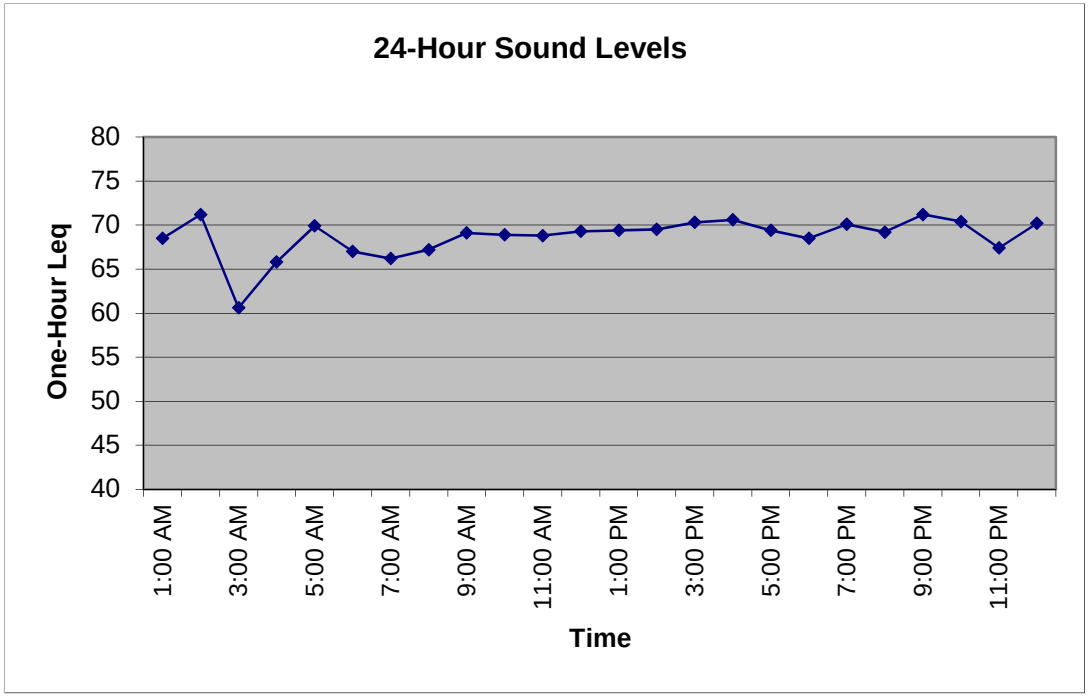
Rec 4 to 51	Slow Response		dBA weighting		2.0 dB resolution stats													
Date hh:mm:ss	LeqPeriod	Leq	SEL	Lmax	Lmin	L1%	L5%	L10%	L50%	L90%	L95%	L99%	Lmedian	Lmean	StdDev	L2%	L8%	L25%
6/3/2019 11:49	1.0 hour	70.7	106.3	88.7	59.6	83	75	71	65	61	61	59	65	65.3	4.39	81	71	67
6/3/2019 12:49	1.0 hour	69.5	105.1	85	60.6	81	73	69	65	63	61	61	65	65.8	3.64	79	71	67
6/3/2019 13:49	1.0 hour	70.3	105.9	89.5	60.4	81	71	69	65	63	63	61	65	65.7	3.43	77	69	67
6/3/2019 14:49	1.0 hour	70.6	106.2	89	61.9	83	73	69	65	63	63	61	65	66.1	3.57	79	69	67
6/3/2019 15:49	1.0 hour	69.4	105	90.3	62.6	77	73	69	65	63	63	63	65	66.4	3.02	77	71	67
6/3/2019 16:49	1.0 hour	68.5	104.1	84	61	79	71	69	65	63	63	61	65	65.6	3.07	75	69	67
6/3/2019 17:49	1.0 hour	70.1	105.7	86.9	61.1	81	75	69	65	63	63	61	65	66.1	3.73	79	71	67
6/3/2019 18:49	1.0 hour	69.2	104.8	86.2	61.8	79	71	69	65	63	63	63	65	66.4	2.95	75	69	67
6/3/2019 19:49	1.0 hour	71.2	106.8	93.6	61.3	83	73	69	65	63	63	61	65	66.5	3.6	79	71	67
6/3/2019 20:49	1.0 hour	70.4	106	98.1	61.7	81	73	69	65	63	63	61	65	65.6	3.45	77	69	67
6/3/2019 21:49	1.0 hour	67.4	103	88.7	57.8	75	69	67	63	61	61	59	63	63.9	3.12	71	67	65
6/3/2019 22:49	1.0 hour	70.2	105.8	92.8	58.2	83	69	67	61	59	59	59	61	62.5	4.31	79	67	63
6/3/2019 23:49	1.0 hour	68.5	104.1	89.5	53.1	81	67	65	59	55	55	53	59	60.4	4.69	77	65	63
6/4/2019 0:49	1.0 hour	71.2	106.8	91.7	48.5	85	67	63	57	51	51	49	57	57.6	6.47	81	65	61
6/4/2019 1:49	1.0 hour	60.6	96.2	82.2	46.7	67	63	61	53	49	49	47	53	54.3	4.71	65	61	57
6/4/2019 2:49	1.0 hour	65.8	101.4	91	48.1	71	63	61	55	51	49	49	55	55.3	4.78	67	61	57
6/4/2019 3:49	1.0 hour	69.9	105.5	101.4	51	69	65	63	57	53	53	51	57	58.2	4.11	67	63	61
6/4/2019 4:49	1.0 hour	67	102.6	88.9	54.6	75	67	67	61	57	57	55	61	61.7	3.92	71	67	63
6/4/2019 5:49	1.0 hour	66.2	101.8	83.8	57.6	75	69	67	63	59	59	57	63	63.1	3.47	71	67	65
6/4/2019 6:49	1.0 hour	67.2	102.8	82.8	57.3	75	69	69	65	59	59	57	65	64.3	3.65	73	69	67
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6/4/2019 8:49	1.0 hour	68.9	104.5	87.7	54.9	81	71	69	63	57	57	55	63	63.2	4.95	79	69	65
6/4/2019 9:49	1.0 hour	68.8	104.4	95	54.5	75	69	67	61	57	57	55	61	62.3	4.27	73	67	65
6/4/2019 10:49	1.0 hour	69.3	104.9	89.1	57	81	71	67	63	61	59	57	63	64	4.13	79	69	65
6/4/2019 11:49	1.0 hour	69.4	105	87.4	58.7	81	71	69	63	61	61	59	63	64.5	3.89	79	69	65
6/4/2019 12:49	1.0 hour	70.2	105.8	90.2	61.2	81	71	69	65	63	63	61	65	65.6	3.55	79	69	67
6/4/2019 13:49	1.0 hour	68.2	103.8	85.2	60.3	79	71	69	65	61	61	61	65	64.9	3.32	75	69	67
6/4/2019 14:49	1.0 hour	72.9	108.5	96.5	61	85	77	71	65	63	61	61	65	66.1	4.63	83	73	67
6/4/2019 15:49	1.0 hour	68.3	103.9	86.3	61.5	79	69	67	65	63	63	61	65	65.4	2.84	75	69	67
6/4/2019 16:49	1.0 hour	70	105.6	89.4	60.1	81	73	69	65	63	61	61	65	65.3	3.76	79	69	67
6/4/2019 17:49	1.0 hour	69.3	104.9	88	61.2	79	71	69	65	63	63	61	65	66	3.05	77	69	67
6/4/2019 18:49	1.0 hour	68	103.6	86.7	62.9	75	69	67	65	65	63	63	65	66	2.16	71	69	67
6/4/2019 19:49	1.0 hour	71	106.6	90.1	64.2	81	73	71	67	65	65	65	67	67.6	3	79	71	69
6/4/2019 20:49	1.0 hour	69.1	104.7	87.5	63.5	77	71	69	65	65	65	63	65	66.5	2.55	75	69	67
6/4/2019 21:49	1.0 hour	67.7	103.3	88.8	61.4	73	69	67	65	63	63	61	65	64.7	2.49	71	67	65
6/4/2019 22:49	1.0 hour	72.6	108.2	93	59.4	85	75	69	63	61	59	59	63	64.2	4.82	81	69	65
6/4/2019 23:49	1.0 hour	66.8	102.4	87.5	55.1	79	67	65	61	57	57	55	61	61	3.98	73	65	63
6/5/2019 0:49	1.0 hour	67.1	102.7	86.3	52.9	81	67	65	57	55	53	53	57	58.6	4.99	77	65	61
6/5/2019 1:49	1.0 hour	64.2	99.8	87.1	50.1	77	65	63	57	53	53	51	57	57.2	4.2	67	63	59
6/5/2019 2:49	1.0 hour	67	102.6	87.3	51.6	81	67	65	57	53	53	53	57	58.6	5.32	77	65	61
6/5/2019 3:49	1.0 hour	62.4	98	81.7	53.3	69	65	63	59	55	55	53	59	58.9	3.52	67	63	61
6/5/2019 4:49	1.0 hour	65.6	101.2	81.5	58.4	73	69	67	63	61	59	59	63	63.3	2.87	69	67	65
6/5/2019 5:49	1.0 hour	66.9	102.5	85.9	60.9	73	69	69	65	61	61	61	65	64.7	2.74	71	69	67
6/5/2019 6:49	1.0 hour	66.8	102.4	80.4	59.3	73	69	69	65	61	61	59	65	64.6	2.97	71	69	67
6/5/2019 7:49	1.0 hour	66.2	101.8	85.7	56.9	73	69	67	63	59	59	57	63	63.3	3.18	71	67	65
6/5/2019 8:49	1.0 hour	67.4	103	86.8	58.2	77	69	67	63	59	59	59	63	63.8	3.58	75	69	65
6/5/2019 9:49	1.0 hour	67.7	103.3	88.2	59.7	75	69	67	65	61	61	59	65	64.5	3.03	73	69	65
6/5/2019 10:49	52.2 min	68.7	103.7	87.6	59.8	79	71	69	65	63	61	61	65	65.3	3.41	77	69	67
Lowest LEQ	60.6																	
Highest LEQ	72.9																	

Ldn/CNEL Calculation Spreadsheet

Project: Bayhill SP Date: 6/3/2019 Analyst: E. Scott

Location: LT-1a

Time	6/3/2019	Leq(24)	Ldn	CNEL	Worst Hour Leq	Ldn minus Worst Hour Leq	CNEL minus Ldn	Day
Midnight	68.5	69.1	**74.9**	75.3	71.2	3.7	0.4	Evening
1:00 AM	71.2		7.7	8.1				Night
2:00 AM	60.6							
3:00 AM	65.8							
4:00 AM	69.9							
5:00 AM	67							
6:00 AM	66.2							
7:00 AM	67.2							
8:00 AM	69.1							
9:00 AM	68.9							
10:00 AM	68.8							
11:00 AM	69.3							
Noon	69.4							
1:00 PM	69.5							
2:00 PM	70.3							
3:00 PM	70.6							
4:00 PM	69.4							
5:00 PM	68.5							
6:00 PM	70.1							
7:00 PM	69.2							
8:00 PM	71.2							
9:00 PM	70.4							
10:00 PM	67.4							
11:00 PM	70.2							



Highest Daytime LEQ **71.2**

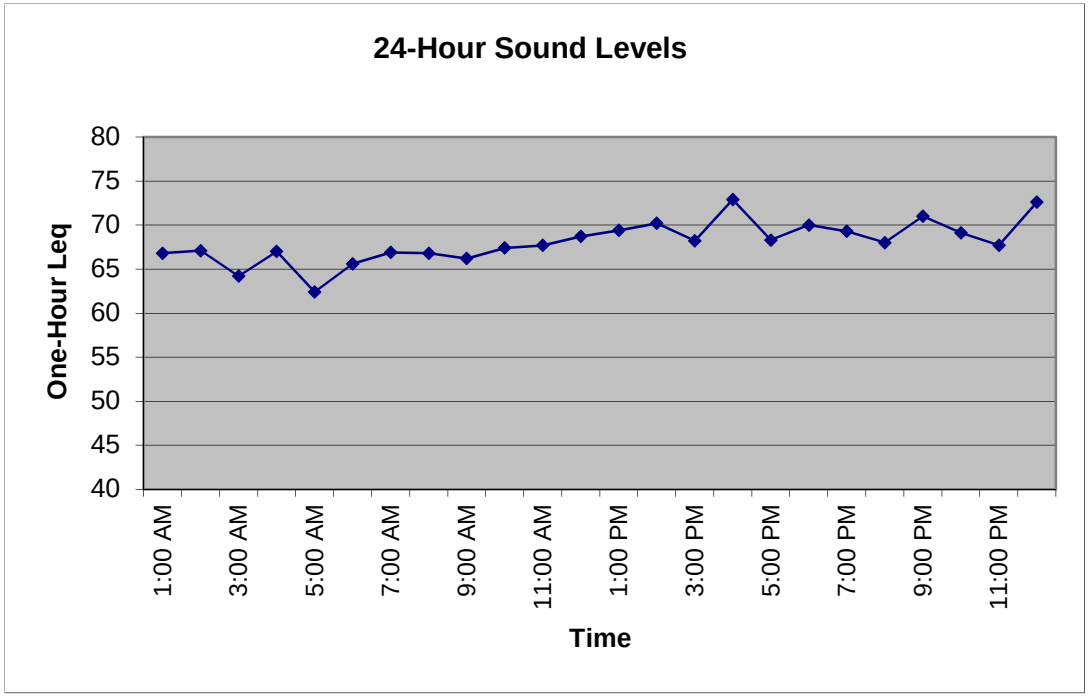
Lowest Daytime LEQ 67.2

Ldn/CNEL Calculation Spreadsheet

Project: Bayhill SP Date: 6/4/2019 Analyst: E. Scott

Location: LT-1a

Time	6/4/2019	Leq(24)	Ldn	CNEL	Worst Hour Leq	Ldn minus Worst Hour Leq	CNEL minus Ldn	Day
Midnight	66.8	68.7	**74.3**	74.7	72.9	1.4	0.4	Evening
1:00 AM	67.1		7.5	7.9				Night
2:00 AM	64.2							
3:00 AM	67							
4:00 AM	62.4							
5:00 AM	65.6							
6:00 AM	66.9							
7:00 AM	66.8							
8:00 AM	66.2							
9:00 AM	67.4							
10:00 AM	67.7							
11:00 AM	68.7							
Noon	69.4							
1:00 PM	70.2							
2:00 PM	68.2							
3:00 PM	72.9							
4:00 PM	68.3							
5:00 PM	70							
6:00 PM	69.3							
7:00 PM	68							
8:00 PM	71							
9:00 PM	69.1							
10:00 PM	67.7							
11:00 PM	72.6							



Highest Daytime LEQ **72.9**

Lowest Daytime LEQ 66.2

LT 1 (Meter 9) Raw Data

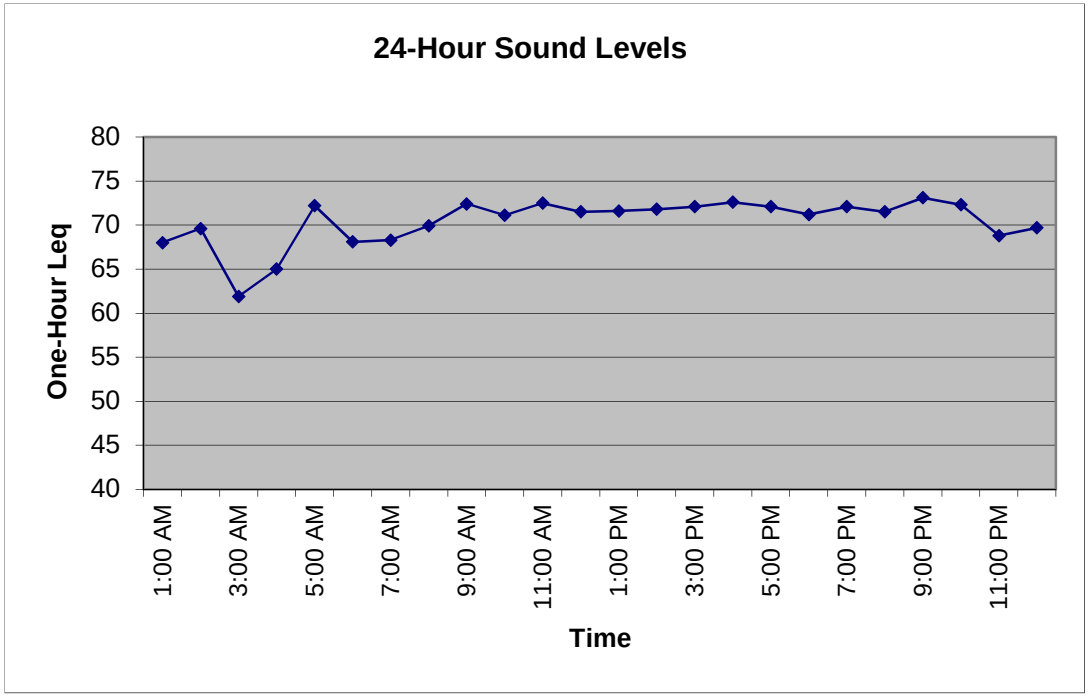
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6/3/2019 11:48	1.0 hour	72.5	108.1	91.9	59.2	83	77	73	69	65	63	63	69	68.7	4.14	79	75	71
6/3/2019 12:48	1.0 hour	71.8	107.4	87.3	63.9	81	75	73	69	65	65	63	69	69.1	3.4	79	73	71
6/3/2019 13:48	1.0 hour	72.1	107.7	89.1	63.8	81	75	73	69	65	65	65	69	69.2	3.22	77	73	71
6/3/2019 14:48	1.0 hour	72.6	108.2	92.1	64.8	81	75	73	69	67	65	65	69	69.5	3.28	79	73	71
6/3/2019 15:48	1.0 hour	72.1	107.7	91.2	65.6	79	75	73	69	67	67	65	69	69.8	2.73	77	73	71
6/3/2019 16:48	1.0 hour	71.2	106.8	88.1	64.4	77	73	73	69	67	65	65	69	69.2	2.65	75	73	71
6/3/2019 17:48	1.0 hour	72.1	107.7	85.7	64.5	81	75	73	69	67	65	65	69	69.6	3.1	79	73	71
6/3/2019 18:48	1.0 hour	71.5	107.1	84.9	65	79	73	73	69	67	67	65	69	69.5	2.62	77	73	71
6/3/2019 19:48	1.0 hour	73.1	108.7	100	63.1	81	73	73	67	65	65	63	67	68.5	3.35	77	73	69
6/3/2019 20:48	1.0 hour	72.3	107.9	101.6	63.1	79	73	71	67	65	63	63	67	67.5	3.25	77	71	69
6/3/2019 21:48	1.0 hour	68.8	104.4	86.5	59.4	77	71	71	65	63	61	61	65	66	3.25	73	71	67
6/3/2019 22:48	1.0 hour	69.7	105.3	90.5	59.9	81	71	69	63	61	61	61	63	64.6	4	77	71	67
6/3/2019 23:48	1.0 hour	68	103.6	87.8	55	79	71	67	61	57	57	55	61	62.5	4.55	75	69	65
6/4/2019 0:48	1.0 hour	69.6	105.2	89.8	49.7	83	69	67	59	53	53	51	59	59.4	6.22	79	67	63
6/4/2019 1:48	1.0 hour	61.9	97.5	80	48.4	71	67	65	55	51	51	49	55	56.6	5.21	69	65	59
6/4/2019 2:48	1.0 hour	65	100.6	89.6	49.3	73	67	65	55	53	51	49	55	57.3	5.07	69	65	59
6/4/2019 3:48	1.0 hour	72.2	107.8	102.9	53	73	69	67	59	55	55	53	59	60.3	4.6	71	67	63
6/4/2019 4:48	1.0 hour	68.1	103.7	92	55.9	77	71	69	63	59	59	57	63	63.8	4.16	73	69	67
6/4/2019 5:48	1.0 hour	68.3	103.9	87.5	59.1	75	71	71	65	61	61	59	65	65.1	3.91	73	71	67
6/4/2019 6:48	1.0 hour	69.9	105.5	84.9	58.7	77	73	73	67	61	61	59	67	66.9	4.2	75	73	69
6/4/2019 7:48	1.0 hour	72.4	108	99.6	57.3	79	73	73	67	61	59	57	67	66.9	4.61	75	73	71
6/4/2019 8:48	1.0 hour	71.1	106.7	92.2	57.4	79	75	73	67	61	59	57	67	66.8	4.97	77	73	71
6/4/2019 9:48	1.0 hour	72.5	108.1	97	56.9	79	73	71	65	61	59	57	65	66.3	4.9	77	73	69
6/4/2019 10:48	1.0 hour	71.5	107.1	91.4	59.6	81	73	73	67	63	61	61	67	67.4	4.18	77	73	71
6/4/2019 11:48	1.0 hour	71.6	107.2	91.7	62.3	81	75	73	69	65	63	63	69	68.4	3.72	79	73	71
6/4/2019 12:48	1.0 hour	71.6	107.2	88.1	64	81	75	73	69	65	65	63	69	68.9	3.24	77	73	71
6/4/2019 13:48	1.0 hour	71.3	106.9	89.4	63.3	79	73	73	67	65	65	63	67	68.4	3.31	77	73	71
6/4/2019 14:48	1.0 hour	76.1	111.7	102.8	63.7	85	77	75	69	65	65	63	69	69.6	4.21	83	75	71
6/4/2019 15:48	1.0 hour	71.2	106.8	89.9	64.8	79	73	71	69	65	65	65	69	69	2.7	77	73	71
6/4/2019 16:48	1.0 hour	71.9	107.5	88.2	63.7	81	75	73	69	65	65	63	69	69.1	3.33	79	73	71
6/4/2019 17:48	1.0 hour	72.4	108	93.6	64.7	79	75	73	69	67	65	65	69	69.9	2.89	77	73	71
6/4/2019 18:48	1.0 hour	71.6	107.2	86.8	66.7	77	73	73	69	67	67	67	69	69.9	2.29	75	73	71
6/4/2019 19:48	1.0 hour	71.7	107.3	87.2	66.1	79	75	73	69	67	67	65	69	69.4	2.77	77	73	71
6/4/2019 20:48	1.0 hour	70.4	106	89.1	64.7	77	73	71	67	65	65	65	67	68.4	2.49	75	71	69
6/4/2019 21:48	1.0 hour	68.9	104.5	89.1	62.1	75	71	69	65	63	63	63	65	66.3	2.8	73	71	67
6/4/2019 22:48	1.0 hour	71.3	106.9	90.4	60.3	83	73	71	65	61	61	59	65	65.5	4.39	81	71	67
6/4/2019 23:48	1.0 hour	67	102.6	84.8	55.9	77	69	67	61	59	57	55	61	62.5	4.21	75	69	65
6/5/2019 0:48	1.0 hour	66	101.6	84.7	53	79	69	67	59	55	55	53	59	59.7	5.01	73	67	61
6/5/2019 1:48	1.0 hour	64.1	99.7	84.7	50.7	75	67	65	57	55	53	53	57	58.8	4.59	71	67	61
6/5/2019 2:48	1.0 hour	65.8	101.4	84.7	52.2	77	69	67	59	55	53	53	59	59.5	5.09	75	67	63
6/5/2019 3:48	1.0 hour	64.7	100.3	85.1	54.1	73	69	67	59	57	55	55	59	60.5	4.11	71	67	63
6/5/2019 4:48	1.0 hour	67.4	103	83.9	59.7	73	71	69	65	61	61	59	65	64.9	3.32	73	71	67
6/5/2019 5:48	1.0 hour	69.1	104.7	87.1	61.8	75	73	71	65	63	63	61	65	66.5	3.29	73	71	69
6/5/2019 6:48	1.0 hour	69.7	105.3	86.3	61	77	73	71	67	63	63	61	67	67.1	3.55	75	73	69
6/5/2019 7:48	1.0 hour	69.3	104.9	84.3	59.9	75	73	71	67	63	61	59	67	66.8	3.49	73	71	69
6/5/2019 8:48	1.0 hour	70.4	106	85.6	60.7	77	73	73	67	63	61	61	67	67.5	3.83	75	73	71
6/5/2019 9:48	1.0 hour	71	106.6	91.3	62.4	79	73	73	67	65	63	63	67	68	3.43	77	73	71
6/5/2019 10:48	53.5 min	71.1	106.2	90.5	62.6	79	75	73	69	65	65	63	69	68.7	3.23	77	73	71
Lowest LEQ	61.9																	
Highest LEQ	76.1																	

Ldn/CNEL Calculation Spreadsheet

Project: Bayhill SP Date: 6/19/2018 Analyst: E. Scott

Location: LT-1b

Time	6/19/2018	Leq(24)	Ldn	CNEL	Worst Hour Leq	Ldn minus Worst Hour Leq	CNEL minus Ldn	Day
Midnight	68	71.0	**75.7**	76.3	73.1	2.6	0.5	Evening
1:00 AM	69.6		5.8	6.4				Night
2:00 AM	61.9							
3:00 AM	65							
4:00 AM	72.2							
5:00 AM	68.1							
6:00 AM	68.3							
7:00 AM	69.9							
8:00 AM	72.4							
9:00 AM	71.1							
10:00 AM	72.5							
11:00 AM	71.5							
Noon	71.6							
1:00 PM	71.8							
2:00 PM	72.1							
3:00 PM	72.6							
4:00 PM	72.1							
5:00 PM	71.2							
6:00 PM	72.1							
7:00 PM	71.5							
8:00 PM	73.1							
9:00 PM	72.3							
10:00 PM	68.8							
11:00 PM	69.7							



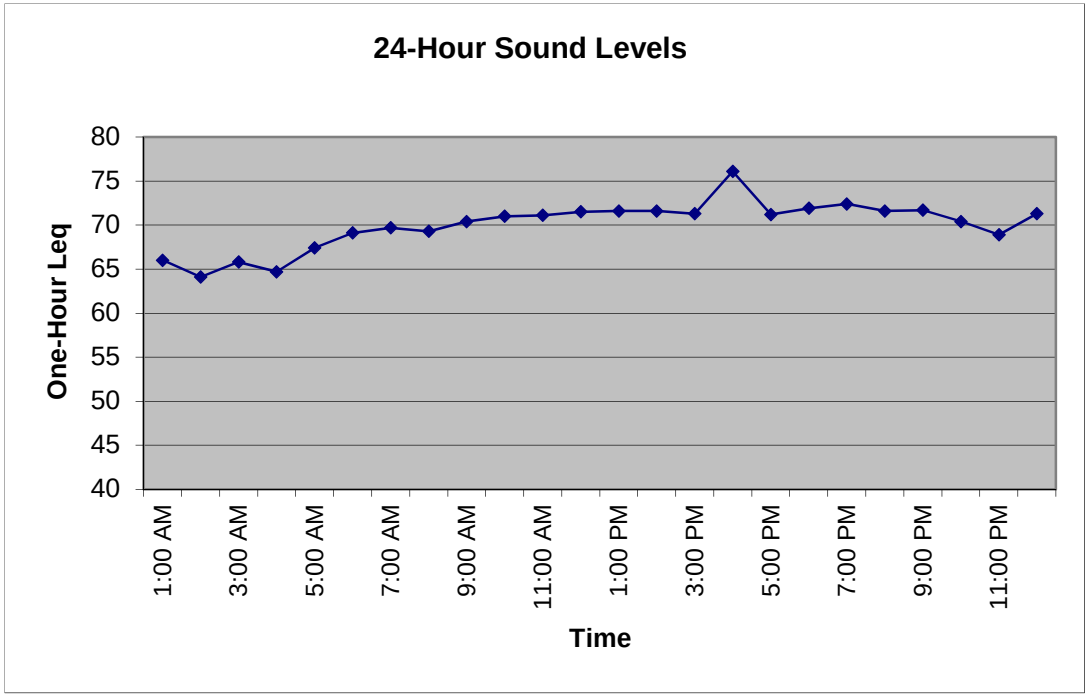
Highest Daytime LEQ **73.1**

Lowest Daytime LEQ 69.9

Ldn/CNEL Calculation Spreadsheet

Project: Bayhill SP Date: 6/19/2018 Analyst: E. Scott
Location: LT-1b

Time	6/19/2018	Leq(24)	Ldn	CNEL	Worst Hour Leq	Ldn minus Worst Hour Leq	CNEL minus Ldn	Day
Midnight	66	70.8	**75.2**	75.7	76.1	-0.9	0.4	Evening
1:00 AM	64.1		5.9	6.4				Night
2:00 AM	65.8							
3:00 AM	64.7							
4:00 AM	67.4							
5:00 AM	69.1							
6:00 AM	69.7							
7:00 AM	69.3							
8:00 AM	70.4							
9:00 AM	71							
10:00 AM	71.1							
11:00 AM	71.5							
Noon	71.6							
1:00 PM	71.6							
2:00 PM	71.3							
3:00 PM	76.1							
4:00 PM	71.2							
5:00 PM	71.9							
6:00 PM	72.4							
7:00 PM	71.6							
8:00 PM	71.7							
9:00 PM	70.4							
10:00 PM	68.9							
11:00 PM	71.3							



Highest Daytime LEQ **76.1**

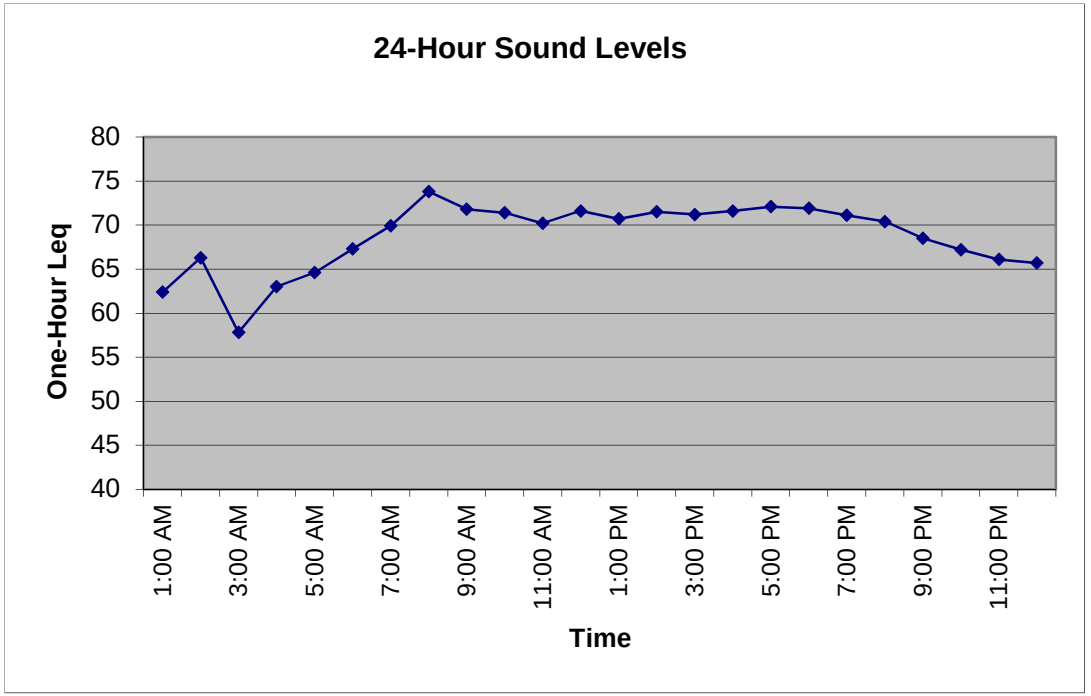
Lowest Daytime LEQ 69.3

LT 2 (Meter 7) Raw Data

Rec 1 to 49	Slow Response		dBA weighting			2.0 dB resolution stats												
Date hh:mm:ss	LeqPeriod	Leq	SEL	Lmax	Lmin	L1%	L5%	L10%	L50%	L90%	L95%	L99%	Lmedian	Lmean	StdDev	L2%	L8%	L25%
6/3/2019 11:18	1.0 hour	73.1	108.7	93.1	57.4	83	77	75	67	61	59	57	67	67.9	5.59	81	75	71
6/3/2019 12:18	1.0 hour	70.7	106.3	83.1	57.7	79	75	73	67	61	59	59	67	67	4.94	77	75	71
6/3/2019 13:18	1.0 hour	71.5	107.1	87.9	58.6	79	75	75	67	61	61	59	67	67.5	4.99	77	75	71
6/3/2019 14:18	1.0 hour	71.2	106.8	83.4	59.1	79	75	75	67	61	61	59	67	67.8	4.67	77	75	71
6/3/2019 15:18	1.0 hour	71.6	107.2	87.8	59.8	77	75	75	69	63	61	59	69	68.4	4.46	77	75	71
6/3/2019 16:18	1.0 hour	72.1	107.7	93	60.3	79	75	75	69	63	63	61	69	68.8	4.16	77	75	71
6/3/2019 17:18	1.0 hour	71.9	107.5	83.3	60.2	77	75	75	69	63	63	61	69	68.9	4.25	77	75	73
6/3/2019 18:18	1.0 hour	71.1	106.7	89.9	60.7	77	75	73	67	63	61	61	67	67.9	4.24	77	75	71
6/3/2019 19:18	1.0 hour	70.4	106	85.1	58.9	77	75	73	67	61	61	59	67	66.9	4.47	77	73	71
6/3/2019 20:18	1.0 hour	68.5	104.1	88.2	58.4	75	73	71	63	59	59	59	63	64.8	4.51	75	73	67
6/3/2019 21:18	1.0 hour	67.2	102.8	81.1	56.8	75	73	71	63	59	57	57	63	63.6	4.49	73	71	67
6/3/2019 22:18	1.0 hour	66.1	101.7	86	54.3	75	71	69	59	57	55	55	59	60.9	4.9	73	69	63
6/3/2019 23:18	1.0 hour	65.7	101.3	83.6	52.3	77	71	67	57	55	53	53	57	58.8	5.51	75	69	61
6/4/2019 0:18	1.0 hour	62.4	98	82.5	47.4	75	65	63	53	49	49	47	53	54.9	5.42	71	63	57
6/4/2019 1:18	1.0 hour	66.3	101.9	86.6	44	79	71	63	51	47	47	45	51	53	7.47	77	65	55
6/4/2019 2:18	1.0 hour	57.8	93.4	77.6	44.4	71	61	57	49	47	45	45	49	50.6	5	67	59	53
6/4/2019 3:18	1.0 hour	63	98.6	84.2	46.2	75	67	63	51	49	47	47	51	53.7	6.01	71	63	55
6/4/2019 4:18	1.0 hour	64.6	100.2	82.6	50.3	75	69	65	59	55	53	51	59	59.2	4.94	73	67	61
6/4/2019 5:18	1.0 hour	67.3	102.9	83.9	53.8	75	73	71	61	57	57	55	61	62.6	5.15	75	71	65
6/4/2019 6:18	1.0 hour	69.9	105.5	87.8	56	77	75	73	65	59	57	57	65	65.3	5.57	77	73	69
6/4/2019 7:18	1.0 hour	73.8	109.4	103	57	79	75	75	69	61	59	57	69	68.2	5.32	77	75	73
6/4/2019 8:18	1.0 hour	71.8	107.4	86.1	54.4	79	75	75	67	59	57	55	67	67.5	5.93	77	75	73
6/4/2019 9:18	1.0 hour	71.4	107	95.1	54.3	77	75	73	67	59	57	55	67	66.5	5.74	77	75	71
6/4/2019 10:18	1.0 hour	70.2	105.8	88.1	54.9	77	75	73	65	59	57	57	65	66	5.37	77	73	71
6/4/2019 11:18	1.0 hour	71.6	107.2	94.5	58.3	79	75	73	67	61	59	59	67	66.7	5.14	77	73	71
6/4/2019 12:18	1.0 hour	70.9	106.5	86.8	57.7	79	75	73	67	61	59	59	67	67	4.91	77	75	71
6/4/2019 13:18	1.0 hour	71	106.6	87.4	58.5	79	75	73	67	61	61	59	67	67	4.78	77	73	71
6/4/2019 14:18	1.0 hour	71.4	107	84.9	57	79	75	75	67	61	61	59	67	67.7	4.92	77	75	71
6/4/2019 15:18	1.0 hour	72.5	108.1	95.6	59.6	81	75	75	69	63	61	59	69	68.6	4.68	79	75	71
6/4/2019 16:18	1.0 hour	71.8	107.4	87.7	58.9	79	75	75	69	63	61	61	69	68.6	4.36	77	75	73
6/4/2019 17:18	1.0 hour	72.1	107.7	91	59.9	79	75	75	69	63	63	61	69	68.8	4.24	77	75	71
6/4/2019 18:18	1.0 hour	71.2	106.8	83.4	61.2	77	75	73	67	63	63	61	67	68.3	4.08	77	75	71
6/4/2019 19:18	1.0 hour	71.3	106.9	92.3	62.3	77	75	73	67	63	63	61	67	67.6	4.04	77	73	71
6/4/2019 20:18	1.0 hour	69.3	104.9	81.4	61.2	77	73	71	65	63	61	61	65	66.4	3.81	75	73	69
6/4/2019 21:18	1.0 hour	68.3	103.9	90.3	60.5	75	73	71	63	61	61	61	63	65	3.68	73	71	67
6/4/2019 22:18	1.0 hour	66.5	102.1	82.6	57.2	75	71	69	61	59	59	57	61	62.7	4.07	73	69	65
6/4/2019 23:18	1.0 hour	67.4	103	86.6	54.8	79	73	69	59	57	55	55	59	60.7	5.33	77	71	63
6/5/2019 0:18	1.0 hour	62.5	98.1	81.6	51.6	73	67	63	55	53	53	51	55	57	4.65	71	65	59
6/5/2019 1:18	1.0 hour	63.7	99.3	81.3	49	75	69	63	53	51	51	49	53	55.5	5.81	75	67	57
6/5/2019 2:18	1.0 hour	60.1	95.7	80.9	49.3	71	63	59	53	51	51	49	53	54.2	4.2	69	61	55
6/5/2019 3:18	1.0 hour	63.6	99.2	86.1	50.1	75	67	63	55	51	51	49	55	55.9	5.29	73	65	57
6/5/2019 4:18	1.0 hour	63	98.6	79.2	51.2	73	69	65	57	55	53	53	57	58.6	4.34	71	65	59
6/5/2019 5:18	1.0 hour	67.8	103.4	84	56.6	75	73	71	63	59	57	57	63	63.6	4.73	75	71	67
6/5/2019 6:18	1.0 hour	70	105.6	84.8	58	77	75	73	65	61	59	59	65	65.8	5.09	77	73	69
6/5/2019 7:18	1.0 hour	73.6	109.2	94.3	58	81	77	75	69	61	61	59	69	68.7	5.35	79	75	73
6/5/2019 8:18	1.0 hour	71.8	107.4	88.1	57.7	77	75	75	69	61	59	57	69	68.1	5.12	77	75	73
6/5/2019 9:18	1.0 hour	71.3	106.9	89.5	57.8	77	75	73	67	61	59	59	67	67.3	5.09	77	75	71
6/5/2019 10:18	1.0 hour	69.9	105.5	85.1	56.6	77	75	73	65	61	59	59	65	66.2	4.8	75	73	71
6/5/2019 11:18	3.5 min	73.9	97.1	89.2	60.2	85	79	75	67	63	61	59	67	68.3	5.71	81	77	73
Lowest LEQ		57.8																
Highest LEQ		73.8																

Ldn/CNEL Calculation Spreadsheet

Project:	Bayhill SP		Date:	6/3/2019	Analyst:	E. Scott		
Location:	LT-2							
Time	6/3/2019	Leq(24)	Ldn	CNEL	Worst Hour Leq	Ldn minus Worst Hour Leq	CNEL minus Ldn	Day
Midnight	62.4	69.9	**73.5**	73.9	73.8	-0.3	0.4	Evening
1:00 AM	66.3		-0.3	0.1				Night
2:00 AM	57.8							
3:00 AM	63							
4:00 AM	64.6							
5:00 AM	67.3							
6:00 AM	69.9							
7:00 AM	73.8							
8:00 AM	71.8							
9:00 AM	71.4							
10:00 AM	70.2							
11:00 AM	71.6							
Noon	70.7							
1:00 PM	71.5							
2:00 PM	71.2							
3:00 PM	71.6							
4:00 PM	72.1							
5:00 PM	71.9							
6:00 PM	71.1							
7:00 PM	70.4							
8:00 PM	68.5							
9:00 PM	67.2							
10:00 PM	66.1							
11:00 PM	65.7							



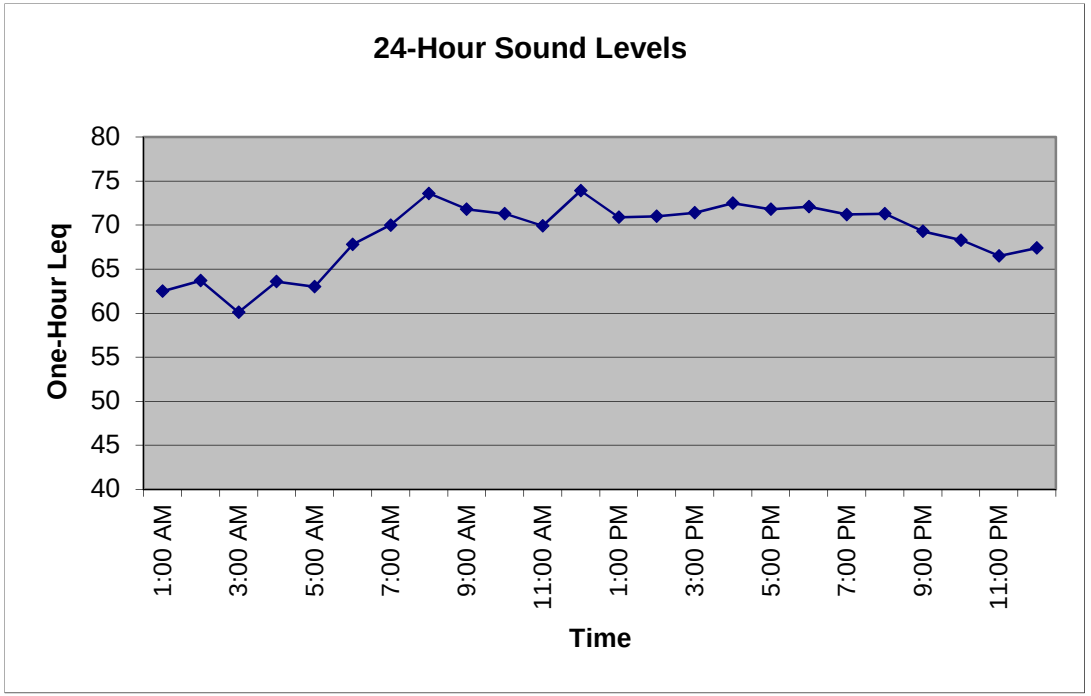
Highest Daytime LEQ	**73.8**
Lowest Daytime LEQ	70.2

Ldn/CNEL Calculation Spreadsheet

Project: Bayhill SP Date: 6/4/2019 Analyst: E. Scott

Location: LT-2

Time	6/4/2019	Leq(24)	Ldn	CNEL	Worst Hour Leq	Ldn minus Worst Hour Leq	CNEL minus Ldn	Day
Midnight	62.5	70.2	**73.8**	74.2	73.9	-0.1	0.4	Evening
1:00 AM	63.7		0.2	0.6				Night
2:00 AM	60.1							
3:00 AM	63.6							
4:00 AM	63							
5:00 AM	67.8							
6:00 AM	70							
7:00 AM	73.6							
8:00 AM	71.8							
9:00 AM	71.3							
10:00 AM	69.9							
11:00 AM	73.9							
Noon	70.9							
1:00 PM	71							
2:00 PM	71.4							
3:00 PM	72.5							
4:00 PM	71.8							
5:00 PM	72.1							
6:00 PM	71.2							
7:00 PM	71.3							
8:00 PM	69.3							
9:00 PM	68.3							
10:00 PM	66.5							
11:00 PM	67.4							



Highest Daytime LEQ **73.9**

Lowest Daytime LEQ 69.9

LT 3 (Meter 8) Raw Data

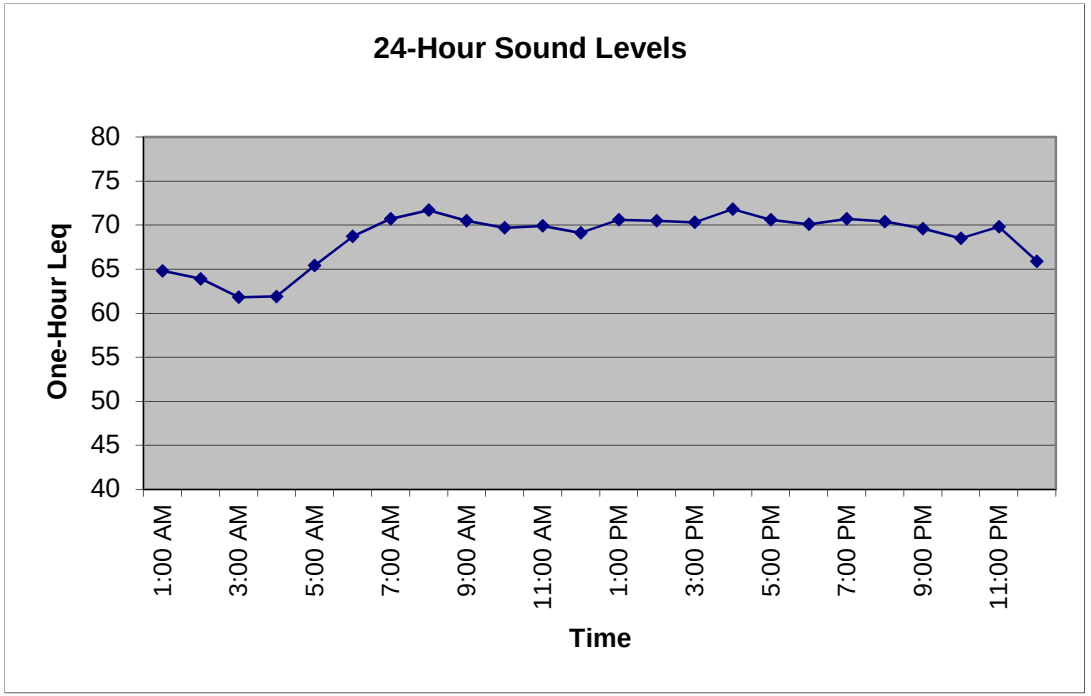
Rec 1 to 48	Slow Response		dBA weighting			2.0 dB resolution stats												
Date hh:mm:ss	LeqPeriod	Leq	SEL	Lmax	Lmin	L1%	L5%	L10%	L50%	L90%	L95%	L99%	Lmedian	Lmean	StdDev	L2%	L8%	L25%
6/3/2019 12:30	1.0 hour	70.6	106.2	91.6	61.4	77	73	71	69	65	65	63	69	68.5	2.65	75	71	69
6/3/2019 13:30	1.0 hour	70.5	106.1	88.3	62.8	77	73	71	69	67	65	65	69	68.8	2.26	75	71	69
6/3/2019 14:30	1.0 hour	70.3	105.9	81.9	63.5	75	73	71	69	67	67	65	69	68.9	1.92	73	71	69
6/3/2019 15:30	1.0 hour	71.8	107.4	98.4	65.8	77	73	71	69	67	67	67	69	69.2	2.1	75	71	69
6/3/2019 16:30	1.0 hour	70.6	106.2	83.1	62.2	75	73	71	69	67	65	63	69	69.1	2.16	73	71	71
6/3/2019 17:30	1.0 hour	70.1	105.7	79.7	61.9	75	73	71	69	65	65	63	69	68.4	2.58	75	71	69
6/3/2019 18:30	1.0 hour	70.7	106.3	86.8	63.5	75	73	71	69	67	67	65	69	69.1	2.23	75	73	71
6/3/2019 19:30	1.0 hour	70.4	106	82.4	63.2	75	73	71	69	67	65	65	69	68.8	2.21	75	71	69
6/3/2019 20:30	1.0 hour	69.6	105.2	88	61.6	75	71	71	67	65	65	63	67	67.6	2.5	73	71	69
6/3/2019 21:30	1.0 hour	68.5	104.1	83.1	58.1	75	71	69	67	63	63	61	67	66.5	2.72	73	71	67
6/3/2019 22:30	1.0 hour	69.8	105.4	96.3	55.4	75	69	69	65	61	61	57	65	65.4	3.3	73	69	67
6/3/2019 23:30	1.0 hour	65.9	101.5	78.4	52.3	73	69	67	63	59	57	55	63	63.4	3.59	71	67	65
6/4/2019 0:30	1.0 hour	64.8	100.4	80	49.7	75	67	67	61	55	55	51	61	61.3	4.3	71	67	63
6/4/2019 1:30	1.0 hour	63.9	99.5	83	44.3	75	67	65	59	51	47	45	59	58.1	5.86	73	65	61
6/4/2019 2:30	1.0 hour	61.8	97.4	84.3	43.5	69	65	63	55	49	47	45	55	55.5	5.58	67	63	59
6/4/2019 3:30	1.0 hour	61.9	97.5	81.6	46.5	69	65	63	57	53	51	49	57	58.2	4.58	69	65	61
6/4/2019 4:30	1.0 hour	65.4	101	80.8	53.7	73	69	67	63	57	57	55	63	62.6	3.73	71	67	65
6/4/2019 5:30	1.0 hour	68.7	104.3	78.8	60	73	71	71	67	63	63	61	67	66.9	2.73	73	71	69
6/4/2019 6:30	1.0 hour	70.7	106.3	86.9	61.3	75	73	71	69	67	65	63	69	69	2.41	73	73	71
6/4/2019 7:30	1.0 hour	71.7	107.3	88.8	60.9	77	73	73	69	67	67	65	69	69.8	2.39	75	73	71
6/4/2019 8:30	1.0 hour	70.5	106.1	89.9	62.3	75	73	71	69	67	65	63	69	68.7	2.34	75	71	69
6/4/2019 9:30	1.0 hour	69.7	105.3	78.2	62.4	73	71	71	69	65	65	63	69	68.2	2.18	73	71	69
6/4/2019 10:30	1.0 hour	69.9	105.5	81.9	59.3	75	73	71	67	65	63	63	67	67.9	2.75	75	71	69
6/4/2019 11:30	1.0 hour	69.1	104.7	85.5	60.3	73	71	71	67	65	65	63	67	67.5	2.33	73	71	69
6/4/2019 12:30	1.0 hour	69	104.6	78.3	61.8	73	71	69	67	65	65	63	67	67.4	2.19	73	71	69
6/4/2019 13:30	1.0 hour	70.3	105.9	81.7	63	75	73	71	69	67	65	65	69	68.7	2.32	75	71	69
6/4/2019 14:30	1.0 hour	70.4	106	80.1	63.9	75	73	71	69	67	65	65	69	68.8	2.31	75	71	69
6/4/2019 15:30	1.0 hour	69.6	105.2	81.2	64.8	73	71	71	69	67	65	65	69	68.2	1.74	73	71	69
6/4/2019 16:30	1.0 hour	68.7	104.3	91	60.6	77	71	69	65	63	61	61	65	65.5	3.23	75	69	67
6/4/2019 17:30	1.0 hour	67.8	103.4	84.6	60.1	73	71	69	65	63	61	61	65	65.7	2.74	73	69	67
6/4/2019 18:30	1.0 hour	70.3	105.9	93.3	64.3	75	71	71	69	67	65	65	69	68.4	1.97	73	71	69
6/4/2019 19:30	1.0 hour	69.9	105.5	88	62.9	77	71	71	67	65	65	63	67	68	2.25	75	71	69
6/4/2019 20:30	1.0 hour	68.6	104.2	80.2	61.8	73	71	69	67	65	65	63	67	67.2	1.96	71	69	69
6/4/2019 21:30	1.0 hour	68	103.6	82.5	61	73	69	69	67	63	63	61	67	66.4	2.18	71	69	67
6/4/2019 22:30	1.0 hour	68.2	103.8	84.6	56.7	75	71	69	65	63	61	59	65	65.7	2.92	73	69	67
6/4/2019 23:30	1.0 hour	66.4	102	87.5	54.5	73	69	67	63	59	57	55	63	63.4	3.39	71	67	65
6/5/2019 0:30	1.0 hour	64.1	99.7	81	51.7	73	67	65	61	55	55	53	61	60.8	4.12	69	65	63
6/5/2019 1:30	1.0 hour	63.2	98.8	79.6	47.2	73	67	65	59	53	51	49	59	58.8	4.98	71	65	61
6/5/2019 2:30	1.0 hour	63.6	99.2	87.9	47.5	75	67	63	57	51	49	47	57	57.7	5.28	71	65	61
6/5/2019 3:30	1.0 hour	63.4	99	81.5	50.7	73	67	65	59	55	53	51	59	59.4	4.44	69	65	63
6/5/2019 4:30	1.0 hour	65.3	100.9	80.7	55.6	71	69	67	63	59	57	57	63	63	3.32	71	67	65
6/5/2019 5:30	1.0 hour	68.5	104.1	84.3	60.3	73	71	69	67	63	63	61	67	66.8	2.71	73	71	69
6/5/2019 6:30	1.0 hour	70.7	106.3	83.8	60.6	75	73	71	69	67	65	63	69	69.1	2.3	73	71	71
6/5/2019 7:30	1.0 hour	70.9	106.5	83.9	62.9	75	73	71	69	67	67	65	69	69.4	2.09	73	73	71
6/5/2019 8:30	1.0 hour	70	105.6	79.9	61.8	73	71	71	69	67	65	63	69	68.6	2.05	73	71	69
6/5/2019 9:30	1.0 hour	69.8	105.4	88.6	62.5	75	71	71	69	65	65	63	69	68.2	2.24	73	71	69
6/5/2019 10:30	1.0 hour	69.5	105.1	84.5	61.4	75	71	71	67	65	65	63	67	67.8	2.41	73	71	69
6/5/2019 11:30	32.1 min	70.7	103.6	92	62	77	71	71	67	65	65	63	67	68	2.55	75	71	69
Lowest LEQ	61.8																	
Highest LEQ	71.8																	

Ldn/CNEL Calculation Spreadsheet

Project: Bayhill SP Date: 6/3/2019 Analyst: E. Scott

Location: LT-3

Time	6/3/2019	Leq(24)	Ldn	CNEL	Worst Hour Leq	Ldn minus Worst Hour Leq	CNEL minus Ldn	Day
Midnight	64.8	69.4	**74.0**	74.4	71.8	2.2	0.4	Evening
1:00 AM	63.9		2.3	2.7				Night
2:00 AM	61.8							
3:00 AM	61.9							
4:00 AM	65.4							
5:00 AM	68.7							
6:00 AM	70.7							
7:00 AM	71.7							
8:00 AM	70.5							
9:00 AM	69.7							
10:00 AM	69.9							
11:00 AM	69.1							
Noon	70.6							
1:00 PM	70.5							
2:00 PM	70.3							
3:00 PM	71.8							
4:00 PM	70.6							
5:00 PM	70.1							
6:00 PM	70.7							
7:00 PM	70.4							
8:00 PM	69.6							
9:00 PM	68.5							
10:00 PM	69.8							
11:00 PM	65.9							



Highest Daytime LEQ **71.8**

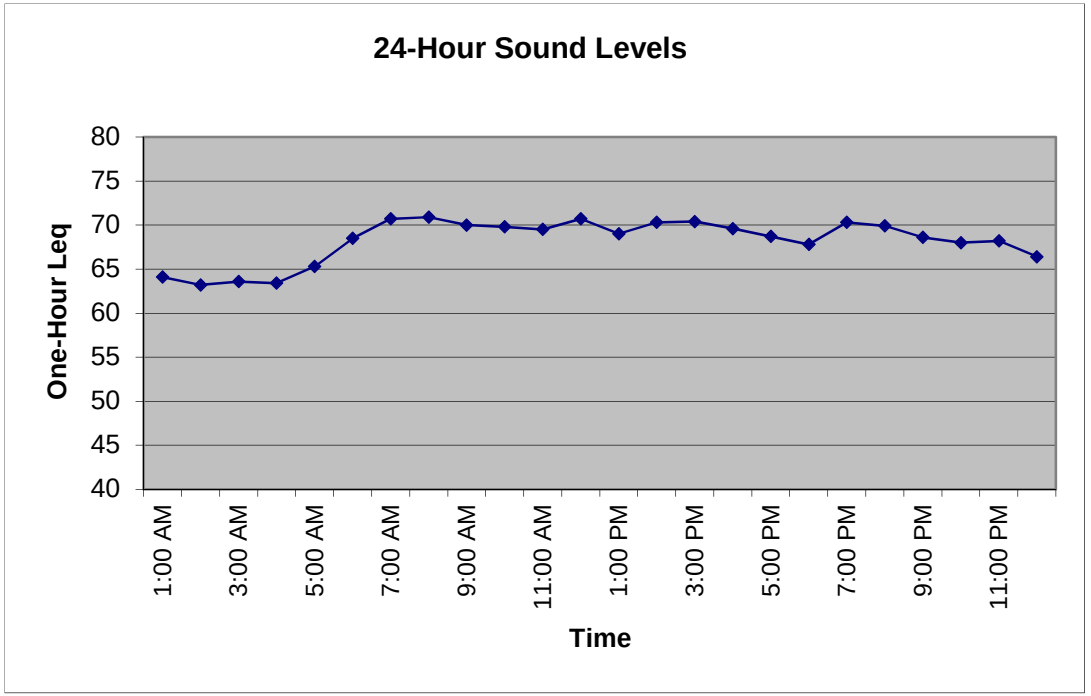
Lowest Daytime LEQ 69.1

Ldn/CNEL Calculation Spreadsheet

Project: Bayhill SP Date: 6/4/2019 Analyst: E. Scott

Location: LT-3

Time	6/4/2019	Leq(24)	Ldn	CNEL	Worst Hour Leq	Ldn minus Worst Hour Leq	CNEL minus Ldn	Day
Midnight	64.1	68.8	**73.7**	74.1	70.9	2.8	0.4	Evening
1:00 AM	63.2		2.8	3.2				Night
2:00 AM	63.6							
3:00 AM	63.4							
4:00 AM	65.3							
5:00 AM	68.5							
6:00 AM	70.7							
7:00 AM	70.9							
8:00 AM	70							
9:00 AM	69.8							
10:00 AM	69.5							
11:00 AM	70.7							
Noon	69							
1:00 PM	70.3							
2:00 PM	70.4							
3:00 PM	69.6							
4:00 PM	68.7							
5:00 PM	67.8							
6:00 PM	70.3							
7:00 PM	69.9							
8:00 PM	68.6							
9:00 PM	68							
10:00 PM	68.2							
11:00 PM	66.4							



Highest Daytime LEQ **70.9**

Lowest Daytime LEQ 67.8

Fieldwork

Short Term Data

ST-1 Short Term Data

Summary

File Name	LxT_Data.028
Serial Number	0004004
Model	SoundTrack LxT®
Firmware Version	2.302
User	
Location	
Job Description	
Note	

Measurement Description

Start	2019-06-03 13:35:00
Stop	2019-06-03 13:53:08
Duration	00:18:07.8
Run Time	00:18:01.3
Pause	00:00:06.5
Pre Calibration	2019-06-03 13:34:00
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
Overload	123.3 dB

	A	C	Z
Under Range Peak	**79.5**	76.5	81.5 dB
Under Range Limit	**27.5**	26.8	32.2 dB
Noise Floor	17.2	17.7	23.1 dB

Results

LAeq	73.1 dB		
LAE	103.4 dB		
EA	2.432 mPa²h		
EA8	64.776 mPa²h		
EA40	323.881 mPa²h		
LApeak (max)	2019-06-03 13:37:37	101.1 dB	
LASmax	2019-06-03 13:49:24	80.1 dB	
LASmin	2019-06-03 13:51:09	66.1 dB	
SEA	-99.9 dB		
LAS > 75.0 dB (Exceedance Counts / Duration)	26	228.4 s	
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0 s	
LApeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0 s	
LApeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0 s	
LApeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0 s	

Community Noise	**Ldn**	**LDay 07:00-23:00**	**LNight 23:00-07:00**	**Lden**	**LDay 07:00-19:00**
	73.1	73.1	-99.9	73.1	73.1
LCeq	78.8 dB				
LAeq	73.1 dB				
LCeq - LAeq	5.7 dB				
LAleq	74.4 dB				
LAeq	73.1 dB				
LAleq - LAeq	1.3 dB				
# Overloads	0				
Overload Duration	0.0 s				

Dose Settings

Dose Name	OSHA-1	OSHA-2
Exchange Rate	5	5 dB
Threshold	90	80 dB
Criterion Level	90	90 dB
Criterion Duration	8	8 h

Results

Dose	-99.9	0.00 %
Projected Dose	-99.9	0.00 %
TWA (Projected)	-99.9	18.1 dB
TWA (t)	-99.9	-5.6 dB
Lep (t)	58.8	58.8 dB

Statistics

LAS5.00	75.4 dB
LAS10.00	74.8 dB
LAS33.30	73.4 dB
LAS50.00	72.6 dB
LAS66.60	72.0 dB
LAS90.00	70.7 dB

ST-2 Short Term Data

Summary

File Name	LxT_Data.027
Serial Number	0004004
Model	SoundTrack LxT®
Firmware Version	2.302
User	
Location	
Job Description	
Note	

Measurement Description

Start	2019-06-03 12:58:00
Stop	2019-06-03 13:13:00
Duration	00:15:00.4
Run Time	00:15:00.4
Pause	00:00:00.0
Pre Calibration	2019-06-03 12:52:58
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	A Weighting
Detector	Slow
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
Overload	123.3 dB

	A	**C**	**Z**	
Under Range Peak	**79.6**	76.6	81.6	dB
Under Range Limit	**27.6**	26.8	32.2	dB
Noise Floor	17.2	17.7	23.1	dB

Results

LAeq	61.2	dB	
LAE	90.7	dB	
EA	131.941	µPa²h	
EA8	4.220	mPa²h	
EA40	21.101	mPa²h	
LApeak (max)	2019-06-03 13:09:22	91.9	dB
LASmax	2019-06-03 13:09:22	74.7	dB
LASmin	2019-06-03 13:06:10	55.3	dB
SEA	-99.9	dB	
LAS > 75.0 dB (Exceedance Counts / Duration)	0	0.0	s
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0	s
LApeak > 135.0 dB (Exceedance Counts / Duration)	0	0.0	s
LApeak > 137.0 dB (Exceedance Counts / Duration)	0	0.0	s
LApeak > 140.0 dB (Exceedance Counts / Duration)	0	0.0	s

Community Noise	**Ldn**	**LDay 07:00-23:00**	**LNight 23:00-07:00**	**Lden**	**LDay 07:00-19:00**	**LEvening 19:00-23:00**
	61.2	61.2	-99.9	61.2	61.2	-99.9
LCeq	72.5 dB					
LAeq	61.2 dB					
LCeq - LAeq	11.3 dB					
LAleq	62.4 dB					
LAeq	61.2 dB					
LAleq - LAeq	1.2 dB					
# Overloads	0					
Overload Duration	0.0 s					

Dose Settings

Dose Name	OSHA-1	OSHA-2	
Exchange Rate	5	5	dB
Threshold	90	80	dB
Criterion Level	90	90	dB
Criterion Duration	8	8	h

Results

Dose	-99.9	-99.9	%
Projected Dose	-99.9	-99.9	%
TWA (Projected)	-99.9	-99.9	dB
TWA (t)	-99.9	-99.9	dB
Lep (t)	46.2	46.2	dB

Statistics

LAS5.00	64.7	dB
LAS10.00	62.9	dB
LAS33.30	59.9	dB
LAS50.00	59.1	dB
LAS66.60	58.3	dB
LAS90.00	57.2	dB

Traffic Noise Modeling Inputs and Results

ADT Values Calculated from Turning AM and PM Peak-hour Turning movements (Equation: AM Peak x 5 + Pm Peak x 5 = ADT)

		Existing ADT			2040 NP ADT			2040 + SP Max Office ADT		
		Existing AM	*Existing PM*	ADT	2040 NP AM	2040 NP PM	ADT	*2040 + SP Max O AM*	*2040 + SP Max O PM*	ADT
W San Bruno Avenue	**West of I-280 on/off ramps**	*1745*	*1701*	17230	1980	1870	19250	*2013*	*1904*	19585
W San Bruno Avenue	**East of I-280 on/off ramps**	*1760*	*1913*	18365	2110	2385	22475	*2256*	*2633*	24445
I 280 off-ramp	**North of W San Bruno Avenue**	*826*	*570*	6980	910	810	8600	*1023*	*810*	9165
I 280 on-ramp	**South of W San Bruno Avenue**	*883*	*678*	7805	1080	865	9725	*1080*	*1079*	10795
W San Bruno Avenue (E of 280)	**West of I-280 on/off ramps**	*1764*	*1907*	18355	2095	2380	22375	*2240*	*2628*	24340
W San Bruno Avenue (E of 280)	**East of I-280 on/off ramps**	*2049*	*2406*	22275	2390	3060	27250	*2757*	*3432*	30945
I 280 on-ramp	**North of W San Bruno Avenue**	*800*	*1267*	10335	895	1560	12275	*895*	*1684*	12895
I 280 off-ramp	**South of W San Bruno Avenue**	*801*	*1064*	9325	950	1620	12850	*1172*	*1620*	13960
W San Bruno Avenue	**West of Cherry Avenue**	*2005*	*2280*	21425	2340	2900	26200	*2707*	*3272*	29895
W San Bruno Avenue	**East of Cherry Avenue**	*1641*	*1789*	17150	2000	2390	21950	*2304*	*2736*	25200
Cherry Avenue	**North of W San Bruno Avenue**	***807***	***960***	**8835**	**940**	**1330**	**11350**	***1247***	***1635***	**14410**
Cherry Avenue	**South of W San Bruno Avenue**	*427*	*445*	4360	480	520	5000	*486*	*527*	5065
W San Bruno Avenue	**West of Traeger Avenue**	*1641*	*1804*	17225	1975	2245	21100	*2278*	*2591*	24345
W San Bruno Avenue	**East of Traeger Avenue**	*1471*	*1665*	15680	1815	2065	19400	*2074*	*2385*	22295
Traeger Avenue	**North of W San Bruno Avenue**	*240*	*245*	2425	270	330	3000	*438*	*570*	5040
W San Bruno Avenue	**West of Elm Avenue**	*1454*	*1682*	15680	1830	2100	19650	*2089*	*2420*	22545
W San Bruno Avenue	**East of Elm Avenue**	*1437*	*1592*	15145	1855	2005	19300	*2077*	*2306*	21915
Elm Avenue	**North of W San Bruno Avenue**	*106*	*179*	1425	125	215	1700	*270*	*390*	3300
Elm Avenue	**South of W San Bruno Avenue**	*235*	*247*	2410	360	310	3350	*368*	*314*	3410
W San Bruno Avenue	**West of El Camino Real**	*1424*	*1617*	15205	1880	2090	19850	*2103*	*2391*	22470
W San Bruno Avenue	**East of El Camino Real**	*1358*	*1588*	14730	1780	2010	18950	*1844*	*2102*	19730
El Camino Real	**North of W San Bruno Avenue**	*2595*	*3420*	30075	3820	4440	41300	*3915*	*4569*	42420
El Camino Real	**South of W San Bruno Avenue**	*2667*	*3447*	30570	3920	4600	42600	*4022*	*4708*	43650
Bayhill Drive	**West of El Camino Real**	*621*	*679*	6500	695	745	7200	*1107*	*1069*	10880
Euclid Avenue	**East of El Camino Real**	*78*	*94*	860	120	100	1100	*120*	*100*	1100
El Camino Real	**North of W Bayhill Drive/Euclid Avenue**	*3113*	*3888*	35005	4370	4900	46350	*4839*	*5325*	50820
El Camino Real	**South of W Bayhill Drive/Euclid Avenue**	*2560*	*3369*	29645	3785	4325	40550	*3880*	*4454*	41670
380 EB Off-Ramp	**West of El Camino Real**	*1329*	*1358*	13435	1940	1620	17800	*2026*	*1693*	18595
380 EB On-Ramp	**East of El Camino Real**	*573*	*506*	5395	770	510	6400	*770*	*817*	7935
El Camino Real	**North of 380 EB On- and Off-Ramps**	*3633*	*4022*	38275	5070	5360	52150	*5452*	*5551*	55015
El Camino Real	**South of 380 EB On- and Off-Ramps**	*3141*	*3922*	35315	4320	5010	46650	*4788*	*5435*	51115
380 WB On-Ramp	**West of El Camino Real**	*234*	*352*	2930	300	480	3900	*300*	*480*	3900
380 WB Off-Ramp	**East of El Camino Real**	*1472*	*2010*	17410	2150	2680	24150	*2554*	*2767*	26605
El Camino Real	**North of 380 WB On- and Off-Ramps**	*3774*	*4791*	42825	4240	5590	49150	*4322*	*5694*	50080
El Camino Real	**South of 380 WB On- and Off-Ramps**	*3666*	*4025*	38455	4730	5350	50400	*5112*	*5541*	53265
Bayhill Drive	**West of Cherry Avenue**	*239*	*296*	2675	270	320	2950	*570*	*644*	6070
Bayhill Drive	**East of Cherry Avenue**	*353*	*418*	3855	450	510	4800	*642*	*682*	6620
Cherry Avenue	**North of Bayhill Drive**	*652*	*743*	6975	900	1100	10000	*1102*	*1328*	12150
Cherry Avenue	**South of Bayhill Drive**	*606*	*851*	7285	780	1250	10150	*1088*	*1554*	13210
Sneath Lane	**West of Cherry Avenue**	*1715*	*1966*	18405	1995	2090	20425	*2107*	*2205*	21560
Sneath Lane	**East of Cherry Avenue**	*1517*	*1847*	16820	1825	2170	19975	*1915*	*2283*	20990
Cherry Avenue	**South of Sneath Lane**	*660*	*757*	7085	880	980	9300	*1082*	*1208*	11450
Sneath Lane	**West of I-280 NB Off-Ramp**	*1681*	*1924*	18025	1955	2105	20300	*2067*	*2142*	21045
Sneath Lane	**East of I-280 NB Off-Ramp**	*1690*	*1980*	18350	2000	2140	20700	*2112*	*2255*	21835
Cemetary Entrance	**North of Sneath Lane**	*10*	*5*	75	45	30	375	*45*	*30*	375
I-280 NB Off-Ramp	**South of Sneath Lane**	*663*	*951*	8070	730	1015	8725	*730*	*1093*	9115
Sneath Lane	**West of Rollingwood Drive**	*1256*	*1087*	11715	1360	1370	13650	*1389*	*1400*	13945
Sneath Lane	**East of Rollingwood Drive**	*1638*	*1918*	17780	1920	2150	20350	*2032*	*2187*	21095
Rollingwood Drive	**North of Sneath Lane**	*853*	*931*	8920	940	1110	10250	*947*	*1117*	10320
I-280 SB Off-Ramp	**South of Sneath Lane**	*783*	*632*	7075	920	830	8750	*996*	*830*	9130
Commodore Drive	**West of El Camino Real**	*449*	*520*	4845	540	650	5950	*540*	*650*	5950
Tanforan Way	**East of El Camino Real**	*242*	*870*	5560	310	1000	6550	*310*	*1000*	6550
El Camino Real	**North of Tanforan Way/Commodore Drive**	*3082*	*3839*	34605	3590	4620	41050	*3672*	*4724*	41980
El Camino Real	**South of Tanforan Way/Commodore Drive**	*3509*	*4541*	40250	4060	5390	47250	*4142*	*5494*	48180
Sneath Lane	**West of El Camino Real**	*1223*	*1790*	15065	1480	2170	18250	*1570*	*2283*	19265
Sneath Lane	**East of El Camino Real**	*999*	*1703*	13510	1290	2460	18750	*1290*	*2460*	18750
El Camino Real	**North of Sneath Lane**	*2735*	*3603*	31690	3240	4010	36250	*3308*	*4081*	36945
El Camino Real	**South of Sneath Lane**	*3067*	*3840*	34535	3490	4500	39950	*3572*	*4604*	40880

Traffic Noise Modeling Summary		Existing			Year 2040 NP			Year 2040 + Max Office			Project Impacts	Cumulative?	Cumulatively Considerable Contribution?
		dB Ldn	dB CNEL	dBA Leq1h (loudest hour)	dB Ldn	dB CNEL	dBA Leq1h (loudest hour)	dB Ldn	dB CNEL	dBA Leq1h (loudest hour)	Year 2040 + Max Office - Year 2040 NP	Year 2040 + Max Office - Existing	Year 2040 + Max Office - Year 2040 NP
380 EB Off-Ramp	West of El Camino Real	68.24	68.84	67.43	69.46	70.05	68.65	69.65	70.24	68.84	0.19	1.40	0.19
380 EB On-Ramp	East of El Camino Real	64.32	64.91	63.48	65.05	65.65	64.22	65.98	66.57	65.15	0.92	1.65	0.92
380 WB Off-Ramp	East of El Camino Real	69.36	69.96	68.56	70.78	71.37	69.98	71.20	71.79	70.40	0.42	1.83	0.42
380 WB On-Ramp	West of El Camino Real	61.73	62.31	60.85	62.94	63.53	62.08	62.94	63.53	62.08	0.00	1.21	0.00
Bayhill Drive	West of El Camino Real	58.80	59.39	57.92	59.23	59.82	58.36	60.99	61.58	60.14	1.75	2.19	1.75
Bayhill Drive	West of Cherry Avenue	55.12	55.70	54.11	55.52	56.10	54.53	58.51	59.10	57.62	2.99	3.39	2.99
Bayhill Drive	East of Cherry Avenue	56.62	57.20	55.67	57.53	58.11	56.61	58.88	59.47	58.00	1.35	2.26	1.35
Cemetary Entrance	North of Sneath Lane	44.89	45.24	40.86	48.12	48.60	46.08	48.12	48.60	46.08	0.00	3.23	0.00
Cherry Avenue	North of W San Bruno Avenue	63.35	63.94	62.52	64.42	65.02	63.60	65.45	66.04	64.63	1.03	2.10	1.03
Cherry Avenue	South of W San Bruno Avenue	60.34	60.93	59.46	60.92	61.51	60.06	60.97	61.56	60.11	0.05	0.63	0.05
Cherry Avenue	North of Bayhill Drive	62.34	62.93	61.49	63.88	64.47	63.05	64.71	65.31	63.89	0.84	2.38	0.84
Cherry Avenue	South of Bayhill Drive	62.52	63.11	61.68	63.94	64.54	63.12	65.07	65.67	64.26	1.13	2.55	1.13
Cherry Avenue	South of Sneath Lane	62.40	62.99	61.56	63.57	64.16	62.74	64.46	65.05	63.64	0.89	2.06	0.89
Commodore Drive	West of El Camino Real	57.57	58.15	56.65	58.43	59.02	57.54	58.43	59.02	57.54	0.00	0.86	0.00
El Camino Real	North of W San Bruno Avenue	68.63	69.22	67.82	70.00	70.60	69.20	70.11	70.71	69.32	0.12	1.49	0.12
El Camino Real	South of W San Bruno Avenue	68.70	69.29	67.89	70.13	70.73	69.33	70.24	70.83	69.44	0.11	1.54	0.11
El Camino Real	North of W Bayhill Drive/Euclid Avenue	69.18	69.77	68.37	70.45	71.05	69.65	70.85	71.45	70.06	0.40	1.68	0.40
El Camino Real	South of W Bayhill Drive/Euclid Avenue	68.56	69.16	67.76	69.92	70.52	69.12	70.04	70.63	69.24	0.12	1.47	0.12
El Camino Real	North of 380 EB On- and Off-Ramps	69.67	70.27	68.87	71.01	71.61	70.21	71.24	71.84	70.44	0.23	1.57	0.23
El Camino Real	South of 380 EB On- and Off-Ramps	69.32	69.92	68.52	70.53	71.12	69.73	70.92	71.52	70.13	0.40	1.60	0.40
El Camino Real	North of 380 WB On- and Off-Ramps	70.16	70.75	69.36	70.75	71.35	69.96	70.83	71.43	70.04	0.08	0.68	0.08
El Camino Real	South of 380 WB On- and Off-Ramps	69.69	70.29	68.89	70.86	71.46	70.06	71.10	71.70	70.30	0.24	1.41	0.24
El Camino Real	North of Tanforan Way/Commodore Drive	69.23	69.83	68.43	69.97	70.57	69.17	70.07	70.67	69.27	0.10	0.84	0.10
El Camino Real	South of Tanforan Way/Commodore Drive	69.89	70.48	69.09	70.58	71.18	69.78	70.67	71.26	69.87	0.08	0.78	0.08
El Camino Real	North of Sneath Lane	68.85	69.45	68.05	69.43	70.03	68.63	69.52	70.11	68.72	0.08	0.66	0.08
El Camino Real	South of Sneath Lane	69.22	69.82	68.42	69.86	70.45	69.06	69.95	70.55	69.16	0.10	0.73	0.10
Elm Avenue	North of W San Bruno Avenue	52.64	53.20	51.45	53.32	53.89	52.19	55.98	56.56	55.01	2.66	3.34	2.66
Elm Avenue	South of W San Bruno Avenue	54.70	55.28	53.67	56.04	56.62	55.07	56.11	56.69	55.15	0.07	1.41	0.07
Euclid Avenue	East of El Camino Real	50.80	51.30	49.40	51.70	52.20	50.40	51.70	52.20	50.40	0.00	0.90	0.00
I 280 off-ramp	North of W San Bruno Avenue	65.42	66.02	64.60	66.32	66.92	65.50	66.60	67.19	65.78	0.27	1.17	0.27
I 280 off-ramp	South of W San Bruno Avenue	66.67	67.26	65.85	68.05	68.65	67.24	68.41	69.00	67.60	0.36	1.74	0.36
I 280 on-ramp	South of W San Bruno Avenue	65.90	66.50	65.08	66.85	67.44	66.03	67.30	67.89	66.49	0.45	1.40	0.45
I 280 on-ramp	North of W San Bruno Avenue	67.11	67.71	66.30	67.85	68.45	67.04	68.07	68.66	67.26	0.21	0.95	0.21
I-280 NB Off-Ramp	South of Sneath Lane	66.05	66.64	65.22	66.38	66.98	65.56	66.57	67.17	65.75	0.19	0.52	0.19
I-280 SB Off-Ramp	South of Sneath Lane	65.48	66.08	64.66	66.40	66.99	65.58	66.58	67.17	65.76	0.18	1.10	0.18
Rollingwood Drive	North of Sneath Lane	60.14	60.73	59.28	60.73	61.32	59.88	60.76	61.35	59.91	0.03	0.62	0.03
Sneath Lane	West of Cherry Avenue	68.10	68.70	67.30	68.55	69.15	67.75	68.79	69.38	67.98	0.23	0.68	0.23
Sneath Lane	East of Cherry Avenue	67.71	68.31	66.91	68.46	69.05	67.65	68.67	69.27	67.87	0.21	0.96	0.21
Sneath Lane	West of I-280 NB Off-Ramp	68.01	68.61	67.21	68.53	69.12	67.72	68.68	69.28	67.88	0.16	0.67	0.16
Sneath Lane	East of I-280 NB Off-Ramp	68.09	68.69	67.28	68.61	69.21	67.81	68.84	69.44	68.04	0.23	0.75	0.23
Sneath Lane	West of Rollingwood Drive	66.16	66.75	65.34	66.81	67.41	66.00	66.91	67.50	66.09	0.09	0.75	0.09
Sneath Lane	East of Rollingwood Drive	67.95	68.55	67.15	68.54	69.13	67.73	68.69	69.29	67.89	0.16	0.74	0.16
Sneath Lane	West of El Camino Real	67.24	67.83	66.43	68.07	68.66	67.26	68.30	68.90	67.50	0.23	1.06	0.23
Sneath Lane	East of El Camino Real	66.77	67.36	65.96	68.18	68.78	67.38	68.18	68.78	67.38	0.00	1.41	0.00
Tanforan Way	East of El Camino Real	58.14	58.73	57.25	58.83	59.42	57.95	58.83	59.42	57.95	0.00	0.69	0.00
Traeger Avenue	North of W San Bruno Avenue	54.73	55.30	53.70	55.59	56.17	54.60	57.73	58.32	56.82	2.14	3.00	2.14
W San Bruno Avenue	West of I-280 on/off ramps	66.22	66.81	65.41	66.70	67.29	65.89	66.77	67.37	65.96	0.07	0.55	0.07
W San Bruno Avenue	East of I-280 on/off ramps	66.49	67.09	65.68	67.37	67.96	66.56	67.73	68.33	66.92	0.36	1.24	0.36
W San Bruno Avenue	West of Cherry Avenue	67.16	67.76	66.35	68.03	68.63	67.23	68.60	69.20	67.80	0.57	1.44	0.57
W San Bruno Avenue	East of Cherry Avenue	66.20	66.79	65.39	67.26	67.86	66.46	67.86	68.46	67.06	0.60	1.66	0.60
W San Bruno Avenue	West of Traeger Avenue	66.22	66.81	65.41	67.09	67.69	66.29	67.71	68.31	66.91	0.62	1.49	0.62
W San Bruno Avenue	East of Traeger Avenue	65.81	66.41	65.00	66.73	67.33	65.92	67.33	67.93	66.53	0.60	1.52	0.60
W San Bruno Avenue	West of Elm Avenue	65.81	66.41	65.00	66.79	67.38	65.98	67.38	67.98	66.57	0.59	1.57	0.59
W San Bruno Avenue	East of Elm Avenue	65.66	66.26	64.85	66.71	67.30	65.90	67.26	67.85	66.45	0.55	1.59	0.55
W San Bruno Avenue	West of El Camino Real	65.68	66.28	64.87	66.83	67.43	66.02	67.37	67.96	66.56	0.54	1.69	0.54
W San Bruno Avenue	East of El Camino Real	62.28	62.87	61.45	63.36	63.96	62.54	63.54	64.13	62.72	0.17	1.25	0.17
W San Bruno Avenue (E of 280)	West of I-280 on/off ramps	66.49	67.09	65.68	67.35	67.94	66.54	67.71	68.31	66.91	0.36	1.22	0.36
W San Bruno Avenue (E of 280)	East of I-280 on/off ramps	67.33	67.92	66.52	68.20	68.80	67.40	68.75	69.35	67.95	0.55	1.42	0.55

Direct Project Impact Analysis Summary (2 dB or greater increase when rounded)

Roadway	Segment	Year 2040 No Plan (dB Ldn)	Year 2040 with Plan[a] (dB Ldn)	Project-related Increase[b]	Type of Land Use	Most Stringent Applicable Compatibility Standard	Exceeds Compatibility Standard?	Allowable Increase	Exceeds Allowable Increase?
Bayhill Drive	West of El Camino Real	59.2	61.0	1.8	O/C[d]	70	No	5	No
Bayhill Drive	West of Cherry Avenue	55.5	58.5	3.0	O/C[d]	70	No	5	No
Elm Avenue	North of W San Bruno Avenue	53.3	56.0	2.7	O/C[d]	70	No	5	No
Traeger Avenue	North of W San Bruno Avenue	55.6	57.7	2.1	O/C[d]	70	No	5	No

Notes:

[a] Max Office Scenario selected as worst-case for traffic noise

[b] Year 2040 with Project values minus Year 2040 No Project values

[c] Only segments with a 2 dB increase over No Plan conditions (when rounded to the nearest whole number) are presented in this table. Refer to Appendix X for a full summary of Specific Plan traffic noise modeling results.

[d] O/C = Office Buildings, Business, Commercial and Professional

[e] SFR = Single-Family Residential

Traffic Noise Modeling for Potential Direct Impacts (Only showing segments with a ~2 dB increase or more)

Roadway	Segment	Year 2040 No Plan (dB Ldn)	Year 2040 with Plan[b] (dB Ldn)	Project-related Increase[c]	Type of Land Use	Most Stringent Applicable Compatibility Standard	Exceeds Compatibility Standard?	Allowable Increase	Exceeds Allowable Increase?
Bayhill Drive	West of El Camino Real	59.2	61.0	1.8	O/C[d]	70	No	5	No
Bayhill Drive	West of Cherry Avenue	55.5	58.5	3.0	O/C[d]	70	No	5	No
Bayhill Drive	East of Cherry Avenue	57.3	60.2	3.0	O/C[d]	70	No	5	No
Elm Avenue	North of W San Bruno Avenue	53.3	56.0	2.7	O/C[d]	70	No	5	No
Euclid Avenue	East of El Camino Real	59.5	61.0	1.5	SFR[e]	60	**Yes**	3	No
Traeger Avenue	North of W San Bruno Avenue	55.6	57.7	2.2	O/C[d]	70	No	5	No

Notes:

[a] Max Office Scenario selected as worst-case for traffic noise

[b] Year 2040 with Project values minus Year 2040 No Project values

[c] Only segments with a 2 dB increase over No Plan conditions (when rounded to the nearest whole number) are presented in this table. Refer to Appendix X for a full summary of Specific Plan traffic noise modeling results.

[d] O/C = Office Buildings, Business, Commercial and Professional

[e] SFR = Single-Family Residential

Traffic Noise Modeling for Potential Cumulative Impacts (Only showing segments with a ~2 dB increase or more)

Roadway Segment		Existing (dB Ldn)	Year 2040 No Plan (dB Ldn)	Year 2040 with Plan[a] (dB Ldn)	Type of Land Use	Most Stringent Applicable Compatibility Standard	Exceeds Compatibility Standard?	Allowable Increase	Increase from Existing to Year 2040 With-Plan (dB)	Exceeds Allowable Increase?
W San Bruno Avenue	East of Elm Avenue	65.9	67.3	67.8	O/C[b]/SFR[c]	60	Y	3	2	N
Cherry Avenue	South of Sneath Lane	62.4	63.6	64.5	MFR[d]	65	Y	3	2.1	N
Cherry Avenue	North of W San Bruno Avenue	63.3	64.4	65.4	O/C[b]	70	N	5	2.1	N
Bayhill Drive	West of El Camino Real	58.8	59.2	61	O/C[b]	70	N	5	2.2	N
Cherry Avenue	North of Bayhill Drive	62.3	63.9	64.7	O/C[b]	70	N	5	2.4	N
Cherry Avenue	South of Bayhill Drive	62.5	63.9	65.1	O/C[b]	70	N	5	2.6	N
Traeger Avenue	North of W San Bruno Avenue	54.7	55.6	57.7	O/C[b]	70	N	5	3	N
Cemetary Entrance	North of Sneath Lane	44.9	48.1	48.1	Cemetery	75	N	5	3.4	N
Elm Avenue	North of W San Bruno Avenue	52.6	53.3	56	O/C[b]	70	N	5	3.4	N
Bayhill Drive	West of Cherry Avenue	55.1	55.5	58.5	O/C[b]	70	N	5	3.4	N
Bayhill Drive	East of Cherry Avenue	56.6	57.3	60.2	O/C[b]	70	N	5	3.7	N

Notes:

[a] Max Office Scenario selected as worst-case for traffic noise

[b] O/C = Office Buildings, Business, Commercial and Professional

[c] SFR = Single-Family Residential

[d] MFR = Multi-Family Residential

Appendix 3.10-1

Transportation Supporting Data

FEHR PEERS

Transportation Chapter Appendix

The purpose of this appendix is to clarify analysis approach, assumptions, and results prepared for the Bayhill Specific Plan (Project) Environmental Impact Report. This appendix includes three sections:

- Trip Generation
- Vehicle Miles Traveled (VMT)
- Travel Demand Management (TDM)

It is followed by four corresponding attachments:

- Attachment A: VMT by Speedbin and Scenario
- Attachment B: TDM Calculation Worksheets
- Attachment C: Queue Summary
- Attachment D: LOS Summary

Trip Generation

Trip generation refers to the process of estimating the amount of vehicular traffic a project would add to the surrounding roadway system. Estimates are created for the peak one-hour periods during the morning and evening commute periods when traffic volumes on the adjacent streets are the highest. For all alternatives, trip generation was estimated using a combination of rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual (*10th Edition) as well as Fehr & Peers' MainStreet Trip Generation tool.

The MainStreet trip generation tool, which is based on MXD methodology, developed for and approved by the US Environmental Protection Agency (EPA) for use in evaluating trip generation at mixed-use projects. The primary difference between the ITE and MXD methodologies is that the traditional ITE methodology relies on one factor—the project's land use type—to predict vehicle trip generation, while MXD incorporates local data and travel behaviors, as well as leading research in how density, mix of land uses, and other built environment factors affect vehicle trip generation.

The total square footage at buildout of each alternative was included in the MainStreet analysis to capture the full benefits of the land use mixture.

Trip generation estimates do not account for the travel demand management (TDM) programs proposed for or currently in place (i.e., private shuttle buses) at the Project Site since TDM programs are not permanent in the same way as built environment factors and land use diversity, and instead are tied to particular tenants, who often turnover during the life of a project. For this reason, the estimated net new trips presented in this analysis do not account for TDM strategies. The trip generation forecasts do account for use of BART or Caltrain by future employees.

Table 1 through 3 presents the weekday AM peak hour and PM peak hour trip generation for the Max Office, Max Housing, and Phase 1 Project scenarios, respectively.

Table 1: Max Office Project Vehicle Trip Generation

Land Use	Quantity[1]	Units	ITE Code[2]	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Office	3,880.48	ksf	710	3,206	521	3,727	616	3,232	3,848
Commercial	121.846	ksf	820	293	179	472	356	385	741
Civic Use	50	acres	590	40	16	56	102	111	213
Housing	--	units	221	--	--	--	--	--	--
Hotel	147	rooms	310	40	28	68	43	41	84
Sub-Total				*3,579*	*744*	*4,323*	*1,117*	*3,769*	*4,886*
Internalization[3]				-286	-60	-346	-222	-66	-288
Shift to Walk, Bike or Transit[4]				-515	-107	-623	-139	-467	-606
Total Reduction				*-802*	*-166*	*-968*	*-205*	*-689*	*-894*
Total				**2,777**	**578**	**3,355**	**912**	**3,080**	**3,992**

Notes:

1. Land use quantities include existing uses. Transportation analysis assumed 50 acres of civic use in place of the equivalent office square feet because a civic use is a more conservative (i.e. higher trip generating) land use than office space. Because of the land use swap, the office square footage shown here is lower than the number analyzed in some other chapters.
2. Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition)
3. Internalization refers to the estimated number of internal trips that occur within the site due to the relationship between land uses. For example, someone working in an office building may utilize the adjacent retail uses, as such, the trip occurs within the site. Internalization was calculated using Fehr & Peers' MainStreet Trip Generation Tool.
    a. AM Peak Hour: 8%
    b. PM Peak Hour: 5.9%
4. Shift to walk, bike or transit estimates the number of users that would choose to walk, bike or take transit, instead of drive to/from the site. It is calculated based on existing infrastructure and nearby transit options. For example, an employee at the Project site, may choose to take BART and SamTrans to the site, instead of drive. The shift to other modes was calculated using Fehr & Peers' MainStreet Trip Generation Tool.
    a. AM Peak Hour: 14.4%
    b. PM Peak Hour: 12.4%

Source: Fehr & Peers.

Table 2: Max Housing Project Vehicle Trip Generation

Land Use	Quantity[1]	Units	ITE Code[2]	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Office	3,500.743	ksf	710	2,899	471	3,370	556	2,921	3,477
Commercial	121.846	ksf	820	293	179	472	356	385	741
Civic Use	50	acres	590	40	16	56	102	111	213
Housing	489	units	221	42	122	164	128	81	209
Hotel	147	rooms	310	40	28	68	43	41	84
Sub-Total				*3,314*	*816*	*4,130*	*1,185*	*3,539*	*4,724*
Internalization[3]				-355	-87	-442	-94	-280	-373
Shift to Walk, Bike or Transit[4]				-404	-100	-504	-132	-393	-524
Total Reduction				*-758*	*-187*	*-945*	*-226*	*-673*	*-899*
Total				**2,556**	**629**	**3,185**	**959**	**2,866**	**3,825**

Notes:

1. Land use quantities include existing uses. Transportation analysis assumed 50 acres of civic use in place of the equivalent number of housing units because a civic use is a more conservative (i.e. higher trip generating) land use than housing. Because of the land use swap, the number of housing units shown here is lower than the number analyzed in some other chapters.
2. Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition)
3. Internalization refers to the estimated number of internal trips that occur within the site due to the relationship between land uses. For example, someone working in an office building may utilize the adjacent retail uses, as such, the trip occurs within the site. Internalization was calculated using Fehr & Peers' MainStreet Trip Generation Tool.
    a. AM Peak Hour: 10.7%
    b. PM Peak Hour: 7.9%
4. Shift to walk, bike or transit estimates the number of users that would choose to walk, bike or take transit, instead of drive to/from the site. It is calculated based on existing infrastructure and nearby transit options. For example, an employee at the Project site, may choose to take BART and SamTrans to the site, instead of drive. The shift to other modes was calculated using Fehr & Peers' MainStreet Trip Generation Tool.
    a. AM Peak Hour: 12.2%
    b. PM Peak Hour: 11.1%

Source: Fehr & Peers.

Table 3: Phase 1 Project Vehicle Trip Generation

Land Use	Quantity	Units	ITE Code[1]	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Office[2]	440	ksf	710	378	62	440	74	391	465
Internalization[3]				-27	-4	-31	-4	-21	-25
Shift to Walk, Bike or Transit[4]				-26	-4	-30	-4	-23	-27
Total Reduction				*-53*	*-9*	*-62*	*-8*	*-44*	*-52*
Total				**325**	**53**	**378**	**66**	**347**	**413**

Notes:

1. Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition)
2. Analysis of Phase I assumes the net new office land use and no demolition of the "Lakes" Buildings; as a result, the findings are likely more conservative than if the analysis had included the reduction in employee trips associated with the "Lakes" buildings.
3. Internalization refers to the estimated number of internal trips that occur within the site due to the relationship between land uses. For example, someone working in an office building may utilize the adjacent retail uses, as such, the trip occurs within the site. Internalization was calculated using Fehr & Peers' MainStreet Trip Generation Tool.
    a. AM Peak Hour: 7.1%
    b. PM Peak Hour: 5.4%
4. Shift to walk, bike or transit estimates the number of users that would choose to walk, bike or take transit, instead of drive to/from the site. It is calculated based on existing infrastructure and nearby transit options. For example, an employee at the Project site, may choose to take BART and SamTrans to the site, instead of drive. The shift to other modes was calculated using Fehr & Peers' MainStreet Trip Generation Tool.
    a. AM Peak Hour: 6.9%
    b. PM Peak Hour: 5.9%

Source: Fehr & Peers.

As shown in the footnotes of Tables 1 and 2, the internalization varies between the time of day and by the mix of land use. Between the two land use scenarios, the Max Housing scenario results in a slightly higher internalization due to the greater mix of land uses (e.g. more housing). The shift to walk, bike, and transit, is dependent on the available pedestrian and bicycle infrastructure, such as the presence of sidewalks and bike lanes. Additionally, it's based on the proximity to transit. Based on the existing site and its proximity to El Camino Real, BART, and Caltrain, the Max Office and Max Housing scenarios are expected to shift 5 to 15 percent of users to walk, bike or transit. Similarly, the Phase 1 project is expected to result in some internalization and shift to other modes. The total reduction for the Phase 1 Project ranges from approximately 5 to 10 percent.

Table 4 summarizes the total trip generation used in the EIR assessment. Comparing the Max Office and Max Housing scenarios, the Max office is expected to generate more trips during the AM and PM peak hours. Therefore, the Max Office scenario was further evaluated in this analysis.

Table 4: Vehicle Trip Generation Summary

Scenario	AM Peak Hour[1]			PM Peak Hour[1]		
	In	Out	Total	In	Out	Total
Max Office	2,780	580	3,360	910	3,080	3,990
Max Housing	2,560	630	3,190	960	2,870	3,830
Phase I (Net New)[1]	330	50	380	70	350	420

Notes:
1. Trip generation values rounded to the nearest 10.

Source: Fehr & Peers.

Vehicle Miles Traveled (VMT) Analysis

With the passage of SB 743 (September 27, 2013) and the subsequent adoption of revised California Environmental Quality Act (CEQA) Guidelines (December 28, 2018), level of service (LOS) can no longer be used as a criterion for identifying significant transportation impacts for most projects under CEQA effective July 1, 2020. LOS measures the average amount of delay experienced by vehicle drivers at an intersection during the most congested time of day, while the new metric vehicle miles traveled (VMT) measures the total number of daily miles traveled by vehicles on the roadway network and thereby the impacts on the environment from those miles traveled.

In other words, SB 743 changes the focus of transportation impact analysis in CEQA from measuring impacts ***to*** drivers, to measuring the impact ***of*** driving.

VMT measures the total number of daily miles traveled by vehicles on the roadway network and thereby the impacts on the environment from those miles traveled. For the purpose of this analysis, two VMT metrics were prepared:

- Total VMT: the amount of VMT generated by the Project
- VMT per Service Population: the total VMT represented by a per-capita metric

To calculate the Project generated VMT, a select zone analysis was performed for the Project transportation analysis zone (TAZ). This type of analysis isolates all the trips with at least one trip origin or end at the TAZ and organizes the trips into an origin-destination (OD) trip matrix format. These trips are then multiplied by trip lengths between each OD pair based upon the final model trip assignment representing congested travel times, speeds, and costs. The trip lengths are also reported in an OD matrix format and the two matrices are multiplied to estimate VMT. The project generated total VMT per service population is the difference in the TAZ VMT estimate between the No Project and Plus Project model runs divided by the Project population plus employment (and any other trip generating populations such as students or visitors). VMT forecasts were prepared using the San Mateo City/County Association of Governments (C/CAG) Travel Demand Model. The model was refined to account for No Project and Plus Project conditions. The total VMT and VMT per service population results are provided in **Table 5 and 6**, respectively. Total VMT was reported by speedbin for air quality calculations and is included in **Attachment A** of this appendix.

Table 5: Project Site VMT

Scenario	Project Site Total VMT			Project Added Total VMT	
	No Project[1]	Plus Project[2]	Plus Phase I Development	Project	Phase I Development
Existing Conditions	97,163	356,588	153,039	259,425	55,876
Cumulative Conditions	94,305	338,248	148,371	243,943	54,066

Notes:
1. The analysis assumes the existing land use program Under No Project conditions.
2. The Project is defined as the Max Office alternative.

Source: C/CAG-VTA Travel Model, 2019.

Table 6: VMT per Service Population

Scenario	Project Site Total VMT per Service Population			Project VMT Threshold	Project Added Total VMT per Service Population[1]	
	No Project[2]	Plus Project[3]	Plus Phase I Development		Project	Phase I Development
Existing Conditions	37.5	29.9	35.2	21.7	**27.8**	**31.8**
Cumulative Conditions	36.2	28.3	34.0	21.7	**26.1**	**30.7**

Notes:
Bold: Project VMT per Service Population exceeds the VMT per Service Population threshold
1. The Project Added Total VMT per Service Population is the change in VMT as a result of the Project over the change in Service Population.
2. The analysis assumes the existing land use program Under No Project conditions.
3. The Project is defined as the Max Office alternative.

Source: C/CAG-VTA Travel Model, 2019.

As shown, the Project would increase VMT, but decrease the VMT per service population compared to No Project conditions. However, the Project VMT per service population would still exceed the 21.7 VMT per service population threshold[1]. The Project would require a 22 percent and 17 percent reduction in VMT per service population to meet the threshold under Existing Plus Project and Cumulative Plus Project scenarios, respectively. And the Phase I Development would require a 32 percent and 29 percent reduction in VMT per service population to meet the threshold under Existing Plus Project and Cumulative Plus Project scenarios, respectively.

As described in the EIR, Mitigation Measure TRA-1 was proposed, which would require property owners of new developments within the Specific Plan to prepare and implement a TDM program that would achieve the 21.7 VMT per Capita threshold. The VMT per Capita threshold equates to no more than 43-percent of trips occurring by single occupancy vehicles (SOV). The 43-percent SOV target was calculated based on the reduction of the Project VMT and "target" VMT. The "target" VMT was calculated by multiplying the change in population by the 21.7 VMT per service population threshold. A summary of the calculations is included in **Table 7**.

[1] See section 3.10 of the EIR for a detailed narrative of the VMT methodology and significant threshold.

Table 7: Cumulative Plus Project VMT and Mode Split Target

Total VMT	Target VMT	Delta (Total – Target)	Percent Reduction	SOV Mode Split	SOV Target Mode Split with Reduction
243,943	202,678	41,265	17%	53%	**43%**

Source: Fehr & Peers, 2019.

As shown in **Table 7**, the Project would require a VMT reduction 17 percent. The VMT reduction would correspond to the same SOV target reduction, resulting in a maximum SOV mode of 43 percent. The applicant or building owners can shift SOV users to other modes through implementation of a TDM program,– described in greater detail below.

Transportation Demand Management (TDM)

The Specific Plan provides a list of TDM programs and services, but developers and property managers may tailor their own list of measures to fit their unique workforce culture and schedule.

Project Scenario

In the near term, before buildout of the Transit Corridors Plan, it may be challenging to reliably achieve a SOV percentage of no more than 43 percent. Even with TDM implementation, a standard employer or property manager may struggle to consistently reduce the Project's effect on VMT per service population to a less-than-significant level. As such, the EIR notes that the TDM Program will strive for the VMT per Capita threshold but acknowledge reasonable limitations on TDM program success due to surrounding transportation and land use context in the near-term. Program expectations may be less stringent for an initial occupancy period but will become more stringent over time and will ultimately require each employer or property manager to meet the VMT per Capita threshold or associated drive-alone goal.

Based on guidance provided by the California Air Pollution Control Officers Association (CAPCOA), the maximum vehicle trip reduction for urban low-transit[2] areas such as the proposed Project is generally accepted to be 15-percent. Thus, it is expected that even with implementation of the

[2] Urban low transit areas refer to somewhat dense urban areas with good accessibility but lower levels of transit use compared to core and high transit areas like Downtown San Francisco.

comprehensive TDM program as described in the Specific Plan, the VMT reduction would not reduce by more than 15 percent. However, Fehr & Peers prepared a quantitative assessment of the TDM strategies proposed in the Specific Plan, included in Attachment C, using their TDM+ tool.[3] As shown, implementation of the program is expected to result in a VMT reduction ranging from 15 percent to 20 percent. As described in the EIR, the Project requires a reduction of ~~23 percent~~ 22 percent under current conditions; therefore, implementation of a TDM program would not result in a significant reduction that would meet the VMT per Capita threshold. However, under Cumulative conditions, the Project would require a reduction of 17 percent, which falls within the expected range of VMT reduction with implementation of a TDM program.

Therefore, it is unlikely that implementation of a TDM program would result in meeting the VMT per Capita threshold under Existing Plus Project conditions; however, would meet the threshold under Cumulative Plus Project conditions.

Phase I

Phase I Development is composed entirely of YouTube-owned parcels, and all- trip generation associated with Phase I Development would be YouTube generated. YouTube operates a robust TDM program today that, if continued is expected to meet or perform below the 21.7 VMT per service population threshold. A summary of the YouTube travel surveys is included in **Table 8.**

Table 8: YouTube Employee Mode Split

Mode	2017	2018
Drive Alone (SOVs)	42.4%	42.7%
Carpool, Vanpool, TNCs, Drop-off (2+ passengers)	4.1%	4.0%
G-Shuttle	40.3%	39.1%
Transit	5.0%	3.5%
Bike	1.6%	1.2%
Walk	1.9%	2.5%
Other (Work from home, different office, etc.)	4.7%	7.0%

Source: YouTube Employee Travel Survey Data

[3] TDM+ is based on CAPCOA VMT reduction strategy research in *Quantifying Greenhouse Gas Mitigation Measures* (2010).

As shown, approximately 40 percent of employees drive alone to work, whereas the 60 percent use the G-shuttle, employee owned and operated shuttle system, take transit, bike, carpool or other mode. YouTube's current drive alone performance is below the 43 percent drive threshold, therefore, if the current or similar YouTube TDM program continues to be implemented with the addition of Phase I, it is expected that the Phase I Project would result in a VMT per service population under the 21.7 threshold.

Queue Summary

Attachment C of this appendix includes queue summary calculations, which were prepared to evaluate the possibility of hazardous operations at freeway off-ramp termini intersections. Synchro software was used to evaluate the Project's impact to queue lengths at off-ramp termini intersections to understand if the Project would cause substantial queueing that would extend beyond the available ramp storage length. The Project's impact was evaluated using 95th percentile queues. The 95th percentile queue represents a queue length that has a five percent probability of being exceeded during the analysis time period. Therefore, the 95th percentile represents a more conservative queue length, greater than typical or average conditions.

LOS Summary

Attachment D of this appendix includes an additional memo and LOS summary. As discussed above, Senate Bill 743 and the resulting CEQA Guidelines update completed in early 2019 replaces the use of LOS for determining transportation impacts with an evaluation of VMT. However, a LOS analysis was prepared to understand if the Project would perform under acceptable LOS thresholds established by the City of San Bruno's General Plan and C/CAG CMP. **Attachment D** documents the analysis assumptions and findings.

Attachments

This appendix is followed by four corresponding attachments:

- Attachment A: VMT by Speedbin and Scenario
- Attachment B: TDM Calculation Worksheets
- Attachment C: Queue Summary
- Attachment D: LOS Summary

Transportation Model Worksheets

Existing VMT by Speed Bin

Daily Vehicle Miles Travelled by Speed Bin							
Speed Bin		Entire Model					
		Totals			Project		
Start	End	No Project	Bayhill Phase 1	Bayhill Max Office	No Project	Bayhill Phase 1	Bayhill Max Office
0	5	172	295	563		123	391
5	10	63	92	262		29	199
10	15	469	667	1,601		197	1,132
15	20	7,477	11,596	26,381		4,119	18,904
20	25	6,606	10,265	25,223		3,659	18,617
25	30	8,214	13,078	29,518		4,864	21,305
30	35	5,691	8,867	20,799		3,176	15,108
35	40	3,262	5,699	14,129		2,436	10,866
40	45	10,073	15,190	34,533		5,117	24,460
45	50	8,016	13,603	33,541		5,587	25,524
50	55	11,062	16,181	34,109		5,120	23,047
55	60	22,076	34,919	79,334		12,843	57,258
60	65	13,809	22,301	55,825		8,492	42,016
65	9999	172	285	770		113	598
Total		**97,163**	**153,039**	**356,588**	**0**	**55,875**	**259,425**

Existing VMT by Speed Bin with Mitigation

Daily Vehicle Miles Travelled by Speed Bin						With YouTube TDM Mitigation					
Speed Bin		Entire Model				Entire Model					
		Totals		Project		Reduction		Total With Mitigation		Project	
Start	End	No Project	Bayhill Phase 1	No Project	Bayhill Phase 1	No Project	Bayhill Phase 1	No Project	Bayhill Phase 1	No Project	Bayhill Phase 1
0	5	172	295		123		64		231		59
5	10	63	92		29		15		77		14
10	15	469	667		197		103		564		95
15	20	7,477	11,596		4,119		2,142		9,454		1,977
20	25	6,606	10,265		3,659		1,903		8,362		1,756
25	30	8,214	13,078		4,864		2,529		10,549		2,335
30	35	5,691	8,867		3,176		1,651		7,216		1,524
35	40	3,262	5,699		2,436		1,267		4,432		1,169
40	45	10,073	15,190		5,117		2,661		12,529		2,456
45	50	8,016	13,603		5,587		2,905		10,698		2,682
50	55	11,062	16,181		5,120		2,662		13,519		2,457
55	60	22,076	34,919		12,843		6,678		28,240		6,165
60	65	13,809	22,301		8,492		4,416		17,885		4,076
65	9999	172	285		113		59		226		54
Total		**97,163**	**153,039**	**0**	**55,875**	**0**	**29,055**	**0**	**123,984**	**0**	**26,820**

2040 VMT by Speed Bin

Daily Vehicle Miles Travelled by Speed Bin									
Speed Bin		Entire Model							
		Totals				Project			
Start	End	No Project	Bayhill Phase 1	Bayhill Max Office	Bayhill Max Office+Hotel	No Project	Bayhill Phase 1	Bayhill Max Office	Bayhill Max Office+Hotel
0	5	173	266	603	591		92	430	418
5	10	111	174	454	512		62	343	401
10	15	790	1,220	2,638	2,621		430	1,848	1,831
15	20	8,005	12,130	26,877	27,253		4,125	18,872	19,248
20	25	6,564	10,675	24,531	24,346		4,111	17,967	17,782
25	30	8,676	13,574	30,696	31,044		4,898	22,020	22,368
30	35	9,277	13,820	32,970	33,104		4,543	23,693	23,827
35	40	7,517	12,028	25,734	25,193		4,511	18,217	17,676
40	45	7,998	14,054	31,251	31,171		6,056	23,253	23,173
45	50	7,345	9,114	20,327	21,223		1,769	12,982	13,879
50	55	12,711	21,502	47,739	47,204		8,791	35,028	34,493
55	60	17,850	28,996	67,348	67,637		11,145	49,498	49,787
60	65	7,165	10,610	26,473	26,386		3,445	19,308	19,222
65	9999	123	210	608	611		87	485	488
Total		**94,305**	**148,371**	**338,248**	**338,898**	**0**	**54,066**	**243,943**	**244,593**

2040 VMT by Speed Bin with Mitigation

Daily Vehicle Miles Travelled by Speed Bin With TDM Mitigation											
Entire Model											
Reduction				Total with Mitigation				Project			
No Project	Bayhill Phase 1	Bayhill Max Office	Bayhill Max Office+Hotel	No Project	Bayhill Phase 1	Bayhill Max Office	Bayhill Max Office+Hotel	No Project	Bayhill Phase 1	Bayhill Max Office	Bayhill Max Office+Hotel
	35	78	77		231	525	514		58	352	341
	23	59	67		151	395	446		40	284	335
	159	343	341		1,061	2,295	2,281		271	1,505	1,490
	1,577	3,494	3,543		10,553	23,383	23,710		2,548	15,378	15,705
	1,388	3,189	3,165		9,287	21,342	21,181		2,723	14,778	14,617
	1,765	3,990	4,036		11,809	26,705	27,008		3,133	18,030	18,333
	1,797	4,286	4,304		12,024	28,684	28,800		2,746	19,407	19,523
	1,564	3,345	3,275		10,464	22,389	21,918		2,947	14,872	14,401
	1,827	4,063	4,052		12,227	27,188	27,119		4,229	19,190	19,121
	1,185	2,643	2,759		7,929	17,685	18,464		585	10,340	11,120
	2,795	6,206	6,137		18,707	41,533	41,068		5,996	28,822	28,357
	3,769	8,755	8,793		25,226	58,593	58,844		7,376	40,743	40,994
	1,379	3,441	3,430		9,230	23,031	22,956		2,066	15,867	15,792
	27	79	79		183	529	531		60	406	408
	19,288	**43,972**	**44,057**		**129,083**	**294,276**	**294,841**		**34,778**	**199,971**	**200,536**

VTA Model - SB 743 Total VMT Calculations - 2013 Scenario								
Year	Total VMT				Pop+Emp			
	No Project	Bayhill Phase 1	Bayhill Max Office	Bayhill Max Office+Hotel	No Project	Bayhill Phase 1	Bayhill Max Office	Bayhill Max Office+Hotel
Project TAZ	97,163	153,039	356,588		2,593	4,352	11,933	

VTA Model - SB 743 Total VMT Calculations - 2013 Scenario								
Year	Total VMT/Serv Pop (Total)				VMT/Serv Pop (Diff)			
	No Project	Bayhill Phase 1	Bayhill Max Office	Bayhill Max Office+Hotel	No Project	Bayhill Phase 1	Bayhill Max Office	Bayhill Max Office+Hotel
Project TAZ	37.5	35.2	29.9			31.8	27.8	

VTA Model - SB 743 Total VMT Calculations - 2040 Scenario								
Year	Total VMT				Pop+Emp			
	No Project	Bayhill Phase 1	Bayhill Max Office	Bayhill Max Office+Hotel	No Project	Bayhill Phase 1	Bayhill Max Office	Bayhill Max Office+Hotel
Project TAZ	94,305	148,371	338,248	338,898	2,602	4,361	11,942	11,967

VTA Model - SB 743 Total VMT Calculations - 2040 Scenario								
Year	Total VMT/Serv Pop (Total)				VMT/Serv Pop (Diff)			
	No Project	Bayhill Phase 1	Bayhill Max Office	Bayhill Max Office+Hotel	No Project	Bayhill Phase 1	Bayhill Max Office	Bayhill Max Office+Hotel
Project TAZ	36.2	34.0	28.3	28.3		30.7	26.1	26.1

TDM Reduction Summary Report: Bayhill Specific Plan

Overall VMT Reduction: 15% to 40%

	VMT % Reduction by Land Use			
Parking				
Parking1A: Increased Off-Street Fees				
Parking1B: Increased On-Street Fees				
Parking1D: Unbundled Parking				
Parking1E: Pay-as-you-Go Parking Rates				
Parking 2: Parking Supply	up to 3%		up to 3%	up to 3%
Transit				
Transit 1: Subsidies				
Transit 2A: Transit Frequency	up to 2%		up to 2%	up to 2%
Transit 2B: Transit Coverage	-		-	-
Transit 3A: Private Point-to-Point Shuttles	up to 6%		up to 1%	up to 2%
Transit 3B: Last Mile Shuttle	2% to 10%		up to 10%	up to 10%
Commute Programs				
Commute 1A: Commuter Incentives	12% to 12%		up to 2%	up to 5%
Commute 2: Commute Marketing Program	2% to 16%		up to 3%	up to 7%
Commute 3: ERH	up to 1%		-	-
Commute 4: TNC Partnerships	up to 3%		up to 1%	up to 1%
Bike and Walk				
BikeWalk1: Secure Parking	up to 1%		up to 1%	up to 1%
BikeWalk2: Showers & Lockers	-		-	-
BikeWalk3: End of Trip Repair Stations	up to 1%		up to 1%	up to 1%
BikeWalk 4: Pedestrian-Oriented Design	up to 2%		up to 2%	up to 2%
BikeWalk 5: Bikeshare System & Subsidies	up to 1%		up to 1%	up to 1%
Rideshare				
Rideshare 1: Carpool/Vanpool Incentives	up to 4%	up to 4%	up to 4%	up to 4%
Rideshare 2: Ridematch Program				
Rideshare 3: Carshare	up to 1%	up to 1%	up to 1%	up to 1%
Rideshare 4: Carshare Subsidy				
Total				
Total of all Measures	17% to 40%		1% to 24%	2% to 32%

Prepared by Fehr Peers
using TDM+ 2019

Report generated on 2/27/2020

Project Name: Bayhill Specific Plan

Place Type: Urban Low Transit

Land Use: ☑ Office 90 % ☐ Residential 0 % ☑ Retail 8 % ☑ Other 2 % ☑ User specify VMT generated by land Use 100 % Total

tdm+

TDM Strategies

Parking | Transit | Commute | Bike/Walk | Rideshare

Selected | Strategies

☐ PARKING PRICING

	Baseline	Proposed
Off-Street ($)	0	0
On-Street ($)	0	0
Reserved Residential ($)	0	0

☐ Unbundled Parking (Resid

☐ Pay-per-Use Parking

☑ PARKING SUPPLY

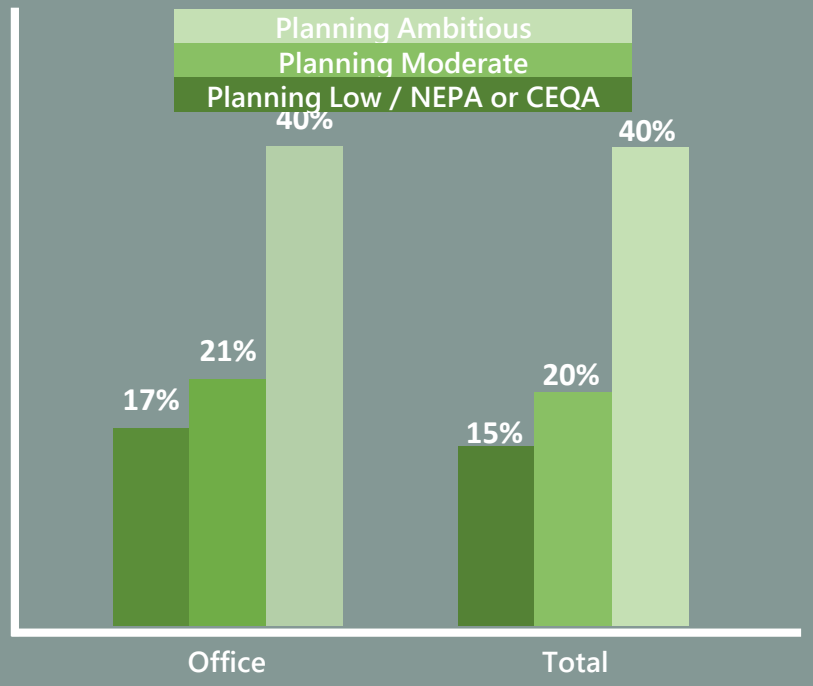
	Baseline	Proposed
Parking Supply (# of Spaces)	3.5	3

Reset Current Strategy Category

Reset All Input & Strategies

Reduction Summary

Office | Residential | Retail | Other



FEHR & PEERS

View Report Summary

Project Name: Bayhill Specific Plan

Place Type: Urban Low Transit

Land Use: ☑ Office 90 % ☐ Residential 0 % ☑ Retail 8 % ☑ Other 2 % ☑ User specify VMT generated by land Use 100 % Total

tdm+

TDM Strategies

Parking | Transit | Commute | Bike/Walk | Rideshare

10 Transit Existing Mode Share (% of all modes)

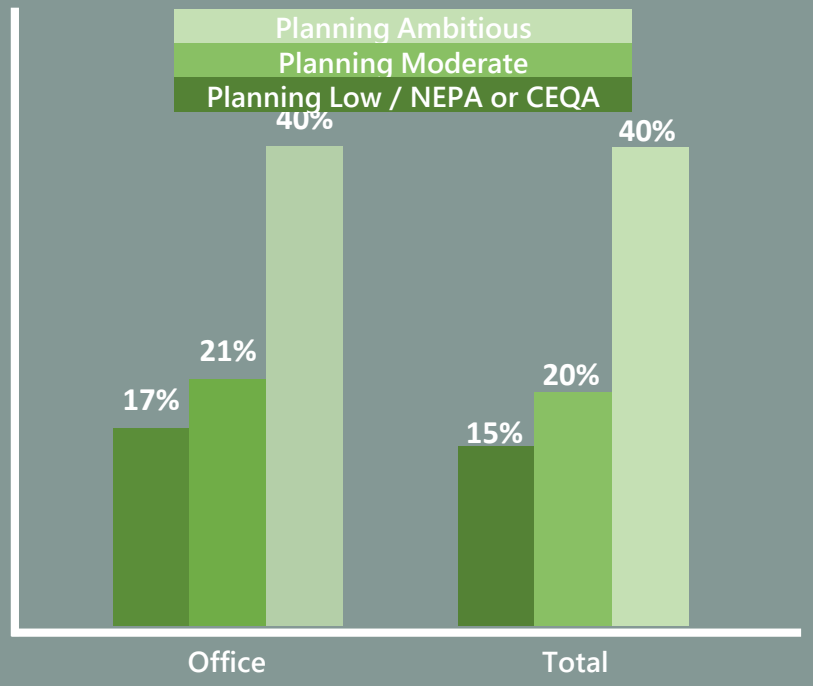
Selected	Strategies	Employees	Residents	Visitors
☐	SUBSIDIES			
	% Subsidized	100	0	0
☑	TRANSIT SYSTEM	Baseline		Proposed
	Frequency (minutes)	20		10
	Coverage (% coverage)	15		15
☑	PRIVATE SHUTTLES	Employees	Residents	Visitors
	Point-to-Point	☑	☐	☐
	Last Mile	☑	☐	☑

Reset Current Strategy Category

Reset All Input & Strategies

Reduction Summary

Office | Residential | Retail | Other



FEHR PEERS

View Report Summary

Project Name: Bayhill Specific Plan

Place Type: Urban Low Transit

Land Use: ☑ Office 90 % ☐ Residential 0 % ☑ Retail 8 % ☑ Other 2 % ☑ User specify VMT generated by land Use 100 % Total

tdm+

TDM Strategies

Parking | Transit | Commute | Bike/Walk | Rideshare

Selected — Strategies

☑ COMMUTER INCENTIVES
- Financial Incentive ($): 200 per Month
- Average Baseline Commute Cost ($): 200 per Month

☑ COMMUTE MARKETING PROGRAM — Employees ☑ Residents ☐ Visitors ☐

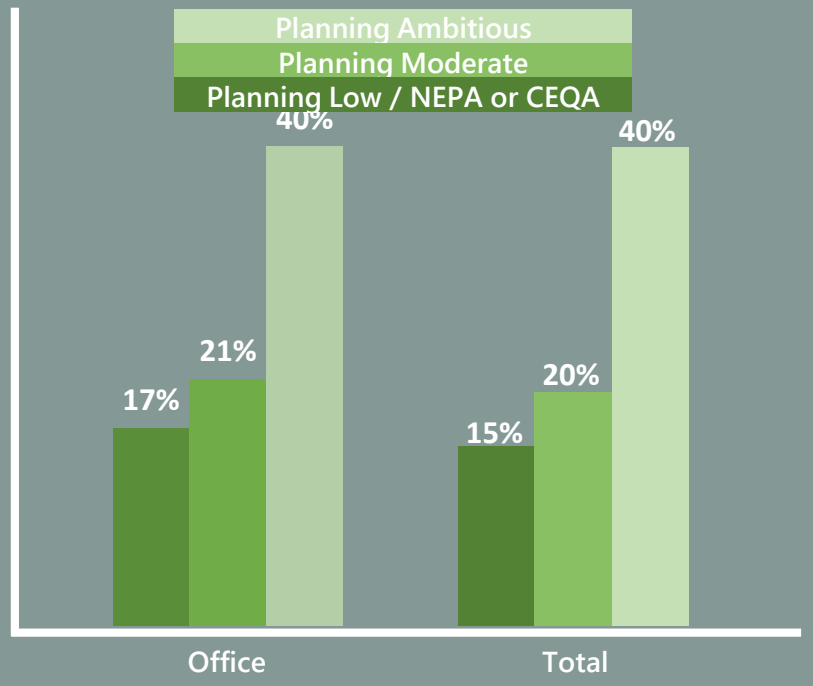
☑ EMERGENCY RIDE HOME — Employees ☑ Residents ☐ Visitors ☐

☑ TNC PARTNERSHIPS — Employees ☑ Residents ☐ Visitors ☐

Reset Current Strategy Category

Reduction Summary

Office | Residential | Retail | Other



Reset All Input & Strategies

FEHR & PEERS

View Report Summary

Project Name: Bayhill Specific Plan

Place Type: Urban Low Transit

Land Use: ☑ Office 90 % ☐ Residential 0 % ☑ Retail 8 % ☑ Other 2 % ☑ User specify VMT generated by land Use 100 % Total

tdm+

TDM Strategies

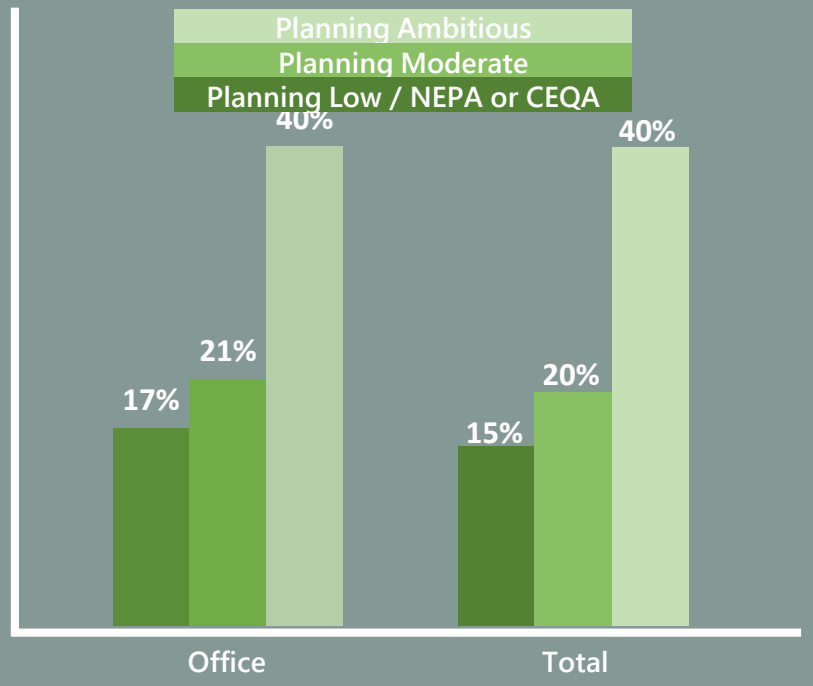
Parking | Transit | Commute | Bike/Walk | Rideshare

Selected	Strategies	Employees	Residents	Visitors
☑	SECURE BICYCLE PARKING	☑	☐	☑
☑	SHOWERS & LOCKERS	☑	☐	☐
☑	PUBLIC REPAIR STATIONS	☑	☐	☑
☑	PEDESTRIAN-ORIENTED DESIGN	☑	☑	☑
☑	BIKESHARE SYSTEM	☑	☐	☑
	% with Subsidies	0	0	0

Reset Current Strategy Category

Reduction Summary

Office | Residential | Retail | Other



Reset All Input & Strategies

FEHR & PEERS

View Report Summary

Project Name: Bayhill Specific Plan

Place Type: Urban Low Transit

Land Use: ☑ Office 90 % ☐ Residential 0 % ☑ Retail 8 % ☑ Other 2 % ☑ User specify VMT generated by land Use 100 % Total

tdm+

TDM Strategies

Parking | Transit | Commute | Bike/Walk | Rideshare

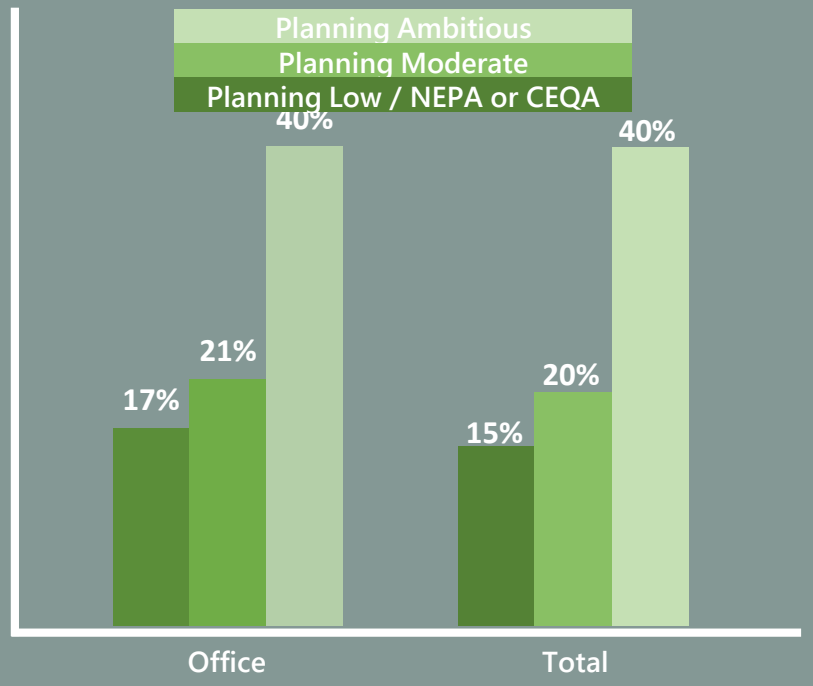
Selected	Strategies	Employees	Residents	Visitors
☑	CARPOOL/VANPOOL INCENTIVES	☑	☐	☐
	Subsidy Amount ($/month)	50	0	0
☐	RIDEMATCH PROGRAM	☑	☐	☐
	Population size	0	0	0
☑	CARSHARE AVAILABLE	☑	☑	☑
☐	CARSHARE SUBSIDIZED	☐	☐	☐
	% Subsidized	0	0	0

Reset Current Strategy Category

Reset All Input & Strategies

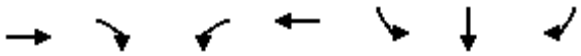
Reduction Summary

Office | Residential | Retail | Other



FEHR & PEERS

View Report Summary



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	893	365	212	405	233	480	157
v/c Ratio	0.35	0.41	0.44	0.17	0.67	0.70	0.37
Control Delay	14.7	8.2	44.2	3.6	41.4	37.6	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.7	8.2	44.2	3.6	41.4	37.6	8.5
Queue Length 50th (ft)	104	47	68	22	135	147	6
Queue Length 95th (ft)	160	130	m105	m33	197	183	54
Internal Link Dist (ft)	465			331		328	
Turn Bay Length (ft)					120		80
Base Capacity (vph)	2585	896	481	2434	480	943	530
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.41	0.44	0.17	0.49	0.51	0.30

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

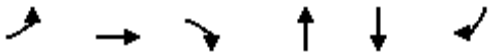


Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	328	881	492	264	104	379	342
v/c Ratio	1.35	0.41	0.33	0.33	0.22	0.85	0.82
Control Delay	213.2	4.8	18.4	5.1	24.9	48.9	46.5
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	213.2	4.9	18.4	5.1	24.9	48.9	46.5
Queue Length 50th (ft)	~132	80	125	20	46	217	185
Queue Length 95th (ft)	#220	93	78	31	85	#334	284
Internal Link Dist (ft)		331	999			438	
Turn Bay Length (ft)				130	230		50
Base Capacity (vph)	243	2162	1494	804	541	516	484
Starvation Cap Reductn	0	344	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.35	0.48	0.33	0.33	0.19	0.73	0.71

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



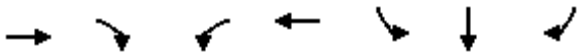
Lane Group	EBL	EBT	EBR	NBT	SBT	SBR
Lane Group Flow (vph)	94	92	87	1644	1557	1140
v/c Ratio	0.72	0.57	0.54	0.42	0.37	0.80
Control Delay	81.6	40.6	38.2	3.6	1.9	8.3
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	81.6	40.6	38.2	3.8	1.9	8.3
Queue Length 50th (ft)	75	36	30	43	53	157
Queue Length 95th (ft)	131	92	83	63	86	355
Internal Link Dist (ft)		1043		319	799	
Turn Bay Length (ft)	520		500			500
Base Capacity (vph)	416	411	408	3889	4260	1432
Starvation Cap Reductn	0	0	0	988	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.22	0.21	0.57	0.37	0.80

Intersection Summary



Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	508	694	801	315	2155	241
v/c Ratio	0.85	0.67	0.26	0.31	0.56	0.20
Control Delay	61.7	28.0	10.6	2.5	7.3	1.0
Queue Delay	0.0	0.0	0.0	0.0	1.7	0.0
Total Delay	61.7	28.0	10.6	2.5	9.0	1.0
Queue Length 50th (ft)	198	194	111	3	221	0
Queue Length 95th (ft)	246	248	119	15	315	22
Internal Link Dist (ft)			799		345	
Turn Bay Length (ft)	140			400		300
Base Capacity (vph)	1076	1397	3034	1025	3815	1210
Starvation Cap Reductn	0	0	0	0	1414	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.50	0.26	0.31	0.90	0.20

Intersection Summary



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	507	160	461	916	162	318	146
v/c Ratio	0.21	0.19	1.15	0.34	0.65	0.55	0.42
Control Delay	15.4	3.6	117.9	2.9	47.1	22.1	9.3
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Total Delay	15.4	3.6	117.9	3.0	47.1	22.1	9.3
Queue Length 50th (ft)	59	0	~167	53	96	54	0
Queue Length 95th (ft)	94	37	m#263	m73	153	90	51
Internal Link Dist (ft)	465			331		328	
Turn Bay Length (ft)					120		80
Base Capacity (vph)	2413	828	400	2682	394	833	463
Starvation Cap Reductn	0	0	0	535	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.19	1.15	0.43	0.41	0.38	0.32

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

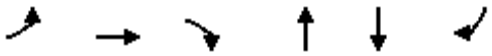


Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	160	549	1073	673	262	606	289
v/c Ratio	0.69	0.27	0.66	0.88	0.48	1.11	0.60
Control Delay	55.9	6.2	30.1	40.0	28.0	104.0	31.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.9	6.2	30.1	40.0	28.0	104.0	31.8
Queue Length 50th (ft)	29	50	312	343	124	~437	144
Queue Length 95th (ft)	#94	64	365	#539	202	#660	233
Internal Link Dist (ft)		331	999			438	
Turn Bay Length (ft)				130	230		50
Base Capacity (vph)	231	2025	1628	768	547	545	483
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.27	0.66	0.88	0.48	1.11	0.60

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	NBT	SBT	SBR
Lane Group Flow (vph)	240	227	222	2219	1514	741
v/c Ratio	0.91	0.77	0.75	0.59	0.38	0.54
Control Delay	96.8	58.9	56.2	6.0	7.2	2.8
Queue Delay	0.0	0.8	0.7	0.2	0.5	0.1
Total Delay	96.8	59.7	56.9	6.2	7.6	2.8
Queue Length 50th (ft)	245	165	152	95	183	38
Queue Length 95th (ft)	340	263	245	284	218	81
Internal Link Dist (ft)		1043		319	799	
Turn Bay Length (ft)	520		500			500
Base Capacity (vph)	339	355	359	3754	4023	1363
Starvation Cap Reductn	0	0	0	668	0	75
Spillback Cap Reductn	0	24	24	0	1832	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.69	0.66	0.72	0.69	0.58

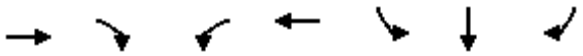
Intersection Summary



Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	500	1263	1634	331	1727	367
v/c Ratio	0.74	0.96	0.66	0.37	0.45	0.29
Control Delay	64.3	55.1	32.0	4.9	6.1	1.2
Queue Delay	0.0	0.0	0.2	0.0	0.1	0.3
Total Delay	64.3	55.1	32.2	4.9	6.2	1.5
Queue Length 50th (ft)	238	655	506	74	86	0
Queue Length 95th (ft)	303	#834	432	55	100	0
Internal Link Dist (ft)			799		345	
Turn Bay Length (ft)	140			400		300
Base Capacity (vph)	693	1332	2473	893	3864	1264
Starvation Cap Reductn	0	0	0	0	766	414
Spillback Cap Reductn	0	0	188	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.95	0.72	0.37	0.56	0.43

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	927	365	212	405	273	559	157
v/c Ratio	0.38	0.42	0.44	0.17	0.71	0.74	0.36
Control Delay	16.1	8.8	42.4	3.8	41.4	37.6	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.1	8.8	42.4	3.8	41.4	37.6	10.3
Queue Length 50th (ft)	118	51	68	22	156	169	17
Queue Length 95th (ft)	167	130	m104	m33	232	216	65
Internal Link Dist (ft)	465			331		328	
Turn Bay Length (ft)					120		80
Base Capacity (vph)	2468	865	481	2353	480	937	515
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	17	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.42	0.44	0.17	0.57	0.60	0.30

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

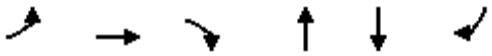


Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	328	1031	492	264	104	492	458
v/c Ratio	1.35	0.51	0.37	0.35	0.19	0.98	0.95
Control Delay	212.8	8.3	21.2	5.6	23.3	66.8	61.2
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	212.8	8.4	21.2	5.6	23.3	66.8	61.2
Queue Length 50th (ft)	~132	112	128	21	44	301	265
Queue Length 95th (ft)	#220	132	83	32	85	#524	#466
Internal Link Dist (ft)		331	999			438	
Turn Bay Length (ft)				130	230		50
Base Capacity (vph)	243	2005	1336	747	541	504	484
Starvation Cap Reductn	0	246	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.35	0.59	0.37	0.35	0.19	0.98	0.95

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



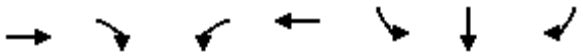
Lane Group	EBL	EBT	EBR	NBT	SBT	SBR
Lane Group Flow (vph)	120	122	123	1644	1964	1140
v/c Ratio	0.74	0.77	0.75	0.43	0.47	0.80
Control Delay	77.9	72.9	70.6	5.6	2.6	7.5
Queue Delay	0.0	0.1	0.1	0.2	0.0	0.0
Total Delay	77.9	73.0	70.7	5.7	2.6	7.5
Queue Length 50th (ft)	96	86	83	134	72	109
Queue Length 95th (ft)	156	151	146	198	160	287
Internal Link Dist (ft)		1043		319	799	
Turn Bay Length (ft)	520		500			500
Base Capacity (vph)	416	376	387	3811	4167	1425
Starvation Cap Reductn	0	0	0	965	0	0
Spillback Cap Reductn	0	22	22	0	32	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.34	0.34	0.58	0.47	0.80

Intersection Summary



Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	871	747	801	315	2186	241
v/c Ratio	0.92	0.58	0.32	0.35	0.66	0.22
Control Delay	57.7	20.4	18.9	5.2	14.3	1.7
Queue Delay	0.0	0.0	0.0	0.0	10.2	0.0
Total Delay	57.7	20.4	18.9	5.2	24.5	1.7
Queue Length 50th (ft)	335	182	155	41	352	0
Queue Length 95th (ft)	398	232	206	108	447	30
Internal Link Dist (ft)			799		345	
Turn Bay Length (ft)	140			400		300
Base Capacity (vph)	1076	1397	2522	906	3303	1080
Starvation Cap Reductn	0	0	0	0	1117	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.53	0.32	0.35	1.00	0.22

Intersection Summary



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	508	160	538	922	165	319	149
v/c Ratio	0.21	0.19	1.34	0.34	0.65	0.55	0.42
Control Delay	15.5	3.6	193.7	2.8	47.1	22.4	9.2
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Total Delay	15.5	3.6	193.7	2.9	47.1	22.4	9.2
Queue Length 50th (ft)	60	0	~217	50	98	55	0
Queue Length 95th (ft)	95	37	m#319	m69	156	91	51
Internal Link Dist (ft)	465			331		328	
Turn Bay Length (ft)					120		80
Base Capacity (vph)	2404	825	400	2676	394	831	466
Starvation Cap Reductn	0	0	0	578	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.19	1.34	0.44	0.42	0.38	0.32

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



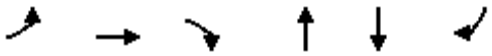
Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	160	557	1153	711	262	608	302
v/c Ratio	0.69	0.28	0.71	0.93	0.48	1.12	0.63
Control Delay	56.0	6.3	31.1	44.6	28.0	105.3	32.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.0	6.3	31.1	44.6	28.0	105.3	32.7
Queue Length 50th (ft)	29	52	337	367	124	~440	151
Queue Length 95th (ft)	#94	66	m385	m#539	202	#664	246
Internal Link Dist (ft)		331	999			438	
Turn Bay Length (ft)				130	230		50
Base Capacity (vph)	231	2025	1628	768	547	545	483
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.28	0.71	0.93	0.48	1.12	0.63

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	NBT	SBT	SBR
Lane Group Flow (vph)	240	230	225	2384	1542	762
v/c Ratio	0.91	0.79	0.77	0.64	0.38	0.56
Control Delay	96.8	62.2	59.2	5.3	7.3	3.0
Queue Delay	0.0	0.9	0.7	0.3	0.5	0.1
Total Delay	96.8	63.0	60.0	5.7	7.9	3.1
Queue Length 50th (ft)	245	173	160	184	175	41
Queue Length 95th (ft)	340	273	253	245	233	87
Internal Link Dist (ft)		1043		319	799	
Turn Bay Length (ft)	520		500			500
Base Capacity (vph)	339	352	356	3738	4023	1368
Starvation Cap Reductn	0	0	0	649	0	74
Spillback Cap Reductn	0	23	23	0	1849	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.70	0.68	0.77	0.71	0.59

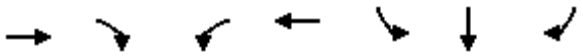
Intersection Summary



Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	526	1265	1642	368	1750	367
v/c Ratio	0.78	0.96	0.66	0.40	0.45	0.29
Control Delay	66.2	55.3	30.0	4.1	5.8	1.1
Queue Delay	0.0	0.0	0.2	0.0	0.1	0.3
Total Delay	66.2	55.3	30.3	4.1	6.0	1.4
Queue Length 50th (ft)	253	657	435	42	89	0
Queue Length 95th (ft)	320	#838	453	85	101	0
Internal Link Dist (ft)			799		345	
Turn Bay Length (ft)	140			400		300
Base Capacity (vph)	693	1332	2472	911	3862	1263
Starvation Cap Reductn	0	0	0	0	756	413
Spillback Cap Reductn	0	0	237	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.95	0.73	0.40	0.56	0.43

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	897	365	222	406	243	501	157
v/c Ratio	0.35	0.41	0.46	0.17	0.68	0.71	0.37
Control Delay	15.1	8.5	43.6	3.6	41.0	37.3	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.1	8.5	43.6	3.6	41.0	37.3	9.0
Queue Length 50th (ft)	109	50	71	22	139	151	9
Queue Length 95th (ft)	161	133	m108	m33	206	191	58
Internal Link Dist (ft)	465			331		328	
Turn Bay Length (ft)					120		80
Base Capacity (vph)	2547	884	481	2408	480	942	526
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.41	0.46	0.17	0.51	0.53	0.30

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

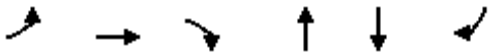


Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	328	915	503	270	104	415	377
v/c Ratio	1.36	0.43	0.35	0.34	0.21	0.89	0.85
Control Delay	217.8	5.8	19.4	5.4	24.0	52.3	48.9
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	217.8	5.9	19.4	5.4	24.0	52.3	48.9
Queue Length 50th (ft)	~133	88	132	36	44	236	202
Queue Length 95th (ft)	#221	103	79	31	85	#404	#350
Internal Link Dist (ft)		331	999			438	
Turn Bay Length (ft)				130	230		50
Base Capacity (vph)	241	2105	1436	786	541	512	484
Starvation Cap Reductn	0	304	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.36	0.51	0.35	0.34	0.19	0.81	0.78

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



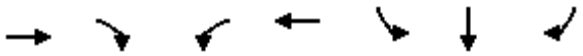
Lane Group	EBL	EBT	EBR	NBT	SBT	SBR
Lane Group Flow (vph)	106	102	99	1668	1696	1144
v/c Ratio	0.74	0.64	0.61	0.43	0.40	0.80
Control Delay	81.0	52.2	50.1	5.1	2.0	8.4
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	81.0	52.2	50.2	5.2	2.0	8.4
Queue Length 50th (ft)	85	56	50	129	60	149
Queue Length 95th (ft)	144	116	107	186	96	322
Internal Link Dist (ft)		1043		319	799	
Turn Bay Length (ft)	520		500			500
Base Capacity (vph)	416	395	398	3857	4221	1429
Starvation Cap Reductn	0	0	0	942	0	0
Spillback Cap Reductn	0	6	6	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.26	0.25	0.57	0.40	0.80

Intersection Summary



Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	635	704	802	321	2164	241
v/c Ratio	0.87	0.62	0.28	0.33	0.60	0.21
Control Delay	59.0	24.6	14.6	4.0	9.6	1.3
Queue Delay	0.0	0.0	0.0	0.0	2.7	0.0
Total Delay	59.0	24.6	14.6	4.0	12.3	1.3
Queue Length 50th (ft)	246	187	140	40	267	0
Queue Length 95th (ft)	295	235	193	95	372	26
Internal Link Dist (ft)			799		345	
Turn Bay Length (ft)	140			400		300
Base Capacity (vph)	1076	1397	2842	983	3623	1161
Starvation Cap Reductn	0	0	0	0	1300	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.50	0.28	0.33	0.93	0.21

Intersection Summary



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	508	160	538	922	165	319	149
v/c Ratio	0.21	0.19	1.34	0.34	0.65	0.55	0.42
Control Delay	15.5	3.6	193.7	2.8	47.1	22.4	9.2
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Total Delay	15.5	3.6	193.7	2.9	47.1	22.4	9.2
Queue Length 50th (ft)	60	0	~217	50	98	55	0
Queue Length 95th (ft)	95	37	m#319	m69	156	91	51
Internal Link Dist (ft)	465			331		328	
Turn Bay Length (ft)					120		80
Base Capacity (vph)	2404	825	400	2676	394	831	466
Starvation Cap Reductn	0	0	0	578	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.19	1.34	0.44	0.42	0.38	0.32

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



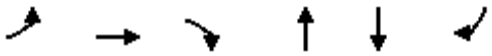
Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	160	557	1153	711	262	608	302
v/c Ratio	0.69	0.28	0.71	0.93	0.48	1.12	0.63
Control Delay	56.0	6.3	31.1	44.6	28.0	105.3	32.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.0	6.3	31.1	44.6	28.0	105.3	32.7
Queue Length 50th (ft)	29	52	337	367	124	~440	151
Queue Length 95th (ft)	#94	66	m385	m#539	202	#664	246
Internal Link Dist (ft)		331	999			438	
Turn Bay Length (ft)				130	230		50
Base Capacity (vph)	231	2025	1628	768	547	545	483
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.28	0.71	0.93	0.48	1.12	0.63

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	NBT	SBT	SBR
Lane Group Flow (vph)	240	230	225	2384	1542	762
v/c Ratio	0.91	0.79	0.77	0.64	0.38	0.56
Control Delay	96.8	62.2	59.2	5.3	7.3	3.0
Queue Delay	0.0	0.9	0.7	0.3	0.5	0.1
Total Delay	96.8	63.0	60.0	5.7	7.9	3.1
Queue Length 50th (ft)	245	173	160	184	175	41
Queue Length 95th (ft)	340	273	253	245	233	87
Internal Link Dist (ft)		1043		319	799	
Turn Bay Length (ft)	520		500			500
Base Capacity (vph)	339	352	356	3738	4023	1368
Starvation Cap Reductn	0	0	0	649	0	74
Spillback Cap Reductn	0	23	23	0	1849	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.70	0.68	0.77	0.71	0.59

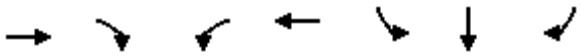
Intersection Summary



Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	526	1265	1642	368	1750	367
v/c Ratio	0.78	0.96	0.66	0.40	0.45	0.29
Control Delay	66.2	55.3	30.0	4.1	5.8	1.1
Queue Delay	0.0	0.0	0.2	0.0	0.1	0.3
Total Delay	66.2	55.3	30.3	4.1	6.0	1.4
Queue Length 50th (ft)	253	657	435	42	89	0
Queue Length 95th (ft)	320	#838	453	85	101	0
Internal Link Dist (ft)			799		345	
Turn Bay Length (ft)	140			400		300
Base Capacity (vph)	693	1332	2472	911	3862	1263
Starvation Cap Reductn	0	0	0	0	756	413
Spillback Cap Reductn	0	0	237	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.95	0.73	0.40	0.56	0.43

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	989	368	337	547	260	537	161
v/c Ratio	0.43	0.47	0.56	0.23	0.68	0.72	0.36
Control Delay	18.4	13.6	41.6	4.0	40.3	36.6	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.4	13.6	41.6	4.0	40.3	36.6	9.4
Queue Length 50th (ft)	135	82	108	27	148	162	14
Queue Length 95th (ft)	195	182	m152	37	217	202	61
Internal Link Dist (ft)	465			331		328	
Turn Bay Length (ft)					120		80
Base Capacity (vph)	2314	789	597	2364	498	982	538
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.47	0.56	0.23	0.52	0.55	0.30

Intersection Summary

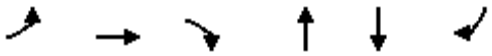
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	397	887	732	268	130	445	404
v/c Ratio	0.74	0.45	0.58	0.38	0.24	0.85	0.82
Control Delay	37.1	4.0	18.2	3.6	21.5	43.3	41.1
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	37.1	4.0	18.2	3.6	21.5	43.3	41.1
Queue Length 50th (ft)	119	73	119	16	54	248	212
Queue Length 95th (ft)	#175	86	125	25	92	358	312
Internal Link Dist (ft)		331	999			438	
Turn Bay Length (ft)				130	230		50
Base Capacity (vph)	534	1980	1273	713	653	619	584
Starvation Cap Reductn	0	143	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.48	0.58	0.38	0.20	0.72	0.69

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	NBT	SBT	SBR
Lane Group Flow (vph)	159	153	145	2808	1564	1606
v/c Ratio	1.10	0.94	0.69	0.71	0.37	1.12
Control Delay	156.0	100.3	40.0	5.3	2.0	77.8
Queue Delay	0.0	0.0	0.0	0.3	0.0	0.0
Total Delay	156.0	100.3	40.0	5.6	2.0	77.8
Queue Length 50th (ft)	~147	103	44	200	60	~1302
Queue Length 95th (ft)	#294	#251	#137	265	69	#1572
Internal Link Dist (ft)		1043		319	799	
Turn Bay Length (ft)	520		500			500
Base Capacity (vph)	144	162	210	3933	4221	1429
Starvation Cap Reductn	0	0	0	488	0	0
Spillback Cap Reductn	0	0	0	0	12	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.10	0.94	0.69	0.82	0.37	1.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

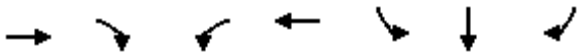
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	515	701	1144	1000	2216	309
v/c Ratio	0.78	0.84	0.34	0.75	0.60	0.26
Control Delay	54.3	42.1	11.0	6.2	8.7	1.2
Queue Delay	0.2	0.0	0.0	0.4	2.3	0.6
Total Delay	54.5	42.1	11.0	6.6	11.0	1.8
Queue Length 50th (ft)	195	230	154	53	261	0
Queue Length 95th (ft)	241	294	m194	m117	360	26
Internal Link Dist (ft)			799		345	
Turn Bay Length (ft)	140			400		300
Base Capacity (vph)	833	963	3405	1334	3724	1205
Starvation Cap Reductn	0	0	0	66	1321	544
Spillback Cap Reductn	44	0	0	0	108	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.73	0.34	0.79	0.92	0.47

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	549	165	621	1033	230	455	206
v/c Ratio	0.33	0.27	0.54	0.42	0.67	0.68	0.53
Control Delay	25.1	5.9	12.6	4.1	41.8	34.6	19.7
Queue Delay	0.0	0.0	0.0	0.2	0.0	0.0	0.0
Total Delay	25.1	5.9	12.6	4.3	41.8	34.6	19.7
Queue Length 50th (ft)	86	0	75	57	132	128	54
Queue Length 95th (ft)	132	49	m76	m63	194	164	115
Internal Link Dist (ft)	465			331		328	
Turn Bay Length (ft)					120		80
Base Capacity (vph)	1659	622	1147	2478	503	973	522
Starvation Cap Reductn	0	0	0	641	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.27	0.54	0.56	0.46	0.47	0.39

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



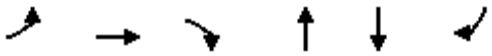
Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	174	783	1293	674	303	940	518
v/c Ratio	1.13	0.52	1.09	1.16	0.38	1.19	0.74
Control Delay	144.9	16.6	77.4	110.6	17.4	123.9	27.5
Queue Delay	0.0	1.2	0.0	0.0	0.0	0.0	0.0
Total Delay	144.9	17.8	77.4	110.6	17.4	123.9	27.5
Queue Length 50th (ft)	~40	233	~444	~429	113	~716	243
Queue Length 95th (ft)	#130	299	m#540	m#536	180	#969	382
Internal Link Dist (ft)		331	999			438	
Turn Bay Length (ft)				130	230		50
Base Capacity (vph)	154	1509	1191	580	792	789	699
Starvation Cap Reductn	0	467	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.13	0.75	1.09	1.16	0.38	1.19	0.74

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



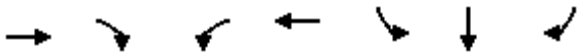
Lane Group	EBL	EBT	EBR	NBT	SBT	SBR
Lane Group Flow (vph)	286	275	260	2895	1979	884
v/c Ratio	0.90	0.89	0.86	0.80	0.51	0.64
Control Delay	88.4	83.9	78.6	23.7	2.6	3.7
Queue Delay	0.0	0.2	0.2	5.0	1.8	0.6
Total Delay	88.4	84.1	78.7	28.7	4.4	4.4
Queue Length 50th (ft)	290	270	242	688	39	0
Queue Length 95th (ft)	381	368	332	834	218	714
Internal Link Dist (ft)		1043		319	799	
Turn Bay Length (ft)	520		500			500
Base Capacity (vph)	423	401	395	3628	3861	1374
Starvation Cap Reductn	0	0	0	675	929	191
Spillback Cap Reductn	0	6	6	0	1642	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.70	0.67	0.98	0.89	0.75

Intersection Summary



Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	656	1271	1875	865	2177	500
v/c Ratio	0.43	0.93	0.79	0.75	0.83	0.51
Control Delay	30.3	47.8	37.4	8.2	22.3	3.6
Queue Delay	0.0	0.0	0.4	0.1	3.0	0.7
Total Delay	30.3	47.8	37.8	8.3	25.3	4.3
Queue Length 50th (ft)	221	625	499	99	378	6
Queue Length 95th (ft)	274	755	616	335	373	72
Internal Link Dist (ft)			799		345	
Turn Bay Length (ft)	140			400		300
Base Capacity (vph)	1557	1412	2366	1156	2626	984
Starvation Cap Reductn	0	0	0	13	339	211
Spillback Cap Reductn	9	0	148	0	7	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.90	0.85	0.76	0.95	0.65

Intersection Summary



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	1024	368	337	547	298	618	161
v/c Ratio	0.47	0.49	0.56	0.24	0.72	0.76	0.35
Control Delay	20.0	14.5	38.7	4.1	40.1	36.7	10.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.0	14.5	38.7	4.1	40.1	36.7	10.9
Queue Length 50th (ft)	148	87	108	27	169	186	21
Queue Length 95th (ft)	204	182	m152	m37	251	238	72
Internal Link Dist (ft)	465			331		328	
Turn Bay Length (ft)					120		80
Base Capacity (vph)	2199	756	597	2284	498	977	525
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	4	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.49	0.56	0.24	0.60	0.63	0.31

Intersection Summary

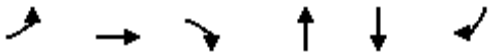
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	397	1036	732	268	130	562	516
v/c Ratio	0.74	0.57	0.67	0.41	0.20	0.95	0.91
Control Delay	37.1	7.2	30.9	6.5	19.5	55.1	48.4
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	37.1	7.2	30.9	6.5	19.5	55.1	48.4
Queue Length 50th (ft)	120	106	192	8	50	328	282
Queue Length 95th (ft)	#176	124	255	64	92	#557	#484
Internal Link Dist (ft)		331	999			438	
Turn Bay Length (ft)				130	230		50
Base Capacity (vph)	534	1804	1096	648	653	607	584
Starvation Cap Reductn	0	63	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.60	0.67	0.41	0.20	0.93	0.88

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	NBT	SBT	SBR
Lane Group Flow (vph)	192	181	176	2808	1970	1606
v/c Ratio	1.33	1.08	1.04	0.71	0.47	1.12
Control Delay	231.7	130.4	118.6	5.3	2.0	74.3
Queue Delay	0.0	4.6	3.9	0.4	0.0	0.0
Total Delay	231.7	135.0	122.4	5.7	2.0	74.3
Queue Length 50th (ft)	~203	~134	~117	200	71	~1306
Queue Length 95th (ft)	#361	#297	#273	272	m77	m#1476
Internal Link Dist (ft)		1043		319	799	
Turn Bay Length (ft)	520		500			500
Base Capacity (vph)	144	168	170	3933	4221	1429
Starvation Cap Reductn	0	0	0	500	0	0
Spillback Cap Reductn	0	2	2	0	356	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.33	1.09	1.05	0.82	0.51	1.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



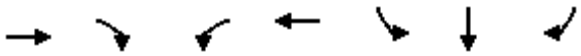
Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	878	755	1144	1000	2247	309
v/c Ratio	1.05	0.78	0.36	0.76	0.65	0.27
Control Delay	90.2	36.1	14.1	6.8	11.6	1.3
Queue Delay	0.0	0.0	0.0	0.5	10.2	0.6
Total Delay	90.2	36.1	14.1	7.2	21.8	1.9
Queue Length 50th (ft)	~383	243	190	52	324	0
Queue Length 95th (ft)	#510	328	m189	m50	368	26
Internal Link Dist (ft)			799		345	
Turn Bay Length (ft)	140			400		300
Base Capacity (vph)	833	963	3147	1309	3466	1143
Starvation Cap Reductn	0	0	0	68	1220	507
Spillback Cap Reductn	0	0	0	0	259	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.05	0.78	0.36	0.81	1.00	0.49

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	549	165	856	1070	230	455	206
v/c Ratio	0.33	0.27	0.75	0.43	0.67	0.68	0.54
Control Delay	25.1	5.9	31.8	7.7	41.8	34.6	21.0
Queue Delay	0.0	0.0	0.6	0.6	0.0	0.0	0.0
Total Delay	25.1	5.9	32.4	8.3	41.8	34.6	21.0
Queue Length 50th (ft)	86	0	221	123	132	128	59
Queue Length 95th (ft)	132	49	290	214	194	164	119
Internal Link Dist (ft)	465			331		328	
Turn Bay Length (ft)					120		80
Base Capacity (vph)	1659	622	1147	2478	503	973	517
Starvation Cap Reductn	0	0	79	914	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.27	0.80	0.68	0.46	0.47	0.40

Intersection Summary

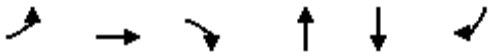


Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	174	783	1563	809	303	940	518
v/c Ratio	1.31	0.47	1.11	1.22	0.39	1.21	0.75
Control Delay	229.5	25.3	99.3	144.2	24.8	136.8	37.1
Queue Delay	0.0	2.5	0.0	0.0	0.0	0.0	0.0
Total Delay	229.5	27.8	99.3	144.2	24.8	136.8	37.1
Queue Length 50th (ft)	~96	234	~794	~792	172	~1057	370
Queue Length 95th (ft)	#173	291	#934	#1043	252	#1336	528
Internal Link Dist (ft)		331	999			438	
Turn Bay Length (ft)				130	230		50
Base Capacity (vph)	133	1649	1402	663	783	780	691
Starvation Cap Reductn	0	709	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.31	0.83	1.11	1.22	0.39	1.21	0.75

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	NBT	SBT	SBR
Lane Group Flow (vph)	286	275	260	3342	1979	961
v/c Ratio	0.90	0.89	0.86	0.93	0.51	0.69
Control Delay	88.4	83.9	78.6	23.3	2.4	5.6
Queue Delay	0.0	0.2	0.2	45.0	2.1	0.8
Total Delay	88.4	84.1	78.7	68.3	4.5	6.4
Queue Length 50th (ft)	290	270	242	745	38	0
Queue Length 95th (ft)	381	368	332	m#1248	204	828
Internal Link Dist (ft)		1043		319	799	
Turn Bay Length (ft)	520		500			500
Base Capacity (vph)	423	401	395	3592	3861	1393
Starvation Cap Reductn	0	0	0	663	944	183
Spillback Cap Reductn	0	6	6	0	1674	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.70	0.67	1.14	0.90	0.79

Intersection Summary

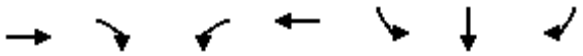
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	656	1271	1907	955	2253	500
v/c Ratio	0.43	0.93	0.81	0.79	0.86	0.51
Control Delay	30.3	47.8	38.7	7.8	23.6	4.1
Queue Delay	0.0	0.0	0.5	0.1	5.5	0.8
Total Delay	30.3	47.8	39.2	7.9	29.1	4.9
Queue Length 50th (ft)	221	625	542	61	408	7
Queue Length 95th (ft)	274	755	630	m233	458	84
Internal Link Dist (ft)			799		345	
Turn Bay Length (ft)	140			400		300
Base Capacity (vph)	1557	1412	2366	1205	2626	978
Starvation Cap Reductn	0	0	33	14	329	218
Spillback Cap Reductn	8	0	151	0	27	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.90	0.86	0.80	0.98	0.66

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	EBR	WBL	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	994	368	347	548	268	560	161
v/c Ratio	0.43	0.47	0.58	0.23	0.69	0.73	0.36
Control Delay	18.7	13.9	40.6	4.0	40.2	37.0	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.7	13.9	40.6	4.0	40.2	37.0	9.9
Queue Length 50th (ft)	138	84	111	26	152	169	16
Queue Length 95th (ft)	197	183	m156	m37	224	212	64
Internal Link Dist (ft)	465			331		328	
Turn Bay Length (ft)					120		80
Base Capacity (vph)	2287	780	597	2346	498	979	534
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.47	0.58	0.23	0.54	0.57	0.30

Intersection Summary

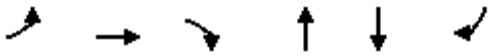
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	397	921	743	274	130	479	441
v/c Ratio	0.74	0.48	0.61	0.40	0.22	0.88	0.85
Control Delay	37.2	4.7	28.1	6.4	20.8	45.8	43.4
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Total Delay	37.2	4.7	28.1	6.4	20.8	45.8	43.4
Queue Length 50th (ft)	119	82	190	10	52	264	230
Queue Length 95th (ft)	#175	96	260	68	92	#430	#358
Internal Link Dist (ft)		331	999			438	
Turn Bay Length (ft)				130	230		50
Base Capacity (vph)	534	1926	1218	693	653	615	584
Starvation Cap Reductn	0	118	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.51	0.61	0.40	0.20	0.78	0.76

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	NBT	SBT	SBR
Lane Group Flow (vph)	171	163	157	2833	1702	1610
v/c Ratio	1.19	0.92	0.81	0.72	0.40	1.13
Control Delay	181.1	87.1	60.1	5.5	2.0	77.7
Queue Delay	0.0	0.8	0.3	0.4	0.0	0.0
Total Delay	181.1	87.9	60.4	5.8	2.0	77.7
Queue Length 50th (ft)	~167	95	69	202	64	~1310
Queue Length 95th (ft)	#318	#245	#192	301	73	#1582
Internal Link Dist (ft)		1043		319	799	
Turn Bay Length (ft)	520		500			500
Base Capacity (vph)	144	177	193	3934	4221	1429
Starvation Cap Reductn	0	0	0	502	0	0
Spillback Cap Reductn	0	1	1	0	131	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.19	0.93	0.82	0.83	0.42	1.13

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

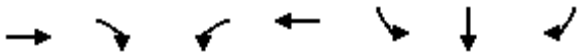
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	642	711	1145	1005	2226	309
v/c Ratio	0.91	0.82	0.34	0.76	0.61	0.26
Control Delay	63.3	39.5	11.7	6.2	9.4	1.2
Queue Delay	0.0	0.0	0.0	0.4	3.2	0.6
Total Delay	63.3	39.5	11.7	6.6	12.6	1.8
Queue Length 50th (ft)	250	230	162	51	279	0
Queue Length 95th (ft)	308	300	m190	m51	361	26
Internal Link Dist (ft)			799		345	
Turn Bay Length (ft)	140			400		300
Base Capacity (vph)	833	963	3330	1329	3649	1188
Starvation Cap Reductn	0	0	0	67	1291	533
Spillback Cap Reductn	0	0	0	0	243	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.74	0.34	0.80	0.94	0.47

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	EBR	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	551	165	698	1038	233	458	206
v/c Ratio	0.33	0.27	0.61	0.42	0.68	0.67	0.53
Control Delay	25.3	5.9	28.1	7.6	41.8	34.5	19.7
Queue Delay	0.0	0.0	0.0	0.5	0.0	0.0	0.0
Total Delay	25.3	5.9	28.1	8.2	41.8	34.5	19.7
Queue Length 50th (ft)	86	0	170	118	135	129	54
Queue Length 95th (ft)	133	49	227	207	196	165	115
Internal Link Dist (ft)	465			331		328	
Turn Bay Length (ft)					120		80
Base Capacity (vph)	1653	620	1147	2473	503	974	522
Starvation Cap Reductn	0	0	0	921	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.27	0.61	0.67	0.46	0.47	0.39

Intersection Summary

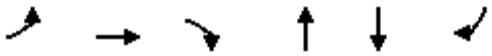


Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	174	790	1374	712	303	941	532
v/c Ratio	1.31	0.48	0.98	1.07	0.39	1.21	0.77
Control Delay	229.5	25.4	58.8	90.2	24.8	137.3	38.3
Queue Delay	0.0	2.6	0.0	0.0	0.0	0.0	0.0
Total Delay	229.5	28.0	58.8	90.2	24.8	137.3	38.3
Queue Length 50th (ft)	~96	237	595	~620	172	~1059	386
Queue Length 95th (ft)	#173	294	#760	#863	252	#1338	550
Internal Link Dist (ft)		331	999			438	
Turn Bay Length (ft)				130	230		50
Base Capacity (vph)	133	1649	1402	663	783	780	691
Starvation Cap Reductn	0	707	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.31	0.84	0.98	1.07	0.39	1.21	0.77

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	NBT	SBT	SBR
Lane Group Flow (vph)	286	277	264	3059	2007	905
v/c Ratio	0.89	0.90	0.87	0.85	0.52	0.66
Control Delay	88.1	85.5	80.9	18.3	2.6	4.0
Queue Delay	0.0	0.2	0.2	21.4	2.3	0.6
Total Delay	88.1	85.7	81.1	39.7	4.9	4.6
Queue Length 50th (ft)	290	274	247	650	41	0
Queue Length 95th (ft)	381	372	340	835	221	757
Internal Link Dist (ft)		1043		319	799	
Turn Bay Length (ft)	520		500			500
Base Capacity (vph)	423	400	394	3614	3859	1379
Starvation Cap Reductn	0	0	0	675	912	182
Spillback Cap Reductn	0	6	6	0	1659	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.70	0.68	1.04	0.91	0.76

Intersection Summary



Lane Group	WBL	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	682	1273	1882	901	2200	500
v/c Ratio	0.45	0.93	0.80	0.77	0.84	0.51
Control Delay	30.6	48.0	37.5	8.0	22.7	3.8
Queue Delay	0.0	0.0	0.5	0.1	3.6	0.7
Total Delay	30.6	48.0	37.9	8.1	26.2	4.5
Queue Length 50th (ft)	232	627	514	48	386	7
Queue Length 95th (ft)	286	758	623	338	401	76
Internal Link Dist (ft)			799		345	
Turn Bay Length (ft)	140			400		300
Base Capacity (vph)	1557	1412	2365	1175	2625	982
Starvation Cap Reductn	0	0	0	13	336	213
Spillback Cap Reductn	8	0	151	0	11	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.90	0.85	0.78	0.96	0.65

Intersection Summary

FEHR PEERS

APPENDIX: BAYHILL SPECIFIC PLAN EIR LEVEL OF SERVICE CALCULATIONS

This appendix summarizes the level of service (LOS) transportation analysis of the Max Office and Phase 1 Projects proposed for the Bayhill Specific Plan. With the passage of SB 743 (September 27, 2013) and the subsequent adoption of revised California Environmental Quality Act (CEQA) Guidelines (December 28, 2018), level of service (LOS) can no longer be used as a criterion for identifying significant transportation impacts for most projects under CEQA effective July 1, 2020. Therefore, the findings included in this assessment are provided for informational and planning purposes.

Study Area

Intersections are generally the critical capacity-controlling elements of suburban roadway networks. Therefore, the operations of critical intersections surrounding the project site are used as indicators of the adequacy of the vehicular circulation system. 15 intersections surrounding the Project site were selected by City of San Bruno staff for the evaluation of the Project. The intersections selected are deemed those most likely to be affected by the project and thus warranting analysis. The study intersections include:

1. I-280 Southbound Ramps/San Bruno Avenue
2. I-280 Northbound Ramps/San Bruno Avenue
3. Cherry Avenue/San Bruno Avenue
4. Traeger Avenue/San Bruno Avenue
5. Elm Avenue/San Bruno Avenue
6. El Camino Real/San Bruno Avenue
7. El Camino Real/Bayhill Drive
8. I-380 Eastbound/El Camino Real
9. I-380 Westbound/El Camino Real
10. Cherry Avenue/Bayhill Drive
11. Cherry Avenue/Sneath Lane
12. I-280 Northbound Ramp/Sneath Lane
13. I-280 Southbound Ramp/Sneath Lane
14. El Camino Real/Tanforan Way/Commodore Drive
15. El Camino Real /Sneath Lane

Analysis Scenarios

The analysis includes an evaluation of transportation conditions during a typical weekday AM and PM peak hour, occurring between 7:00 to 9:00 AM and 4:00 to 6:00 PM, when the surrounding transportation network is at its most congested. This report presents the analysis of the following scenarios:

- Existing No Project– Based on recently collected traffic counts.
- Existing Plus Phase I Project– Traffic volumes from existing conditions plus traffic volume estimates for the proposed Phase I Project.
- Existing Plus Max Office Project – Traffic volumes from existing conditions plus traffic volume estimates for the proposed Max Office Project.
- Cumulative No Project– Traffic estimates for development patterns as proposed by 2040 (see Cumualtive traffic forecast section for additional details).
- Cumulative Plus Max Office Project– Traffic volumes from the Cumulative No Project conditions plus traffic volume estimates for the proposed Max Office Project
- Cumulative Plus Max Housing Project– Traffic volumes from the Cumulative No Project conditions plus traffic volume estimates for the proposed Max Housing Project

Cumulative Traffic Forecasts

As documented in the Data Collection and Assumptions letter (September 2017), the Bayhill Specific Plan will be evaluated for the future horizon year of 2040. 2040 forecasts were developed using the C/CAG-VTA Travel Demand Model. 2040 land uses were reviewed to confirm consistency with the proposed land uses in the City of San Bruno General Plan and Transit Corridors Plan.

Travel demand models provide volume outputs that need to be adjusted in order to develop volume forecasts for the scenario being tested. In principle, raw volume outputs from a travel demand model should rarely be applied directly in analysis, only being used after adjustments are made. Adjustments to forecasted volumes are usually based on the difference between or ratio of volumes observed in the field and the model's own prediction of existing volumes.

The rationale for adjusting raw model volume outputs is that observed travel behavior is the result of a highly complex mixture of variables, only some of which are included in any given travel demand model, and so an adjustment is needed to account for variables not captured by the model itself. The adjustment takes the form of changing the model outputs to correct for discrepancies

between actual field counts and estimated base year model volumes identified during the local calibration process, as it is assumed that the discrepancy will likely affect all scenarios in the same order of magnitude. This can be done several ways, as defined in the National Cooperative Highway Research Program Report 255: Highway Traffic Data for Urbanized Area Project Planning and Design, Transportation Research Board (December 1982). For the purpose of this assessment, the difference method was applied.

The difference method is the difference between the base year field count and the base year model volume, which is added to the output model volume to develop the forecasted volume for the scenario being tested. For example, if the base year model volume for a roadway segment was 650 ADT while the field count was 700 ADT, then the difference method would suggest the output model volume on that roadway segment should be increased by 50 ADT to develop the forecasted volume for the scenario being tested. The difference method adjustment is summarized in the formula below.

Scenario Forecast = Output Model Volume + (Field Count – Base Year Model Volume)

Study Methodology

This section describes the study methodology for evaluating intersection operations and describes the significance criteria applied to identify significant traffic impacts for each alternative.

Analysis Methods

Intersection results will be summarized by Level of Service (LOS). LOS is a qualitative description of operations ranging from LOS A, when the roadway facility has excess capacity and vehicles experience little or no delay, to LOS F, where the volume of vehicles exceeds the capacity, resulting in long queues and excessive delays. Typically, LOS E represents "at-capacity" conditions and LOS F represents "over-capacity" conditions. Intersection LOS were established based on traffic analysis of the study intersections, conducted using a method documented by the Transportation Research Board (TRB) in the 2010 Highway Capacity Manual (HCM).

Study Intersections

The traffic analysis software Synchro was used for this study and was based on the City's existing traffic model. For signalized intersections, the LOS is based on the average delay experienced by all vehicles passing through the intersection. This methodology uses various intersection

characteristics (such as traffic volumes, lane geometry, and signal phasing) to estimate the delay per vehicle. The delay is the portion of the total delay attributed to the signal operations and includes initial deceleration, queue move up time, time stopped, and acceleration.

At unsignalized intersections, operations are defined by the average control delay per vehicle (measured in seconds) for each stop-controlled movement. This incorporates delay associated with deceleration, acceleration, stopping, and moving up in the queue. For side-street stop-controlled intersections, LOS is not defined for the intersection as a whole. Instead, the average delay and associated LOS reported in this study is for the worst-case controlled approach. For all-way stop-controlled intersections, the LOS is represented by the average control delay for the whole intersection.

Table 1 shows the correlation of average control delays and LOS designations for signalized and unsignalized intersections.

Table 1: Intersection LOS Criteria

Level of Service	Average Control Delay (seconds/vehicle)	
	Signalized	Unsignalized
A	< 10.0	< 10.0
B	> 10.0 to 20.0	> 10.0 – 15.0
C	> 20.0 to 35.0	> 15.0 – 25.0
D	> 35.0 to 55.0	> 25.0 – 35.0
E	> 55.0 to 80.0	> 35.0 – 50.0
F	> 80.0	> 50.0

Source: 2010 Highway Capacity Manual.

Level of Service (LOS) Standards

As described in the Data Collection & Study Assumptions memo, three agencies govern intersection operations in the study area: the City of San Bruno, C/CAG (San Mateo County), and Caltrans. **Table 2** summarizes the acceptable LOS standard for the study intersections.

General Plan Policy T-B, requires an acceptable LOS for all City intersections, both signalized and unsignalized. This is defined as LOS D for a full signalized intersection or for the worst-approach for an unsignalized intersection. If a signalized intersection is at an unacceptable level under existing conditions, an impact would occur if the critical movement delay increases by four or more seconds. If an unsignalized intersection is at an unacceptable level under existing conditions, an impact would occur if the project would add ten or more vehicles trips to the critical movement or if the intersection meets California MUTCD signal warrant after completion.

Table 2: Level of Service Standard for Study Intersections

Study Intersection	Control	Jurisdiction(s)	LOS Standard
1. I-280 Southbound Ramps/San Bruno Avenue	Signal	San Bruno	D
2. I-280 Northbound Ramps/San Bruno Avenue	Signal	San Bruno	D
3. Cherry Avenue/San Bruno Avenue	Signal	San Bruno	D
4. Traeger Avenue/San Bruno Avenue	SSSC[1]	San Bruno	D
5. Elm Avenue/San Bruno Avenue	Signal	San Bruno	D
6. El Camino Real/San Bruno Avenue	Signal	San Bruno C/CAG[2]	D E
7. El Camino Real/Bayhill Drive	Signal	San Bruno	D
8. I-380 Eastbound/El Camino Real	Signal	San Bruno	D
9. I-380 Westbound/El Camino Real	Signal	San Bruno	D
10. Cherry Avenue/Bayhill Drive	Signal	San Bruno	D
11. Cherry Avenue/Sneath Lane	Signal	San Bruno	D
12. I-280 Northbound Ramp/Sneath Lane	Signal	San Bruno	D
13. I-280 Southbound Ramp/Sneath Lane	Signal	San Bruno	D
14. El Camino Real/Tanforan Way/Commodore Drive	Signal	Caltrans San Bruno	D
15. El Camino Real /Sneath Lane	Signal	San Bruno	D

Notes:
[1] SSSC = Side Street Stop Controlled. Worst approach is noted in parentheses ( ) for side street stop-controlled intersections.
[2] Intersection is part of the Congestion Management Program.

If the addition of the Project would result in a LOS below the standard described in Table 2, the intersection would warrant consideration of a potential improvement. A potential improvement includes operational or infrastructure changes that would result in better traffic operations at the intersection.

Land Use Scenarios

The Specific Plan Project would allow for the development of up to 2.46 million net new square feet of office uses. The Specific Plan would also establish housing and mixed-use overlay zones on a total of 20.56 acres in the southern portion of the Project Site that would allow for the development

of up to 573 multi-family residential units. There are two overlay districts in the Plan Area that would allow for housing development. Office uses would continue to be allowed in the housing overlay zone, and a mix of both use types could be developed as long as the maximum permitted density is not exceeded. To account for the variability resulting from the housing and mixed-use overlay zones, two different buildout scenarios have been developed for purposes of the analysis. The Maximum Office Scenario assumes that no residential construction occurs within the housing and mixed-use overlay zones. The Maximum Housing Scenario assumes that housing is constructed within the furthest range allowable under the Specific Plan, resulting in 573 multi-family residential units. In this scenario, the amount of office development is decreased on the land area within the housing overlay zone where housing is constructed. Additionally, the Specific Plan would also allow for an up to 50,000-sf civic use to be developed on a 2.1 acre parcel bordering San Bruno Avenue West. If the civic use were to be developed, the overall capacity of the Specific Plan area to accommodate office and housing uses would be reduced.

The Phase I Development includes construction of new office uses as well as demolition of existing office uses in the middle north section of the site bound by I-380, Cherry Avenue, and Bayhill Drive. Net new office land use is approximately 301,500 sf under Phase I buildout.

Table 3 describes the three land use scenarios.

Table 3: Land Use Scenario

Land Use Category	Phase I (net new)	Max Office Total[1]	Max Housing Total [2]
Office	301.5 ksf	3,881 ksf	3,501 ksf
Commercial/Retail	--	122 ksf	122 ksf
Civic Uses	--	50 ksf	50 ksf
Housing	--	--	489 dwelling units
Hotel	--	147 rooms	147 rooms

Notes:

1. For purposes of this assessment, the land use alternatives are shown with the Civic Uses; however, if civic uses are omitted, the maximum amount of office allowed under the Max Office scenario is 4,018 ksf.
2. For purposes of this assessment, the land use alternatives are shown with the Civic Uses; however, if civic uses are omitted, the maximum amount of housing allowed under the Max Housing scenario is 573 units.

Trip Generation & Trip Distribution

Trip generation refers to the process of estimating the amount of vehicular traffic a project would add to the surrounding roadway system. Estimates are created for the peak one-hour periods during the morning and evening commute periods when traffic volumes on the adjacent streets are the highest. For all alternatives, trip generation was estimated using a combination of rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual (*10th Edition) as well as Fehr & Peers' MainStreet Trip Generation tool.

The MainStreet trip generation tool, which is based on MXD methodology, developed for and approved by the US Environmental Protection Agency (EPA) for use in evaluating trip generation at mixed-use projects. The primary difference between the ITE and MXD methodologies is that the traditional ITE methodology relies on one factor—the project's land use type—to predict vehicle trip generation, while MXD incorporates local data and travel behaviors, as well as leading research in how density, mix of land uses, and other built environment factors affect vehicle trip generation. The total square footage at buildout of each alternative was included in the MainStreet analysis to capture the full benefits of the land use mixture.

Trip generation estimates do not account for the travel demand management (TDM) programs proposed for or currently in place (i.e., private shuttle buses) at the Project Site since TDM programs are not permanent in the same way as built environment factors and land use diversity, and instead are tied to particular tenants, who often turnover during the life of a project. For this reason, the estimated net new trips presented in this analysis do not account for TDM strategies. The trip generation forecasts do account for use of BART or Caltrain by future employees.

Table 4 summarizes the weekday AM peak hour and PM peak hour trip generation for each scenario described in **Table 3**.

Table 4: Vehicle Trip Generation by Scenario

Scenario	AM Peak Hour			PM Peak Hour		
	Total	In	Out	Total	In	Out
Max Office	**3,360**	**2,780**	**580**	**3,990**	**910**	**3,080**
Max Housing	3,190	2,560	630	3,830	960	2,870
Phase I (Net New)[1]	380	330	50	420	70	350

Source: ITE Trip Generation Manual 10th Edition and Fehr & Peers MainStreet with MXD+
Notes: **Bold** text = highest trip generating scenario.

1. Analysis of Phase I assumes no demolition of the "Lakes" Buildings; as a result, the findings are likely more conservative than if the analysis had included the reduction in employee trips associated with the "Lakes" buildings.

As shown in Table 4, the Phase I Project is expected to generate 380 new AM peak hour vehicle trips and 420 new PM peak hour vehicle trips. The Max Office scenario is expected to generate approximately 3,400 AM peak hour vehicle trips and 4,000 PM peak hour vehicle trips. The Max Housing scenario is expected to generate fewer AM and PM peak hour trips compared to the Max Office scenario at 3,200 trips and 3,800 trips, respectively.

Using the trip generation results presented in Table 4, Project trips were distributed to each study intersection based on the trip distribution assumptions illustrated in **Figure 1**. Trip distribution assumptions were based on C/CAG's model regional distributions and locally available employee survey data.

Analysis Results

This section describes the analysis results using the methodology and trip generation estimates described above. If an intersection performs worst than the LOS standard, a potential improvement was identified. The improvements identified are conceptual only and engineering analysis and design is required before construction.

Existing Conditions

Existing and Existing Plus Project LOS results are summarized in **Tables 5 and 6** for the AM and PM peak hour, respectively. Based on discussion with City staff, only the Phase I and Max Office scenarios were evaluated under existing conditions. Max office was the only full build project scenario evaluated because it generates the highest number of trips. Therefore, it is assumed that the results from the Max Office scenario represents a worst-case scenario.

Existing delay is based on observed volumes at Bayhill collected in Fall 2017. These volumes reflect current TDM efforts by Bayhill tenants including YouTube and Walmart. Plus, project scenarios do not incorporate a TDM credit and therefore reflect "worst case" delay projections for the site.

AM Peak Hour

As shown in **Table 5**, all intersections perform at the LOS standard under No Project and Plus Project conditions with exception to the Cherry Avenue/San Bruno Avenue and I-280 Southbound

Ramp/Sneath Lane intersections. The Cherry Avenue/San Bruno Avenue intersection operates above the LOS standard under No Project and Plus Phase I conditions; however, worsens to LOS E with the addition of the Max Office scenario. To improve conditions, a potential improvement would include modifying the signal cycle length to accommodate the additional vehicular traffic. The I-280 Southbound Ramp/Sneath Lane intersection operates under the LOS D standard under existing conditions. The addition of the Phase I and Max Office Project would worsen conditions; however, optimizing signal timing plans would result in improved intersection operations that operate at the LOS D standard.

PM Peak Hour

As shown in **Table 6**, all intersections perform at the LOS standard under No Project and Plus Project conditions with exception to the following intersections:

- Cherry Avenue/San Bruno Avenue
- Traeger Avenue/San Bruno Avenue
- El Camino Real/San Bruno Avenue
- I-380 Westbound/El Camino Real

The Cherry Avenue/San Bruno Avenue, El Camino Real/San Bruno Avenue, and I-380 Westbound/El Camino Real intersections would operate at the LOS standard (LOS D) or better by modifying signal timings. The Traeger Avenue/San Bruno Avenue operates acceptable under No Project condition; however, the addition of the Phase I and Max Office Project would worsen the side street stop-controlled approach, such that the intersection would operate under the LOS D standard. To improve operations, the Traeger Avenue/San Bruno Avenue intersection should be signalized. Note, that the intersection currently meets the peak hour signal warrant for a traffic signal.

Table 5: Existing + Project AM Peak LOS and Delay Results

Study Intersection	Control	Jurisdiction(s)	LOS Standard	Existing No Project		Potential Improvement	Existing + Phase 1		With Improvement		Existing + Max Office		With Improvement	
				LOS	Delay		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1. I-280 Southbound Ramps/San Bruno Avenue	Signal	San Bruno	D	C	21	n/a	C	22	-	-	C	22	-	-
2. I-280 Northbound Ramps/San Bruno Avenue	Signal	San Bruno	D	C	21	n/a	C	22	-	-	C	24	-	-
3. Cherry Avenue/San Bruno Avenue	Signal	San Bruno	D	D	36	1) Modify cycle length to 100 seconds.	D	41	-	-	***E***	***72***	D	39
4. Traeger Avenue/San Bruno Avenue	SSSC[1]	San Bruno	D	A (B)	1 (16)	n/a	A (C)	1 (20)	-	-	A (C)	2 (21)	-	-
5. Elm Avenue/San Bruno Avenue	Signal	San Bruno	D	B	14	n/a	B	15	-	-	B	17	-	-
6. El Camino Real/San Bruno Avenue	Signal	San Bruno C/CAG[2]	D E	D	36	n/a	D	36	-	-	D	36	-	-
7. El Camino Real/Bayhill Drive	Signal	San Bruno	D	A	4	n/a	A	5	-	-	A	8	-	-
8. I-380 Eastbound/El Camino Real	Signal	San Bruno	D	A	5	n/a	A	5	-	-	A	6	-	-
9. I-380 Westbound/El Camino Real	Signal	San Bruno	D	B	18	n/a	B	20	-	-	C	24	-	-
10. Cherry Avenue/Bayhill Drive	Signal	San Bruno	D	C	22	n/a	C	23	-	-	C	29	-	-
11. Cherry Avenue/Sneath Lane	Signal	San Bruno	D	A	8	n/a	A	8	-	-	A	10	-	-
12. I-280 Northbound Ramp/Sneath Lane	Signal	San Bruno	D	B	16	n/a	B	17	-	-	B	17	-	-
13. I-280 Southbound Ramp/Sneath Lane	Signal	San Bruno	D	**E**	**57**	1) Optimize splits.	***E***	***58***	D	48	***E***	***65***	D	52
14. El Camino Real/Tanforan Way/Commodore Drive	Signal	Caltrans San Bruno	D	C	21	n/a	C	21	-	-	C	21	-	-
15. El Camino Real /Sneath Lane	Signal	San Bruno	D	C	33	n/a	C	33	-	-	C	33	-	-

Notes:
[1] SSSC = Side Street Stop Controlled. Worst approach is noted in parentheses () for side street stop-controlled intersections.
[2] Intersection is part of the Congestion Management Program.
Delay rounded to the nearest second.
Bold = Intersection performs below LOS standard. ***Italicized*** = Intersection results in an impact.

Table 6: Existing + Project PM Peak LOS and Delay Results

Study Intersection	Control	Jurisdiction(s)	LOS Standard	Existing No Project		Potential Improvement	Existing + Phase 1		With Improvement		Existing + Max Office		With Improvement	
				LOS	Delay		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1. I-280 Southbound Ramps/San Bruno Avenue	Signal	San Bruno	D	B	15	n/a	B	15	-	-	B	15	-	-
2. I-280 Northbound Ramps/San Bruno Avenue	Signal	San Bruno	D	C	29	n/a	C	30	-	-	C	31	-	-
3. Cherry Avenue/San Bruno Avenue	Signal	San Bruno	D	D	50	1) Optimize splits.	***E***	***64***	D	36	***F***	***86***	D	41
4. Traeger Avenue/San Bruno Avenue	SSSC[1]	San Bruno	D	A (C)	3 (23)	1) Signalize intersection; make EB left protected and cycle length 75 seconds.	***A (E)***	***6 (40)***	B	19	***C (F)***	***33 (>80)***	B	20
5. Elm Avenue/San Bruno Avenue	Signal	San Bruno	D	B	15	n/a	B	17	-	-	B	19	-	-
6. El Camino Real/San Bruno Avenue	Signal	San Bruno C/CAG[2]	D E	**E**	**56**	1) Optimize splits.	***E***	***56***	D	46	***E***	***57***	D	49
7. El Camino Real/Bayhill Drive	Signal	San Bruno	D	C	32	n/a	C	34	-	-	C	35	-	-
8. I-380 Eastbound/El Camino Real	Signal	San Bruno	D	B	15	n/a	B	15	-	-	B	14	-	-
9. I-380 Westbound/El Camino Real	Signal	San Bruno	D	**F**	**>80**	1) Optimize splits.	***F***	***>80***	C	30	***F***	***>80***	C	30
10. Cherry Avenue/Bayhill Drive	Signal	San Bruno	D	C	25	n/a	C	26	-	-	C	30	-	-
11. Cherry Avenue/Sneath Lane	Signal	San Bruno	D	B	12	n/a	B	13	-	-	B	15	-	-
12. I-280 Northbound Ramp/Sneath Lane	Signal	San Bruno	D	B	19	n/a	B	20	-	-	B	20	-	-
13. I-280 Southbound Ramp/Sneath Lane	Signal	San Bruno	D	B	18	n/a	B	18	-	-	B	18	-	-
14. El Camino Real/Tanforan Way/Commodore Drive	Signal	San Bruno	D	B	17	n/a	B	18	-	-	B	18	-	-
15. El Camino Real /Sneath Lane	Signal	San Bruno	D	D	47	n/a	D	47	-	-	D	47	-	-

Notes:
[1] SSSC = Side Street Stop Controlled. Worst approach is noted in parentheses () for side street stop-controlled intersections.
[2] Intersection is part of the Congestion Management Program.
Delay rounded to the nearest second.
Bold = Intersection performs below LOS standard. ***Italicized*** = Intersection results in an impact.

Cumulative Conditions

Cumulative and Cumulative Plus Project LOS results are summarized in **Tables 7 and 8** for the AM and PM peak hour, respectively. The Cumulative volumes do not incorporate a TDM credit and therefore reflect "worst case" delay projections for the site.

AM Peak Hour

As shown in **Table 7**, all intersections perform at the LOS standard under No Project and Plus Project conditions with exception to the following intersections.

- Cherry Avenue/San Bruno Avenue
- Traeger Avenue/San Bruno Avenue
- I-280 Southbound Ramp/Sneath Lane

The Cherry Avenue/San Bruno Avenue intersection operates above the LOS standard under No Project conditions; however, worsens to LOS E with the addition of the Max Office and Max Housing scenarios. Modifying the intersection cycle length with the addition of the Project would improve operations to LOS D. At the Traeger Avenue/San Bruno intersection, the side street stop-controlled intersection deteriorates in the cumulative year. The addition of the Project worsens conditions due to the side street stop-controlled approach. To improve operations, the Traeger Avenue/San Bruno Avenue intersection should be signalized.

The I-280 Southbound Ramp/Sneath Lane intersection exceeds the LOS D standard at the intersection under No Project conditions. The addition of the project would worsen conditions. Intersection operations would slightly improve by modifying the northbound (off-ramp) approach to include a left turn-pocket, thru lane, and free right turn, and modifying the signal cycle length to 150 seconds. Implementing these potential improvements would not improve conditions such that the intersection operates at or better the LOS standard (LOS D).

PM Peak Hour

As shown in **Table 8**, all intersections perform at the LOS standard under No Project and Plus Project conditions with exception to the following intersections:

- I-280 Northbound Ramps/San Bruno Avenue
- Cherry Avenue/San Bruno Avenue
- Traeger Avenue/San Bruno Avenue

- El Camino Real/San Bruno Avenue
- El Camino Real /Sneath Lane

To improve intersection operations, the following improvements could be considered at each of the intersections:

- I-280 Northbound Ramps/San Bruno Avenue: Add a third westbound through lane with a turn pocket at the intersection and modify the signal cycle length to 130 seconds.
- Cherry Avenue/San Bruno Avenue: Convert southbound through lane to a shared thru-right and add a westbound right turn only pocket. The signal cycle length should be modified to 150 seconds and the northbound and southbound left turn lanes should be modified to provide protected left turns.
- Traeger Avenue/San Bruno Avenue: signalize the intersection and provide a protected eastbound left turn lane at San Bruno Avenue.
- El Camino Real/San Bruno Avenue: optimize signal timings.
- El Camino Real /Sneath Lane: optimize signal timings and convert the eastbound and westbound left turns into a protected left turn with a westbound leading phase.

The addition of the above improvements would improve intersection operations such that the intersections operate at or better than the LOS standard.

Table 7: 2040 + Project AM Peak LOS and Delay Results

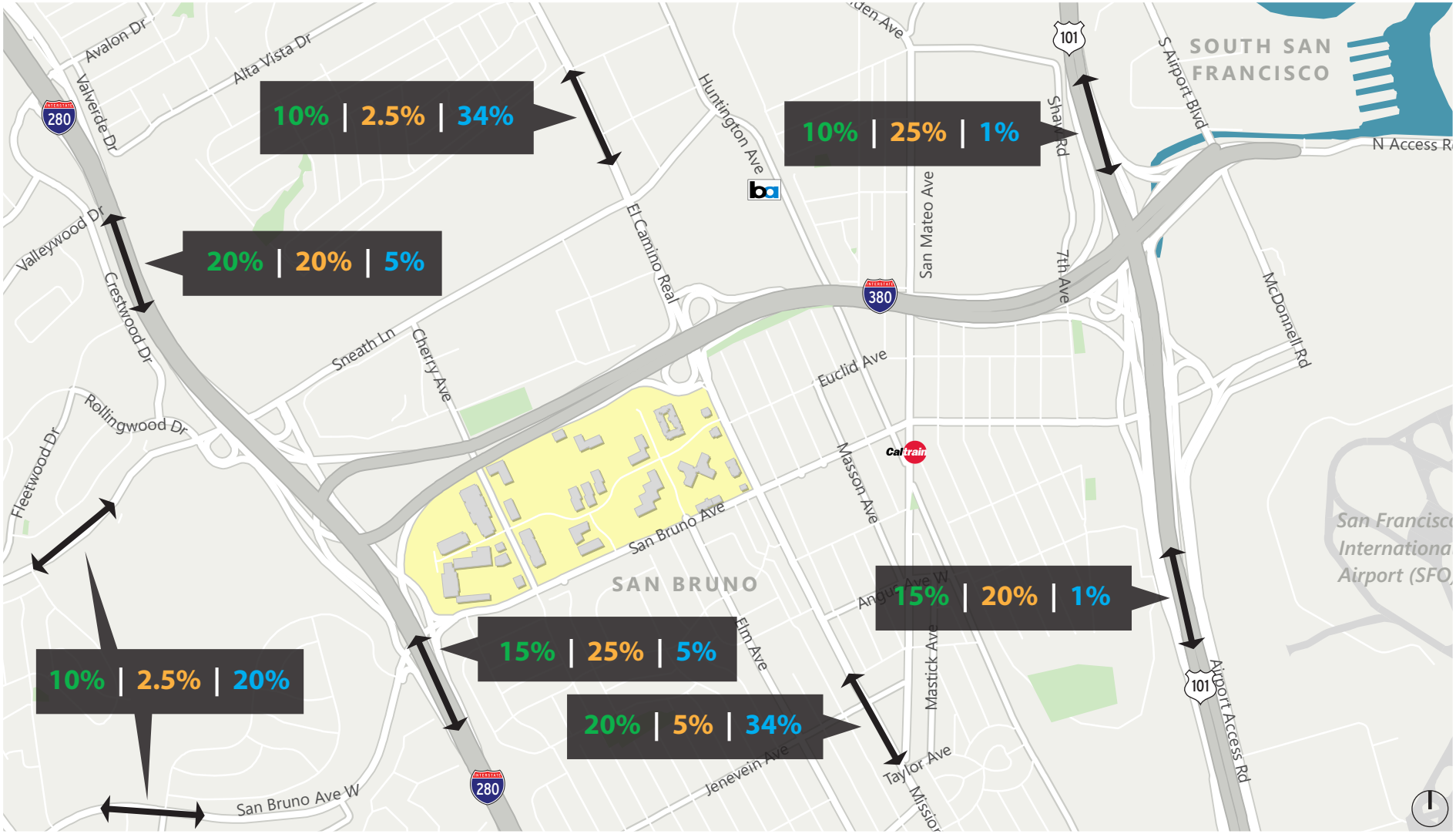
Study Intersection	Control	Jurisdiction(s)	LOS Standard	2040 No Project		Potential Improvement	2040 + Max Office		With Improvement		2040 + Max Housing		With Improvement	
				LOS	Delay		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1. I-280 Southbound Ramps/San Bruno Avenue	Signal	San Bruno	D	C	21	n/a	C	23	-	-	C	22	-	-
2. I-280 Northbound Ramps/San Bruno Avenue	Signal	San Bruno	D	C	24	n/a	C	25	-	-	C	25	-	-
3. Cherry Avenue/San Bruno Avenue	Signal	San Bruno	D	D	36	1) Modify cycle length to 100 seconds.	***E***	***72***	D	46	***E***	***67***	D	40
4. Traeger Avenue/San Bruno Avenue	SSSC[1]	San Bruno	D	**A (F)**	**2 (56)**	1) Signalize intersection; make EB left protected and cycle length 75 seconds.	***A (F)***	***6 (>80)***	C	26	***A (F)***	***5 (>80)***	C	23
5. Elm Avenue/San Bruno Avenue	Signal	San Bruno	D	C	21	n/a	C	32	-	-	C	27	-	-
6. El Camino Real/San Bruno Avenue	Signal	San Bruno C/CAG[2]	D E	D	53	1) Modify cycle length to 140 seconds.	***E***	***55***	D	54	D	54	-	-
7. El Camino Real/Bayhill Drive	Signal	San Bruno	D	A	4	n/a	A	8	-	-	A	5	-	-
8. I-380 Eastbound/El Camino Real	Signal	San Bruno	D	A	7	n/a	B	13	-	-	B	11	-	-
9. I-380 Westbound/El Camino Real	Signal	San Bruno	D	B	18	n/a	C	30	-	-	C	25	-	-
10. Cherry Avenue/Bayhill Drive	Signal	San Bruno	D	C	25	n/a	D	37	-	-	D	36	-	-
11. Cherry Avenue/Sneath Lane	Signal	San Bruno	D	A	10	n/a	B	12	-	-	B	12	-	-
12. I-280 Northbound Ramp/Sneath Lane	Signal	San Bruno	D	C	21	n/a	C	22	-	-	C	22	-	-
13. I-280 Southbound Ramp/Sneath Lane	Signal	San Bruno	D	**E**	**67**	1) Modify NB approach to include left turn-pocket, thru lane, and free right turn. 2) Modify cycle length to 150 seconds.	***E***	***74***	***E***	***67***	***E***	***73***	***E***	***70***
14. El Camino Real/Tanforan Way/Commodore Drive	Signal	San Bruno	D	C	23	n/a	C	23	-	-	C	23	-	-
15. El Camino Real /Sneath Lane	Signal	San Bruno	D	C	35	n/a	D	35	-	-	C	35	-	-

Notes:
[1] SSSC = Side Street Stop Controlled. Worst approach is noted in parentheses ( ) for side street stop-controlled intersections.
[2] Intersection is part of the Congestion Management Program.
Delay rounded to the nearest second.
Bold = Intersection performs below LOS standard. ***Italicized*** = Intersection results in an impact. ***TEXT*** = intersection remains above the LOS D threshold, even with improvement.

Table 8: 2040 + Project PM Peak LOS and Delay Results

Study Intersection	Control	Jurisdiction(s)	LOS Standard	2040 No Project		Potential Improvement	2040 + Max Office		With Improvement		2040 + Max Housing		With Improvement	
				LOS	Delay		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
1. I-280 Southbound Ramps/San Bruno Avenue	Signal	San Bruno	D	B	16	n/a	B	15	-	-	B	15	-	-
2. I-280 Northbound Ramps/San Bruno Avenue	Signal	San Bruno	D	D	46	1) Add a third WB thru lane with a pocket at the intersection. 2) Modify cycle length to 130 seconds.	***F***	***82***	D	46	***E***	***75***	D	45
3. Cherry Avenue/San Bruno Avenue	Signal	San Bruno	D	D	54	1) Modify cycle length to 150 seconds. 2) Convert SB thru lane to a shared thru-right. And make SB and NB lefts protected. 3) Add WB right-turn pocket (100').	***E***	***76***	D	41	***E***	***68***	D	40
4. Traeger Avenue/San Bruno Avenue	SSSC[1]	San Bruno	D	A (E)	5 (48)	1) Signalize intersection; make EB left protected and cycle length 75 seconds.	***E (F)***	***77 (>80)***	B	15	***D (F)***	***50 (>80)***	B	20
5. Elm Avenue/San Bruno Avenue	Signal	San Bruno	D	B	18	n/a	C	24	-	-	C	23	-	-
6. El Camino Real/San Bruno Avenue	Signal	San Bruno C/CAG[2]	D E	D	47	1) Optimize splits.	***E***	***58***	D	54	**E**	**55**	D	52
7. El Camino Real/Bayhill Drive	Signal	San Bruno	D	C	30	n/a	C	34	-	-	C	32	-	-
8. I-380 Eastbound/El Camino Real	Signal	San Bruno	D	B	14	n/a	B	15	-	-	B	14	-	-
9. I-380 Westbound/El Camino Real	Signal	San Bruno	D	C	31	n/a	C	31	-	-	C	31	-	-
10. Cherry Avenue/Bayhill Drive	Signal	San Bruno	D	C	29	n/a	D	38	-	-	D	37	-	-
11. Cherry Avenue/Sneath Lane	Signal	San Bruno	D	B	15	n/a	B	18	-	-	B	18	-	-
12. I-280 Northbound Ramp/Sneath Lane	Signal	San Bruno	D	C	23	n/a	C	24	-	-	C	24	-	-
13. I-280 Southbound Ramp/Sneath Lane	Signal	San Bruno	D	C	29	n/a	C	30	-	-	C	30	-	-
14. El Camino Real/Tanforan Way/Commodore Drive	Signal	San Bruno	D	C	25	n/a	C	25	-	-	C	25	-	-
15. El Camino Real /Sneath Lane	Signal	San Bruno	D	**E**	**56**	1) Optimize splits; protected EB/ WB lefts with WB lead.	***E***	***57***	D	50	***E***	***57***	D	50

Notes:
[1] SSSC = Side Street Stop Controlled. Worst approach is noted in parentheses ( ) for side street stop controlled intersections.
[2] Intersection is part of the Congestion Management Program.
Delay rounded to the nearest second.
Bold = Intersection performs below LOS standard. ***Italicized*** = Intersection results in an impact.



LEGEND

- Project Site
- XX% Non-YouTube Employment & Residential
- XX% YouTube Employment
- XX% Commercial

Figure 1

Trip Distribution

Appendix 3.11-1a

Water Supply Assessment (WSA), September 3, 2019

FINAL REPORT

Bayhill Specific Plan Development Project Water Supply Assessment

PREPARED FOR

City of San Bruno

SEPTEMBER 2019

WEST YOST ASSOCIATES

Bayhill Specific Plan Development Project Water Supply Assessment

Prepared for

City of San Bruno

Project No. 462-60-19-24



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Bayhill Specific Plan Development Project
Water Supply Assessment

EXECUTIVE SUMMARY

Overview

This Water Supply Assessment (WSA) has been prepared for City of San Bruno (City) by West Yost Associates (West Yost) in accordance with Water Code sections 10910 through 10915 for the Bayhill Specific Plan Development Project (Proposed Project). The Proposed Project is located in the central-eastern portion of the City, in the City's water service area. The Proposed Project is bounded by Interstate 280 to the west, Interstate 380 to the north, El Camino Real to the east, and San Bruno Avenue West to the south, and is comprised of mainly office and commercial land uses.

The Proposed Project is part of the continued growth of the Bayhill Area. The Proposed Project is located in an existing mixed-use district that includes the headquarters of YouTube, as well as various other land uses, including approximately 1,558,000 square feet (sf) of office buildings, 122,000 sf of retail buildings, and a 133-room hotel. Four buildout scenarios of varying housing and office densities are evaluated in this WSA. Two buildout scenarios are the Proposed Project while the other two scenarios are alternatives that were evaluated to capture the highest demand future scenario. The highest demand future scenario proposes a total of approximately 3,501,000 sf of office buildings, 122,000 sf of retail buildings, a 186-room hotel, and 1,070 dwelling units of multi-family residential housing, including those existing land use types that will remain. For purposes of this WSA, the Proposed Project and the alternatives are collectively referred to as the Future Scenarios.

Water Demands

The projected water demands for buildout of the Future Scenarios have been calculated for the respective land uses. The projected water demands for buildout of the highest demand future scenario are 0.63 million gallons per day (MGD), or approximately 307,000 hundred cubic feet (CCF) per year.

Although the Future Scenarios are not specifically identified in the City's 2015 Urban Water Management Plan (2015 UWMP) water demand projections, the Bayhill Specific Plan Area is included within the City's population and employment growth projections, which were used to develop water demand projections.

The Future Scenarios do not have any proposed recycled water use but are assumed to incorporate water conservation practices. Summaries of the availability and reliability of potable water supplies to serve the projected water demands for the highest water demand future scenario are discussed below.

Water Supply Availability and Reliability

As discussed in this WSA, the City receives water from three supply sources: San Francisco Public Utilities Commission (SFPUC), North Coast County Water District (NCCWD), and local groundwater. The City purchases treated surface water from SFPUC and NCCWD. The surface water is delivered through the Regional Water System (RWS) that is operated by SFPUC. The

City is a Wholesale Customer of the SFPUC and purchases water from NCCWD to exclusively meet the demands of the Treetop Apartments complex. The City owns and operates four wells that pump local groundwater from the South Westside Basin (Department of Water Resources (DWR) Basin 2-35). According to the City's 2015 UWMP, the City does not anticipate any water supply shortage during Normal, Single Dry, or Multiple Dry water years through 2040.

The City's water supply reliability is partially dependent upon its water supply contract with SFPUC and its membership in the Bay Area Water Supply and Conservation Agency (BAWSCA), which represents SFPUC's 26 Wholesale Customers and coordinates each of their water conservation programs. BAWSCA's Long-Term Reliable Water Supply Strategy was developed to quantify the water supply reliability needs of the BAWSCA member agencies through 2040, identify projects and/or programs that could be developed to meet those needs, and prepare an implementation plan for the strategy's recommendations.

The reliability of the City's water supplies also depends on SFPUC's water supply reliability policy and the reliability of the SFPUC RWS. Delivery reliability of the RWS is impacted by the SFPUC's Water System Improvement Plan (WSIP) and the Water Shortage Allocation Plan (WSAP). The WSIP aims to meet customer water needs in non-drought and drought conditions through the completion of defined improvements to the RWS that improve seismic, delivery, water quality, and water supply reliability for the RWS. The WSAP outlines the reductions in water allocated to wholesale and retail customers that would occur if SFPUC were to declare a water shortage emergency.

Additionally, the reliability the City's water supplies depends on the local groundwater reliability of the South Westside Basin. A Groundwater Management Plan (GWMP) was completed in 2012 to ensure that the basin will continue to provide sustainable, high quality, reliable water supply at a fair price for beneficial uses. In December 2014, a Regional Groundwater Storage and Recovery (GSR) operating agreement was also signed to ensure long-term management and sustainability of the South Westside Groundwater Basin through a strategic conjunctive use partnership. The partnership with the City, SFPUC, California Water Service (serving South San Francisco and Colma), and the City of Daly City allows the agencies to operate the basin jointly and provides a new 20-billion-gallon regional dry year groundwater supply.

The City plans to continue to manage potable water demands within its water service area through conservation efforts. However, if supply shortages should occur, the City Council may declare a water supply emergency and implement the City's *Water Shortage Contingency Plan*, described in the City's 2015 UWMP.

Therefore, pursuant to Water Code section 10910(c)(4), and based on the technical analyses described in this WSA and the City's 2015 UWMP, the City finds that the projected potable water demands for the highest water demand future scenario can be met by the City during Normal, Single Dry and Multiple Dry years through 2040.

Verification of Sufficient Water Supply

In accordance with the requirements of SB 221, Section 8.0 of this WSA provides a verification of sufficient water supply to meet the projected demands associated with the highest water demand future scenario, in addition the City's existing and planned future uses, including, but not limited to, industrial uses. There are no existing nor planned agricultural uses in the City's service area.

1.0 INTRODUCTION

The proposed Bayhill Specific Plan Development Project (Proposed Project) is a proposed redevelopment of a 92.2-acre site located in the central-eastern portion of the City of San Bruno (City), in the City's water service area. The purpose of this Water Supply Assessment (WSA) is to support the Environmental Impact Report (EIR) for the Proposed Project. The following sections describe the legal requirements for the WSA and the project background.

1.1 Legal Requirements for a Water Supply Assessment

California Senate Bill 610 (SB 610) and Senate Bill 221 (SB 221) amended state law, effective January 1, 2002, to improve the link between information on water supply availability and certain land use decisions made by cities and counties. SB 610 and SB 221 were companion measures which sought to promote more collaborative planning between local water suppliers and cities and counties. Both statutes require detailed information regarding water availability to be provided to the city and county decision-makers prior to approval of specified large development projects. The purpose of this coordination is to ensure that prudent water supply planning has been conducted, and that planned water supplies are adequate to meet existing demands, anticipated demands from approved projects and tentative maps, and the demands of proposed projects.

SB 610 amended California Water Code sections 10910 through 10915 (inclusive) to require land use lead agencies to:

- Identify any public water purveyor that may supply water for a proposed development project; and
- Request a WSA from the identified water purveyor.

The purpose of the WSA is to demonstrate the sufficiency of the purveyor's water supplies to satisfy the water demands of the proposed project, while still meeting the water purveyor's existing and planned future uses. Water Code sections 10910 through 10915 delineate the specific information that must be included in the WSA.

SB 221 amended State law (California Government Code section 66473.7) to require that approval by a city or county of certain residential subdivisions[1] requires an affirmative written verification of sufficient water supply. SB 221 was intended as a fail-safe mechanism to ensure that collaboration on finding the needed water supplies to serve a new large residential subdivision occurs before construction begins.

[1] Per Government Code Section 66473.7(a)(1) subdivision means a proposed residential development of more than 500 dwelling units.

1.2 Need for and Purpose of Water Supply Assessment

The purpose of this WSA is to perform the evaluation required by SB 610 and SB 221 (Water Code sections 10910 through 10915) in connection with the Proposed Project, located within the City's service area.

This WSA does not reserve water, nor does it function as a "will serve" letter or any other form of commitment to supply water (see Water Code section 10914). The provision of water service will continue to be undertaken in a manner consistent with applicable policies and procedures, consistent with existing law.

This WSA for the Proposed Project has been prepared by West Yost Associates (West Yost), as requested by the City, the responsible water purveyor for the Proposed Project.

1.3 Water Supply Assessment Preparation, Format, and Organization

The format of this WSA is intended to follow Water Code sections 10910 through 10915 to clearly delineate compliance with the specific requirements for a WSA. This WSA includes the following sections:

Section 1: Introduction

Section 2: Description of the Proposed Project

Section 3: Required Determinations

Section 4: City of San Bruno Water Demands

Section 5: City of San Bruno Water Supplies

Section 6: Water Supply Reliability

Section 7: Determination of Water Supply Sufficiency Based on the Requirements of SB 610

Section 8: Verification of Sufficient Water Supply Based on the Requirements of SB 221

Section 9: Water Supply Assessment and Verification Approval Process

Section 10: References

Relevant citations of Water Code sections 10910 through 10915 are included throughout this WSA in *italics* to demonstrate compliance with the specific requirements of SB 610.

1.4 Acronyms and Abbreviations

The following acronyms and abbreviations have been used throughout this WSA.

AF	Acre-Feet
BARDP	Bay Area Regional Desalination Project
BAWSCA	Bay Area Water Supply and Conservation Agency
BDPLs	Bay Division Pipelines
Bioterrorism Act	Security and Bioterrorism Preparedness and Response Act of 2002
CCF	Hundred Cubic Feet
CEQA	California Environmental Quality Act
City/San Bruno	City of San Bruno
Cordilleras MWC	Cordilleras Mutual Water Company
Department	San Bruno's Public Services Department
DSOD	Division of Safety of Dams
du	Dwelling Units
DWR	Department of Water Resources
DWR Guidebook	2015 Urban Water Management Plans Guidebook
EIR	Environmental Impact Report
EO	Executive Order
EOP	Emergency Operations Plan
ERP	Emergency Response Plan
ERRP	Emergency Response and Recovery Plan
Feasibility Study	Recycled Water Feasibility Study
FY	Fiscal Year
GWMP	Groundwater Management Plan
GSR	Groundwater Storage and Recovery
Harry Tracy WTP	Harry Tracy Water Treatment Plant
Hetch Hetchy Project	Hetch Hetchy Water and Power Project
ISG	Individual Supply Guarantee
MGD	Million Gallons Per Day
MID	Modesto Irrigation District
NCCWD	North Coast County Water District
Projects	Projects and/or Programs
Proposed Project	Bayhill Specific Plan Development Project
RWS	Regional Water System
SB 221	Senate Bill 221
SB 610	Senate Bill 610
sf	Square Feet
SFPUC	San Francisco Public Utilities Commission
SWRCB	State Water Resources Control Board

TID	Turlock Irrigation District
UAFW	Unaccounted for Water
USEPA	U.S. Environmental Protection Agency
UWMP	Urban Water Management Plan
West Yost	West Yost Associates
WSA	Water Supply Assessment
WSAP	Water Shortage Allocation Plan
WSCP	Water Shortage Contingency Plan
WSIP	Water System Improvement Program

2.0 DESCRIPTION OF THE PROPOSED PROJECT

The following sections describe the Proposed Project, including the Proposed Project's location, proposed land uses, and existing and projected water demand.

2.1 Proposed Project Location

The Proposed Project comprises an approximately 92.2-acre area located in the central-eastern portion of the City. As shown on Figure 2-1, the site is bounded by Interstate 280 to the west, Interstate 380 to the north, El Camino Real to the east, and San Bruno Avenue West to the south.

2.2 Proposed Project Land Uses

The Proposed Project is located in an existing mixed-use district that includes the headquarters of YouTube, as well as various other land uses, including office, retail/commercial, hotel, and streets/right-of-way land uses.

The parcels owned by YouTube comprise the majority of the Proposed Project area. These parcels are proposed for redevelopment under YouTube's long-term campus expansion plan. The first phase of YouTube's campus expansion plan (Phase I Development) consists of 8.15-acres across two parcels. Anticipated buildout for the Phase I Development is 2022. The improvements corresponding to the Phase I Development are presented in this WSA both separately and within the total buildout (2040) improvements totals.

Four buildout scenarios of varying housing and office densities are evaluated in this WSA to capture the highest demand future scenario. Full buildout of the Proposed Project is assumed to occur by 2040. The two Proposed Project buildout scenarios include the following:

- Maximum Office Scenario
- Maximum Housing Scenario

The Maximum Office and Maximum Housing Scenarios differ based on whether the new housing and mixed use overlay zone proposed by the Plan in the southern portion of the Proposed Project site is implemented by future property owners. The proposed housing and mixed use overlay zone would encompass 19.6-acres on the southern portion of the Proposed Project, which would allow for the development of up to 573 multi-family residential units. Under the Maximum Office Scenario, no residential construction would occur within the housing and mixed use overlay zone, resulting in a proposed increase of nearly 2.5 million square feet (sf) of office space. Under the Maximum Housing Scenario, the housing development is assumed to be constructed at the highest density allowable under the specific plan, resulting in a proposed increase of nearly 2.0 million sf of office space and 573 residential dwelling units (du).

In addition to the two Proposed Project buildout scenarios, two alternative scenarios were evaluated under this WSA to account for the highest potential future water demand projection. The two additional alternatives are:

- Increased Height Alternative – Maximum Office Scenario
- Increased Height Alternative – Maximum Housing Scenario

The Increased Height Alternatives are not part of the Specific Plan but are additional scenarios that would occur only if voters approve overriding the existing 50-foot height restriction set forth by City Ordinance 1284. The Increased Height Alternative – Maximum Office Scenario is identical to the Maximum Office Scenario for Office and Retail land uses but would increase the height of the hotel, adding 53 rooms. The Increased Height Alternative – Maximum Housing Scenario is identical to the Maximum Housing Scenario but would also increase the height of the hotel, adding 53 rooms, and would increase the number of residential housing units, adding 497 du for a total of 1,070 du.

Collectively, the Proposed Project and the Increased Height Alternatives are referred to in this WSA as the Future Scenarios.

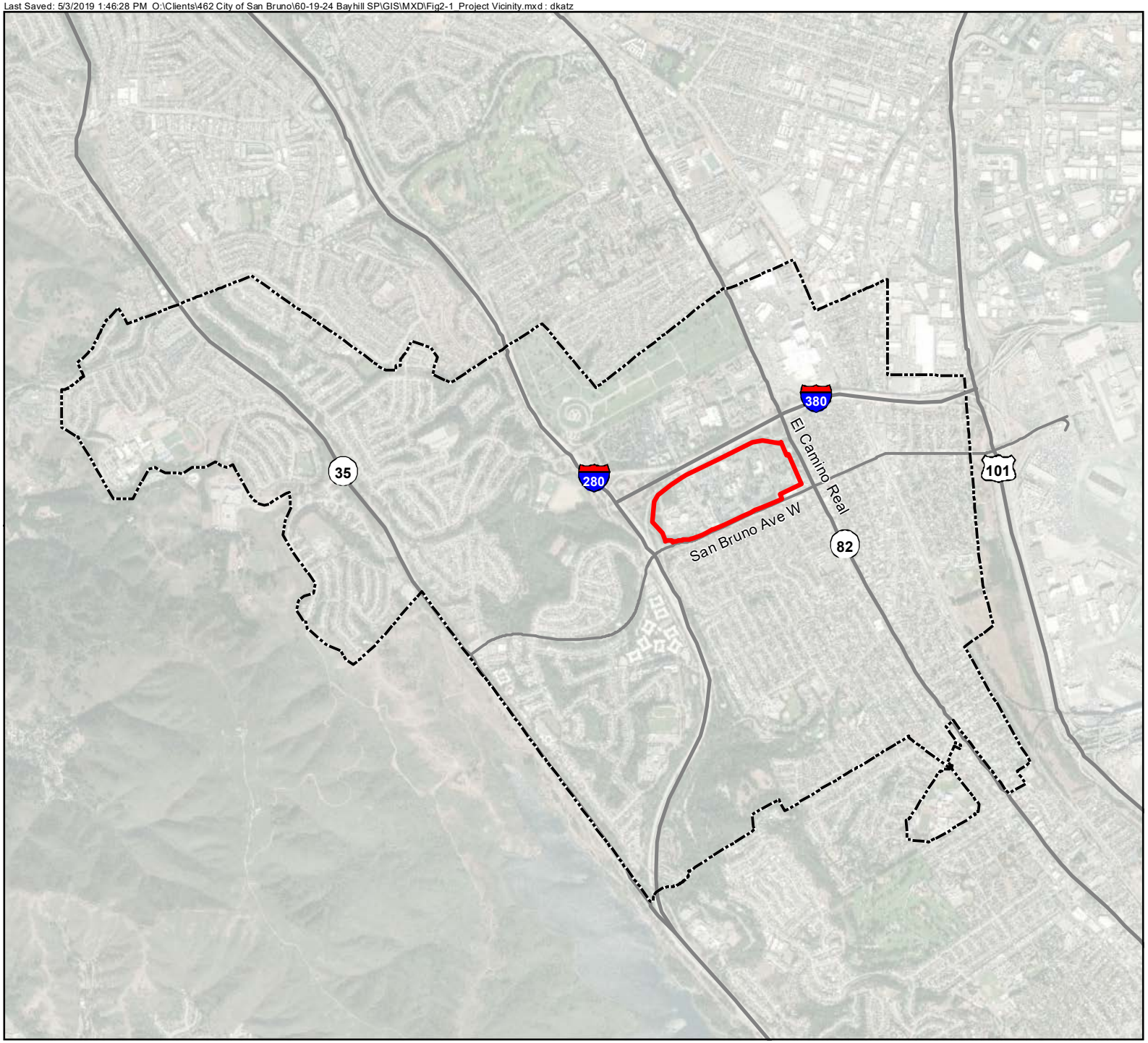
A summary of the existing and proposed land uses is shown in Table 2-1. The existing land uses at the Proposed Project site and the location of the Phase 1 Development are shown on Figure 2-2. The proposed land uses are shown on Figure 2-3, with the proposed housing and mixed use overlay zones shown.

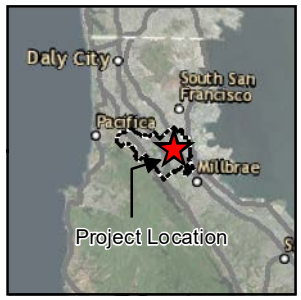
Table 2-1. Existing and Projected 2040 Development Scenarios[a]

			Buildout (2040) Scenarios		Buildout (2040) Scenarios: Increased Height Alternatives	
	Existing Conditions	Phase 1 Development (2021)	Maximum Office Scenario	Maximum Housing Scenario	Maximum Office Scenario	Maximum Housing Scenario
Office (sf) [b]	1,557,847	1,859,323	4,017,694	3,500,743	4,017,694	3,500,743
Retail (sf)	121,846	121,846	121,846	121,846	121,846	121,846
Hotel (rooms)	133	133	133	133	186	186
Residential (du)	-	-	-	573	-	1,070

(a) Based on data provided to West Yost by ICF International Inc., on 3/13/2019 and 3/29/2019.
(b) Approximately 692,852 to 827,564 SF of existing office space would be removed under the Future Scenarios. Values include the existing office area that will remain.

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N

0 1,500 3,000

Scale in Feet

Symbology

City Limits

Proposed Project Location

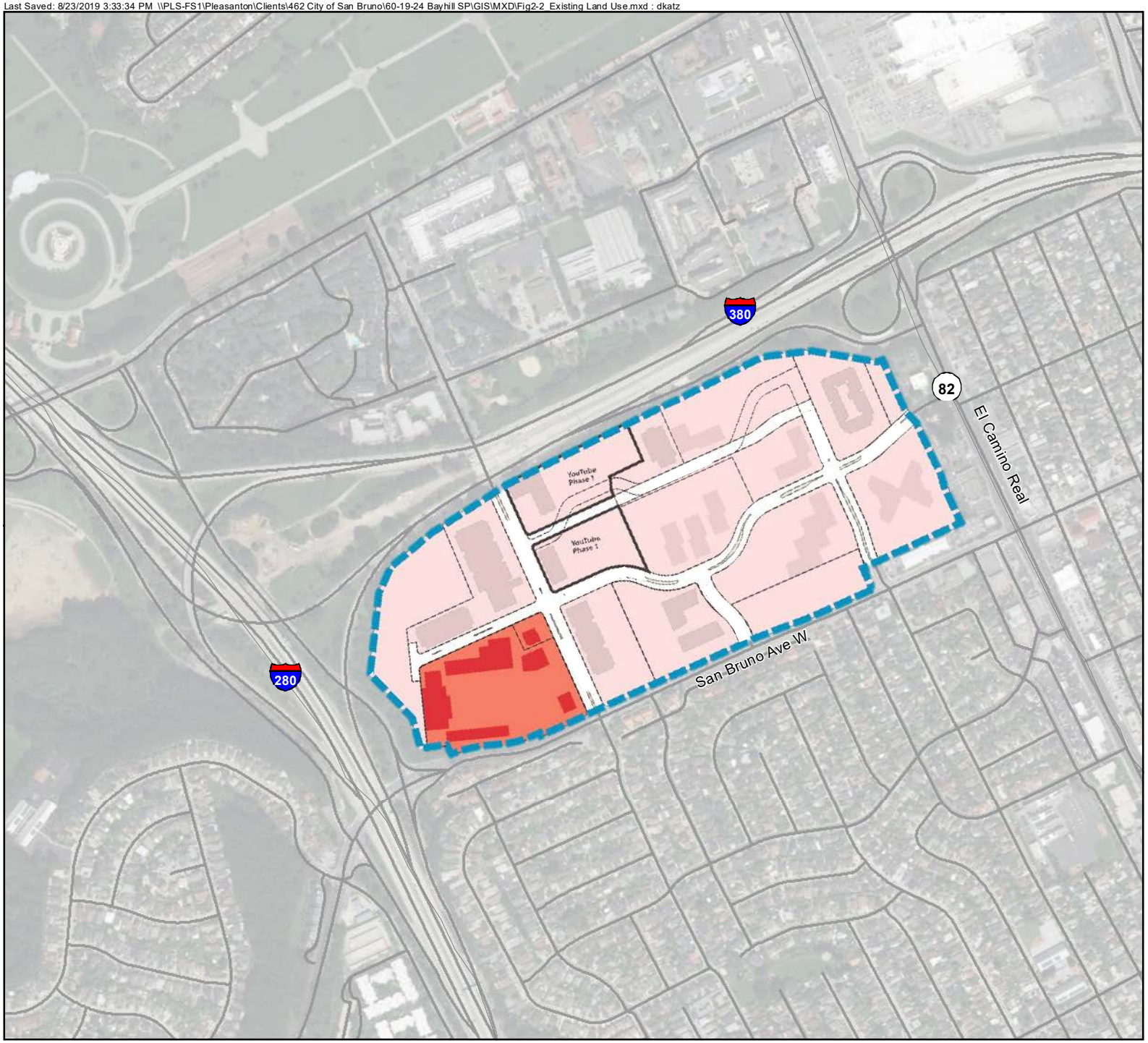
WEST YOST ASSOCIATES

Figure 2-1

Proposed Project Location

City of San Bruno
Bayhill Specific Plan
Water Supply Assessment

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N

0 375 750

Scale in Feet

Symbology

- Planning Area
- Regional Office
- Neighborhood Commercial

Source:Bayhill Existing GP Land Use (Dyett & Bhatia, July 2019).

City of San Bruno

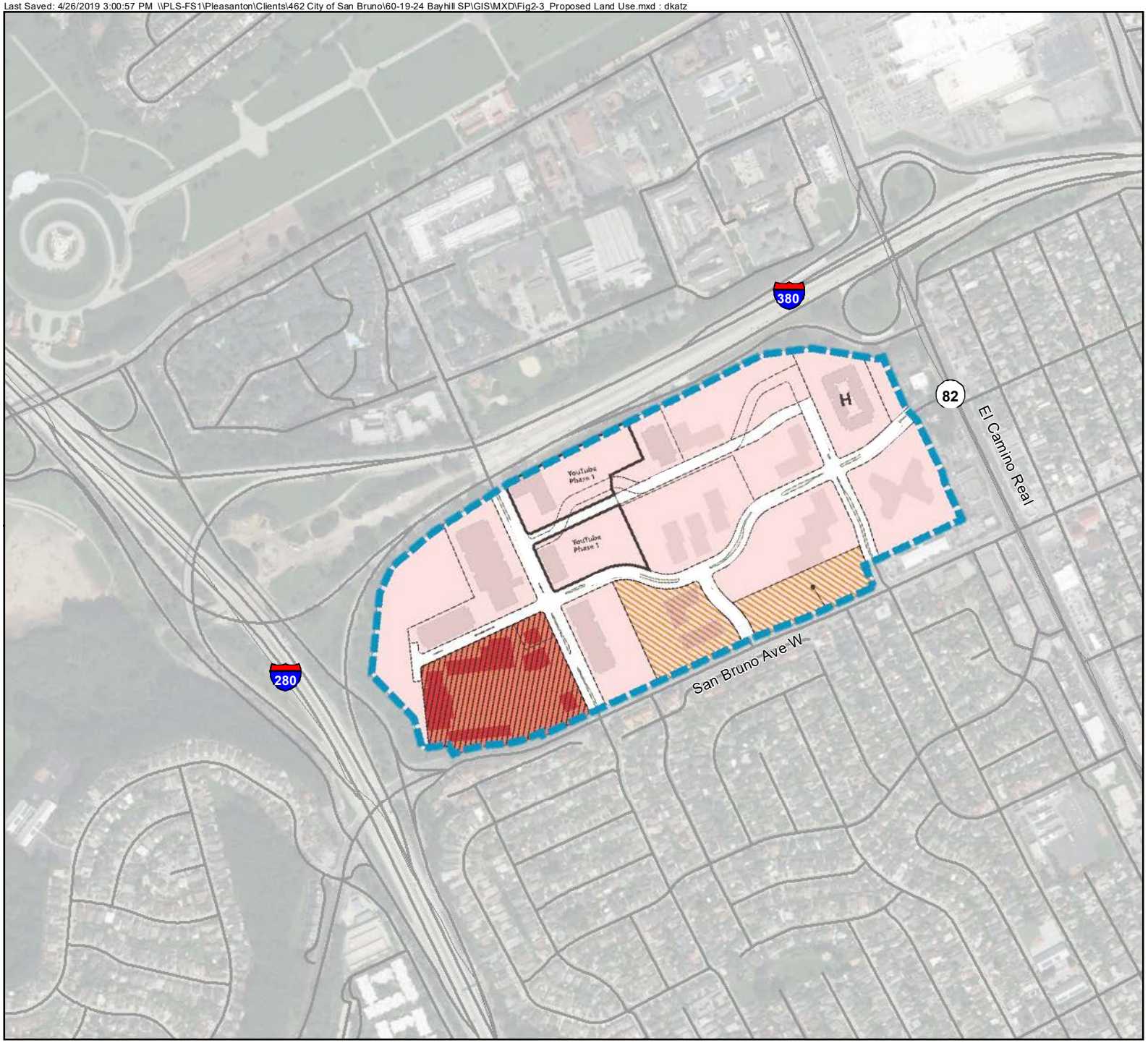
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Figure 2-2

Existing Land Use

City of San Bruno
Bayhill Specific Plan
Water Supply Assessment

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N

0 375 750

Scale in Feet

Symbology

- Planning Area
- Bayhill Regional Office (BRO)
- Bayhill Neighborhood Commercial (BNC)
- Housing Overlay (H-O)
- Mixed Use Overlay (MX-O)
- H — Hotel Only

Source: Bayhill Specific Plan Land Use (Dyett & Bhatia, July 2019).

City of San Bruno

WEST YOST ASSOCIATES

Figure 2-3
Proposed Land Use

City of San Bruno
Bayhill Specific Plan
Water Supply Assessment

2.3 Existing Water Demand

Existing water demands for the Proposed Project site were evaluated to determine the overall net increase in water demand associated with the Proposed Project. The existing demands were based on 2010 historical metered water consumption data for the Proposed Project parcels, as evaluated for the City's Water System Master Plan (November 2012). The 2010 metered consumption data was scaled to match the 2009/2010 production data by applying an unaccounted-for water (UAFW) value of 9 percent, consistent with the 5-year average UAFW presented in the Water System Master Plan. Because the City's total water production was greater in FY 2009/2010 than FY 2017/2018, the 2010 demands were used as the conservative baseline for existing water demand for the Proposed Project.

The Proposed Project site has an existing water demand of 0.14 million gallons per day (MGD), as shown in Table 2-2.

2.4 Projected Water Demand

The methodology and projections of the water demand associated with the Proposed Project are presented below.

2.4.1 Water Use Factors

Future water demands for the Future Scenarios have been projected using unit water demand factors according to the following water use assumptions:

- The Multi-Family Residential water demand factor, as presented in the 2012 Water System Master Plan, was applied to the residential land use.
- The Commercial Office and Commercial Retail water demand factors, as presented in the 2012 Water System Master Plan, were applied to the office and retail land uses.
- A unit water demand factor of 120 gpd/room was applied to the hotel land use. The hotel unit water demand factor is based on an evaluation of actual hotel water use within a local San Francisco Bay Area water district's service area from 2013 to 2017, which indicated that the average water demand per hotel room is approximately 115 gpd/room. With UAFW added, the unit water demand factor would be 125 gpd/room. It is assumed that future hotels within the City's water service area will incorporate conservation practices, which will reduce the per room water demand. Therefore, a unit demand factor of 120 gpd/room would incorporate improved conservation practices but with a 9 percent UAFW added.
- The housing and mixed-use overlay may include a civic land use such as a library. Though references to library water use were not found, libraries are often included in the same category as churches and schools (on a gpd/square foot basis) for water use projections. Water use factors for churches and school were found to be 0.00007 acre-feet per year per square foot, which corresponds to approximately 0.06 gpd/square foot.

The unit water demand factors for the Proposed Project are shown below in Table 2-3.

Table 2-2. Existing Water Demand: Historical Consumption[a]

Service Address	2010 Metered Consumption, gpm	UAFW, %	Existing Water Demand		
			gpm	MGD	CCF/YR
0 BAYHILL DR-POOL/LAWNS	3.99	9	4.38	0.006	3,078
999 BAYHILL DR	3.55	9	3.90	0.006	2,740
999-BAYHILL DR	3.03	9	3.33	0.005	2,340
1050 BAYHILL DR	6.70	9	7.36	0.011	5,172
1111 BAYHILL DR	7.91	9	8.69	0.013	6,106
0 BAYHILL SHOPPING CTR	7.17	9	7.88	0.011	5,537
2 BAYHILL SHOPPING CTR	0.53	9	0.58	0.001	408
4 BAYHILL SHOPPING CTR	0.14	9	0.15	0.000	105
5 BAYHILL SHOPPING CTR	0.48	9	0.53	0.001	372
6 BAYHILL SHOPPING CTR	0.56	9	0.62	0.001	436
8 BAYHILL SHOPPING CTR	0.93	9	1.02	0.001	717
9 BAYHILL SHOPPING CTR	0.32	9	0.35	0.001	246
10 BAYHILL SHOPPING CTR	0.25	9	0.27	0.000	190
21 BAYHILL SHOPPING CTR	0.47	9	0.52	0.001	365
22 BAYHILL SHOPPING CTR	3.03	9	3.33	0.005	2,340
811 CHERRY AVE	1.27	9	1.40	0.002	984
850 CHERRY AVE	7.70	9	8.46	0.012	5,945
899 CHERRY AVE	1.41	9	1.55	0.002	1,089
900 CHERRY AVE	2.95	9	3.24	0.005	2,277
901 CHERRY AVE	12.30	9	13.52	0.019	9,500
1000 CHERRY AVE	3.11	9	3.42	0.005	2,403
900 CHERRY AVE IRR	0.51	9	0.56	0.001	393
950 ELM AVE	3.38	9	3.71	0.005	2,607
950 ELM AVE	2.32	9	2.55	0.004	1,792
1100 GRUNDY LN	2.87	9	3.15	0.005	2,213
1250 GRUNDY LN	0.79	9	0.87	0.001	611
0 LAKE AMIR PARK	3.44	9	3.78	0.005	2,656
1150-LAKE AMIR PARK	4.08	9	4.48	0.006	3,148
851 TRAEGER AVE	0.62	9	0.68	0.001	478
801 TRAEGER AVE	2.78	9	3.05	0.004	2,143
		Total	**97.33**	**0.140**	**68,391**

(a) Source: 2010 metered consumption data provided by the City during development of the City of San Bruno Water System Master Plan, November 2012.

Table 2-3. Unit Water Demand Factors	
Use Type	Unit Use[a]
Multi-Family Residential[b]	120 gpd/du
Commercial Office[b]	0.13 gpd/square foot
Commercial Retail[b]	0.19 gpd/square foot
Hotel[c]	120 gpd/room
Library[d]	0.06 gpd/square foot

(a) All unit water demand factors include UAFW.
(b) Source: Table 3-9, City of San Bruno Water System Master Plan, November 2012.
(c) Hotel unit water use is based on an evaluation of actual hotel water use within a local San Francisco Bay Area water district's service area from 2013 to 2017.
(d) Based on similar water use per square foot values for schools and churches.

2.4.2 Projected Water Demand

The buildout (2040) water demands for the Future Scenarios were projected using the unit water demand factors and assumptions discussed previously. As shown in Table 2-4, projected water demands were calculated for the Phase 1 Development, as well as the four buildout scenarios (Maximum Office; Maximum Housing; Increased Height Alternative – Maximum Office; and Increased Height Alternative – Maximum Housing). The water demand projected for the Phase 1 Development is included in the total projected water demand for each of the buildout scenarios but is also shown separately to indicate the portion of the total projected buildout demand under each scenario that will be associated with the Phase 1 Development.

The Increased Height Alternative – Maximum Housing Scenario results in the highest buildout water demand, with a total projected demand of 0.63 MGD. This scenario represents the highest demand future scenario and was therefore be evaluated in this WSA with the understanding that, if sufficient potable water supplies are available to serve this highest demand future scenario, then sufficient potable water supplies would be available to serve any of the other Future Scenarios.

Although the Future Scenarios are not specifically identified in the City's 2015 UWMP, the Bayhill Specific Plan Area is included within the City's water demand projection, which projected a water demand increase of 2.17 MGD between 2015 to 2040, from 3.14 MGD (Fiscal Year (FY) 2014/2015) to 5.31 MGD (2040), as described in more detail in Section 4.

Table 2-4. Projected Development Scenarios[a]

Land Use	Quantity	Units	Unit Demand Factor	Units	Water Demand		
					gpd	MGD	CCF/YR
Phase 1 Development (2022)							
Office[b]	1,859,323	sf	0.13	gpd/sf	241,712	0.24	117,948
Retail[b]	121,846	sf	0.19	gpd/sf	23,151	0.02	11,297
Hotel[c]	133	room	120	gpd/room	15,960	0.02	7,788
Residential[d]	-	du	120	gpd/du	-	-	-
Phase 1 Development Total					**280,823**	**0.28**	**137,033**
Maximum Office Scenario (2040, including Phase 1 development)							
Office[b]	4,017,694	sf	0.13	gpd/sf	522,300	0.52	254,866
Retail[b]	121,846	sf	0.19	gpd/sf	23,151	0.02	11,297
Hotel[c]	133	room	120	gpd/room	15,960	0.02	7,788
Residential[d]	-	du	120	gpd/du	-	-	-
Maximum Office Scenario Total					**561,411**	**0.56**	**273,951**
Maximum Housing Scenario (2040, including Phase 1 development)							
Office[b]	3,500,743	sf	0.13	gpd/sf	455,097	0.46	222,073
Retail[b]	121,846	sf	0.19	gpd/sf	23,151	0.02	11,297
Hotel[c]	133	room	120	gpd/room	15,960	0.02	7,788
Residential[d]	573	du	120	gpd/du	68,760	0.07	33,553
Maximum Housing Scenario Total					**562,968**	**0.57**	**274,711**
Increased Height Alternative – Maximum Office Scenario (2040, including Phase 1 development)							
Office[b]	4,017,694	sf	0.13	gpd/sf	522,300	0.52	254,866
Retail[b]	121,846	sf	0.19	gpd/sf	23,151	0.02	11,297
Hotel[c]	186	room	120	gpd/room	22,320	0.02	10,891
Residential[d]	-	du	120	gpd/du	-	-	-
Increased Height Alternative – Maximum Office Scenario Total					**567,771**	**0.56**	**277,054**
Increased Height Alternative – Maximum Housing Scenario (2040, including Phase 1 development)							
Office[b]	3,500,743	sf	0.13	gpd/sf	455,097	0.46	222,073
Retail[b]	121,846	sf	0.19	gpd/sf	23,151	0.02	11,297
Hotel[c]	186	room	120	gpd/room	22,320	0.02	10,891
Residential[d]	1,070	du	120	gpd/du	128,400	0.13	62,655
Increased Height Alternative – Maximum Housing Scenario Total					**628,968**	**0.63**	**306,916**

(a) Based on data received from ICF International Inc., on 3/29/2019.
(b) Source: Table 3-9, City of San Bruno Water System Master Plan, November 2012.
(c) Hotel unit water use is based on an evaluation of actual hotel water use within a local San Francisco Bay Area water district's service area from 2013 to 2017.
(d) Multi-Family Residential units assumed based on the Draft EIR.

3.0 REQUIRED DETERMINATIONS

The following sections describe the required determinations for a WSA.

3.1 Does SB 610 Apply to the Proposed Project?

10910 (a) Any city or county that determines that a project, as defined in Section 10912, is subject to the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) under Section 21080 of the Public Resources Code shall comply with this part.

10912 (a) "Project" means any of the following:

(1) A proposed residential development of more than 500 dwelling units.

(2) A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.

(3) A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.

(4) A proposed hotel or motel, or both, having more than 500 rooms.

(5) A proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.

(6) A mixed-use project that includes one or more of the projects specified in this subdivision.

(7) A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500-dwelling unit project.

As shown in Table 3-1, the Proposed Project does meet the definition of a "Project" as specified in Water Code section 10912(a)(7). The Proposed Project has not been the subject of a previously adopted WSA and has not been included in an adopted WSA for a larger project. Therefore, according to Water Code section 10910(a), a WSA is required for the Proposed Project.

The City has also determined that the Proposed Project is subject to the California Environmental Quality Act (CEQA) and that an EIR is required.

Table 3-1. Does the Proposed Project Meet the SB 610 Definition of a "Project"?

SB 610 Project Definition Components	Proposed Project Quantity	Meets the SB 610 Definition of a "Project"?
Residential > 500 dwelling units	Up to 1,070 du	YES
Retail > 1,000 employees or > 500,000 sf	Up to 121,846 sf	NO
Commercial Office Building > 1,000 employees or > 250,000 sf	Up to 3,500,743 sf	YES
Hotel/Motel > 500 rooms	Up to 186 rooms	NO
Industrial Plant/Park > 1,000 employees or > 40 acres or > 650,000 sf	N/A	NO
Mixed Use Project that includes one or more of the above	--	YES
A Project that would demand the amount of water required by a 500-dwelling unit project	--	YES
SB 610 Required?	--	YES

3.2 Does SB 221 Apply to the Proposed Project?

In 2001, SB 221 amended State law to require that approval by a city or county of certain residential subdivisions requires an affirmative written verification of sufficient water supply. Per California Government Code section 66473.7(a)(1), a subdivision is defined as a proposed residential development of more than 500 dwelling units. The highest water demand Future Scenario, with up to 1,070 new residential dwelling units in the City's water service area, is therefore subject to the requirements of SB 221. Section 8.0 of this WSA provides the required written verification of sufficient water supply.

3.3 Who is the Identified Public Water System?

> *10910(b) The city or county, at the time that it determines whether an environmental impact report, a negative declaration, or a mitigated negative declaration is required for any project subject to the California Environmental Quality Act pursuant to Section 21080.1 of the Public Resources Code, shall identify any water system that is, or may become as a result of supplying water to the project identified pursuant to this subdivision, a public water system, as defined by Section 10912, that may supply water for the project*
>
> *10912 (c) "Public water system" means a system for the provision of piped water to the public for human consumption that has 3,000 or more service connections…*

As shown on Figure 2-1, the Proposed Project is located within the City limits, in the City's water service area. The City's service area consists of 11 pressure zones within the City, with the Proposed Project being located in a central-eastern zone (Zone 3/5). Therefore, the City is the identified public water system for the Proposed Project.

3.4 Does the Identified Water Supplier have an adopted Urban Water Management Plan (UWMP) and does the UWMP include the projected water demand for the Proposed Project?

> *10910(c)(1) The city or county, at the time it makes the determination required under Section 21080.1 of the Public Resources Code, shall request each public water system identified pursuant to subdivision (b) to determine whether the projected water demand associated with a proposed project was included as part of the most recently adopted urban water management plan adopted pursuant to Part 2.6 (commencing with Section 10610).*

As discussed in Section 2.4.2, the projected water demands associated with the highest water demand Future Scenario (0.63 MGD) aren't specifically identified in the 2015 UWMP water demand projections but are included in the City's future population and employment growth projections. The 2015 UWMP projected the long-range water demands using the Demand Side Management Least Cost Planning Decision Support System (DSS Model) based on the forecasted increases in population and employment, which therefore includes future water demands for the Proposed Project in the 2015 UWMP.

4.0 CITY OF SAN BRUNO WATER DEMANDS

10910(c)(2) If the projected water demand associated with the proposed project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f) and (g).

Except as noted, the descriptions provided below for the City's water demands have been taken from the City's 2015 UWMP (adopted in June 2016).

4.1 Historical Water Demand

According to the City's 2015 UWMP, during FY 2009/2010 and FY 2014/2015, the service population had grown by about 7.9 percent, while the total volume of water sold decreased by 14 percent. The decrease in water demand can be attributed to mandatory state-wide restrictions issued by the State Water Resources Control Board (SWRCB) during the recent statewide drought.

Table 4-1 shows the City's water demand (based on water production) for FY 2013/2014 through FY 2017/2018. The City's water demand has remained low following recovery from the historical drought.

Table 4-1. Historical Water Demand

	Units	FY 2013/14[a]	FY 2014/15[b]	FY 2015/16[c]	FY 2016/17[d]	FY 2017/18[e]
Total Water Demand	MGD	2.16	3.14	3.04	2.93	3.05
	CCF/YR	1,053,066	1,529,900	1,482,846	1,429,544	1,488,555

(a) Source: "2014 water data.xlsx" provided by the City.
(b) Source: "2015 water data.xlsx" provided by the City. This data matches the FY 2014/15 potable water demands presented in Table 4-1 of the City of San Bruno 2015 UWMP (June 2016).
(c) Source: "2016 water data.xlsx" provided by the City.
(d) Source: "2017 water data.xlsx" provided by the City.
(e) Source: "2018 water data.xlsx" provided by the City.

4.2 Future Water Demand

Table 4-2 shows the City's projected normal year water demands in five-year increments through 2040 to match the years of the water demand projections documented in the City's 2015 UWMP. The projected total water demand for 2020 (3.93 MGD) is expected to be 25 percent greater than the actual FY 2014/2015 historical water demand (3.14 MGD). This projected increase in demand reflects a potential rebound in water use following the end of the suppressed 2015 drought demands and an accelerated growth in employment. However, the City's actual calendar year 2018 water demand (2.99 MGD) was lower than the City's FY 2014/2015 water demand (3.14 MGD) presented in the 2015 UWMP. It is assumed that the reduced 2018 water demand is due to systemwide implementation of permanent conservation measures (i.e., low-flow plumbing fixtures and/or drought-tolerant landscaping) that will not result in a rebound in water use. Therefore, the City's actual 2018 water demand was used as the baseline existing water demand for this analysis.

Table 4-2. Projected Future Water Demand – Water Demands

Water Demand Type	2020	2025	2040
Existing Water Demand, MGD[(a)]	2.99	2.99	2.99
Known Projects, MGD[(b)]	0.00	0.61	0.61
Net Increase from Project, MGD[(c)]	0.00	0.14	0.49
Water Available for Future Development, MGD[(d)]	0.94	0.50	1.22
Total Projected Water Demand, MGD[(e)]	3.93	4.24	5.31

(a) Source: "2018 water data.xlsx" provided by the City.

(b) Source: Table 3-10, City of San Bruno Water System Master Plan, November 2012. Known projects includes all projected water demands associated with future projects, less the Bayhill Office Park.

(c) Increased Height Alternative - Maximum Housing Scenario (Table 2-4) less the site's Existing Water Demand (0.14 MGD; Table 2-2). For purposes of this WSA, the development of the highest water use future scenario would be phased as follows:
2020 – No Development
2025 – Phase 1 Development, completion expected by 2022 (0.28 MG)
2040 –Buildout of highest water demand future scenario (0.63 MG)

(d) 2015 UWMP projected demands minus the existing water, known projects, and net increase from highest water demand future scenario demands.

(e) Source: City of San Bruno 2015 UWMP (June 2016), Table 4-2.

Water demand projections for the City, presented in the 2015 UWMP, were developed as part of a BAWSCA study. In September 2014, BAWSCA completed the Regional Water Demand and Conservation Projections Report (Demand Study). The goal of the Demand Study was to develop transparent, defensible, and uniform demand and conservation savings projections for each wholesale customer using a common methodology to support both regional and individual agency planning efforts. The Demand Study projections were incorporated into BAWSCA's Long-Term Reliable Water Supply Strategy (Strategy) discussed below.

Through the Demand Study process, BAWSCA and the wholesale customers coordinated to determine the following: (1) the total average-year water demand for each BAWSCA member agency through 2030; (2) passive and active conservation water savings potential for each individual wholesale customer through 2040; and (3) identified conservation programs for further consideration for regional implementation by BAWSCA. The Demand Study projected that by 2040, the collective active conservation efforts of the wholesale customers would yield an additional 16 MGD in savings beyond what has already been achieved for the BAWSCA service area. Based on the revised water demand projections, the identified water conservation savings (including passive savings), and other actions, the collective purchases of the BAWSCA member agencies from the SFPUC are projected to stay below 184 MGD through 2018. Additionally, the identified water conservation savings result in revised projected demands for the City that are lower than the water demand projections developed for the City's 2012 Water System Master Plan.

As part of the Demand Study, each wholesale customer was provided with a demand model that could be used to support on-going demand and conservation planning efforts, including UWMP preparation. The water projections shown in Table 4-2 are based on the demand model developed for the City.

4.3 Dry Year Water Demand

As discussed previously, the City's FY 2014/15 water demand was lower than the FY 2009/10 water demand. This reduction in demands occurred in response to the drought and to Governor Brown's April 2015 Executive Order (EO) B-29-15, which mandated a statewide 25 percent reduction in urban potable water usage. In response to the mandated 25 percent reduction, the State Water Resources Control Board (SWRCB) imposed mandatory restrictions on urban water suppliers by adopting Resolution 2015-0032 in May 2015. The restrictions imposed by the SWRCB placed each urban water supplier into one of nine tiers, and tied mandatory conservation standards to each tier. The City was required to reduce water use by 8 percent relative to 2013 water use.

On April 14, 2015, in response to EO B-29-15, the City Council implemented Stage II of the City's *Water Shortage Contingency Plan* (WSCP). Stage II requires a 20 percent mandatory water supply reduction with outdoor irrigation limited to two days per week. At the July 26, 2016 City Council meeting, the City Council adopted a resolution to implement Stage I of the WSCP.

The City's WSCP includes four Stages of Action to be followed during a water shortage. The stages were developed to meet supply cutbacks ranging from 5 percent to 50 percent. The four stages of water use reduction range from 10 percent to 50 percent. The demand reduction assumptions under dry year conditions, as included in the City's 2015 UWMP, are listed below.

- During Single Dry Years, the potable water demands are assumed to be 90 percent of Normal Year demands (10 percent reduction in water use). This assumes that the City implements Stage I of the WSCP.
- During Multiple Dry Years, the potable water demands are assumed to be 90 percent of Normal Year demands (10 percent reduction in water use) for the first dry year and 80 percent of Normal Year demands (20 percent reduction in water use) for the second and third dry year. This assumes that the City implements Stage I of the WSCP in the first year and implements a Stage II water shortage in the second and third years.

Table 4-3 presents the projected future single and multiple dry year water demand in MGD, as presented in the City's 2015 UWMP.

Table 4-3. Projected Future Water Demand – Dry Years, MGD

Hydrologic Condition	Demand Reduction[a]	2020	2025	2040
Single Dry Year[b]	10%	3.54	3.82	4.78
Multiple Dry Years, Year 1[c,d]	10%	3.54	3.82	4.78
Multiple Dry Years, Year 2[c,d]	20%	3.14	3.39	4.25
Multiple Dry Years, Year 3[c,d]	20%	3.14	3.39	4.25

(a) Demands will be reduced 10% for single dry years for a Stage I water shortage and 20% for multiple dry years for a Stage II shortage.
(b) Source: City of San Bruno 2015 UWMP (dated June 2016), Table 7-5.
(c) Source: City of San Bruno 2015 UWMP (dated June 2016), Table 7-6.
(d) Demand totals assume 10% demand reduction in the first year and 20% reduction in the second and third years.

Table 4-4 presents the projected future single and multiple dry year water demand in CCF/YR, as presented in the City's 2015 UWMP.

Table 4-4. Projected Future Water Demand – Dry Years, CCF/YR

Hydrologic Condition	Demand Reduction[a]	2020	2025	2040
Single Dry Year[b]	10%	1,725,943	1,862,086	2,331,999
Multiple Dry Years, Year 1[c,d]	10%	1,725,943	1,862,086	2,331,999
Multiple Dry Years, Year 2[c,d]	20%	1,534,171	1,655,187	2,072,888
Multiple Dry Years, Year 3[c,d]	20%	1,534,171	1,655,187	2,072,888

(a) Demands will be reduced 10% for single dry years for a Stage I water shortage and 20% for multiple dry years for a Stage II shortage.
(b) Source: City of San Bruno 2015 UWMP (dated June 2016), Appendix B, Table 7-3.
(c) Source: City of San Bruno 2015 UWMP (dated June 2016), Appendix B, Table 7-4.
(d) Demand totals assume 10% demand reduction in the first year and 20% reduction in the second and third years.

5.0 CITY OF SAN BRUNO WATER SUPPLIES

10910(c)(2) If the projected water demand associated with the proposed project was accounted for in the most recently adopted urban water management plan, the public water system may incorporate the requested information from the urban water management plan in preparing the elements of the assessment required to comply with subdivisions (d), (e), (f) and (g).

10910(d)(1) The assessment required by this section shall include an identification of any existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and a description of the quantities of water received in prior years by the public water system…under the existing water supply entitlements, water rights, or water service contracts.

10910(e) If no water has been received in prior years by the public water system…under the existing water supply entitlements, water rights, or water service contracts, the public water system…shall also include in its water supply assessment…an identification of the other public water systems or water service contract holders that receive a water supply or have existing water supply entitlements, water rights, or water service contracts, to the same source of water as the public water system.

10910(f) If a water supply for a proposed project includes groundwater, the following additional information shall be included in the water supply assessment.

(1) A review of any information contained in the urban water management plan relevant to the identified water supply for the proposed project.

(2) A description of any groundwater basin or basins from which the proposed project will be supplied. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most recent bulletin of the department that characterizes the condition of the groundwater basin, and a detailed description by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), of the efforts being undertaken in the basin or basins to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the amount and location of groundwater pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), for the past five years from any groundwater basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historical use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), from any basin from which the proposed project will be supplied. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historical use records.

(5) An analysis of the sufficiency of the groundwater from the basin or basins from which the proposed project will be supplied to meet the projected water demand associated with the proposed project. A water assessment shall not be required to include the information required by this paragraph if the public water system determines, as part of the review required by paragraph (1), that the sufficiency of groundwater necessary to meet the initial and projected water demand associated with the project was addressed in the description and analysis required by paragraph (4) of subdivision (b) of Section 10631.

Except as noted, the descriptions provided below for the City's water supplies have been taken from the City's 2015 UWMP (adopted in June 2016) and San Francisco Public Utilities Commission (SFPUC)'s 2015 UWMP (adopted in June 2016).

5.1 Water Supply Overview

The City receives water from three supply sources:

- Treated surface water purchased on a wholesale basis from the San Francisco Public Utilities Commission Regional Water System (SFPUC RWS);
- Treated surface water purchased from North Coast County Water District (NCCWD); and
- Local groundwater pumped by the City from the South Westside Groundwater Basin.

The City's treated surface water supply is delivered through the RWS, originating from the Tuolumne River and the Alameda County and Peninsula watersheds. The RWS is owned and operated by the SFPUC that supplies water to both retail and wholesale customers. Retail customers include residents, businesses, and industries located within the City of San Francisco's city limits. It also includes the Town of Sunol, San Francisco International Airport, Lawrence Livermore National Laboratory, and the Castlewood customer service area, which are all located outside of the city limits for the City of San Francisco. Wholesale customers include the 26 wholesale customers represented by BAWSCA, including 24 permanent customers and two customers with temporary and interruptible water supply contracts with the SFPUC (Wholesale Customers), Cordilleras Mutual Water Company (Cordilleras MWC), and Groveland Community Services District (Groveland CSD).

BAWSCA represents the interests of the 26 Wholesale Customers and helps to coordinate their water conservation programs. Of the 26 Wholesale Customers represented by BAWSCA, the SFPUC has a perpetual commitment (Supply Assurance) to deliver 184 MGD to the 24 permanent wholesale customers[2] collectively. The Supply Assurance is allocated among the 24 permanent wholesale customers through Individual Supply Guarantees (ISG), which represent each wholesale customer's allocation of the 184 MGD Supply Assurance.

The City is a member agency of BAWSCA and purchases treated water from the SFPUC RWS in accordance with the 2009 Water Supply Agreement between the City and County of San Francisco and Wholesale Customers in Alameda, San Mateo and Santa Clara Counties. The City has an ISG of 3.25 MGD, supplied by the SFPUC RWS. The SFPUC RWS water supplies are discussed in detail in Section 5.2 (Water Supplies from the SFPUC RWS). Water purchased from the NCCWD is also from the RWS, but is served directly from NCCWD, and is used exclusively to meet the demands of the City's Treetop Apartments complex, located in Pressure Zone 13. The City purchases approximately 0.05 MGD from NCCWD.

Local groundwater is pumped by the City from the southern part of the Westside Basin (South Westside Basin). A Groundwater Management Plan (GWMP) was prepared for the South Westside Basin in 2012, which indicated that the basin is not in overdraft and the City can pump at a rate of 2.1 MGD on a long-term basis. To diversify the water supply for drought protection and ensure the resiliency of SFPUC water supplies, the City entered into a strategic conjunctive use partnership with SFPUC and two other San Mateo County agencies: California Water

[2] The City of San Jose and the City of Santa Clara are not included in the Supply Assurance commitment and each has temporary and interruptible water supply contracts with San Francisco.

Service (serving South San Francisco and Colma) and the City of Daly City. The City implemented conjunctive use operations starting in 2016 as a participant in the Regional Groundwater Storage and Recovery (GSR) Project, thereby reducing groundwater pumping under normal year supply conditions.

5.2 Water Supplies from the SFPUC RWS

The SFPUC RWS consists of more than 280 miles of pipeline and 60 miles of tunnels, eleven reservoirs, five pump stations, and two water treatment plants. It is geographically delineated between the Hetch Hetchy Project and the Bay Area water system facilities. The various SFPUC RWS elements include:

- Hetch Hetchy Watershed and System
- Bay Area System (consisting of the Alameda Watershed and System and the Peninsula Watershed and System)
- Water Treatment
- Water Storage

Each of these elements is described further below.

5.2.1 Hetch Hetchy Watershed and System

Approximately 85 percent of the water supply to the SFPUC RWS originates in the Hetch Hetchy watershed, located in Yosemite National Park, and flows down the Tuolumne River into the Hetch Hetchy Reservoir. Water from the Hetch Hetchy watershed is managed through the Hetch Hetchy Water and Power Project (Hetch Hetchy Project). The Hetch Hetchy Project is generally composed of the reservoirs, hydroelectric generation and transmission facilities, and water transmission facilities from the Hetch Hetchy Valley west to the Alameda East Portal of the Coast Range Tunnel in Sunol Valley. Water system components of the Hetch Hetchy Project are also referred to as the Hetch Hetchy System.

In the Hetch Hetchy System, water is diverted from Hetch Hetchy Reservoir into a series of tunnels and aqueducts from the Sierra Nevada to the San Joaquin Pipelines that cross the San Joaquin Valley to the Coast Range Tunnel, which connects to the Alameda System at the Alameda East Portal. Hetch Hetchy System water is disinfected at the Tesla Treatment Facility.

5.2.2 Bay Area System

Approximately 15 percent of the water supply to the SFPUC RWS originates locally in the Alameda and Peninsula watersheds. The local Bay Area water system is comprised of two parts—the Alameda System and the Peninsula System—generally consisting of the facilities west of Alameda East Portal, including the 63,000-acre Alameda and Peninsula watersheds, storage reservoirs, two water treatment plants, and the distribution system that delivers water to retail and wholesale customers.

5.2.2.1 Alameda Watershed and System

The Alameda System includes two reservoirs, San Antonio Reservoir and Calaveras Reservoir, which collect water from the San Antonio Creek, Upper Alameda Creek, and Arroyo Hondo watersheds in Alameda County. San Antonio Reservoir also receives water from the Hetch Hetchy System. Conveyance facilities in the Alameda System connect the Hetch Hetchy System and Alameda water sources to the RWS. The Bay Division Pipelines (BDPLs) cross the South Bay to the Peninsula System delivering water to customers along the pipeline route. The Sunol Valley Water Treatment Plant (Sunol Valley WTP) filters and disinfects water supplied from San Antonio Reservoir and Calaveras Reservoir.

5.2.2.2 Peninsula Watershed and System

The Peninsula System includes conveyance facilities connecting the BDPLs to the in-City distribution system and to other customers on the Peninsula. Two reservoirs, Crystal Springs Reservoir and San Andreas Reservoir, collect runoff from the San Mateo Creek watershed. Crystal Springs Reservoir also receives water from the Hetch Hetchy System. A third reservoir, Pilarcitos Reservoir, collects runoff from the Pilarcitos Creek watershed and directly serves one of the Wholesale Customers, the Coastside County Water District (which serves the City of Half Moon Bay), along with delivering water to the Crystal Springs and San Andreas Reservoirs. The Harry Tracy Water Treatment Plant (Harry Tracy WTP) filters and disinfects water supplied from Crystal Springs Reservoir and San Andreas Reservoir before it is delivered to customers on the Peninsula and the in-City distribution system.

5.2.3 Water Treatment

The Hetch Hetchy Reservoir is the largest unfiltered water supply on the West Coast, and one of only a few large unfiltered municipal water supplies in the nation. The water originates from runoff and snowmelt flowing down the Tuolumne River to Hetch Hetchy Reservoir, where it is stored. This high-quality water source comes from well-protected wilderness areas in Yosemite National Park and meets or exceeds all federal and State criteria for watershed protection. Water from Hetch Hetchy Reservoir is protected in pipes and tunnels as it is conveyed to the Bay Area, and only requires pH adjustment to control pipeline corrosion and disinfection for bacteria control. Based on the SFPUC's disinfection treatment practice, extensive bacteriological quality monitoring, and high operational standards, the U.S. Environmental Protection Agency (USEPA) and the SWRCB Division of Drinking Water determined that the Hetch Hetchy water source meets federal and State drinking water quality requirements without the need for filtration.

A new USEPA regulation took effect in 2012 requiring secondary disinfection for all unfiltered drinking water systems to control the waterborne parasite cryptosporidium. To comply with this regulation, the SFPUC completed construction of a new ultraviolet treatment facility in 2011. The Tesla Treatment Facility is a key component of the Water System Improvement Program (WSIP) and further enhances the Hetch Hetchy System's high-quality water. The facility has a capacity of 315 MGD, making it the third largest ultraviolet drinking water disinfection facility in the U.S.

All water derived from Alameda System and Peninsula System sources is treated at one of two treatment plants: the Sunol Valley WTP or the Harry Tracy WTP. The Sunol Valley WTP treats water primarily from the Alameda System reservoirs and has both a peak capacity and sustainable capacity of 160 MGD. Treatment processes include coagulation, flocculation, sedimentation, filtration, and disinfection. Fluoridation, chloramination, and corrosion control treatment are provided for the combined Hetch Hetchy System and Sunol Valley WTP water at the Sunol chloramination and fluoridation facilities. The Harry Tracy WTP treats water from the Peninsula System reservoirs and has a peak capacity of 180 MGD and a sustainable capacity of 140 MGD. Treatment processes include ozonation, coagulation, flocculation, filtration, disinfection, fluoridation, corrosion control treatment, and chloramination. Major upgrades to the Sunol Valley WTP were completed in 2013 and to the Harry Tracy WTP in 2015.

5.2.4 Raw Water Storage

The majority of the water delivered by the SFPUC is supplied by runoff from the upper Tuolumne River watershed on the western slope of the central Sierra Nevada. Three major reservoirs collect runoff: Hetch Hetchy Reservoir, Lake Lloyd, and Lake Eleanor. A "water bank" in Don Pedro Reservoir is integrated into system operations.[3] Don Pedro Reservoir is jointly owned and operated by Modesto Irrigation District (MID) and Turlock Irrigation District (TID) and is located on the Tuolumne River downstream of the Hetch Hetchy System.

Table 5-1 displays the raw water storage capacity of the RWS.

As a by-product of water delivery and water supply management, hydroelectric power is also generated by the Hetch Hetchy Project. Water stored in Hetch Hetchy Reservoir is used for hydroelectric generation and also satisfies instream flow requirements when released downstream. Normally, only Hetch Hetchy Reservoir water supplies are exported to the Bay Area, while releases from Lake Eleanor and Lake Lloyd are used to satisfy instream flow requirements, satisfy Raker Act entitlements to MID and TID downstream, and produce hydroelectric power. The Hetch Hetchy Water and Power System is comprised of three major hydroelectric powerhouses along the Tuolumne River—Holm, Kirkwood, and Moccasin—that have a collective generating capacity of nearly 400 megawatts.

Downstream of the Hetchy System, the SFPUC utilizes local watersheds in the Bay Area. On the Peninsula, the Crystal Springs, San Andreas, and Pilarcitos Reservoirs located in San Mateo County capture local watershed runoff. In the Alameda Creek watershed in Alameda County, the SFPUC operates Calaveras and San Antonio Reservoirs. In addition to using these facilities to capture local runoff, San Andreas, San Antonio, and Crystal Springs Reservoirs also provide storage for the Hetch Hetchy System and, along with Calaveras Reservoir, are important water supply sources in the event of an interruption to Hetch Hetchy System deliveries.

[3] MID and TID have senior water rights to the SFPUC for the Tuolumne River water and are entitled to the first increment of flow in the basin. Water bank provides a credit and debit system which allows the SFPUC to divert water upstream while meeting its obligations to TID and MID. Through this mechanism the SFPUC may pre-deliver the TID and MID entitlements and credit the water bank so that at other times the SFPUC may retain water upstream while TID and MID debit the water bank.

Calaveras Reservoir was under construction from 2011 to September 2018 to replace the existing dam with an earth and rock fill dam that is designed to accommodate a maximum credible earthquake on the Calaveras Fault. The replacement dam will restore the original reservoir capacity. Filling of the reservoir began during the wet season of the 2019 water year.

Table 5-1. Regional Water System Storage Capacity

Reservoir	Storage Capacity	
	Acre-Feet, AF	Billions of Gallons, BG
Up-Country[a]		
Hetch-Hetchy	360,360	117.4
Lake Lloyd[b]	273,300	89.1
Lake Eleanor	27,100	8.8
Subtotal	660,760	215.3
Local		
Calaveras (East Bay)[c]	96,800	31.5
San Antonio (East Bay)	50,500	16.5
Crystal Springs (Peninsula)[d]	69,300	22.6
San Andreas (Peninsula)	19,000	6.2
Pilarcitos (Peninsula)	3,100	1.0
Subtotal	238,700	77.8
Total Regional Water System[e]	899,460	293.1

Source: SFPUC 2015 UWMP (dated April 2016), Table 3-1.

Three other regulating reservoirs are also part of the RWS: Early Intake, Priest, and Moccasin Reservoirs.

Storage capacity shown includes flashboards, which are structures placed in a spillway to increase the capacity of a reservoir.

Calaveras Reservoir was constructed with a storage capacity of 96,800 AF. Since December 2001, in response to safety concerns about the seismic stability of the dam and a directive from the Division of Safety of Dams (DSOD), the SFPUC has held the maximum water level at approximately 37,800 AF (roughly 40% of its maximum capacity), pending the refilling of the reservoir following the construction of a new comparably sized replacement dam downstream, completed in September 2018.

Crystal Springs Reservoir has a maximum storage capacity of 22.1 BG (at 291.8 feet). When the Lower Crystal Springs Dam Improvement is complete, the reservoir will be operated normally at 287.8 feet (4 feet below capacity) based on permit conditions.

This includes 63,700 AF in dead storage (i.e., the volume in a reservoir below the lowest controllable level). In addition, the SFPUC may draw against a credit of up to 570,000 AF in storage in a water bank account in Don Pedro Reservoir, for total storage for planning purposes of 1,469,460 AF.

5.3 Potable Water Supplies from NCCWD

The City purchases water from NCCWD under the terms of Resolution No. 2001-52, Intertie and Water Service Agreement. The cost of water purchased from NCCWD is set according to NCCWD's Rate and Fee Schedule for governmental multi-unit residential property. There is no contractual limit to the quantity of water the City may purchase from NCCWD, except that purchases are "only such water service as [NCCWD] can normally render".

The City purchases approximately 0.05 MGD of water from the NCCWD (Table 5-4). This water is served from the Crystal Springs turnout in Pressure Zone 13, and is used exclusively to meet the demands of the Treetop Apartments complex. The City does not anticipate any changes to its NCCWD water supply in the near future. The water purchased from NCCWD originates

from the SFPUC RWS and is characterized and is subject to the same overview as the SFPUC imported supply detailed in this section.

5.4 Groundwater Supply

This section describes the City's groundwater basin and the management of the South Westside Basin.

The City owns and operates four groundwater wells in the South Westside Basin. The groundwater pumped by the City currently comprises approximately 10 percent of total supply (based on 2018 production data). This groundwater resource is described in the sections below.

5.4.1 Groundwater Basin Description

The City overlies the southern portion of the 40 square mile Westside Basin. The Westside Basin consists of unconsolidated colluvium that was deposited in a northwest trending trough in the underlying impervious bedrock. The Westside Basin is bounded by bedrock highs in Golden Gate Park to the north and at Coyote Point to the south. San Bruno Mountain and San Francisco Bay form the eastern boundary of the Basin while the Serra Fault and the Pacific Ocean form the western boundary. Adjoining groundwater basins are the Lobos Basin to the North and the San Mateo Plain Aquifer to the south.

The Westside Basin has been separated into two distinct areas for management purposes: North Westside Basin Area and South Westside Basin Area. The City is located within the South Westside Basin Area.

5.4.2 Groundwater Management

The South Westside Basin is a shared groundwater resource. The local agencies overlying the basin manage the resource jointly through use of a GWMP and the Regional GSR Project, described in the following sections.

5.4.2.1 Groundwater Management Plan

The South Westside Basin GWMP was completed in July 2012 by the City, in coordination with the City of Daly City, Cal Water, the SFPUC, and other stakeholders. This GWMP was developed to provide a framework for regional groundwater management in the South Westside Basin that sustains the beneficial use of the groundwater resource. This framework includes the following objectives: informing the public of the importance of groundwater to the South Westside Basin and the challenges and opportunities it presents; developing consensus among stakeholders on issues and solutions related to groundwater; building relationships among stakeholders within the basin and between state and federal agencies; and defining actions for developing programs to ensure the long-term sustainability of groundwater resources in the South Westside Basin.

The goal of the GWMP is to ensure a sustainable, high quality, reliable water supply at a fair price for beneficial uses achieved through local groundwater management. The GWMP provides steps for monitoring water quality and quantity in the basin. Each groundwater well in the basin has defined triggers for overdraft, seawater intrusion, and various water quality measures. The

GWMP identifies two levels of trigger thresholds for each groundwater well based on historical water levels, and actions to address the trigger that is met.

5.4.2.2 Regional Groundwater Storage and Recovery Project

In December 2014, the Regional GSR operating agreement was signed to ensure long-term management and sustainability of the South Westside Groundwater Basin through a strategic conjunctive use partnership. The partnership with the City, SFPUC, California Water Service (serving South San Francisco and Colma), and the City of Daly City allows the agencies to operate the basin jointly and provides a new 20-billion-gallon regional dry year groundwater supply. The project is included as part of the SFPUC WSIP described in Section 6.2.1 of this WSA.

The Regional GSR Project is an in-lieu groundwater recharge program that balances groundwater and SFPUC RWS supply to increase drought year water supplies. During wet and normal years, water from the RWS is delivered to the City, which reduces the need to pump groundwater and allows the basin to naturally recharge and store additional water supply. The additional supply is stored in the South Westside Basin as groundwater until it is needed during a drought or emergency. The project includes the construction of up to 16 new recovery and test wells and facilities.

The City implemented conjunctive use operations starting in 2016. The Regional GSR Project is over 76% complete with the thirteen Phase I wells drilled and wrapping up construction. Anticipated completion of the project is 2021.

5.4.3 Historical Groundwater Use

The volume of water pumped by the City from FY 2013/14 to FY 2017/18 is shown in Table 5-2.

Table 5-2. Groundwater Volume Pumped by the City

Water Source	Volume of Water Pumped						
	Units	FY 2013/14[a]	FY 2014/15[a]	FY 2015/16[b]	FY 2016/17[c,d]	FY 2017/18[e]	Average
South Westside Groundwater Basin, DWR Basin 2-35[f]	MGD	1.94	1.89	1.63	0.27	0.32	1.21
	CCF/YR	948,253	922,147	797,371	131,905	155,341	591,003
Groundwater as a Percentage of Total Supply	-	54.2%	60.3%	53.8%	9.2%	10.4%	38.5%

(a) Source: City of San Bruno 2015 UWMP (June 2016), Table 6-1 and Appendix B Table 6-1.
(b) Source: "2016 water data.xlsx" provided by the City.
(c) Source: "2017 water data.xlsx" provided by the City.
(d) Note the dramatic decrease in the volume of groundwater pumped in FY 2016/2017 following the City's implementation of conjunctive use operations.
(e) Source: "2018 water data.xlsx" provided by the City.
(f) The South Westside Groundwater Basin is a colluvial basin.

5.4.4 Projected Groundwater Use

As a participant of the Regional GSR Project, the City is projected to have two supply modes that vary according to hydrologic conditions. The supply modes include "put" operations (in normal and wet years) and "take" operations (in dry years). During "put" operations, SFPUC provides additional surface water to the City to reduce the City's groundwater pumping. During "take" operations, the City utilizes available groundwater supplies and reduces surface water deliveries, thereby freeing surface water supply to be delivered to other SFPUC customers. Projected groundwater supplies under Normal Year conditions assumes that groundwater use is minimized (i.e., "put" operations) because this is the expected normal operating scenario under the Regional GSR Project. The City's projected groundwater production during normal and wet years from 2020 to 2040 is shown in Table 5-3.

Table 5-3. Projected Groundwater Production

Hydrologic Condition	Units	FY 2019/20	FY 2024/25	FY 2039/40
Normal Year[a]	MGD	0.00	0.00	0.00
	CCF/YR	0	0	0
Single Dry or Multiple Dry Years[b]	MGD	2.10	2.10	2.10
	CCF/YR	1,024,733	1,024,733	1,024,733

(a) A portion of the City's groundwater production may be offset by SFPUC surface water for in-lieu banking.
(b) Source: City of San Bruno 2015 UWMP (June 2016), Table 6 2.

5.5 Other Supply

According to the City's 2015 UWMP, recycled water is not a cost-effective water supply source for the City within the foreseeable future. In 2009, a consortium of agencies with interests in the South San Francisco and San Bruno area developed a Recycled Water Feasibility Study (Feasibility Study) evaluating the feasibility of implementing a recycled water treatment and distribution system. The study area for the Feasibility Study encompassed the cities of South San Francisco, San Bruno, Brisbane and Colma. Fifteen different alternatives were evaluated within the Feasibility Study. Each alternative included different variations of customer groupings, treatment technologies and wastewater sources. The preferred alternative recommends centralized treatment at the South San Francisco WQCP. The total cost of the preferred alternative is projected at approximately $94 million dollars. In total, the preferred alternative is expected to offset only 0.14 MGD of potable water for the City of San Bruno, if implemented. However, the City does view an expansion of its water supply portfolio to include recycled water as potentially desirable, if not necessarily equivalent on a cost basis to potable water, due to the additional water supply reliability such a recycled water supply would provide the City.

At this time, the City is not considering developing a desalinated water program, because it is not economically feasible for the City.

5.6 Summary of Current and Projected Future Water Supplies

Table 5-4 provides a summary of the City's available, current, and future water supplies in MGD under normal weather conditions. The City has no anticipated future changes to its existing water supply, and so the future supply does not change from the current supply.

Table 5-4. Current and Projected Water Supply, MGD[a]

Water Source	Available	FY 2014/15 (Actual)	FY 2019/20	FY 2024/25	FY 2039/40
Normal Year					
SFPUC[b]	3.25	1.20	5.35	5.35	5.35
NCCWD[c]	0.05	0.04	0.05	0.05	0.05
Groundwater[d]	2.10	1.89	0.00	0.00	0.00
Total Water Supply, MGD	5.40	3.14	5.40	5.40	5.40
Total Water Supply, CCF/YR	2,635,027	1,529,900	2,635,027	2,635,027	2,635,027
Single Dry Year & Multiple Dry Years – Year 1[e]					
SFPUC[b]	-	-	2.92	2.92	2.92
NCCWD[c]	-	-	0.05	0.05	0.05
Groundwater[d]	-	-	2.10	2.10	2.10
Total Water Supply, MGD	-	-	5.07	5.07	5.07
Total Water Supply, CCF/YR	-	-	2,473,997	2,473,997	2,473,997
Multiple Dry Years – Year 2 & Year 3[e]					
SFPUC[b]	-	-	2.52	2.52	2.52
NCCWD[c]	-	-	0.05	0.05	0.05
Groundwater[d]	-	-	2.10	2.10	2.10
Total Water Supply, MGD	-	-	4.67	4.67	4.67
Total Water Supply, CCF/YR	-	-	2,280,762	2,280,762	2,280,762

(a) Source: City of San Bruno 2015 UWMP (June 2016), Table 6-5, Table 6-6, and Appendix B Table 6-8.
(b) SFPUC imports are limited by the City's Interim Supply Allocation. SFPUC supply may be imported surface water or banked in lieu groundwater under the Regional GSR Project. The Normal Year water supply is modified to show the potential water supply with full implementation of the Regional GSR program. Under the Regional GSR program, SFPUC would provide surface water to the City beyond the 3.25 mgd contracted amount in Normal Years. In return, the City would pump less groundwater.
(c) NCCWD purchases assume that the City will purchase the same amount of water as it has historically purchased.
(d) A portion of the City's groundwater production may be offset by SFPUC surface water for in-lieu banking under the Regional GSR Project as described in (b), above.
(e) Water supply reliability (i.e., projected water supply under dry years) is presented in Section 6 of this WSA.

6.0 WATER SUPPLY RELIABILITY

10910(c)(4) If the city or county is required to comply with this part pursuant to subdivision (b), the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses.

10911(a) If, as a result of its assessment, the public water system concludes that its water supplies are, or will be, insufficient, the public water system shall provide to the city or county its plans for acquiring additional water supplies, setting forth the measures that are being undertaken to acquire and develop those water supplies. If the city or county, if either is required to comply with this part pursuant to subdivision (b), concludes as a result of its assessment, that water supplies are, or will be, insufficient, the city or county shall include in its water supply assessment its plans for acquiring additional water supplies, setting forth the measures that are being undertaken to acquire and develop those water supplies. Those plans may include, but are not limited to, information concerning all of the following:

(1) The estimated total costs, and the proposed method of financing the costs, associated with acquiring the additional water supplies.

(2) All federal, state, and local permits, approvals, or entitlements that are anticipated to be required in order to acquire and develop the additional water supplies.

(3) Based on the consideration set forth in paragraphs (1) and (2), the estimated timeframes within which the public water system, or the city or county if either is required to comply with this part pursuant to subdivision (b), expects to able to acquire additional water supplies.

The current reliability of the City's water supply is largely dependent upon its water supply contract with SFPUC and SFPUC's water supply reliability policy. The reliability discussion provided below has been taken, for the most part, from the City's 2015 UWMP (adopted in June 2016) and SFPUC's 2015 UWMP (adopted in June 2016).

6.1 BAWSCA's Long-Term Reliable Water Supply Strategy

In September 2014, BAWSCA completed the Regional Water Demand and Demand Study. The goal of the Demand Study was to develop transparent, defensible, and uniform demand and conservation savings projections for each wholesale customer using a common methodology to support both regional and individual agency planning efforts. The Demand Study projections were incorporated into Strategy discussed below.

Through the Demand Study process, BAWSCA and the wholesale customers: (1) quantified the total average-year water demand for each BAWSCA member agency through 2030; (2) quantified passive and active conservation water savings potential for each individual wholesale customer through 2040; and (3) identified conservation programs for further consideration for regional implementation by BAWSCA. The Demand Study projected that by 2040 the collective active conservation efforts of the wholesale customers would yield an additional 16 MGD in savings beyond what has already been achieved for the BAWSCA service area. Based on the revised water demand projections, the identified water conservation savings, and other actions, the collective purchases of the BAWSCA member agencies from the SFPUC are projected to stay below 184 MGD through 2018.

As part of the Demand Study, each wholesale customer was provided with a demand model that can be used to support ongoing demand and conservation planning efforts, including UWMP preparation.

BAWSCA's Strategy was developed to quantify the water supply reliability needs of the BAWSCA member agencies through 2040, identify the water supply management projects and/or programs (projects) that could be developed to meet those needs, and prepare an implementation plan for the Strategy's recommendations. Successful implementation of the Strategy is critical to ensuring that there will be sufficient and reliable water supplies for the BAWSCA member agencies and their customers in the future.

Phase II of the strategy was completed in February 2015 with release of the Strategy Phase II Final Report. The water demand analysis done during Phase II of the strategy resulted in the following key findings:

- There is no longer a regional normal year supply shortfall.
- There is a regional drought year supply shortfall of up to 43 MGD.

In addition, the project evaluation analysis completed during Phase II of the strategy resulted in the following key findings:

- Water transfers score consistently high across the various performance measures and within various portfolio constructs and thus represent a high priority element of the Strategy.
- Desalination also potentially provides substantial yield, but its high costs and intensive permitting requirements make it a less attractive drought year supply alternative. However, given the limited options for generating significant yield for the region, desalination warrants further investment in information as a hedge against the loss of local or other imported supplies.
- The other potential regional projects provide tangible, though limited, benefit in reducing dry year shortfalls given the small average yields in drought years.

BAWSCA is now implementing the strategy recommendations in coordination with BAWSCA member agencies. Strategy implementation will be adaptively managed to account for changing conditions and to ensure that the goals of the Strategy are met efficiently and cost-effectively.

Due to the size of the supply and reliability need, and the uncertainty around yield of some strategy projects, BAWSCA will need to pursue multiple actions and projects to provide some level of increased water supply reliability for its member agencies. On an annual basis, BAWSCA will re-evaluate strategy recommendations and results in conjunction with development of the work plan for the following year. In this way, actions can be modified to accommodate changing conditions and new developments.

6.2 SFPUC RWS Reliability

Information regarding the reliability of the SFPUC RWS was provided by BAWSCA, in coordination with SFPUC.

6.2.1 Water System Improvement Program

SFPUC's WSIP was approved on October 31, 2008, with the purpose of improving the delivery reliability of the RWS. The objectives of the WSIP related to water supply are listed below.

- Meet average annual water demand of 265 MGD from the SFPUC watersheds for retail and wholesale customers during non-drought years for system demands through 2018.
- Meet dry-year delivery needs through 2018 while limiting rationing to a maximum 20 percent system-wide reduction in water service during extended droughts.
- Diversify water supply options during non-drought and drought periods.
- Improve use of new water sources and drought management, including groundwater, recycled water, conservation, and transfers.

The WSIP provides benefits to the City by improving the reliability of wholesale water purchased from SFPUC, especially during period of drought. The program aims to meet customer water needs in non-drought and drought conditions and provides dry-year water supply projects to augment all year type water supplies during drought.

6.2.2 Dry-year Water Supply Projects

Approximately 85 percent of the SFPUC supply is sourced from the Tuolumne River watershed (through Hetch Hetchy Reservoir) and the remaining 15 percent comes from local watersheds, which include the Alameda Creek watershed and San Mateo County watersheds. Water supply from the local watersheds is stored in the following reservoirs: San Antonio, Calaveras, Crystal Springs, Pilarcitos, and San Andreas. These water supplies are used for all year types, and SFPUC has historically met demand in its service area in all year types.

During dry years, the WSIP limits systemwide rationing to a maximum of 20 percent in any one year. The following projects are a part of the WSIP and will help meet water demand during dry years, as well as will help to improve the seismic, delivery, water quality, and water supply reliability for the RWS:

- Calaveras Dam Replacement Project
- Alameda Creek Recapture Project
- Lower Crystal Springs Dam Improvements
- Regional Groundwater Storage and Recovery Project
- 2 MGD Dry-year Water Transfer

To achieve its target of meeting at least 80 percent of its customer demand during droughts at 265 MGD, the SFPUC must successfully implement the dry-year water supply projects included in the WSIP and described in detail in the following sections.

Furthermore, the permitting obligations for the Calaveras Dam Replacement Project and the Lower Crystal Springs Dam Improvements include a combined commitment of 12.8 MGD for instream flows on average. When this is reduced for an assumed Alameda Creek Recapture Project recovery of 9.3 MGD, the net loss of water supply is 3.5 MGD. The SFPUC's participation in regional water supply reliability efforts, such as the Bay Area Regional Desalination Project (BARDP), additional water transfers, and other projects may help to make up for this shortfall.

6.2.2.1 Calaveras Dam Replacement Project

Calaveras Dam is located near a seismically active fault zone and was determined to be seismically vulnerable. To address this vulnerability, the SFPUC constructed a new dam of equal height downstream of the existing dam. The EIR was certified by the San Francisco City Planning Commission in 2011, and construction was completed in September 2018. SFPUC began refilling the Calaveras Reservoir in the wet season of the 2019 water year.

6.2.2.2 Alameda Creek Recapture Project

The Alameda Creek Recapture Project will recapture the water system yield lost due to instream flow releases at Calaveras Reservoir or bypassed around the Alameda Creek Diversion Dam and return this yield to the RWS through facilities in the Sunol Valley. Water that naturally infiltrates from Alameda Creek will be recaptured into an existing quarry pond known as SMP (Surface Mining Permit)-24 Pond F2. The project will be designed to allow the recaptured water to be pumped to the Sunol Valley Water Treatment Plant or to San Antonio Reservoir. The project's Draft EIR will be recirculated upon completion of updates to the Draft. The Project's schedule will be re-evaluated once the recirculated Draft EIR is published.

6.2.2.3 Lower Crystal Springs Dam Improvements

The Lower Crystal Springs Dam Improvements were substantially completed in November 2011. While the project has been completed, permitting issues for reservoir operation have become significant. While the reservoir water elevation was lowered due to Division of Safety of Dams restrictions, the habitat for the Fountain Thistle, an endangered plant, followed the lowered reservoir water elevation. Raising the reservoir water elevation now requires that new plant populations be restored incrementally before the reservoir water elevation is raised. The result is that it may be several years before the original reservoir water elevation can be restored.

6.2.2.4 Regional Groundwater Storage and Recovery Project

The GSR Project is a strategic partnership between SFPUC and three San Mateo County agencies: California Water Service (serving South San Francisco and Colma), the City of Daly City, and the City of San Bruno. The project seeks to balance the management of groundwater and surface water resources in a way that safeguards supplies during times of drought. During years of normal or heavy rainfall, the project provides additional surface water to the partner

agencies in San Mateo County, allowing them to reduce the amount of groundwater that they pump from the South Westside Groundwater Basin. Over time, the reduced pumping would allow the aquifer to recharge and result in increased groundwater storage of up to 20 billion gallons. The project's Final EIR was certified in August 2014, and the project also received Commission approval that month. The well station construction contract Notice to Proceed was issued in April 2015, and construction is expected to be completed in winter 2021. The City implemented conjunctive use operations starting in 2016.

6.2.2.5 Dry-Year Water Transfer

In 2012, a dry-year transfer was proposed between the Modesto Irrigation District and the SFPUC. Negotiations were terminated because an agreement could not be reached. Subsequently, the SFPUC is having ongoing discussions with the Oakdale Irrigation District for a one-year transfer agreement for 2 MGD (2,240 AF).

6.2.3 Projected SFPUC RWS Supply Reliability

Procedures to allocate RWS supplies during SFPUC system shortages are specified in agreements between SFPUC and the Wholesale Customers. Water shortage allocation procedures and projected supplies during normal and dry years are described below.

The wholesale customers and SFPUC adopted the Water Supply Agreement in July 2009, which included a Water Shortage Allocation Plan (WSAP) to allocate water from the RWS to retail and wholesale customers during system-wide shortages of 20 percent or less. The WSAP has two tiers which are described below.

The Tier One Plan allocates water between SFPUC and the wholesale customers collectively based on the level of the shortage (up to 20 percent). This plan applies only when SFPUC determines that a system-wide water shortage exists and issues a declaration of a water shortage emergency under California Water Code Section 350. The SFPUC may also opt to request voluntary cutbacks from San Francisco and the wholesale customers to achieve necessary water use reductions during drought periods. The Tier One Plan allows for voluntary transfers of shortage allocations between the SFPUC and any wholesale customer and between wholesale customers themselves. The allocations outlined in the Tier One Plan are provided in Table 6-1.

Table 6-1. Tier One Plan Water Shortage Allocations

System-Wide Reduction Required	Share of Available Water	
	SFPUC	Wholesale Customers
≤ 5%	35.5%	64.5%
6% to 10%	36.0%	64.0%
11% to 15%	37.0%	63.0%
16% to 20%	37.5%	62.5%

The Tier One Plan will expire at the end of term of the WSA in 2034, unless mutually extended by San Francisco and the wholesale customers.

The Tier Two Plan allocates the collective wholesale customer share among the wholesale customers based on a formula that accounts for each wholesale customer's ISG, seasonal use of all available water supplies, and residential per capita use. The water made available to the wholesale customers collectively will be allocated among them in proportion to each wholesale customer's Allocation Basis, which is the weighted average of the wholesale customer's ISG and the Base/Seasonal Component. The Allocation Basis is used as the numerator over the sum of all wholesale customers' Allocation Bases to calculate each wholesale customer's Allocation Factor. The final shortage allocation for each wholesale customer is determined by multiplying the amount of water available to the wholesale customers collectively over the Tier One Plan by the wholesale customer's Allocation Factor. BAWSCA calculates each wholesale customer's Allocation Factors annually in preparation for a potential water shortage emergency.

For water shortages greater than 20 percent, the SFPUC will meet with the wholesale customers to determine if modifications to the Tier 1 Plan can be agreed upon by the SFPUC and its wholesale customers. If an agreement cannot be reached, SFPUC may allocate water at its discretion, subject to challenge by the Wholesale Customers, unless all of the Wholesale Customers direct that a particular Tier 2 allocation methodology be used. The City is susceptible to these modifications to its purchased water supply since it is a wholesale customer of SFPUC and depends largely on water from the RWS.

The current Tier Two Plan expired in December 2018.

6.3 NCCWD Reliability

The water received within the City service area from NCCWD originates from the SFPUC Regional System and thus is subject to the same reliability as described previously.

6.4 Groundwater Reliability

The reliability of the City's groundwater supply (South Westside Basin) is dependent on the quantity of water that is recharged and extracted each year and quality of those supplies. Historically, the South Westside Basin has received sufficient recharge such that it has maintained relatively stable groundwater levels in recent years.

San Bruno is concerned about the effect of saltwater intrusion on the quality of its groundwater supplies. To protect the quality of its groundwater source, the City is actively monitoring the effects of groundwater extraction on saltwater intrusion. To date however, there is no indication that saltwater intrusion has occurred in San Bruno, and the potential for seawater intrusion in the future is being studied and monitored.

6.5 Dry Year Water Supply

In the City's 2015 UWMP, projected Normal Year supplies are assumed to satisfy the City's project Normal Year demands. However, as shown in Table 6-2, purchased supplies from SFPUC may be subject to reductions during dry years. In the City's 2015 UWMP, and this WSA, the City's purchased supplies from the SFPUC RWS assume supply reductions as discussed in Section 6.2.3.

Table 6-2 shows the City's projected supplies from SFPUC in MGD during dry years based on the assumptions in the City's 2015 UWMP.

Table 6-2. Projected Water Supplies – Dry Years

Hydrologic Condition	Supply, MGD		
	2020	2025	2040
Single Dry Year[a]	5.07	5.07	5.07
Multiple Dry Years – Year 1[b]	5.07	5.07	5.07
Multiple Dry Years – Year 2[b]	4.67	4.67	4.67
Multiple Dry Years – Year 3[b]	4.67	4.67	4.67

(a) Source: City of San Bruno 2015 UWMP (June 2016), Table 7-5.
(b) Source: City of San Bruno 2015 UWMP (June 2016), Table 7-6.

Table 6-3 shows the City's projected supplies from SFPUC in CCF/year during dry years based on the assumptions in the City's 2015 UWMP.

Table 6-3. Projected Water Supplies – Dry Years

Hydrologic Condition	Supply, CCF/year		
	2020	2025	2040
Single Dry Year[a]	2,473,997	2,473,997	2,473,997
Multiple Dry Years – Year 1[b]	2,473,997	2,473,997	2,473,997
Multiple Dry Years – Year 2[b]	2,280,762	2,280,762	2,280,762
Multiple Dry Years – Year 3[b]	2,280,762	2,280,762	2,280,762

(a) Source: City of San Bruno 2015 UWMP (June 2016), Appendix B Table 7-3.
(b) Source: City of San Bruno 2015 UWMP (June 2016), Appendix B Table 7-4.

7.0 DETERMINATION OF WATER SUPPLY SUFFICIENCY BASED ON THE REQUIREMENTS OF SB 610

> *10910(c)(4) If the city or county is required to comply with this part pursuant to subdivision (b), the water supply assessment for the project shall include a discussion with regard to whether the total projected water supplies, determined to be available by the city or county for the project during normal, single dry, and multiple dry water years during a 20-year projection, will meet the projected water demand associated with the proposed project, in addition to existing and planned future uses, including agricultural and manufacturing uses.*
>
> *10911 (a) If, as a result of its assessment, the public water system concludes that its water supplies are, or will be, insufficient, the public water system shall provide to the city or county its plans for acquiring additional water supplies, setting forth the measures that are being undertaken to acquire and develop those water supplies.*

Pursuant to Water Code section 10910(c)(4) and based on the technical analyses described in this WSA, the City finds that the total projected water supplies determined to be available during a 20-year projection will meet the projected water demand associated with the highest water demand future scenario, in addition to existing and planned future uses. As described previously, the projected water demands for the highest water demand future scenario are accounted for in the City's 2015 UWMP.

As discussed in this WSA, the City is a member of agency of BAWSCA and purchases water from the SFPUC RWS. BAWSCA is investigating projects and implementing strategies to continuously improve the reliability of the water supplies to its member agencies. Additionally, SFPUC is aggressively implementing projects to improve the reliability of the RWS to meet the water demands of its customers through 2040.

Tables 7-1 summarizes the projected availability of the City's existing and planned future water supplies and the City's projected water demands (in MGD) during Normal, Single Dry, and Multiple Dry years through 2040. As shown in Table 7-1, water demand within the City's service area is not expected to exceed the City's water supply during Normal, Single Dry, or Multiple Dry water years.

In December 2018, the State Water Resources Control Board adopted amendments to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary, establishing water quality objectives to maintain the health of the State's rivers and the Bay-Delta ecosystem (the Bay-Delta Plan Amendment). The State Water Resources Control Board has stated that it intends to implement the Bay-Delta Plan Amendment by 2022, assuming all required approvals are obtained by that time. Implementation of the Bay-Delta Plan Amendment will result in a substantial reduction in the City's SFPUC water supplies from the Tuolumne River watershed during dry years, requiring rationing in the City to a degree greater than that previously anticipated to address supply shortages that were not accounted for in the 2015 Urban Water Management Plan.

In a letter dated July 31, 2019 from the SFPUC Director of Water Resources to the BAWSCA Water Resources Manager, SFPUC provided a draft document titled "*Water Supply Reliability Information for BAWSCA Member Agencies Water Supply Assessments (with Corrections)*". The document estimates total shortfalls in water supply (i.e., total retail demand minus total retail

supply) to retail customers through 2040 under various scenarios. With implementation of the Bay-Delta Plan Amendment, by 2040 the City's SFPUC water supply could be reduced by up to 46 percent in Single Dry Year and the first year of a Multiple Dry Year drought, and by over 67 percent in an extended (7 to 8-year) drought.

As indicated above, adequate water supplies are available to serve the proposed project and reasonably foreseeable future development in Normal, Single Dry, and Multiple Dry Years, unless the Bay-Delta Plan Amendment is implemented; in that event, new or expanded water supply facilities will be required to address shortfalls in single and multiple dry years, but the need for these new or expanded facilities would occur with or without the Proposed Project. If the Bay-Delta Plan Amendment is implemented, the City would address supply shortfalls through significantly increased rationing, but the project would not make a considerable contribution to impacts from increased rationing.

Table 7-1. San Bruno Summary of Water Demand Versus Supply During Hydrologic Normal, Single Dry, and Multiple Dry Years

Hydrologic Condition		MGD		
		2020	2025	2040
Normal Year				
Available Water Supply[(a)]		5.40	5.40	5.40
Total Water Demand[(b)]		3.93	4.24	5.31
	Potential Surplus (Deficit)	1.47	1.16	0.09
	Percent Shortfall of Demand	-	-	-
Single Dry Year				
Available Water Supply[(c)]		5.07	5.07	5.07
Total Water Demand[(d)]		3.54	3.82	4.78
	Potential Surplus (Deficit)	1.53	1.25	0.29
	Percent Shortfall of Demand	-	-	-
Multiple Dry Years				
Multiple Dry Year 1	Available Water Supply[(c)]	5.07	5.07	5.07
	Total Water Demand[(d)]	3.54	3.82	4.78
	Potential Surplus (Deficit)	1.53	1.25	0.29
	Percent Shortfall of Demand	-	-	-
Multiple Dry Year 2	Available Water Supply[(c)]	4.67	4.67	4.67
	Total Water Demand[(d)]	3.14	3.39	4.25
	Potential Surplus (Deficit)	1.53	1.28	0.42
	Percent Shortfall of Demand	-	-	-
Multiple Dry Year 3	Available Water Supply[(c)]	4.67	4.67	4.67
	Total Water Demand[(d)]	3.14	3.39	4.25
	Potential Surplus (Deficit)	1.53	1.28	0.42
	Percent Shortfall of Demand	-	-	-

(a) From Table 5-4 of this WSA.
(b) From Table 4-2 of this WSA.
(c) From Table 6-2 of this WSA.
(d) From Table 4-3 of this WSA.

Table 7-2 summarizes the projected availability of the City's existing and planned future water supplies and the City's projected water demands (in CCF/year) during Normal, Single Dry, and Multiple Dry years through 2040.

Table 7-2. San Bruno Summary of Water Demand Versus Supply During Hydrologic Normal, Single Dry, and Multiple Dry Years

Hydrologic Condition		CCF/year 2020	2025	2040
Normal Year				
Available Water Supply[(a)]		2,635,027	2,635,027	2,635,027
Total Water Demand[(b)]		1,917,714	2,068,984	2,591,110
	Potential Surplus (Deficit)	717,313	566,043	43,917
	Percent Shortfall of Demand	-	-	-
Single Dry Year				
Available Water Supply[(c)]		2,473,997	2,473,997	2,473,997
Total Water Demand[(d)]		1,725,943	1,862,086	2,331,999
	Potential Surplus (Deficit)	748,054	611,911	141,998
	Percent Shortfall of Demand	-	-	-
Multiple Dry Years				
Multiple Dry Year 1	Available Water Supply[(c)]	2,473,997	2,473,997	2,473,997
	Total Water Demand[(d)]	1,725,943	1,862,086	2,331,999
	Potential Surplus (Deficit)	748,054	611,911	141,998
	Percent Shortfall of Demand	-	-	-
Multiple Dry Year 2	Available Water Supply[(c)]	2,280,762	2,280,762	2,280,762
	Total Water Demand[(d)]	1,534,171	1,655,187	2,072,888
	Potential Surplus (Deficit)	746,591	625,575	207,874
	Percent Shortfall of Demand	-	-	-
Multiple Dry Year 3	Available Water Supply[(c)]	2,280,762	2,280,762	2,280,762
	Total Water Demand[(d)]	1,534,171	1,655,187	2,072,888
	Potential Surplus (Deficit)	746,591	625,575	207,874
	Percent Shortfall of Demand	-	-	-

(a) From Table 5-4 of this WSA.
(b) Source: City of San Bruno 2015 UWMP (June 2016), Table 4-2.
(c) From Table 6-3 of this WSA.
(d) From Table 4-4 of this WSA.

8.0 VERIFICATION OF SUFFICIENT WATER SUPPLY BASED ON THE REQUIREMENTS OF SB 221

The highest water demand future scenario, with up to 1,070 residential dwelling units, is also subject to the requirements of SB 221 (Government Code section 66473.7). SB 221 applies to residential development projects of more than 500 dwelling units (such as the Proposed Project) and requires that the City provide a written verification that the water supply for the Proposed Project is sufficient.

Verification must demonstrate supply sufficiency by showing that water supplies available during Normal, Single Dry and Multiple Dry years within a 20-year projection will meet the projected demand associated with the Proposed Project, in addition to existing and planned future uses, including, but not limited to, agriculture and industrial uses. Per the requirements of SB 221, the following must be considered:

- Historical water deliveries for the previous 20 years;
- Urban water shortage contingency analysis prepared for the UWMP;
- Supply reduction for specific water use sectors; and
- Amount of water expected from specified supply projects.

The City's 2015 UWMP and this WSA for the highest water demand future scenario provide the documentation required to comply with SB 221 and demonstrate that the City's supplies are sufficient to meet the projected demand associated with the highest water demand future scenario, in addition to existing and planned future uses, including, but not limited to, agriculture and industrial uses. The specific considerations to be evaluated for the SB 221 verification are described below and reference applicable sections of the City's 2015 UWMP and this WSA.

8.1 Historical Water Deliveries

The City's water supplies are described in Section 5.0 of this WSA and Chapter 6 of the City's 2015 UWMP. Table 8-1 presents the City's historical use of these supplies over the past 20 years. The use of these supplies will continue into the future, as described in Section 5.0 of this WSA, and as shown in Table 5-1 of this WSA.

Table 8-1. Historical Water Supply[a]

Water Source	1995[b]	2000[b]	2005[b]	2010[c]	2015[d]
SFPUC	2.47	2.36	2.30	1.48	0.90
NCCWD	0.04	0.04	0.05	0.04	0.04
Groundwater	1.76	2.02	1.43	2.12	1.67
Total Water Supply, MGD	4.27	4.42	3.78	3.64	2.61
Total Water Supply, CCF/YR	2,083,646	2,156,852	1,843,963	1,775,688	1,275,570

(a) Historical water supply values are based on calendar year instead of fiscal year due to the historical (1988-2002) data provided in calendar year format only. Therefore, production values may not perfectly align with City's 2015 UWMP production values. The calendar year 2015 total water supplied is lower than the FY 2014/15 water supplied due to the historic statewide drought.
(b) Source: "water data 1988-2010.xls", by City of San Bruno, provided to West Yost on 5/1/2019.
(c) Source: "2010 water data.xls", by City of San Bruno, provided to West Yost in 2016 for preparation of the City's 2015 UWMP.
(d) Source: "2015 water data.xls", by City of San Bruno, provided to West Yost on 3/29/2019.

The availability and historical and projected use of groundwater supplies is described in Section 5.4 of this WSA.

Water supply availability and reliability during Normal, Single Dry and Multiple Dry years is described in Section 6.0 of this WSA.

8.2 Projected Water Demand by Customer Sector

Projected potable water demands in the City's service area are described in Section 4.2 of this WSA based on information provided in Chapter 4 of the City's 2015 UWMP. Projected water demand by customer sector within the City's service area are summarized in the City's 2015 UWMP (Table 4-2) and in Table 8-2.

Table 8-2. Actual and Projected Water Demands

Water Use Factor	FY 2014/15[a] (Actual)	2020[b]	2025[b]	2040[b]
Residential	2.14	2.68	2.89	3.62
Commercial	0.62	0.78	0.84	1.06
City Parks and Facilities	0.13	0.16	0.17	0.21
Water Losses (includes unbilled unmetered)	0.25	0.31	0.34	0.42
Total, MGD	3.14	3.93	4.24	5.31
Total, CCF/YR	1,529,900	1,917,714	2,068,984	2,591,110

(a) Source: City of San Bruno 2015 UWMP (June 2016), Table 4-1.
(b) Source: City of San Bruno 2015 UWMP (June 2016), Table 4-2.

8.3 Water Shortage Contingency Analysis

Chapter 8 of the City's 2015 UWMP provides a *Water Shortage Contingency Plan*, which describes the components of the City's conservation measures, including staged reductions in the City's water use in response to supply cutbacks, emergency response plans to catastrophic supply interruption, and water use prohibitions and enforcement mechanisms. The plan is based on the San Bruno Municipal Code (SBMC), SFPUC Emergency Operations Plan (EOP), San Mateo County's EOP, and City of San Bruno's Emergency Response Plan (ERP).

In the event of a catastrophic supply interruption, the response procedures that the City would follow are described in the SFPUC EOP, San Mateo County's EOP, and the City of San Bruno's ERP. Actions described in these plans focus on maintaining flow within the regional and local water system pipelines. In the event that this water is unsafe for consumption (e.g., only available for fire flow), the City plans to distribute potable water to residents at emergency distribution centers.

The SFPUC EOP, originally released in 1992, has been updated on average every two years. The EOP addresses a broad range of emergency situations that may affect the SFPUC and that supplements the City and County of San Francisco's EOP prepared by the Department of Emergency Management. Specifically, the purpose of the SFPUC EOP is to describe the department's emergency management organization, roles and responsibilities, and emergency policies and procedures. With respect to emergency response for the SFPUC RWS, the SFPUC prepared the *SFPUC Regional Water System Emergency Response and Recovery Plan (ERRP)*, completed in 2003 and regularly updated. The purpose of this plan is to describe the SFPUC RWS emergency management organizations, roles and responsibilities within those organizations, and emergency management procedures. This contingency plan addresses how to respond and recover from a major RWS seismic event, or other major disaster.

The City prepared a Water System ERP in 2004 in response to the requirements of the Public Health, Security and Bioterrorism Preparedness and Response Act of 2002 (Bioterrorism Act), Section 1433 amendment to the Safe Drinking Water Act, and routinely updates the plan. The City's ERP provides a framework for emergency response by the City's Public Services Department (Department) and describes the Department's emergency management organization, outlines the rules and responsibilities of the Department and its staff during emergency response and recovery, compiles and organizes water system emergency response protocols and procedures, and identifies contingency plans to be implemented in the event that one or more of San Bruno's water supplies were to become unusable. The plan provides guidance in response to disasters and attacks, both natural and man-made.

The SBMC "Water Conservation" Chapter 10.16 authorizes the City Council to declare a water supply emergency and impose mandatory water conservation measures and/or water rationing as they see fit. SBMC §10.16 includes enforcement and penalty measures, and violation of any provision under SBMC §10.16 is subject to an infraction punishable by a fine. Upon declaring a water shortage, the City has four Stages of Action to follow. These stages were developed as part of the City's 2001 UWMP to meet water supply cutbacks ranging from 5 percent to 50 percent. Each of the four stages describes actions to be taken by the City to achieve the stated cutback for that particular stage. All of the stages allow for adequate water to protect public health and safety

and to satisfy the fire protection needs of the City. At the July 26, 2016 City Council meeting, the City Council adopted a resolution to implement Stage I Conservation Measures of the *Water Shortage Contingency Plan*.

If an emergency were to occur, or if drought conditions occurred, requiring the City to implement its *Water Shortage Contingency Plan*, all City customers, including those within the Proposed Project, would be subject to the same water conservation measures and water use restrictions as included in the City's *Water Shortage Contingency Plan*.

8.4 Verification of Sufficient Water Supply

As described in Section 7.0 of this WSA, the City's water supplies are sufficient to meet the projected demands, associated with the highest water demand future scenario, in addition to the City's existing and planned future uses, including, but not limited to, industrial uses. There are no existing nor planned future agricultural uses in the City's service area.

9.0 WATER SUPPLY ASSESSMENT AND VERIFICATION APPROVAL PROCESS

> *10910 (g)(1) Subject to paragraph (2), the governing body of each public water system shall submit the assessment to the city or county not later than 90 days from the date on which the request was received. The governing body of each public water system, or the city or county if either is required to comply with this act pursuant to subdivision (b), shall approve the assessment prepared pursuant to this section at a regular or special meeting.*

The City Council must approve this WSA at a regular or special meeting. Furthermore, this WSA must be included in the Draft EIR being prepared for the Proposed Project.

10.0 REFERENCES

"Bayhill Buildout Summary Tables_3.29.19.docx", provided to West Yost Associates by ICF on 3/29/2019.

"Ch.2_Project_Description_ADEIR_021319.doc", provided to West Yost Associates by ICF on 3/13/2019.

City Council Agenda Item – Staff Report, prepared by Jim Burch (Public Services Deputy Director, City of San Bruno), July 26, 2016.

City of San Bruno 2015 Urban Water Management Plan, prepared by West Yost Associates, June 2016.

City of San Bruno Water System Master Plan, prepared by West Yost Associates, November 2012.

Figure 1: Draft EIR Preferred Alternative – Land Use, provided to West Yost Associates by ICF on 3/29/2019.

Figure 2-4: Existing Land Uses, provided to West Yost Associates by ICF on 3/13/2019.

"Regional Groundwater Storage and Recovery" webpage, San Francisco Public Utilities Commission, accessed at https://www.sfwater.org/index.aspx?page=982 on 5/2/2019.

WSIP Regional Projects Quarterly Report – 2nd Quarter / Fiscal Year 2018-2019, prepared by Harlan L. Kelly, Jr. (General Manager, SFPUC).

Appendix 3.11-1b

Water Supply Assessment Addendum, July 13, 2021

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TECHNICAL MEMORANDUM

DATE: July 13, 2021

Project No.: 462-60-19-24
SENT VIA: EMAIL

TO: Hae Won Ritchie, City of San Bruno

CC: Mark Reinhardt, City of San Bruno
Joanna Kwok, City of San Bruno

FROM: Jim Connell, PE, RCE #63052

REVIEWED BY: Elizabeth Drayer, PE, RCE #46872
Amy Kwong, PE, RCE #73213

SUBJECT: Bayhill Specific Plan Development Project Water Supply Assessment Addendum

The purpose of this technical memorandum (TM) is to provide an addendum to the September 2019 Bayhill Specific Plan Development Project (Project) Water Supply Assessment (Bayhill WSA) prepared for the City of San Bruno (City) to address recent changes in water supply reliability and updated City-wide water demand projections.

This TM discusses the following topics:

- Summary of Bayhill WSA
- Impact of Revised Water Supply Reliability Assumptions
- Potential Water Supply Shortage Mitigation Measures
- Conclusions

SUMMARY OF BAYHILL WSA

The Bayhill WSA was prepared for the City in 2019 and was based on supply and demand assumptions developed in the City's 2015 Urban Water Management Plan (UWMP) and 2012 Water System Master Plan. It should be noted that both of these documents are currently being updated to reflect more current water supply and demand conditions.

The Bayhill WSA found that under normal hydrologic conditions, there would be sufficient water supplies to meet the projected demands, associated with the Project's highest water demand future scenario, in addition to the City's existing and planned future uses.

To address potential water supply shortages in dry hydrologic conditions, the City assumed demands would be reduced. The demand reduction assumptions under dry year conditions, as included in the City's 2015 UWMP and used in the Bayhill WSA, are listed below.

- During Single Dry Years, potable water demands are assumed to be 90 percent of Normal Year demands (10 percent reduction in water use). This assumes that the City implements a Stage I water shortage as defined in its Water Shortage Contingency Plan (WSCP).[1]
- During Multiple Dry Years, potable water demands are assumed to be 90 percent of Normal Year demands (10 percent reduction in water use) for the first dry year and 80 percent of Normal Year demands (20 percent reduction in water use) for the second and third dry years (updated to second through fifth dry years for this TM). This reduction assumes that the City implements a Stage I water shortage as defined in its WSCP in the first year and implements a Stage II water shortage in the following years.

Given these demand reduction assumptions, the Bayhill WSA found that under single dry year and multiple dry year hydrologic conditions there would be sufficient water supplies to meet the projected demands, associated with the Project's highest water demand future scenario, in addition to the City's existing and planned future uses.

As discussed in the Bayhill WSA, in December 2018, the State Water Resources Control Board (State Board) adopted amendments to the Water Quality Control Plan for the San Francisco Bay/Sacramento San Joaquin Delta Estuary, establishing water quality objectives to maintain the health of the State's rivers and the Bay-Delta ecosystem (the Bay-Delta Plan Amendment). At the time of the Bayhill WSA, the specific impacts of the Bay-Delta Plan Amendment to the City's water supply availability were not known, but the Bayhill WSA pointed out that any supply reductions would affect the entire City and would not be exacerbated by the Bayhill Specific Plan Development Project. This statement was valid at the time because the City-wide water demand projections were provided by the Bay Area Water Supply and Conservation Agency (BAWSCA) based on growth projections that could include the Bayhill Specific Plan, but could also include other growth. If the Bayhill Specific Plan did not move forward, the assumption in the Bayhill WSA was that other development would take place elsewhere in the City and fulfill the projected water demand.

However, the City's water demand projections currently being updated for the 2020 Water System Master Plan and the 2020 UWMP do specifically include the Bayhill Specific Plan Development Project so the water demand assumption in the Bayhill WSA has been revised to reflect the current water demand projection methodology.

[1] The City's WSCP as defined in the 2015 UWMP includes four water shortage stages: Stage I = up to 10 percent supply reduction; Stage II = up to 20 percent supply reduction; Stage III = up to 35 percent supply reduction; and Stage IV = up to 50 percent supply reduction.

IMPACT OF REVISED WATER SUPPLY RELIABILITY ASSUMPTIONS

In a letter dated July 31, 2019 from the San Francisco Public Utilities Commission (SFPUC) Director of Water Resources to the BAWSCA Water Resources Manager, SFPUC provided a memorandum[2] titled "*Water Supply Reliability Information for BAWSCA Member Agencies Water Supply Assessments (with Corrections)*" (Reliability Memorandum). This Reliability Memorandum (Attachment A) states that implementation of the Bay-Delta Plan Amendment is uncertain for several reasons:

- **First:** Under the Clean Water Act, the U.S. Environmental Protection Agency (USEPA) must approve the water quality standards identified in the Bay-Delta Plan Amendment within 90 days from the date the approval request is received. By letter dated June 11, 2019, USEPA rejected the State Board's two-page submittal as inadequate under the requirements of the Clean Water Act. Pursuant to USEPA's letter, the State Board has 90 days to respond with a submittal that complies with the law. At this point, USEPA has neither approved, nor disapproved, any of the revised water quality objectives. It is uncertain whether the USEPA will approve or disapprove the water quality standards in the future. Furthermore, the determination could result in litigation.
- **Second**: Since adoption of the Bay-Delta Plan Amendment, over a dozen lawsuits have been filed in both state and federal court, challenging the State Board's adoption of the Bay-Delta Plan Amendment, including two legal challenges filed by the federal government, at the request of the U.S. Department of Interior, Bureau of Reclamation in state and federal courts. These cases are in the early stage and there have been no dispositive court rulings to date.
- **Third**: The Bay-Delta Plan Amendment is not self-implementing and does not allocate responsibility for meeting its new flow requirements to the SFPUC or any other water rights holders. Rather, the Plan Amendment merely provides a regulatory framework for flow allocation, which must be accomplished by other regulatory and/or adjudicatory proceedings, such as a comprehensive water rights adjudication or, in the case of the Tuolumne River, the 401 certification process in the Federal Energy Regulatory Commission's (FERC) relicensing proceeding for Don Pedro Dam. The license amendment process is currently expected to be completed in the 2022-23 timeframe. This process and the other regulatory and/or adjudicatory proceedings would likely face legal challenges and have lengthy timelines, and quite possibly could result in a different assignment of flow responsibility (and therefore a different water supply impact on the SFPUC).
- **Fourth**: In recognition of the obstacles to implementation of the Bay-Delta Plan Amendment, State Board Resolution No. 2018-0059 adopting the Bay-Delta Plan Amendment directed staff to help complete a "Delta watershed-wide agreement, including potential flow measures for the Tuolumne River" by March 1, 2019, and to incorporate such agreements as an "alternative" for a future amendment to the Bay-Delta Plan to be presented to the State Board "as early as possible after December 1, 2019." In accordance with the State Board's instruction, on March 1, 2019, SFPUC, in partnership with other key stakeholders, submitted a proposed project description for the Tuolumne River that could be the basis for a voluntary substitute agreement with the State Board ("March 1st Proposed Voluntary Agreement"). On March 26, 2019, SFPUC adopted Resolution

[2] Letter from Paula Kehoe, SFPUC Director of Water Resources to Tom Francis, Water Resources Manager, BAWSCA, dated July 31, 2019. Includes attachment titled Water Supply Reliability Information for BAWSCA Member Agencies Water Supply Assessments (with Corrections).

> No. 19-0057 to support SFPUC's participation in the Voluntary Agreement negotiation process. To date, those negotiations are ongoing under the California Natural Resources Agency and California Environmental Protection Agency and the leadership of the Newsom administration. The negotiations for a voluntary agreement have made significant progress since an initial framework was presented to the State Board on December 12, 2018. The package submitted on March 1, 2019 is the product of renewed discussions since Governor Newsom took office. While significant work remains, the package represents an important step forward in bringing together diverse California water interests.

In March 2021, SFPUC sent a letter to BAWSCA[3] (Attachment B) presenting water supply reliability modeling results for use in member agencies' 2020 UWMPs. BAWSCA then evaluated the impacts for each SFPUC water wholesale customer (also in Attachment B). For San Bruno, the water supply reliability results indicated a potential SFPUC water supply shortfall of up to 19 percent in the fourth and fifth years of a multiple year dry period if the Bay-Delta Plan Amendment were not implemented and up to 54 percent in the fourth and fifth years of a multiple year dry period if the Bay-Delta Plan Amendment were implemented as it currently stands.

It should be noted that the City also utilizes groundwater as a supply source. As discussed in the Bayhill WSA, the City participates in the Regional Groundwater and Storage Recovery (GSR) Project. Therefore, the City is projected to have two supply modes that vary according to hydrologic conditions. The supply modes include "put" operations (in normal and wet years) and "take" operations (in dry years). During "put" operations, SFPUC provides additional surface water to the City to reduce the City's groundwater pumping. During "take" operations, the City utilizes available groundwater supplies and reduces surface water deliveries, thereby freeing surface water supply to be delivered to other SFPUC customers. Projected groundwater supplies under normal hydrologic conditions assume that groundwater use is minimized (i.e., "put" operations). During single dry and multiple dry years, projected groundwater supplies are assumed to be equal to 2.10 million gallons per day (MGD).

West Yost has evaluated the impact that the revised SFPUC water supply reliability modeling results with and without the Bay-Delta Plan Amendment would have on the Bayhill WSA findings and conclusions.

The water demand projections used in this evaluation are shown below in Table 1. Table 1 provides an update to Tables 4-2 and 4-3 from the Bayhill WSA based on more current water demand projections which specifically include the projected water demands for the Bayhill Specific Plan Development Project.

[3] Letter from Paula Kehoe, SFPUC Director of Water Resources to Danielle McPherson Senior Water Resources Specialist, BAWSCA, dated March 30, 2021, plus tables summarizing Drought Allocations by Agency provided by BAWSCA on April 1, 2021 .

Table 1. Projected City of San Bruno Future Water Demand, MGD

Hydrologic Condition	Demand Reduction[a], percent	2025	2040	2045
Average (Normal) Year[b]	0	3.53	4.78	4.78
Single Dry Year	10	3.18	4.30	4.30
Multiple Dry Years, Year 1	10	3.18	4.30	4.30
Multiple Dry Years, Year 2	20	2.82	3.82	3.82
Multiple Dry Years, Year 3	20	2.82	3.82	3.82
Multiple Dry Years, Year 4	20	2.82	3.82	3.82
Multiple Dry Years, Year 5	20	2.82	3.82	3.82

(a) Demands will be reduced 10 percent for single dry years for a Stage I water shortage and 20 percent for multiple dry years, after year 1, for a Stage II water shortage.
(b) Based on totals presented in the City's working draft 2020 UWMP.

Table 7-1 of the Bayhill WSA summarized the water supply and demand findings of the evaluation. That table has been updated for this re-evaluation assuming no Bay-Delta Plan Amendment (shown in Table 2 below) and full implementation of the Bay-Delta Plan Amendment (shown in Table 3 below).

Table 2. Summary of City of San Bruno Water Demand Versus Supply During Hydrologic Normal, Single Dry, and Multiple Dry Years – Without Bay-Delta Plan Amendment

Hydrologic Condition		MGD		
		2025	2040	2045
Normal Year				
	Available Water Supply	5.39	5.35	5.36
	Total Water Demand	**3.53**	**4.78**	**4.78**
	Potential Surplus (Deficit)	1.86	0.57	0.58
	Percent Shortfall of Demand	-	-	-
Single Dry Year				
	Available Water Supply	5.39	5.35	5.36
	Total Water Demand (10% reduction from normal year)	**3.18**	**4.30**	**4.30**
	Potential Surplus (Deficit)	2.21	1.05	1.06
	Percent Shortfall of Demand	-	-	-
Multiple Dry Years				
Multiple Dry Year 1	Available Water Supply	5.39	5.35	5.36
	Total Water Demand (10% reduction from normal year)	**3.18**	**4.30**	**4.30**
	Potential Surplus (Deficit)	2.21	1.05	1.06
	Percent Shortfall of Demand	-	-	-
Multiple Dry Year 2	Available Water Supply	5.39	5.35	5.36
	Total Water Demand (20% reduction from normal year)	**2.82**	**3.82**	**3.82**
	Potential Surplus (Deficit)	2.57	1.53	1.54
	Percent Shortfall of Demand	-	-	-
Multiple Dry Year 3	Available Water Supply	5.39	5.35	5.36
	Total Water Demand (20% reduction from normal year)	**2.82**	**3.82**	**3.82**
	Potential Surplus (Deficit)	2.57	1.53	1.54
	Percent Shortfall of Demand	-	-	-
Multiple Dry Year 4	Available Water Supply	5.39	5.35	4.74
	Total Water Demand (20% reduction from normal year)	**2.82**	**3.82**	**3.82**
	Potential Surplus (Deficit)	2.57	1.53	0.92
	Percent Shortfall of Demand	-	-	-
Multiple Dry Year 5	Available Water Supply	5.39	5.35	4.74
	Total Water Demand (20% reduction from normal year)	**2.82**	**3.82**	**3.82**
	Potential Surplus (Deficit)	2.57	1.53	0.92
	Percent Shortfall of Demand	-	-	-

As shown in Table 2, no supply deficits are anticipated through the planning period assuming the demand reductions indicated in Table 1. With no demand reductions, a supply deficit of approximately 1 percent would occur during the fourth and fifth years of a multiple dry year hydrologic condition by 2045 (total water supply of 4.74 MGD versus a normal year water demand of 4.78 MGD).

Table 3. Summary of City of San Bruno Water Demand Versus Supply During Hydrologic Normal, Single Dry, and Multiple Dry Years – With Bay-Delta Plan Amendment

Hydrologic Condition		MGD		
		2025	2040	2045
Normal Year				
	Available Water Supply	5.39	5.35	5.36
	Total Water Demand	**3.53**	**4.78**	**4.78**
	Potential Surplus (Deficit)	1.86	0.57	0.58
	Percent Shortfall of Demand	-	-	-
Single Dry Year				
	Available Water Supply	4.20	4.16	3.88
	Total Water Demand (10% reduction from normal year)	**3.18**	**4.30**	**4.30**
	Potential Surplus (Deficit)	1.02	(0.14)	(0.42)
	Percent Shortfall of Demand	-	3.3%	9.8%
Multiple Dry Years				
Multiple Dry Year 1	Available Water Supply	4.20	4.16	3.88
	Total Water Demand (10% reduction from normal year)	**3.18**	**4.30**	**4.30**
	Potential Surplus (Deficit)	1.02	(0.14)	(0.42)
	Percent Shortfall of Demand	-	3.3%	9.8%
Multiple Dry Year 2	Available Water Supply	3.90	3.87	3.88
	Total Water Demand (20% reduction from normal year)	**2.82**	**3.82**	**3.82**
	Potential Surplus (Deficit)	1.08	0.05	0.06
	Percent Shortfall of Demand	-	-	-
Multiple Dry Year 3	Available Water Supply	3.90	3.87	3.88
	Total Water Demand (20% reduction from normal year)	**2.82**	**3.82**	**3.82**
	Potential Surplus (Deficit)	1.08	0.05	0.06
	Percent Shortfall of Demand	-	-	-
Multiple Dry Year 4	Available Water Supply	3.90	3.66	3.61
	Total Water Demand (20% reduction from normal year)	**2.82**	**3.82**	**3.82**
	Potential Surplus (Deficit)	1.08	(0.16)	(0.21)
	Percent Shortfall of Demand	-	4.2%	5.5%
Multiple Dry Year 5	Available Water Supply	3.90	3.66	3.61
	Total Water Demand (20% reduction from normal year)	**2.82**	**3.82**	**3.82**
	Potential Surplus (Deficit)	1.08	(0.16)	(0.21)
	Percent Shortfall of Demand	-	4.2%	5.5%

As shown in Table 3, even with the City's anticipated dry year demand reductions shown in Table 1, supply deficits would still occur during the first, fourth, and fifth years of a multiple dry year hydrologic condition. The maximum total demand reduction required to meet the projected water supply is approximately 24 percent (total water supply of 3.61 MGD versus a normal year demand of 4.78 MGD) by 2045, in the fourth and fifth years of a multiple dry year hydrologic condition.

Although the impact of the Bay-Delta Plan Amendment is severe, a maximum demand reduction of approximately 20 percent in single dry years and the first three years of a multiple dry year hydrologic condition (total water supply of 3.87 MGD versus a normal year demand of 4.78 MGD) and a demand reduction of up to 24 percent in the fourth and fifth years of a multiple dry year hydrologic condition can still be achieved by implementation of Stages 2 and 3 of the City's WSCP.[4] While the City is in the process of updating its WSCP (the WSCP is scheduled for public review in September 2021), the working draft WSCP indicates a Stage 3 Shortage Level would build upon the Stage 2 Shortage Level by increasing monitoring of water use (meter reading), implementing mandatory water allotments for all accounts, and increasing rates and penalties for excess water use.

POTENTIAL WATER SUPPLY SHORTAGE MITIGATION MEASURES

Tables 2 and 3 presented above reflect "bookends" for water supply reliability projections. SFPUC is currently implementing projects to help mitigate the effects of the Bay-Delta Plan Amendment should it be implemented. These projects are discussed briefly below.

In early June 2021, SFPUC sent a memorandum (memo)[5] (Attachment C) to its wholesale customers with a description of projects being implemented to mitigate some of the supply reductions that could be triggered by the Bay-Delta Plan Amendment.

As indicated in the memo, SFPUC is "pursuing several courses of action to remedy" the impacts of the Bay-Delta Plan Amendment. As stated in the SFPUC memo, such actions include:

- Pursuing a Tuolumne River Voluntary Agreement
- Evaluating our [SFPUC's] Drought Planning Scenario in light of climate change
- Pursuing Alternative Water Supplies
- In litigation with the State over the Bay-Delta Plan Amendment
- In litigation with the State over the proposed Don Pedro FERC Water Quality Certification [which could exacerbate the impacts of the Bay-Delta Plan amendment]

These actions are described briefly in Attachment C. Although the extent that the above-listed actions could mitigate the impacts of the Bay-Delta Plan Amendment are not known, the fact the SFPUC is pursuing these actions indicates that the supply projections shown in Table 3 would likely represent a worst-case scenario.

[4] The City's WSCP will be updated in the 2020 UWMP to include six water shortage stages (Stages 1 – 6) to align with the State's six standard water shortage levels. Each stage corresponds to progressive ranges of up to 10, 20, 30, 40, 50 percent, and greater than 50 percent shortages from the normal supply condition.

[5] Regional Water System Supply Reliability and UWMP 2020, memo from Steven R. Ritchie, Assistant General Manager, SFPUC, to SFPUC Wholesale Customers, June 2, 2021.

CONCLUSIONS

As indicated above, without implementation of the Bay-Delta Plan Amendment, the City would generally have sufficient water supplies during normal and dry hydrologic conditions to meet the City's projected water demands, including the highest water demand future scenario for the Bayhill Specific Plan Development Project, in addition to the City's existing and other planned future uses.

With implementation of the Bay-Delta Plan Amendment, the City would need to implement Stage 3 of its WSCP to reduce normal year water demands by approximately 24 percent during the fourth and fifth years of a multiple dry year hydrologic condition. A 24 percent reduction in normal year water demands is higher than the 20 percent reduction assumed in the Bayhill WSA but is still a reasonable reduction that can be achieved by implementing a Stage 3 water shortage as defined in the City's WSCP. During the most severe part of the recent drought in 2015 to 2016, the City implemented a Stage 2 Shortage Level and was able to reduce water demand by about 20 percent from 2013 water demand, which greatly exceeded the conservation standard mandated by the State Board of approximately 8 percent. Other BAWSCA member agencies achieved water demand reductions between 10 to 40 percent. In summary, all BAWSCA member agencies exceeded their mandated conservation standard. The graphic provided in Attachment D shows the conservation standard and percent reduction for each BAWSCA member agency as reported by BAWSCA.

Actions that the SFPUC is taking in response to a potential water supply shortage are expected to mitigate the water supply shortage by some, as yet unquantified, amount. Therefore, the water supply and demand summaries provided in Tables 2 and 3 should be considered as the best case (without the Bay-Delta Plan Amendment) and worst case (full implementation of the Bay-Delta Plan Amendment without mitigating actions) water supply conditions for the City.

Attachment A

San Francisco Public Utilities Commission
Reliability Memorandum

San Francisco
Water Power Sewer
Operator of the Hetch Hetchy Regional Water System

525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
T 415.554.3155
F 415.554.3161
TTY 415.554.3488

July 31, 2019

Tom Francis, Water Resources Manager
Bay Area Water Supply and Conservation Agency
155 Bovet Road, Suite 650
San Mateo, CA 94402

Dear Mr. Francis,

This letter is a follow-up to our letter dated June 27, 2019, which provided information you requested on impacts to the Regional Water System under implementation of the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan Amendment). Three errors in the attachment to that letter were recently identified: (1) a typo in the narrative describing the range of shortfalls anticipated under Scenario 1, (2) typos in the table note numbering in Table 1, and (3) incorrect projections for the year 2020 under Scenario 3 because if the Bay-Delta Plan Amendment were to be implemented, such implementation is not anticipated to occur until after 2020. Corrections to these errors are provided in the attachment to this letter.

It is our understanding that you will pass this information on to the Wholesale Customers. It also should be repeated that the information regarding anticipated shortages in the attachment only apply to Tier 1 of the Shortage Allocation Plan, the shortages for the individual wholesale customers will require the application of Tier 2 of the Shortage Allocation Plan. We assume BAWSCA can provide the necessary support to the Wholesale Customers in applying Tier 2.

If you have any questions or need additional information, please do not hesitate to contact me at (415) 554-0792.

London N. Breed
Mayor

Ann Moller Caen
President

Francesca Vietor
Vice President

Anson Moran
Commissioner

Sophie Maxwell
Commissioner

Tim Paulson
Commissioner

Harlan L. Kelly, Jr.
General Manager

Sincerely,

Paula Kehoe
Director of Water Resources

Enclosure: ATTACHMENT - Water Supply Reliability Information for BAWSCA Member Agencies' Water Supply Assessments (with Corrections)

ATTACHMENT

Water Supply Reliability Information for BAWSCA Member Agencies' Water Supply Assessments (with Corrections)

2018 Bay-Delta Plan Amendment

In December 2018, the State Water Resources Control Board (SWRCB) adopted amendments to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan Amendment) to establish water quality objectives to maintain the health of the Bay-Delta ecosystem. The SWRCB is required by law to regularly review this plan. The adopted Bay-Delta Plan Amendment was developed with the stated goal of increasing salmonid populations in three San Joaquin River tributaries (the Stanislaus, Merced, and Tuolumne Rivers) and the Bay-Delta. The Bay-Delta Plan Amendment requires the release of 40% of the "unimpaired flow"[1] on the three tributaries from February through June in every year type, whether wet, normal, dry, or critically dry.

If the Bay-Delta Plan Amendment is implemented, the SFPUC will be able to meet its contractual obligations to its Wholesale Customers as presented in the SFPUC's 2015 UWMP in normal years. The SFPUC's 2015 UWMP already assumes shortages in single and multiple dry years through 2040, but implementation of the Bay-Delta Plan Amendment will result in greater shortages.

The SWRCB has stated that it intends to implement the Bay-Delta Plan Amendment on the Tuolumne River by the year 2022, assuming all required approvals are obtained by that time. But implementation of the Plan Amendment is uncertain for several reasons. First, under the Clean Water Act, the United States Environmental Protection Agency (U.S. EPA) must approve the water quality standards identified in the Plan Amendment within 90 days from the date the approval request is received. By letter dated June 11, 2019, EPA rejected the SWRCB's two-page submittal as inadequate under the requirements of the Clean Water Act. Pursuant to EPA's letter, the Board has 90 days to respond with a submittal that complies with the law. At this point, EPA has neither approved, nor disapproved, any of the revised water quality objectives. It is uncertain whether the U.S. EPA will approve or disapprove the water quality standards in the future. Furthermore, the determination could result in litigation.

Second, since adoption of the Bay-Delta Plan Amendment, over a dozen lawsuits have been filed in both state and federal court, challenging the SWRCB's adoption of the Bay-Delta Plan Amendment, including two legal challenges filed by the federal government, at the request of the U.S. Department of Interior, Bureau of Reclamation in state and federal courts. These cases are in the early stage and there have been no dispositive court rulings to date.

Third, the Bay-Delta Plan Amendment is not self-implementing and does not allocate responsibility for meeting its new flow requirements to the SFPUC or any other water rights holders. Rather, the Plan Amendment merely provides a regulatory framework for flow allocation, which must be accomplished by other regulatory and/or adjudicatory proceedings, such as a comprehensive water rights adjudication or, in the case of the Tuolumne River, the 401 certification process in the Federal Energy Regulatory Commission's relicensing proceeding for Don Pedro Dam. The license amendment process is currently expected to be

[1] Unimpaired flow represents the water production of a river basin, unaltered by upstream diversions, storage, or by export or import of water to or from other watersheds. Bay-Delta Plan Amendment, Introduction, p.1-8.

completed in the 2022-23 timeframe. This process and the other regulatory and/or adjudicatory proceedings would likely face legal challenges and have lengthy timelines, and quite possibly could result in a different assignment of flow responsibility (and therefore a different water supply impact on the SFPUC).

Fourth, in recognition of the obstacles to implementation of the Bay-Delta Plan Amendment, SWRCB Resolution No. 2018-0059 adopting the Bay-Delta Plan Amendment directed staff to help complete a "Delta watershed-wide agreement, including potential flow measures for the Tuolumne River" by March 1, 2019, and to incorporate such agreements as an "alternative" for a future amendment to the Bay-Delta Plan to be presented to the SWRCB "as early as possible after December 1, 2019." In accordance with the SWRCB's instruction, on March 1, 2019, SFPUC, in partnership with other key stakeholders, submitted a proposed project description for the Tuolumne River that could be the basis for a voluntary substitute agreement with the SWRCB ("March 1st Proposed Voluntary Agreement"). On March 26, 2019, the Commission adopted Resolution No. 19-0057 to support SFPUC's participation in the Voluntary Agreement negotiation process. To date, those negotiations are ongoing under the California Natural Resources Agency and the leadership of the Newsom administration. The negotiations for a voluntary agreement have made significant progress since an initial framework was presented to the SWRCB on December 12, 2018. The package submitted on March 1, 2019 is the product of renewed discussions since Governor Newsom took office. While significant work remains, the package represents an important step forward in bringing together diverse California water interests.

For all these reasons, whether and when the Bay-Delta Plan Amendment will be implemented, and how those amendments if implemented will affect the SFPUC's water supply is currently uncertain and possibly speculative. Given this uncertainty, this WSA analyzes water supply and demand through 2040 under three scenarios: (1) No implementation of the Bay-Delta Plan Amendment or the March 1st Proposed Voluntary Agreement ("Scenario 1"), (2) Implementation of the March 1st Proposed Voluntary Agreement ("Scenario 2"), and (3) Implementation of the Bay-Delta Plan Amendment ("Scenario 3").

Dry Year Water Supplies

Since adoption of the UWMP, the following milestones have occurred:

- Calaveras Dam Replacement Project – Construction of the new dam was completed in September 2018, and the overall project was completed in June 2019.

- Regional Groundwater Storage and Recovery Project – Construction of this project is still underway. Phase 1 of the project, consisting of installation of 13 production wells, will be completed in 2019. Since May/June 2016, the project has been in a storage phase through periodic deliveries of RWS surface water in lieu of groundwater pumping by Daly City, San Bruno, and the California Water Service Company.

Additional Water Supplies

In light of the adoption of the Bay-Delta Plan Amendment and the resulting potential limitations to RWS supply during dry years, the SFPUC is increasing and accelerating its efforts to acquire additional water supplies and explore other projects that would increase overall water supply resilience. Developing these additional supplies would reduce water supply shortfalls and reduce rationing associated with such shortfalls. In addition to the Daly

City Recycled Water Expansion project, which was a potential project identified in the 2015 UWMP and had committed funding at that time, the SFPUC has taken action to fund the study of potential additional water supply projects. Capital projects under consideration to develop additional water supplies include surface water storage expansion, recycled water expansion, water transfers, desalination, and potable reuse. The SFPUC is also considering developing related policies and ordinances, such as funding for innovative water supply and efficiency technologies and requiring potable water offsets for new developments. A more detailed list and descriptions of these efforts are provided below.

The capital projects that are under consideration would be costly and are still in the early feasibility or conceptual planning stages. Because these water supply projects would take 10 to 30 or more years to implement, and because required environmental permitting negotiations may reduce the amount of water that can be developed, the yield from these projects are not currently incorporated into SFPUC's supply projections. Capital projects would be funded through rates from both Wholesale and Retail Customers based on mutual agreement, as the additional supplies would benefit all customers of the RWS, unless otherwise noted. State and federal grants and other financing opportunities would also be pursued for eligible projects, to the extent feasible, to offset costs borne by ratepayers.

1. **Daly City Recycled Water Expansion** (Regional, Normal- and Dry-Year Supply, 3 mgd)

   Project Description: The SFPUC and North San Mateo County Sanitation District (NSMCSD, or Daly City) have been exploring ways to increase the recycled water treatment capacity in Daly City to serve additional customers and decrease irrigation water withdrawals from the Westside Groundwater Basin, both in San Francisco and further south of Daly City. The majority of the irrigation demand met by groundwater withdrawals, approximately 2 mgd, serves cemeteries in Colma. An initial feasibility study completed in 2010 identified the capital requirements that would be needed to produce additional capacity at the existing treatment plant location. The study demonstrated that a new tertiary treatment facility would be required onsite to produce additional capacity of up to 3.4 mgd. Currently, flows that exceed the capacity of the existing treatment plant are discharged into the Pacific Ocean. With this project, some of that discharge may be treated and used for irrigation. New facilities would include a treatment facility, pump station, distribution pipelines, and storage.

   Estimated Costs and Financing: The capital cost is estimated to be $85 million, which is budgeted for in the SFPUC's 10-year capital planning horizon. The annual operations and maintenance (O&M) cost is estimated to be $3 million. This project may present regional benefits that would result in cost-sharing with Wholesale Customers because the replacement of groundwater used for irrigation with recycled water will result in a greater volume of groundwater storage that can be used in dry years as part of the SFPUC's existing Groundwater Storage and Recovery project, approved by the SFPUC in 2014 in Resolution no. 14-0127.

   Permits and Approvals: Daly City adopted a Final Initial Study/Mitigated Negative Declaration (IS/MND) and Mitigation Monitoring and Reporting Program (MMRP) for the proposed project in September 2017. The SFPUC has not yet approved its participation in the project. Other permits and/or approvals that may be needed for this project include: BART, CAL/OSHA, San Francisco Bay RWQCB, and encroachment permits from Caltrans, Daly City, South San Francisco, SFPUC, San Mateo County, and Colma to construct distribution and storage facilities. Institutional agreements between the project

partners for project construction and operation, as well as with the customers whose supplies will change from groundwater to recycled water, will also need to be developed.

Estimated Acquisition: Construction may occur as soon as 2023 with operation beginning in 2027.

2. **Alameda County Water District Transfer Partnership** (Regional, Normal- and Dry-Year Supply, 5 mgd)

Project Description: Water would be acquired from Contra Costa Water District (CCWD) for delivery to Alameda County Water District (ACWD) through the South Bay Aqueduct utilizing a planned expansion of the Los Vaqueros Reservoir.

Estimated Costs and Financing: The capital cost is estimated to be $50-150 million, with an annual O&M cost of $2.5 million.

Permits and Approvals: Planning and environmental review of the Los Vaqueros Reservoir Expansion is underway by CCWD, and has several objectives beyond water deliveries to the SFPUC. CCWD has identified over 15 permits, approvals and consultations that will be necessary such as Dredge and Fill, National Pollutant Discharge Elimination System (NPDES), Streambed Alteration, and Encroachment permits. These permits and approvals will be obtained by CCWD and/or its contractor. To enable a water supply transfer between ACWD and the SFPUC, water right modifications may be necessary and if additional infrastructure is needed, additional permits will be required. As this project is in the conceptual stage, permitting details have not yet been identified.

Estimated Acquisition: Construction may occur as soon as 2028 with operation beginning in 2032.

3. **Brackish Water Desalination in Contra Costa County** (Regional, Normal- and Dry-Year Supply, 9+ mgd)

Project Description: The Bay Area Brackish Water Treatment (Regional Desalination) Project is a partnership between CCWD, East Bay Municipal Utility District (EBMUD), SFPUC, Santa Clara Valley Water District (SCVWD) and Zone 7 to turn brackish water into a reliable, drought-proof drinking water supply, delivering a total of up to 10-20 mgd in drought and non-drought years (i.e., dry and normal years), throughout the region. A new brackish water treatment plant would be constructed in East Contra Costa and tie into the existing CCWD system for delivery through Los Vaqueros Reservoir and the South Bay Aqueduct, or delivery via a connection with EBMUD.

The SFPUC would rely on existing infrastructure and institutional agreements to receive water transfers from partner agencies. For planning and cost estimation purposes, it was assumed that the SFPUC's share of the regional water supply would be 9 mgd in all year types; however, if additional capacity is available, the SFPUC may secure additional water supply, based on negotiations with partner agencies.

Estimated Costs and Financing: The capital cost is estimated to be $200-800 million, with an annual O&M cost of $12-20 million.

Permits and Approvals: To proceed, this concept would require extensive institutional agreements, permitting, and environmental review. Construction of a new desalination plant will require construction and operating permits such as NPDES, Dredge and Fill, consultations with federal and state agencies, and others. In addition, water rights will need to be secured and/or modified. In California, permitting and regulatory approvals of desalination projects has typically taken 10-18 years. In addition, institutional agreements among partner agencies will be needed.

Estimated Acquisition: Construction may occur as soon as 2032 and be phased so that 5-9 mgd would be available to the region by 2035 and a total of 5-11 mgd would be available after 2040.

4. **ACWD-USD Purified Water Partnership** (Regional, Normal- and Dry-Year Supply, 5 mgd)

Project Description: This may be an indirect or direct potable reuse project that would inject highly-treated water from Union Sanitary District (USD) for groundwater recharge, then recover the water through the ACWD Brackish Groundwater Desalination Plant. How the water is transferred to the SFPUC remains to be determined.

Estimated Costs and Financing: The capital cost is estimated to be $200-400 million, with an annual O&M cost of $2.5 million.

Permits and Approvals: An initial assessment will be underway in 2019, which will identify potential project scenarios. Permitting and approvals for a project will depend on its design and nature, which have not yet been identified.

Estimated Acquisition: Construction may occur as soon as 2038 with operation beginning in 2045.

5. **Crystal Springs Purified Water** (Regional, Normal- and Dry-Year Supply, 6+ mgd)

Project Description: This is an indirect potable reuse project that would blend wastewater from Silicon Valley Clean Water and possibly San Mateo into Crystal Springs Reservoir and treat the blended water at Harry Tracy Water Treatment Plant for potable reuse.

Estimated Costs and Financing: The capital cost is estimated to be $400-700 million, with an annual O&M cost of $18-25 million.

Permits and Approvals: Construction and operating permits would be required for this project. They would likely include NPDES, Encroachment, consultations with state and federal agencies, and others. Surface water augmentation is regulated by the SWRCB, and consultations and public hearings would be required.

Estimated Acquisition: Construction may occur as soon as 2034 and be phased so that 3-5 mgd would be available to the region by 2035 and a total of 3-7 mgd would be available after 2040.

6. **Additional Storage Capacity in Los Vaqueros Reservoir from Expansion** (Regional)

   Project Description: Expansion of storage capacity in Los Vaqueros is to allow the ACWD Transfer Partnership and Brackish Water Desalination in Contra Costa County to be optimized.

   Estimated Costs and Financing: The capital cost is estimated to be $20-50 million. SFPUC's portion of the project yield and cost share are not yet known. The annual O&M cost is yet to be estimated.

   Permits and Approvals: Planning and review of the Los Vaqueros Reservoir Expansion is underway by CCWD, and has several objectives beyond water deliveries to the SFPUC. CCWD has identified over 15 permits, approvals and consultations that will be necessary such as Dredge and Fill, NPDES, Streambed Alteration, and Encroachment permits. These permits and approvals will be obtained by CCWD and/or its contractor. To enable a water supply transfer between ACWD and the SFPUC, water rights modifications may be necessary and if additional infrastructure is needed, additional permits will be required. As this project is in the conceptual stage, permitting details have not yet been identified.

   Estimated Acquisition: Construction may occur as soon as 2021 with operation beginning in 2027.

7. **Calaveras Reservoir Expansion (Regional)**

   Project Description: Calaveras Reservoir would be expanded to create 289,000 AF additional capacity to store excess Regional Water System supplies or other source water in wet and normal years. In addition to reservoir enlargement, the project would involve infrastructure to pump water to the reservoir, such as pump stations and transmission facilities.

   Estimated Costs and Financing: The costs of this project is yet to be determined.

   Permits and Approvals: Similar to Los Vaqueros Reservoir Expansion, this project would require numerous permits, approvals and consultations, such as Dredge and Fill, NPDES, Streambed Alteration, Encroachment, possible water right modifications, etc. These permits and approvals will be obtained by SFPUC and/or its contractor. As this project is in the conceptual stage, permitting details have not yet been identified.

   Estimated Acquisition: Construction may occur as soon as the early 2040s with operation beginning around 2050.

Even if all the capital projects above are implemented, the total amount of water and storage yielded would not be enough to make up for the dry year shortfall that may result from implementation of the Bay-Delta Plan Amendment as adopted, and would occur years after such shortfalls begin. Thus, the SFPUC continues to proactively explore opportunities for reuse and innovation, such as the following policy:

- **Evaluation of Recycled Water Throughout Service Area**
  Wastewater treatment plants throughout the SFPUC service area would be surveyed to identify potential non-potable, indirect potable, and direct potable projects.

Comparison of Projected Supply and Demand

The following sections provide a supply and demand comparison for the three scenarios described above. Procedures for determining RWS supply availability are provided in the Water Supply Allocation Plan (WSAP) between the SFPUC's Retail and Wholesale Customers. It also should be noted that the information regarding anticipated shortages in the tables provided below only apply to Tier 1 of the WSAP, the shortages for the individual wholesale customers will require the application of Tier 2 of the WSAP to derive available supply for each wholesale customer. In addition, wholesale customers will need to include the availability of other supplies in addition to SFPUC supplies to drive their total water supply shortages under each scenario.

Scenario 1: No Implementation of the Bay-Delta Plan Amendment or the Voluntary Agreement

Table 1 below compares the SFPUC's wholesale water supplies and demands through 2040 during normal year, single dry-, and multiple dry-year periods under Scenario 1.

The RWS supply projections shown in Table 1 differ from those provided previously for use in the 2015 UWMP. First, Table 1 reflects SFPUC's full 8.5-year design drought sequence instead of the minimum 3-year sequence required to be provided in the 2015 UWMP. Under legislation adopted in 2018 (S.B. 606) future UWMPs will be required to project water supply availability during a minimum of 5 years of continuous drought (Water Code section 10631(b)(1)). Second, the SFPUC water supply system model includes the following assumptions, which differ from those used for the 2015 UWMP projections:

- In-stream flow releases from Crystal Springs Reservoir to San Mateo Creek were included in this simulation. The average volume of these releases is approximately 3,900 acre-feet per year.
- Annual water supply transfers from the irrigation districts that operate New Don Pedro Reservoir (Districts) to SFPUC were not included in this analysis. An annual transfer of 2,300 acre-feet was assumed from the Districts to the SFPUC Water Bank Account in the WSIP 2018 simulation.

As shown in Table 1, under Scenario 1 without implementation of the Bay-Delta Plan Amendment, RWS supplies would meet wholesale demands (i.e., contractual obligations) in all normal years, single dry years, and the first year of the 8.5-year design drought. During subsequent drought years, shortfalls would range from 31 to 60 mgd, or 17-~~36~~33%, increasing into the outer years of the design drought.

Table 1: Projected Supply and Demand Comparison Under Scenario 1
(No Implementation of the Bay-Delta Plan Amendment or the Voluntary Agreement) (mgd)

		Normal Year	Single Dry Year[1]	Multiple Dry Years							
				Year 1[1]	Year 2[21]	Year 3[21]	Year 4[2]	Year 5[2]	Year 6[2]	Year 7[3]	Year 8[3]
2020	Total Wholesale Demand[4]	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0
	Total Wholesale RWS Supply[5]	184.0	184.0	184.0	152.6	152.6	132.5	132.5	132.5	124.2	124.2
	Shortfall	0.0	0.0	0.0	31.4	31.4	51.5	51.5	51.5	59.8	59.8
	Shortfall as % of Demand	0.0%	0.0%	0.0%	17.1%	17.1%	28.0%	28.0%	28.0%	32.5%	32.5%
2025	Total Wholesale Demand[4]	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0
	Total Wholesale RWS Supply[5]	184.0	184.0	184.0	152.6	152.6	132.5	132.5	132.5	124.2	124.2
	Shortfall	0.0	0.0	0.0	31.4	31.4	51.5	51.5	51.5	59.8	59.8
	Shortfall as % of Demand	0.0%	0.0%	0.0%	17.1%	17.1%	28.0%	28.0%	28.0%	32.5%	32.5%
2030	Total Wholesale Demand[4]	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0
	Total Wholesale RWS Supply[5]	184.0	184.0	184.0	152.6	152.6	132.5	132.5	132.5	124.2	124.2
	Shortfall	0.0	0.0	0.0	31.4	31.4	51.5	51.5	51.5	59.8	59.8
	Shortfall as % of Demand	0.0%	0.0%	0.0%	17.1%	17.1%	28.0%	28.0%	28.0%	32.5%	32.5%
2035	Total Wholesale Demand[4]	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0
	Total Wholesale RWS Supply[5]	184.0	184.0	184.0	152.6	152.6	132.5	132.5	132.5	124.2	124.2
	Shortfall	0.0	0.0	0.0	31.4	31.4	51.5	51.5	51.5	59.8	59.8
	Shortfall as % of Demand	0.0%	0.0%	0.0%	17.1%	17.1%	28.0%	28.0%	28.0%	32.5%	32.5%
2040	Total Wholesale Demand[4]	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0
	Total Wholesale RWS Supply[5]	184.0	184.0	184.0	152.6	152.6	132.5	132.5	132.5	124.2	124.2
	Shortfall	0.0	0.0	0.0	31.4	31.4	51.5	51.5	51.5	59.8	59.8
	Shortfall as % of Demand	0.0%	0.0%	0.0%	17.1%	17.1%	28.0%	28.0%	28.0%	32.5%	32.5%

Notes:
1. During multiple dry years 2-3 (years 3-4 of SFPUC's design drought sequence), the wholesale allocation under the WSAP is 64.0% of available RWS supply, or 152.6 mgd.
2. During multiple dry years 4-6 (years 5-7 of SFPUC's design drought sequence), the wholesale allocation under the WSAP is 62.5% of available RWS supply, or 132.5 mgd.
3. During multiple dry years 7 and 8 (years 8 and 8.5 of SFPUC's design drought sequence), the wholesale allocation under the WSAP is 62.5% of available RWS supply, or 124.2 mgd.
4. It is assumed that wholesale demands will continue to be limited to the Supply Assurance of 184 mgd. The 184 mgd assumes that San Jose and Santa Clara remain temporary, interruptible customers.
5. Procedures for RWS allocations are provided in the WSAP.

Scenario 2: Implementation of the Voluntary Agreement

As stated earlier, the March 1st Proposed Voluntary Agreement has yet to be accepted by SWRCB as an alternative to the Bay-Delta Plan Amendment and thus the shortages that would occur with its implementation are not known with certainty. However, given that the objectives of the Voluntary Agreement are to provide fishery improvements while protecting water supply through flow and non-flow measures, the RWS supply shortfalls under the Voluntary Agreement would be less than those under the Bay-Delta Plan Amendment, and therefore would require rationing of a lesser degree than that which would occur under Scenario 3. The degree of rationing would also more closely align with the SFPUC's RWS LOS goal of limiting rationing to no more than 20% on a system-wide basis in drought years. This goal was adopted in 2008 by the Commission (Resolution No. 08-0200).

Scenario 3: Implementation of the Bay-Delta Plan Amendment

Table 2 below provides projected supplies and demands under Scenario 3. The RWS is projected to experience significant shortfalls in single dry and multiple dry years ~~starting as soon as 2022 and~~ through 2040, regardless of whether the proposed project is constructed. The 2020 projections in Table 2 are based on the assumption that the Bay Delta Plan Amendment will not be implemented until after 2020. These significant shortfalls are a result of implementation of the Bay-Delta Plan Amendment and not attributed to the incremental retail demand associated with the proposed project. *[Note to Wholesale Customers: This statement will need to be tailored to reflect your own water supply planning (e.g., you may already be showing significant shortfalls regardless of the Bay-Delta Plan Amendment].*

If additional water supplies were not acquired before the Bay-Delta Plan Amendment were implemented, the SFPUC would impose Wholesale Customer rationing to help balance water supply deficits during dry years.

Given the severity of the reduction in RWS supply with implementation of the Bay-Delta Plan Amendment, existing and planned dry-year supplies would not be enough to meet projected wholesale water demand obligations without rationing above the SFPUC's RWS LOS goal of limiting rationing to 20% on a system-wide basis for all dry years starting as soon as 2022. Although the WSAP does not address implications to supply during system-wide shortages above 20%, the WSAP indicates that if system-wide shortage greater than 20% were to occur, RWS supply would be allocated between retail and Wholesale Customers per the rules corresponding to a 16-20% system-wide reduction, subject to consultation and negotiation between the SFPUC and its Wholesale Customers to modify the allocation rules. The allocation rules corresponding to the 16-20% system-wide reduction are reflected in Table 2 above for Scenario 3. These allocation rules result in shortfalls of 85 to 124 mgd, or 46-68%, across the wholesale service area under Scenario 3.

Table 2: Projected Supply and Demand Comparison Under Scenario 3 (Implementation of the Bay-Delta Plan Amendment) (mgd)

		Normal Year	Single Dry Year[1]	Multiple Dry Years							
				Year 1[1]	Year 2[2]	Year 3[2]	Year 4[2]	Year 5[2]	Year 6[2]	Year 7[3]	Year 8[3]
2020	Total Wholesale Demand[4]	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0
	Total Wholesale RWS Supply[5,6]	184.0	~~99.4~~ 184.0	~~99.4~~ 184.0	~~76.2~~ 152.6	~~76.2~~ 152.6	~~76.2~~ 132.5	~~76.2~~ 132.5	~~76.2~~ 132.5	~~59.6~~ 124.2	~~59.6~~ 124.2
	Shortfall	0.0	~~84.6~~ 0.0	~~84.6~~ 0.0	~~107.8~~ 31.4	~~107.8~~ 31.4	~~107.8~~ 51.5	~~107.8~~ 51.5	~~107.8~~ 51.5	~~124.4~~ 59.8	~~124.4~~ 59.8
	Shortfall as % of Demand	0.0%	~~46.0%~~ 0.0%	~~46.0%~~ 0.0%	~~58.6%~~ 17.1%	~~58.6%~~ 17.1%	~~58.6%~~ 28.0%	~~58.6%~~ 28.0%	~~58.6%~~ 28.0%	~~67.6%~~ 32.5%	~~67.6%~~ 32.5%
2025	Total Wholesale Demand[4]	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0
	Total Wholesale RWS Supply[5,6]	184.0	99.4	99.4	76.2	76.2	76.2	76.2	76.2	59.6	59.6
	Shortfall	0.0	84.6	84.6	107.8	107.8	107.8	107.8	107.8	124.4	124.4
	Shortfall as % of Demand	0.0%	46.0%	46.0%	58.6%	58.6%	58.6%	58.6%	58.6%	67.6%	67.6%
2030	Total Wholesale Demand[4]	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0
	Total Wholesale RWS Supply[5,6]	184.0	99.4	99.4	76.2	76.2	76.2	76.2	76.2	59.6	59.6
	Shortfall	0.0	84.6	84.6	107.8	107.8	107.8	107.8	107.8	124.4	124.4
	Shortfall as % of Demand	0.0%	46.0%	46.0%	58.6%	58.6%	58.6%	58.6%	58.6%	67.6%	67.6%
2035	Total Wholesale Demand[4]	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0
	Total Wholesale RWS Supply[5,6]	184.0	99.4	99.4	76.2	76.2	76.2	76.2	76.2	59.6	59.6
	Shortfall	0.0	84.6	84.6	107.8	107.8	107.8	107.8	107.8	124.4	124.4
	Shortfall as % of Demand	0.0%	46.0%	46.0%	58.6%	58.6%	58.6%	58.6%	58.6%	67.6%	67.6%
2040	Total Wholesale Demand[4]	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0	184.0
	Total Wholesale RWS Supply[5,6]	184.0	99.4	99.4	76.2	76.2	76.2	76.2	76.2	59.6	59.6
	Shortfall	0.0	84.6	84.6	107.8	107.8	107.8	107.8	107.8	124.4	124.4
	Shortfall as % of Demand	0.0%	46.0%	46.0%	58.6%	58.6%	58.6%	58.6%	58.6%	67.6%	67.6%

Notes:
1. During a single dry year and multiple dry year 1 (year 2 of SFPUC's design drought sequence), the wholesale allocation under the WSAP is 62.5% of available RWS supply, or 99.4 mgd.
2. During multiple dry years 2-6 (years 3-7 of SFPUC's design drought sequence), the wholesale allocation under the WSAP is 62.5% of available RWS supply, or 76.2 mgd.
3. During multiple dry years 7 and 8 (years 8 and 8.5 of SFPUC's design drought sequence), the wholesale allocation under the WSAP is 62.5% of available RWS supply, or 59.6 mgd.
4. It is assumed that wholesale demands will continue to be limited to the Supply Assurance of 184 mgd. The 184 mgd assumes that San Jose and Santa Clara remain temporary, interruptible customers.
~~4.~~5. Implementation of the Bay-Delta Plan Amendment is assumed to occur after 2020 and by 2022.
~~5.~~6. Procedures for RWS allocations are provided in the WSAP.

Attachment B

San Francisco Public Utilities Commission
Water Supply Reliability Letter

San Francisco
Water Power Sewer
Services of the San Francisco Public Utilities Commission

525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
T 415.554.3155
F 415.554.3161
TTY 415.554.3488

March 30, 2021

Danielle McPherson
Senior Water Resources Specialist
Bay Area Water Supply and Conservation Agency
155 Bovet Road, Suite 650
San Mateo, CA 94402

Dear Ms. McPherson,

Attached please find additional supply reliability modeling results conducted by the SFPUC. The SFPUC has conducted additional supply reliability modeling under the following planning scenarios:

- Projected supply reliability for years 2020 through 2045, assuming that demand is equivalent to the sum of the projected retail demands on the Regional Water System (RWS) and Wholesale Customer purchase request projections provided to SFPUC by BAWSCA on January 21st (see Table 1 below).
- Under the above demand conditions, projected supply reliability for scenarios both with and without implementation of the Bay-Delta Plan Amendment starting in 2023.

The SFPUC will be using this supply modeling in the text of its draft UWMP and moving the original modeling results into an appendix.

Table 1: Retail and Wholesale RWS Demand Assumptions Used for Additional Supply Reliability Modeling (mgd)

	2020	2025	2030	2035	2040	2045
Retail	66.5	67.2	67.5	68.6	70.5	73.7
Wholesale[1, 2]	132.1	146.0	147.9	151.9	156.3	162.8
Total	**198.6**	**213.2**	**215.4**	**220.5**	**226.8**	**236.5**

[1] Wholesale purchase request projections provided to the SFPUC by BAWSCA on January 21st, 2021
[2] Includes demands for Cities of San Jose and Santa Clara

Please note the following about the information presented in the attached tables:

London N. Breed
Mayor

Sophie Maxwell
President

Anson Moran
Vice President

Tim Paulson
Commissioner

Ed Harrington
Commissioner

Michael Carlin
Acting
General Manager

- Assumptions about infrastructure conditions remain the same as what was provided in our January 22nd letter.
- The Tier 1 allocations were applied to the RWS supplies to determine the wholesale supply, as was also described in the January 22nd letter; for any system-wide shortage above 20%, the Tier 1 split for a 20% shortage was applied.
- The SFPUC water supply planning methodology, including simulation of an 8.5-year design drought, is used to develop these estimates of water supply available from the RWS for five dry years. In each demand scenario for 2020 through 2045, the RWS deliveries are estimated using the standard SFPUC procedure, which includes adding increased levels of rationing as needed to balance the demands on the RWS system with available water supply. Some simulations may have increased levels of rationing in the final years of the design drought sequence, which can influence the comparison of results in the first five years of the sequence.
- Tables 7 and 8 in the attached document provide RWS and wholesale supply availability for the five-year drought risk assessment from 2021 to 2025. SFPUC's modeling approach does not allow for varying demands over the course of a dry year sequence. Therefore, the supply projections for 2021 to 2025 are based on meeting 2020 levels of demand. However, in years when the Bay-Delta Plan Amendment is not in effect, sufficient RWS supplies will be available to meet the Wholesale Customers' purchase requests assuming that they are between the 2020 and 2025 projected levels. This is not reflected in Tables 7 and 8 because SFPUC did not want to make assumptions about the growth of purchase requests between 2020 and 2025.

In our draft UWMP, we acknowledge that we have a Level of Service objective of meeting average annual water demand of 265 mgd from the SFPUC watersheds for retail and Wholesale Customers during non-drought years, as well as a contractual obligation to supply 184 mgd to the Wholesale Customers. Therefore, we will still include the results of our modeling based on a demand of 265 mgd in order to facilitate planning that supports meeting this Level of Service objective and our contractual obligations. The results of this modeling will be in an appendix to the draft UWMP. As will be shown in this appendix, in a normal year the SFPUC can provide up to 265 mgd of supply from the RWS. The RWS supply projections shown in the attached tables are more accurately characterized as supplies that will be used to meet projected retail and Wholesale Customer demands.

It is our understanding that you will pass this information on to the Wholesale Customers. If you have any questions or need additional information, please do not hesitate to contact Sarah Triolo, at striolo@sfwater.org or (628) 230 0802.

Sincerely,



Paula Kehoe
Director of Water Resources

Table 2: Projected Total RWS Supply Utilized and Portion of RWS Supply Utilized by Wholesale Customers in Normal Years [For Table 6-9]:

Year	2020	2025	2030	2035	2040	2045
RWS Supply Utilized (mgd)	198.6	213.2	215.4	220.5	226.8	236.5
RWS Supply Utilized by Wholesale Customers[a] (mgd)	132.1	146.0	147.9	151.9	156.3	162.8

[a] RWS supply utilized by Wholesale Customers is equivalent to purchase request projections provided to SFPUC by BAWSCA on January 21, 2021, and includes Cities of San Jose and Santa Clara.

Basis of Water Supply Data: With Bay-Delta Plan Amendment

Table 3a: Basis of Water Supply Data [For Table 7-1], Base Year 2020, With Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2020	198.6	100%	132.1	
Single dry year		198.6	100%	132.1	
Consecutive 1st Dry year		198.6	100%	132.1	
Consecutive 2nd Dry year		198.6	100%	132.1	
Consecutive 3rd Dry year[1]		119.2	60%	74.5	• At shortages 20% or greater, wholesale allocation is assumed to be 62.5%
Consecutive 4th Dry year		119.2	60%	74.5	• Same as above
Consecutive 5th Dry year		119.2	60%	74.5	• Same as above

[1] Assuming this year represents 2023, when Bay Delta Plan Amendment would come into effect.

Table 3b: Basis of Water Supply Data [For Table 7-1], Base Year 2025, With Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2025	213.2	100%	146.0	
Single dry year		149.2	70%	93.3	• At shortages 20% or greater, wholesale allocation is assumed to be 62.5%
Consecutive 1st Dry year		149.2	70%	93.3	• Same as above
Consecutive 2nd Dry year		127.9	60%	80.0	• Same as above
Consecutive 3rd Dry year		127.9	60%	80.0	• Same as above
Consecutive 4th Dry year		127.9	60%	80.0	• Same as above
Consecutive 5th Dry year		127.9	60%	80.0	• Same as above

Table 3c: Basis of Water Supply Data [For Table 7-1], Base Year 2030, With Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2030	215.4	100%	147.9	
Single dry year		150.8	70%	94.2	• At shortages 20% or greater, wholesale allocation is assumed to be 62.5%
Consecutive 1st Dry year		150.8	70%	94.2	• Same as above
Consecutive 2nd Dry year		129.2	60%	80.8	• Same as above
Consecutive 3rd Dry year		129.2	60%	80.8	• Same as above
Consecutive 4th Dry year		129.2	60%	80.8	• Same as above
Consecutive 5th Dry year		129.2	60%	80.8	• Same as above

Table 3d: Basis of Water Supply Data [For Table 7-1], Base Year 2035, With Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2035	220.5	100%	151.9	
Single dry year		154.4	70%	96.5	• At shortages 20% or greater, wholesale allocation is assumed to be 62.5%
Consecutive 1st Dry year		154.4	70%	96.5	• Same as above
Consecutive 2nd Dry year		132.3	60%	82.7	• Same as above
Consecutive 3rd Dry year		132.3	60%	82.7	• Same as above
Consecutive 4th Dry year		132.3	60%	82.7	• Same as above
Consecutive 5th Dry year		121.3	55%	75.8	• Same as above

Table 3e: Basis of Water Supply Data [For Table 7-1], Base Year 2040, With Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2040	226.8	100%	156.3	
Single dry year		158.8	70%	99.2	• At shortages 20% or greater, wholesale allocation is assumed to be 62.5%
Consecutive 1st Dry year		158.8	70%	99.2	• Same as above
Consecutive 2nd Dry year		136.1	60%	85.1	• Same as above
Consecutive 3rd Dry year		136.1	60%	85.1	• Same as above
Consecutive 4th Dry year		120.2	53%	75.1	• Same as above
Consecutive 5th Dry year		120.2	53%	75.1	• Same as above

Table 3f: Basis of Water Supply Data [For Table 7-1], Base Year 2045, With Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2045	236.5	100%	162.8	
Single dry year		141.9	60%	88.7	• At shortages 20% or greater, wholesale allocation is assumed to be 62.5%
Consecutive 1st Dry year		141.9	60%	88.7	• Same as above
Consecutive 2nd Dry year		141.9	60%	88.7	• Same as above
Consecutive 3rd Dry year		141.9	60%	88.7	• Same as above
Consecutive 4th Dry year		120.6	51%	75.4	• Same as above
Consecutive 5th Dry year		120.6	51%	75.4	• Same as above

Table 3g: Projected RWS Supply Availability [Alternative to Table 7-1], Years 2020-2045, With Bay-Delta Plan Amendment

Year	2020	2025	2030	2035	2040	2045
Average year	100%	100%	100%	100%	100%	100%
Single dry year	100%	70%	70%	70%	70%	60%
Consecutive 1st Dry year	100%	70%	70%	70%	70%	60%
Consecutive 2nd Dry year	100%	60%	60%	60%	60%	60%
Consecutive 3rd Dry year[1]	60%	60%	60%	60%	60%	60%
Consecutive 4th Dry year	60%	60%	60%	60%	53%	51%
Consecutive 5th Dry year	60%	60%	60%	55%	53%	51%

[1] Assuming that at base year 2020, this year represents 2023, when Bay Delta Plan Amendment would come into effect.

Basis of Water Supply Data: Without Bay-Delta Plan Amendment

Table 4a: Basis of Water Supply Data [For Table 7-1], Base Year 2020, Without Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2020	198.6	100%	132.1	
Single dry year		198.6	100%	132.1	
Consecutive 1st Dry year		198.6	100%	132.1	
Consecutive 2nd Dry year		198.6	100%	132.1	
Consecutive 3rd Dry year		198.6	100%	132.1	
Consecutive 4th Dry year		198.6	100%	132.1	
Consecutive 5th Dry year		198.6	100%	132.1	

Table 4b: Basis of Water Supply Data [For Table 7-1], Base Year 2025, Without Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2025	213.2	100%	146.0	
Single dry year		213.2	100%	146.0	
Consecutive 1st Dry year		213.2	100%	146.0	
Consecutive 2nd Dry year		213.2	100%	146.0	
Consecutive 3rd Dry year		213.2	100%	146.0	
Consecutive 4th Dry year		213.2	100%	146.0	
Consecutive 5th Dry year		213.2	100%	146.0	

Table 4c: Basis of Water Supply Data [For Table 7-1], Base Year 2030, Without Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2030	215.4	100%	147.9	
Single dry year		215.4	100%	147.9	
Consecutive 1st Dry year		215.4	100%	147.9	
Consecutive 2nd Dry year		215.4	100%	147.9	
Consecutive 3rd Dry year		215.4	100%	147.9	
Consecutive 4th Dry year		215.4	100%	147.9	
Consecutive 5th Dry year		215.4	100%	147.9	

Table 4d: Basis of Water Supply Data [For Table 7-1], Base Year 2035, Without Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2035	220.5	100%	151.9	
Single dry year		220.5	100%	151.9	
Consecutive 1st Dry year		220.5	100%	151.9	
Consecutive 2nd Dry year		220.5	100%	151.9	
Consecutive 3rd Dry year		220.5	100%	151.9	
Consecutive 4th Dry year		220.5	100%	151.9	
Consecutive 5th Dry year		220.5	100%	151.9	

Table 4e: Basis of Water Supply Data [For Table 7-1], Base Year 2040, Without Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2040	226.8	100%	156.3	
Single dry year		226.8	100%	156.3	
Consecutive 1st Dry year		226.8	100%	156.3	
Consecutive 2nd Dry year		226.8	100%	156.3	
Consecutive 3rd Dry year		226.8	100%	156.3	
Consecutive 4th Dry year		226.8	100%	156.3	
Consecutive 5th Dry year		226.8	100%	156.3	

Table 4f: Basis of Water Supply Data [For Table 7-1], Base Year 2045, Without Bay-Delta Plan Amendment

Year Type	Base Year	RWS Volume Available (mgd)	% of Average Supply	Wholesale Volume Available (mgd)	Notes on Calculation of Wholesale Supply
Average year	2045	236.5	100%	162.8	
Single dry year		236.5	100%	162.8	
Consecutive 1st Dry year		236.5	100%	162.8	
Consecutive 2nd Dry year		236.5	100%	162.8	
Consecutive 3rd Dry year		236.5	100%	162.8	
Consecutive 4th Dry year		212.8	90%	139.1	• At a 10% shortage level, the wholesale allocation is 64% of available supply • The retail allocation is 36% of supply, which resulted in a positive allocation to retail of 2.9 mgd, which was re-allocated to the Wholesale Customers
Consecutive 5th Dry year		212.8	90%	139.1	• Same as above

Table 4g: Projected RWS Supply [Alternative to Table 7-1], Years 2020-2045, Without Bay-Delta Plan Amendment

Year	2020	2025	2030	2035	2040	2045
Average year	100%	100%	100%	100%	100%	100%
Single dry year	100%	100%	100%	100%	100%	100%
Consecutive 1st Dry year	100%	100%	100%	100%	100%	100%
Consecutive 2nd Dry year	100%	100%	100%	100%	100%	100%
Consecutive 3rd Dry year	100%	100%	100%	100%	100%	100%
Consecutive 4th Dry year	100%	100%	100%	100%	100%	90%
Consecutive 5th Dry year	100%	100%	100%	100%	100%	90%

Supply Projections for Consecutive Five Dry Year Sequences

Table 5: Projected Multiple Dry Years Wholesale Supply from RWS [For Table 7-4], With Bay-Delta Plan Amendment

	2025	2030	2035	2040	2045
First year	93.3	94.2	96.5	99.2	88.7
Second year	80.0	80.8	82.7	85.1	88.7
Third year	80.0	80.8	82.7	85.1	88.7
Fourth year	80.0	80.8	82.7	75.1	75.4
Fifth year	80.0	80.8	75.8	75.1	75.4

Table 6: Projected Multiple Dry Years Wholesale Supply from RWS [For Table 7-4], Without Bay-Delta Plan Amendment

	2025	2030	2035	2040	2045
First year	146.0	147.9	151.9	156.3	162.8
Second year	146.0	147.9	151.9	156.3	162.8
Third year	146.0	147.9	151.9	156.3	162.8
Fourth year	146.0	147.9	151.9	156.3	139.1
Fifth year	146.0	147.9	151.9	156.3	139.1

Table 7: Projected Regional Water System Supply for 5-Year Drought Risk Assessment [For Table 7-5], With Bay-Delta Plan Amendment. This table assumes Bay Delta Plan comes into effect in 2023.

Year	2021	2022	2023	2024	2025
RWS Supply (mgd)	198.6	198.6	119.2	119.2	119.2
Wholesale Supply (mgd)	132.1	132.1	74.5	74.5	74.5

Table 8: Projected Regional Water System Supply for 5-Year Drought Risk Assessment [For Table 7-5], Without Bay Delta Plan

Year	2021	2022	2023	2024	2025
RWS Supply (mgd)	198.6	198.6	198.6	198.6	198.6
Wholesale Supply (mgd)	132.1	132.1	132.1	132.1	132.1

Section 1: Basis for Calculations. Projected Wholesale RWS Purchases Through 2045

Table A: Wholesale RWS Actual Purchases in 2020 and Projected Purchases for 2025, 2030, 2035, 2040, and 2045 (mgd)[a]

Agency	2020 Actual	Projected Wholesale RWS Purchases 2025	2030	2035	2040	2045
ACWD	7.87	7.68	7.68	7.68	7.68	9.11
Brisbane/GVMID	0.64	0.89	0.89	0.88	0.89	0.89
Burlingame	3.48	4.33	4.40	4.47	4.58	4.69
Coastside	1.02	1.40	1.38	1.36	1.33	1.33
CalWater Total	29.00	29.99	29.74	29.81	30.27	30.70
Daly City	3.97	3.57	3.52	3.49	3.46	3.43
East Palo Alto	1.57	1.88	1.95	2.10	2.49	2.89
Estero	4.34	4.07	4.11	4.18	4.23	4.38
Hayward	13.92	17.86	18.68	19.75	20.82	22.14
Hillsborough	2.62	3.26	3.25	3.26	3.26	3.26
Menlo Park	2.96	3.55	3.68	3.87	4.06	4.29
Mid-Peninsula	2.66	2.86	2.84	2.88	2.89	2.93
Millbrae	1.90	2.29	2.50	2.45	2.82	3.20
Milpitas	5.92	6.59	6.75	7.03	7.27	7.53
Mountain View	7.67	8.60	8.90	9.20	9.51	9.93
North Coast	2.37	2.34	2.33	2.34	2.34	2.34
Palo Alto	9.75	10.06	10.15	10.28	10.51	10.79
Purissima Hills	1.75	2.09	2.09	2.12	2.13	2.15
Redwood City	8.76	8.46	8.49	8.64	8.74	8.90
San Bruno	0.95	3.24	3.22	3.20	3.20	3.21
San Jose	4.26	4.50	4.50	4.50	4.50	4.50
Santa Clara	3.27	4.50	4.50	4.50	4.50	4.50
Stanford	1.43	2.01	2.18	2.35	2.53	2.70
Sunnyvale	9.33	9.16	9.30	10.70	11.44	12.10
Westborough	0.82	0.86	0.85	0.85	0.84	0.84
Total	**132.22**	**146.01**	**147.87**	**151.90**	**156.31**	**162.76**

[a] Wholesale RWS purchase projections for 2025, 2030, 2035, 2040, and 2045 were provided to BAWSCA between July 2020 and January 2021 by the Member Agencies following the completion of the June 2020 Demand Study.

Table B: Basis for the 5-Year Drought Risk Assessment Wholesale RWS Actual Purchases in 2020 and 2021-2025 Projected Purchases (mgd)

Agency	2020 Actual	Projected and Estimated Wholesale RWS Purchases 2021[b]	2022[b]	2023[c]	2024[c]	2025[c]
ACWD	7.87	9.44	9.46	9.46	9.46	9.46
Brisbane/GVMID	0.64	0.62	0.65	0.65	0.65	0.65
Burlingame	3.48	3.34	3.35	3.35	3.35	3.35
Coastside	1.02	1.54	1.23	1.23	1.23	1.23
CalWater Total	29.00	29.66	29.81	29.81	29.81	29.81
Daly City	3.97	4.00	4.01	4.01	4.01	4.01
East Palo Alto	1.57	1.63	1.69	1.69	1.69	1.69
Estero	4.34	4.48	4.51	4.51	4.51	4.51
Hayward	13.92	14.47	15.12	15.12	15.12	15.12
Hillsborough	2.62	2.95	3.05	3.05	3.05	3.05
Menlo Park	2.96	2.92	2.93	2.93	2.93	2.93
Mid-Peninsula	2.66	2.65	2.80	2.80	2.80	2.80
Millbrae	1.90	1.95	2.15	2.15	2.15	2.15
Milpitas	5.92	5.88	5.34	5.34	5.34	5.34
Mountain View	7.67	7.80	8.05	8.05	8.05	8.05
North Coast	2.37	2.58	2.66	2.66	2.66	2.66
Palo Alto	9.75	9.44	9.66	9.66	9.66	9.66
Purissima Hills	1.75	1.97	2.02	2.02	2.02	2.02
Redwood City	8.76	8.72	9.07	9.07	9.07	9.07
San Bruno	0.95	3.39	3.40	3.40	3.40	3.40
San Jose	4.26	4.31	4.51	4.51	4.51	4.51
Santa Clara	3.27	3.29	3.50	3.50	3.50	3.50
Stanford	1.43	1.40	1.54	1.54	1.54	1.54
Sunnyvale	9.33	9.35	9.45	9.45	9.45	9.45
Westborough	0.82	0.84	0.81	0.81	0.81	0.81
Total	**132.22**	**138.61**	**140.77**	**140.77**	**140.77**	**140.77**

[b] Wholesale RWS purchase projections for 2021 and 2022 were provided to Christina Tang, BAWSCA's Finance Manager, by the Member Agencies in January 2021.

[c] The SFPUC's supply reliability tables assume the Bay-Delta Plan takes effect in 2023. In the event of a shortage, the Tier 2 Plan specifies that each agencies' Allocation Factor would be calculated once at the onset of a shortage based on the previous year's use and remains the same until the shortage condition is over. Therefore, for the purpose of drought allocations for the 5-year Drought Risk Assessment, wholesale RWS demand is assumed to remain static from 2022 through the drought sequence.

Section 2: Drought Allocations *With* Bay-Delta Plan

Table C: RWS Supply Available to the Wholesale Customers (Combined Tables 3a-3f from the SFPUC's March 30th letter) *With* Bay-Delta Plan (mgd)

	2020[e]	2025	2030	2035	2040	2045
Projected Purchases[d]	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 1st Dry Year	138.6	93.3	94.2	96.5	99.2	88.7
Consecutive 2nd Dry Year	140.8	80.0	80.8	82.7	85.1	88.7
Consecutive 3rd Dry Year	74.5	80.0	80.8	82.7	85.1	88.7
Consecutive 4th Dry Year	74.5	80.0	80.8	82.7	75.1	75.4
Consecutive 5th Dry Year	74.5	80.0	80.8	75.8	75.1	75.4

[d] Values for 2020 are actual purchases. This row aligns with what is labeled as an "Average Year" in Tables 3a-3f in the SFPUC's March 30th letter. However, these values do not represent an average year and instead are actual purchases for 2020 or projected purchases for 2025 through 2045.

[e] In years when the Bay-Delta Plan is not in effect, sufficient RWS supplies will be available to meet the Wholesale Customers' purchase requests assuming that they are between the 2020 and 2025 projected levels. As such, RWS supply available to the Wholesale Customers in the 1st and 2nd consecutive dry years under base year 2020 is equal to the cumulative projected wholesale RWS purchases for 2021 and 2022, respectively.

Table D: Wholesale RWS Demand (Combined Totals from Tables A and B) (mgd)[f]

	2020	2025	2030	2035	2040	2045
Projected Purchases[d]	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 1st Dry Year	138.6	146.0	147.9	151.9	156.3	162.8
Consecutive 2nd Dry Year	140.8	146.0	147.9	151.9	156.3	162.8
Consecutive 3rd Dry Year	140.8	146.0	147.9	151.9	156.3	162.8
Consecutive 4th Dry Year	140.8	146.0	147.9	151.9	156.3	162.8
Consecutive 5th Dry Year	140.8	146.0	147.9	151.9	156.3	162.8

[f] The SFPUC's modeling approach does not allow for varying demands over the course of a dry year sequence. Additionally, the Tier 2 Plan calculates each agencies' Allocation Factor once at the onset of a drought and it remains the same until the shortage condition is over. When system-wide shortages are projected, wholesale RWS demand is assumed to be static for the remainder of the drought sequence.

Table E: Percent Cutback to the Wholesale Customers *With* Bay-Delta Plan[g]

	2020	2025	2030	2035	2040	2045
Projected Purchases[d]	0%	0%	0%	0%	0%	0%
Consecutive 1st Dry Year	0%	36%	36%	36%	37%	46%
Consecutive 2nd Dry Year	0%	45%	45%	46%	46%	46%
Consecutive 3rd Dry Year	47%	45%	45%	46%	46%	46%
Consecutive 4th Dry Year	47%	45%	45%	46%	52%	54%
Consecutive 5th Dry Year	47%	45%	45%	50%	52%	54%

[g] Agencies that wish to use new or different projected RWS purchases may use the percent cutbacks listed in this table to determine their drought allocation.

Table F1: Basis of Water Supply Data [For Tables 7-1 and 7-5], Base Year 2020, *With* Bay-Delta Plan (mgd)

Year Consecutive Dry Year	2020 Actual	2021 1st	2022 2nd	2023 3rd	2024 4th	2025 5th
Wholesale RWS Demand	132.2	138.6	140.8	140.8	140.8	140.8
Wholesale RWS Supply Available	132.2	138.6	140.8	74.5	74.5	74.5
Percent Cutback	0%	0%	0%	47%	47%	47%

Table F2: Individual Agency Drought Allocations [For Tables 7-1 and 7-5], Base Year 2020, *With* Bay-Delta Plan (mgd)

	2020	Wholesale RWS Drought Allocations				
Agency	Actual	2021	2022	2023	2024	2025
ACWD	7.87	9.44	9.46	5.01	5.01	5.01
Brisbane/GVMID	0.64	0.62	0.65	0.34	0.34	0.34
Burlingame	3.48	3.34	3.35	1.77	1.77	1.77
Coastside	1.02	1.54	1.23	0.65	0.65	0.65
CalWater Total	29.00	29.66	29.81	15.78	15.78	15.78
Daly City	3.97	4.00	4.01	2.12	2.12	2.12
East Palo Alto	1.57	1.63	1.69	0.89	0.89	0.89
Estero	4.34	4.48	4.51	2.39	2.39	2.39
Hayward	13.92	14.47	15.12	8.00	8.00	8.00
Hillsborough	2.62	2.95	3.05	1.61	1.61	1.61
Menlo Park	2.96	2.92	2.93	1.55	1.55	1.55
Mid-Peninsula	2.66	2.65	2.80	1.48	1.48	1.48
Millbrae	1.90	1.95	2.15	1.14	1.14	1.14
Milpitas	5.92	5.88	5.34	2.83	2.83	2.83
Mountain View	7.67	7.80	8.05	4.26	4.26	4.26
North Coast	2.37	2.58	2.66	1.41	1.41	1.41
Palo Alto	9.75	9.44	9.66	5.11	5.11	5.11
Purissima Hills	1.75	1.97	2.02	1.07	1.07	1.07
Redwood City	8.76	8.72	9.07	4.80	4.80	4.80
San Bruno	0.95	3.39	3.40	1.80	1.80	1.80
San Jose	4.26	4.31	4.51	2.39	2.39	2.39
Santa Clara	3.27	3.29	3.50	1.85	1.85	1.85
Stanford	1.43	1.40	1.54	0.82	0.82	0.82
Sunnyvale	9.33	9.35	9.45	5.00	5.00	5.00
Westborough	0.82	0.84	0.81	0.43	0.43	0.43
Total	**132.2**	**138.6**	**140.8**	**74.5**	**74.5**	**74.5**

Table G1: Basis of Water Supply Data [For Tables 7-1 and 7-4], Base Year 2025, *With* Bay-Delta Plan (mgd)

Consecutive Dry Year	1st	2nd	3rd	4th	5th
Wholesale RWS Demand	146.0	146.0	146.0	146.0	146.0
Wholesale RWS Supply Available	93.3	80.0	80.0	80.0	80.0
Percent Cutback	36%	45%	45%	45%	45%

Table G2: Individual Agency Drought Allocations [For Tables 7-1 and 7-4], Base Year 2025, *With* Bay-Delta Plan (mgd)

	Wholesale RWS Drought Allocations				
Consecutive Dry Year	1st	2nd	3rd	4th	5th
ACWD	4.91	4.21	4.21	4.21	4.21
Brisbane/GVMID	0.57	0.49	0.49	0.49	0.49
Burlingame	2.76	2.37	2.37	2.37	2.37
Coastside	0.89	0.77	0.77	0.77	0.77
CalWater Total	19.16	16.43	16.43	16.43	16.43
Daly City	2.28	1.96	1.96	1.96	1.96
East Palo Alto	1.20	1.03	1.03	1.03	1.03
Estero	2.60	2.23	2.23	2.23	2.23
Hayward	11.41	9.78	9.78	9.78	9.78
Hillsborough	2.08	1.79	1.79	1.79	1.79
Menlo Park	2.27	1.95	1.95	1.95	1.95
Mid-Peninsula	1.83	1.57	1.57	1.57	1.57
Millbrae	1.46	1.25	1.25	1.25	1.25
Milpitas	4.21	3.61	3.61	3.61	3.61
Mountain View	5.49	4.71	4.71	4.71	4.71
North Coast	1.49	1.28	1.28	1.28	1.28
Palo Alto	6.43	5.51	5.51	5.51	5.51
Purissima Hills	1.33	1.14	1.14	1.14	1.14
Redwood City	5.40	4.63	4.63	4.63	4.63
San Bruno	2.07	1.77	1.77	1.77	1.77
San Jose	2.88	2.47	2.47	2.47	2.47
Santa Clara	2.88	2.47	2.47	2.47	2.47
Stanford	1.28	1.10	1.10	1.10	1.10
Sunnyvale	5.85	5.02	5.02	5.02	5.02
Westborough	0.55	0.47	0.47	0.47	0.47
Total	**93.3**	**80.0**	**80.0**	**80.0**	**80.0**

Table H1: Basis of Water Supply Data [For Tables 7-1 and 7-4], Base Year 2030, *With* Bay-Delta Plan (mgd)

Consecutive Dry Year	1st	2nd	3rd	4th	5th
Wholesale RWS Demand	147.9	147.9	147.9	147.9	147.9
Wholesale RWS Supply Available	94.2	80.8	80.8	80.8	80.8
Percent Cutback	36%	45%	45%	45%	45%

Table H2: Individual Agency Drought Allocations [For Tables 7-1 and 7-4], Base Year 2030, *With* Bay-Delta Plan (mgd)

	Wholesale RWS Drought Allocations				
Consecutive Dry Year	1st	2nd	3rd	4th	5th
ACWD	4.89	4.20	4.20	4.20	4.20
Brisbane/GVMID	0.56	0.48	0.48	0.48	0.48
Burlingame	2.80	2.40	2.40	2.40	2.40
Coastside	0.88	0.75	0.75	0.75	0.75
CalWater Total	18.94	16.25	16.25	16.25	16.25
Daly City	2.24	1.92	1.92	1.92	1.92
East Palo Alto	1.24	1.07	1.07	1.07	1.07
Estero	2.62	2.24	2.24	2.24	2.24
Hayward	11.90	10.21	10.21	10.21	10.21
Hillsborough	2.07	1.78	1.78	1.78	1.78
Menlo Park	2.35	2.01	2.01	2.01	2.01
Mid-Peninsula	1.81	1.55	1.55	1.55	1.55
Millbrae	1.59	1.37	1.37	1.37	1.37
Milpitas	4.30	3.69	3.69	3.69	3.69
Mountain View	5.67	4.86	4.86	4.86	4.86
North Coast	1.48	1.27	1.27	1.27	1.27
Palo Alto	6.47	5.55	5.55	5.55	5.55
Purissima Hills	1.33	1.14	1.14	1.14	1.14
Redwood City	5.41	4.64	4.64	4.64	4.64
San Bruno	2.05	1.76	1.76	1.76	1.76
San Jose	2.87	2.46	2.46	2.46	2.46
Santa Clara	2.87	2.46	2.46	2.46	2.46
Stanford	1.39	1.19	1.19	1.19	1.19
Sunnyvale	5.92	5.08	5.08	5.08	5.08
Westborough	0.54	0.47	0.47	0.47	0.47
Total	**94.2**	**80.8**	**80.8**	**80.8**	**80.8**

Table I1: Basis of Water Supply Data [For Tables 7-1 and 7-4], Base Year 2035, *With* Bay-Delta Plan (mgd)

Consecutive Dry Year	1st	2nd	3rd	4th	5th
Wholesale RWS Demand	151.9	151.9	151.9	151.9	151.9
Wholesale RWS Supply Available	96.5	82.7	82.7	82.7	75.8
Percent Cutback	36%	46%	46%	46%	50%

Table I2: Individual Agency Drought Allocations [For Tables 7-1 and 7-4], Base Year 2035, *With* Bay-Delta Plan (mgd)

	Wholesale RWS Drought Allocations				
Consecutive Dry Year	1st	2nd	3rd	4th	5th
ACWD	4.88	4.18	4.18	4.18	3.83
Brisbane/GVMID	0.56	0.48	0.48	0.48	0.44
Burlingame	2.84	2.44	2.44	2.44	2.23
Coastside	0.86	0.74	0.74	0.74	0.68
CalWater Total	18.94	16.23	16.23	16.23	14.88
Daly City	2.22	1.90	1.90	1.90	1.74
East Palo Alto	1.33	1.14	1.14	1.14	1.05
Estero	2.66	2.28	2.28	2.28	2.09
Hayward	12.55	10.75	10.75	10.75	9.86
Hillsborough	2.07	1.78	1.78	1.78	1.63
Menlo Park	2.46	2.10	2.10	2.10	1.93
Mid-Peninsula	1.83	1.57	1.57	1.57	1.44
Millbrae	1.56	1.34	1.34	1.34	1.22
Milpitas	4.47	3.83	3.83	3.83	3.51
Mountain View	5.84	5.01	5.01	5.01	4.59
North Coast	1.49	1.27	1.27	1.27	1.17
Palo Alto	6.53	5.60	5.60	5.60	5.13
Purissima Hills	1.34	1.15	1.15	1.15	1.06
Redwood City	5.49	4.70	4.70	4.70	4.31
San Bruno	2.03	1.74	1.74	1.74	1.60
San Jose	2.86	2.45	2.45	2.45	2.25
Santa Clara	2.86	2.45	2.45	2.45	2.25
Stanford	1.49	1.28	1.28	1.28	1.17
Sunnyvale	6.80	5.83	5.83	5.83	5.34
Westborough	0.54	0.46	0.46	0.46	0.42
Total	**96.5**	**82.7**	**82.7**	**82.7**	**75.8**

Table J1: Basis of Water Supply Data [For Table 7-1 and 7-4], Base Year 2040, *With* Bay-Delta Plan (mgd)

Consecutive Dry Year	1st	2nd	3rd	4th	5th
Wholesale RWS Demand	156.3	156.3	156.3	156.3	156.3
Wholesale RWS Supply Available	99.2	85.1	85.1	75.1	75.1
Percent Cutback	37%	46%	46%	52%	52%

Table J2: Individual Agency Drought Allocations [For Tables 7-1 and 7-4], Base Year 2040, *With* Bay-Delta Plan (mgd)

	Wholesale RWS Drought Allocations				
Consecutive Dry Year	1st	2nd	3rd	4th	5th
ACWD	4.87	4.18	4.18	3.69	3.69
Brisbane/GVMID	0.56	0.48	0.48	0.43	0.43
Burlingame	2.91	2.49	2.49	2.20	2.20
Coastside	0.85	0.73	0.73	0.64	0.64
CalWater Total	19.21	16.48	16.48	14.54	14.54
Daly City	2.20	1.88	1.88	1.66	1.66
East Palo Alto	1.58	1.36	1.36	1.20	1.20
Estero	2.69	2.30	2.30	2.03	2.03
Hayward	13.21	11.34	11.34	10.00	10.00
Hillsborough	2.07	1.78	1.78	1.57	1.57
Menlo Park	2.58	2.21	2.21	1.95	1.95
Mid-Peninsula	1.84	1.58	1.58	1.39	1.39
Millbrae	1.79	1.53	1.53	1.35	1.35
Milpitas	4.62	3.96	3.96	3.49	3.49
Mountain View	6.03	5.18	5.18	4.57	4.57
North Coast	1.49	1.27	1.27	1.12	1.12
Palo Alto	6.67	5.72	5.72	5.05	5.05
Purissima Hills	1.35	1.16	1.16	1.03	1.03
Redwood City	5.55	4.76	4.76	4.20	4.20
San Bruno	2.03	1.74	1.74	1.54	1.54
San Jose	2.86	2.45	2.45	2.16	2.16
Santa Clara	2.86	2.45	2.45	2.16	2.16
Stanford	1.61	1.38	1.38	1.22	1.22
Sunnyvale	7.26	6.23	6.23	5.49	5.49
Westborough	0.54	0.46	0.46	0.41	0.41
Total	**99.2**	**85.1**	**85.1**	**75.1**	**75.1**

Table K1: Basis of Water Supply Data [For Tables 7-1 and 7-4], Base Year 2045, *With* Bay-Delta Plan (mgd)

Consecutive Dry Year	1st	2nd	3rd	4th	5th
Wholesale RWS Demand	162.8	162.8	162.8	162.8	162.8
Wholesale RWS Supply Available	88.7	88.7	88.7	75.4	75.4
Percent Cutback	46%	46%	46%	54%	54%

Table K2: Individual Agency Drought Allocations [For Tables 7-1 and 7-4], Base Year 2045, *With* Bay-Delta Plan (mgd)

	Wholesale RWS Drought Allocations				
Consecutive Dry Year	1st	2nd	3rd	4th	5th
ACWD	4.97	4.97	4.97	4.22	4.22
Brisbane/GVMID	0.49	0.49	0.49	0.41	0.41
Burlingame	2.56	2.56	2.56	2.17	2.17
Coastside	0.72	0.72	0.72	0.61	0.61
CalWater Total	16.73	16.73	16.73	14.22	14.22
Daly City	1.87	1.87	1.87	1.59	1.59
East Palo Alto	1.58	1.58	1.58	1.34	1.34
Estero	2.39	2.39	2.39	2.03	2.03
Hayward	12.07	12.07	12.07	10.26	10.26
Hillsborough	1.78	1.78	1.78	1.51	1.51
Menlo Park	2.34	2.34	2.34	1.99	1.99
Mid-Peninsula	1.59	1.59	1.59	1.36	1.36
Millbrae	1.74	1.74	1.74	1.48	1.48
Milpitas	4.11	4.11	4.11	3.49	3.49
Mountain View	5.41	5.41	5.41	4.60	4.60
North Coast	1.28	1.28	1.28	1.09	1.09
Palo Alto	5.88	5.88	5.88	5.00	5.00
Purissima Hills	1.17	1.17	1.17	1.00	1.00
Redwood City	4.85	4.85	4.85	4.12	4.12
San Bruno	1.75	1.75	1.75	1.49	1.49
San Jose	2.45	2.45	2.45	2.08	2.08
Santa Clara	2.45	2.45	2.45	2.08	2.08
Stanford	1.47	1.47	1.47	1.25	1.25
Sunnyvale	6.59	6.59	6.59	5.61	5.61
Westborough	0.46	0.46	0.46	0.39	0.39
Total	**88.7**	**88.7**	**88.7**	**75.4**	**75.4**

Section 3: Drought Allocations *Without* Bay-Delta Plan

Table L: RWS Supply Available to the Wholesale Customers (Combined Tables 4a-4f from the SFPUC's March 30th letter) *Without* Bay-Delta Plan (mgd)[h]

	2020	2025	2030	2035	2040	2045
Projected Purchases[i]	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 1st Dry Year	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 2nd Dry Year	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 3rd Dry Year	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 4th Dry Year	132.2	146.0	147.9	151.9	156.3	139.1
Consecutive 5th Dry Year	132.2	146.0	147.9	151.9	156.3	139.1

[h] The SFPUC's modeling approach does not allow for varying demands over the course of a dry year sequence. However, the SFPUC has indicated that sufficient supplies are available to meet wholesale RWS demand so long as they reasonably stay within 2020 and 2040 levels. The SFPUC's modeling does not indicate cutbacks will be required till the 4th and 5th consecutive dry year at 2045 levels.

[i] Values for 2020 are actual purchases. This row aligns with what is labeled as an "Average Year" in Tables 4a-4f in the SFPUC's March 30th letter. However, these values do not represent an average year and instead are actual purchases for 2020 or projected purchases for 2025 through 2045.

Table M: Wholesale RWS Demand (Combined Totals from Tables A and B) (mgd)

	2020	2025	2030	2035	2040	2045
Projected Purchases[i]	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 1st Dry Year	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 2nd Dry Year	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 3rd Dry Year	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 4th Dry Year	132.2	146.0	147.9	151.9	156.3	162.8
Consecutive 5th Dry Year	132.2	146.0	147.9	151.9	156.3	162.8

Table N: Percent Cutback to the Wholesale Customers *Without* Bay-Delta Plan

	2020	2025	2030	2035	2040	2045
Projected Purchases[i]	0%	0%	0%	0%	0%	0%
Consecutive 1st Dry Year	0%	0%	0%	0%	0%	0%
Consecutive 2nd Dry Year	0%	0%	0%	0%	0%	0%
Consecutive 3rd Dry Year	0%	0%	0%	0%	0%	0%
Consecutive 4th Dry Year	0%	0%	0%	0%	0%	15%
Consecutive 5th Dry Year	0%	0%	0%	0%	0%	15%

Table O1: Basis of Water Supply Data [For Tables 7-1 and 7-4], Base Year 2045, *Without* Bay-Delta Plan (mgd)

Consecutive Dry Year	1st	2nd	3rd	4th	5th
Wholesale RWS Demand	162.8	162.8	162.8	162.8	162.8
Wholesale RWS Supply Available	162.8	162.8	162.8	139.1	139.1
Percent Cutback	0%	0%	0%	Tier 2 Plan	Tier 2 Plan

Table O2: Individual Agency Drought Allocations [For Tables 7-1 and 7-4], Base Year 2045, *Without* Bay-Delta Plan (mgd)

	Wholesale RWS Drought Allocations					Tier 2 Drought
Consecutive Dry Year	1st	2nd	3rd	4th	5th	Cutback
ACWD	9.11	9.11	9.11	8.20	8.20	10.0%
Brisbane/GVMID	0.89	0.89	0.89	0.74	0.74	16.8%
Burlingame	4.69	4.69	4.69	4.02	4.02	14.3%
Coastside	1.33	1.33	1.33	1.19	1.19	10.0%
CalWater Total	30.70	30.70	30.70	26.73	26.73	12.9%
Daly City	3.43	3.43	3.43	3.01	3.01	12.4%
East Palo Alto	2.89	2.89	2.89	2.68	2.68	7.3%
Estero	4.38	4.38	4.38	3.94	3.94	10.0%
Hayward	22.14	22.14	22.14	18.67	18.67	15.7%
Hillsborough	3.26	3.26	3.26	2.93	2.93	10.2%
Menlo Park	4.29	4.29	4.29	3.58	3.58	16.5%
Mid-Peninsula	2.93	2.93	2.93	2.63	2.63	10.0%
Millbrae	3.20	3.20	3.20	2.54	2.54	20.7%
Milpitas	7.53	7.53	7.53	6.55	6.55	13.1%
Mountain View	9.93	9.93	9.93	8.91	8.91	10.3%
North Coast	2.34	2.34	2.34	2.11	2.11	10.0%
Palo Alto	10.79	10.79	10.79	9.71	9.71	10.0%
Purissima Hills	2.15	2.15	2.15	1.41	1.41	34.5%
Redwood City	8.90	8.90	8.90	7.92	7.92	11.1%
San Bruno	3.21	3.21	3.21	2.60	2.60	19.1%
San Jose	4.50	4.50	4.50	2.95	2.95	34.5%
Santa Clara	4.50	4.50	4.50	2.95	2.95	34.5%
Stanford	2.70	2.70	2.70	2.27	2.27	16.0%
Sunnyvale	12.10	12.10	12.10	10.11	10.11	16.5%
Westborough	0.84	0.84	0.84	0.76	0.76	10.0%
Total	**162.8**	**162.8**	**162.8**	**139.1**	**139.1**	

Attachment C

San Francisco Public Utilities Commission
Water Supply Reduction Mitigation Memorandum

San Francisco
Water Power Sewer
Services of the San Francisco Public Utilities Commission

525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102
T 415.554.3155
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TTY 415.554.3488

TO: SFPUC Wholesale Customers

FROM: Steven R. Ritchie, Assistant General Manager, Water

DATE: June 2, 2021

RE: Regional Water System Supply Reliability and UWMP 2020

This memo is in response to various comments from Wholesale Customers we have received regarding the reliability of the Regional Water System supply and San Francisco's 2020 Urban Water Management Plan (UWMP).

As you are all aware, the UWMP makes clear the potential effect of the amendments to the Bay-Delta Water Quality Control Plan adopted by the State Water Resources Control Board on December 12, 2018 should it be implemented. Regional Water System-wide water supply shortages of 40-50% could occur until alternative water supplies are developed to replace those shortfalls. Those shortages could increase dramatically if the State Water Board's proposed Water Quality Certification of the Don Pedro Federal Energy Regulatory Commission (FERC) relicensing were implemented.

We are pursuing several courses of action to remedy this situation as detailed below.

Pursuing a Tuolumne River Voluntary Agreement

The State Water Board included in its action of December 12, 2018 a provision allowing for the development of Voluntary Agreements as an alternative to the adopted Plan. Together with the Modesto and Turlock Irrigation Districts, we have been actively pursuing a Tuolumne River Voluntary Agreement (TRVA) since January 2017. We believe the TRVA is a superior approach to producing benefits for fish with a much more modest effect on our water supply. Unfortunately, it has been a challenge to work with the State on this, but we continue to persist, and of course we are still interested in early implementation of the TRVA.

Evaluating our Drought Planning Scenario in light of climate change

Ever since the drought of 1987-92, we have been using a Drought Planning Scenario with a duration of 8.5 years as a stress test of our Regional Water System supplies. Some stakeholders have criticized this methodology as being too conservative. This fall we anticipate our Commission convening a workshop

London N. Breed
Mayor

Sophie Maxwell
President

Anson Moran
Vice President

Tim Paulson
Commissioner

Ed Harrington
Commissioner

Newsha Ajami
Commissioner

Michael Carlin
Acting
General Manager

regarding our use of the 8.5-year Drought Planning Scenario, particularly in light of climate change resilience assessment work that we have funded through the Water Research Foundation. We look forward to a valuable discussion with our various stakeholders and the Commission.

Pursuing Alternative Water Supplies

The SFPUC continues to aggressively pursue Alternative Water Supplies to address whatever shortfall may ultimately occur pending the outcome of negotiation and/or litigation. The most extreme degree of Regional Water System supply shortfall is modeled to be 93 million gallons per day under implementation of the Bay-Delta Plan amendments. We are actively pursuing more than a dozen projects, including recycled water for irrigation, purified water for potable use, increased reservoir storage and conveyance, brackish water desalination, and partnerships with other agencies, particularly the Turlock and Modesto Irrigation Districts. Our goal is to have a suite of alternative water supply projects ready for CEQA review by July 1, 2023.

In litigation with the State over the Bay-Delta Plan Amendments

On January 10, 2019, we joined in litigation against the State over the adoption of the Bay-Delta Water Quality Control Plan Amendments on substantive and procedural grounds. The lawsuit was necessary because there is a statute of limitations on CEQA cases of 30 days, and we needed to preserve our legal options in the event that we are unsuccessful in reaching a voluntary agreement for the Tuolumne River. Even then, potential settlement of this litigation is a possibility in the future.

In litigation with the State over the proposed Don Pedro FERC Water Quality Certification

The State Water Board staff raised the stakes on these matters by issuing a Water Quality Certification for the Don Pedro FERC relicensing on January 15, 2021 that goes well beyond the Bay-Delta Plan amendments. The potential impact of the conditions included in the Certification appear to virtually double the water supply impact on our Regional Water System of the Bay-Delta Plan amendments. We requested that the State Water Board reconsider the Certification, including conducting hearings on it, but the State Water Board took no action. As a result, we were left with no choice but to once again file suit against the State. Again, the Certification includes a clause that it could be replaced by a Voluntary Agreement, but that is far from a certainty.

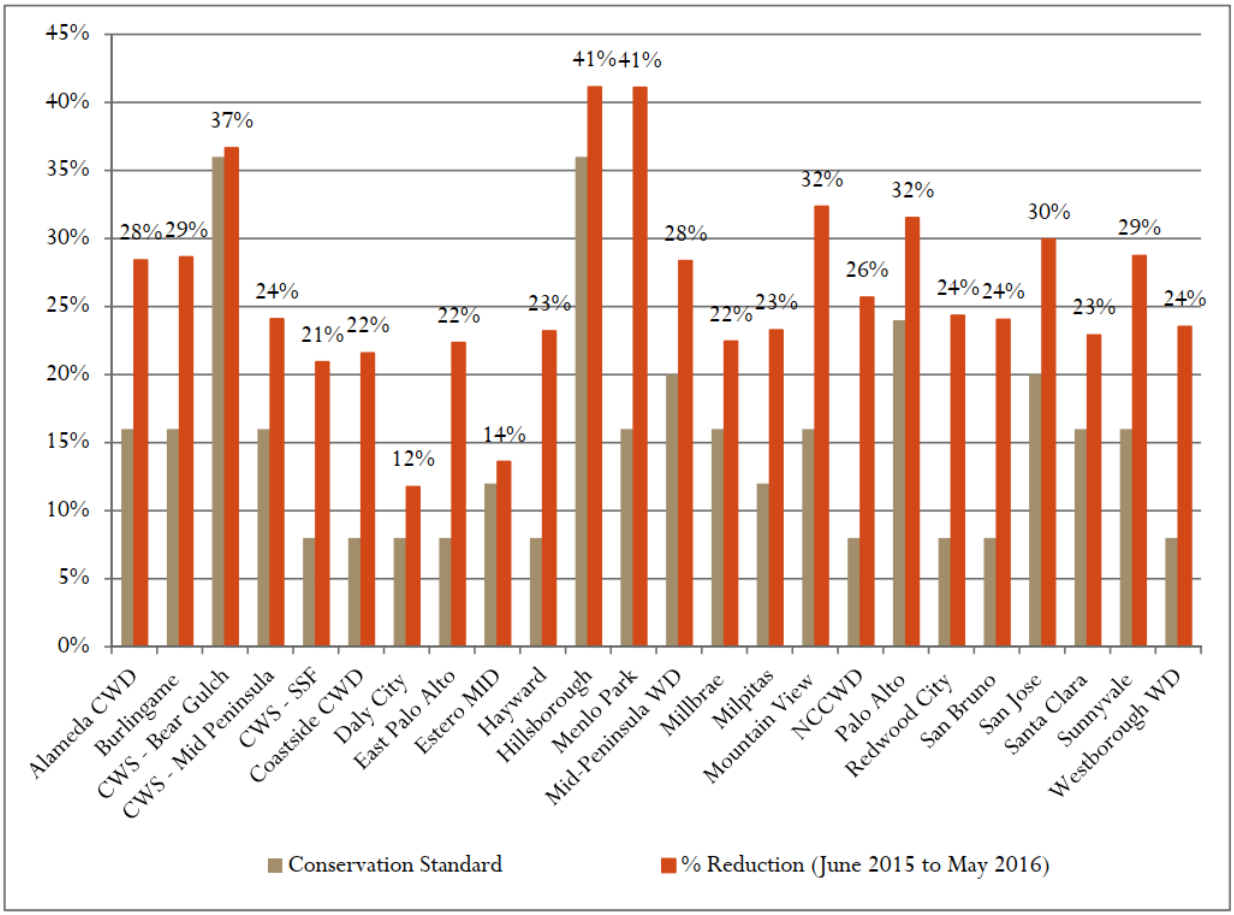
I hope this makes it clear that we are actively pursuing all options to resolve this difficult situation. We remain committed to creating benefits for the Tuolumne River while meeting our Water Supply Level of Service Goals and Objectives for our retail and wholesale customers.

cc.: SFPUC Commissioners
Nicole Sandkulla, CEO/General Manager, BAWSCA

Attachment D

Figure 7.12 from BAWSCA Drought Report, August 2017

Figure 7.12: BAWSCA Member Agency Conservation Standards and Total Water Use Reductions, June 2015 to May 2016



Appendix 3.11-2

Water System Hydraulic Evaluation

WEST YOST ASSOCIATES

TECHNICAL MEMORANDUM

DATE: March 13, 2020

Project No.: 462-60-19-24
SENT VIA: EMAIL

TO: Hae Won Ritchie, City of San Bruno

CC: Jimmy Tan, City of San Bruno
Joanna Kwok, City of San Bruno

FROM: Kambria Tiano, PE, RCE #84129

REVIEWED BY: Amy Kwong, PE, RCE #73213



SUBJECT: Water System Hydraulic Evaluation of Bayhill Specific Plan Development

This Technical Memorandum (TM) summarizes the findings and conclusions of West Yost Associates' (West Yost's) technical evaluation of the ability of the City of San Bruno's (City's) existing water distribution system to provide supply for the proposed Bayhill Specific Plan Development Project (Project). The following sections summarize the water system hydraulic evaluation:

- Project Description
- Estimated Water Demand
- Storage Capacity Evaluation
- Hydraulic Evaluation
- Evaluation Findings and Conclusions
- Cost Allocation of New Zone 3/5 Tank and Booster Pump Station

PROJECT DESCRIPTION

The Project is part of the continued growth of an approximately 92.4-acre site that is located in the central-eastern portion of the City. The Project is generally bounded by Interstate 280 to the west, Interstate 380 to the north, El Camino Real to the east, and San Bruno Avenue West to the south, as shown on Figure 1.[1]

The land within the Project site is currently a mixed-use district that includes the headquarters of YouTube, as well as various other land uses, including office, retail/commercial, hotel, and streets/right-of-way land uses. The first phase of the Project is YouTube's campus expansion plan

[1] Excludes the existing parcels fronting El Camino Real and at the corner of El Camino Real and San Bruno Avenue.

(Phase I Development), which consists of adding 301,476 square feet (sf) of net new office space to the Project Site by building 440,000 square feet of new space while demolishing 138,524 square feet of office space on an adjacent property that will be the site of future phase development~~8.15 acres~~. The Phase I Development is expected to be completed by 2022. Attachment A includes the proposed utility plans for the Phase I Development, prepared by the developer's engineer, that were used for this evaluation.

Four buildout scenarios of varying housing and office densities were evaluated in the Bayhill Specific Plan Development Project Water Supply Assessment (Project WSA) to capture the highest demand future scenario that would be permitted under the proposed Bayhill Specific Plan. Full buildout of the proposed Project is assumed to occur by 2040. The buildout scenarios included the following:

- Maximum Office Scenario
- Maximum Housing Scenario (Project)
- Increased Height Alternative – Maximum Office Scenario
- Increased Height Alternative – Maximum Housing Scenario (Project Alternative)

The proposed land use plans for each scenario is provided in Attachment B for reference.[2] The Maximum Housing Scenario resulted in higher water demands than the Maximum Office Scenario and was selected for this hydraulic evaluation. However, the Increased Height Alternative – Maximum Housing Scenario resulted in the highest buildout water demand and was therefore evaluated as a possible project alternative for this hydraulic evaluation to determine if additional water system improvements may be needed. Attachment C presents the Project Alternative Buildout evaluation findings and conclusions.

The selected Project Buildout scenario includes 3,500,743 sf of office buildings, 121,846 sf of retail buildings, a 133-room hotel, and 573 dwelling units (du) of multi-family residential housing (these totals include existing buildings that would remain). Proposed utility plans for buildout of the Project have not been prepared, and existing pipelines were assumed to serve the Project Buildout scenario. However, City staff identified that a new 10-inch diameter pipeline will be installed in Elm Avenue to connect Grundy Lane to Bayhill Drive at buildout.

The Project is located in Pressure Zone 3/5 of the City's water system. It is assumed that the Project will be served primarily from SFPUC supply (from the Rollingwood - C3 and Bayhill - C4 Turnouts) and that the City's groundwater wells would be offline under the City's current operations as a participant in the Regional Groundwater Storage and Recovery project. The preliminary Phase I Development utility plans provided to West Yost propose to abandon the existing 8-inch pipeline in Elm Avenue (north of Bayhill Drive), abandon and replace the existing 8-inch pipeline in Grundy Lane, and abandon and replace a section of the existing 10-inch pipeline in Bayhill Drive. The proposed pipelines would tie into the existing water system at four connections: one connection to the existing 8-inch diameter water main at the intersection of Grundy Lane and Cherry Avenue; a second connection to the existing 8-inch diameter water main that runs between Bayhill Drive and Grundy Lane (at a point approximately 1,230 ft northeast of the first connection); a third connection to the existing 10-inch diameter pipeline in Bayhill Drive, approximately 150 feet from the

[2] Provided to West Yost by ICF on March 29, 2019.

intersection of Bayhill Drive and Cherry Avenue; and a fourth connection to the existing 10-inch diameter pipeline in Bayhill Drive, approximately 450 feet east of the third connection. The proposed Phase I Development pipelines are 8-inches in diameter along Grundy Lane and 10-inches in diameter along Bayhill Drive, with ten new fire hydrants installed within the Project site.[3] The proposed Project Buildout pipelines are 8-inches in diameter along Elm Avenue. Figure 2 shows the proposed Phase I and Project Buildout pipeline alignments.

The following sections provide additional details on the projected water demands, storage capacity evaluation, hydraulic evaluation results, and summary of evaluation findings and conclusions.

ESTIMATED WATER DEMAND

Average day demands for the Phase I Development and Project Buildout were estimated by West Yost in the Project WSA using unit water demand factors from the 2012 Water System Master Plan (WSMP) for Multi-Family Residential, Commercial Office, and Commercial Retail water uses, and actual hotel water use for a local San Francisco Bay Area water district. Maximum day and peak hour demands were estimated using peaking factors developed in the 2012 WSMP. Metered water demands from the existing developed parcels were subtracted from the projected water demands for the Project to determine the actual net increase in water demand from the Project.

Table 1 summarizes the projected average day, maximum day, and peak hour water demands for the Phase I Development and Project Buildout conditions.

Table 1. Summary of Average Day, Maximum Day, and Peak Hour Water Demands

Project Phase	Average Day Demand		Maximum Day Demand[(a)]		Peak Hour Demand[(b)]	
	gpm	gpd	gpm	gpd	gpm	gpd
Proposed Demand[(c)]						
Phase I Development	195.0	280,823	292.5	421,235	585.0	842,469
Project Buildout	391.0	562,968	586.5	844,452	1,173.0	1,688,904
Existing Demand[(d)]						
Commercial Retail	128.4	184,854	192.6	277,281	385.2	554,562
Total Net Increase in Demand						
Phase I Development	66.6	95,969	99.9	143,954	199.8	287,907
Project Buildout	262.6	378,114	393.9	567,171	787.8	1,134,342

(a) Maximum day demand is 1.5 times the average day demand, per the 2012 WSMP (see Table 3-7).
(b) Peak hour demand is 3.0 times the average day demand, per the 2012 WSMP (see Table 3-7).
(c) Based on Table 2-4 from the Project WSA.
(d) Based on the existing 2010 metered consumption data for the Bayhill Specific Plan parcels, provided by the City during development of the 2012 WSMP, and scaled to match the historical 2000/01 demands evaluated in the hydraulic model.

[3] Number of hydrants based on October 2019 Phase I Development utility plans.

STORAGE CAPACITY EVALUATION

The storage capacity required to serve the Phase I Development and Project Buildout was evaluated to determine the impacts, if any, on the City's existing water system. The storage capacity evaluation was based on the water system planning and design criteria defined in the 2012 WSMP.

The City's total water storage requirement can be described as the sum of operational storage, fire flow storage, and emergency storage, less a groundwater credit. Because the City is a participant in the Regional Groundwater Storage and Recovery (GSR) project and will no longer pump groundwater under normal supply conditions, the groundwater credit will no longer apply. The 2012 WSMP established water storage criteria for the City, as outlined below.

- **Operational Storage:** 25 percent of the maximum day demand
- **Fire Flow Storage:** Fire flow demand times duration for the most severe fire flow in pressure zone
- **Emergency Storage:** 50 percent of the maximum day demand

The storage capacity required to serve the net increase in demands from Phase I Development and Project Buildout is provided in Table 2.

Table 2. Required Water Storage to Serve Net Increase in Demand due to Project

Storage Component	Planning Criteria[a]	Increase in Required Storage Volume, MG	
		Phase I Development	Project Buildout
Operational Storage	25% of maximum day demand	0.04	0.14
Fire Storage[b]	3,000 gpm for 3 hours	0.54	0.54
Emergency Storage	50% of maximum day demand	0.07	0.28
	Total	0.65	0.96

(a) As presented in the 2012 WSMP (see Table 7-3).
(b) As presented in the 2012 WSMP (see Table 6-2).

The City currently contains no water storage facilities in Zone 3/5 and has a storage capacity deficit of approximately 1.1 million gallons (MG). Therefore, the existing storage deficit is worsened by the increase in water demands from the Phase I Development. Table 3 summarizes the City's existing storage deficit and the additional storage capacity required to serve the Phase I Development.

Table 3. Water Storage Capacity under Phase I Development Conditions

	Total Available Storage, MG	Required Storage Capacity, MG				Storage Capacity Surplus (Deficit), MG
		Operational[a]	Fire Flow[b]	Emergency[c]	Total	
Existing Storage[d]	0.0	0.20	0.54	0.40	1.14	(1.14)
Project – Phase I[e]	0.0	0.04	-	0.07	0.11	(0.11)
Total Storage Required	0.0	0.24	0.54	0.47	1.25	(1.25)

(a) Based on 25% of maximum day demand, as outlined in the 2012 WSMP.
(b) Based on demand for most severe fire flow recommended in pressure zone multiplied by corresponding recommended fire flow duration from Table 6-2 from the 2012 WSMP.
(c) Based on 50% of maximum day demand, as outlined in the 2012 WSMP.
(d) Required storage capacity to meet existing demand, based on Table 7-3 from the 2012 WSMP.
(e) Required storage capacity based on Net Increase in Demand due to Phase I Development. Fire flow storage is not included in total since the fire flow requirement for Zone 3/5 without the Project is equal to the fire flow required by the Project.

The 2012 WSMP recommended a new 1.4 MG storage tank improvement in Zone 3/5 to eliminate the storage capacity deficit at buildout. However, as shown in Table 4, under future demand and Project Buildout conditions, a new 1.4 MG storage tank would yield a storage deficit within Zone 3/5 of approximately 0.3 MG. Therefore, West Yost recommends increasing the capacity of the proposed new Zone 3/5 storage tank from 1.4 MG to 1.7 MG to accommodate for the increase in Zone 3/5 storage capacity required to serve the Project.

Table 4. Water Storage Capacity under Project Buildout Conditions

	Total Available Storage, MG	Required Storage Capacity, MG				Storage Capacity Surplus (Deficit), MG
		Operational[a]	Fire Flow[b]	Emergency[c]	Total	
Future Storage[d,e]	1.4	0.26	0.54	0.53	1.33	0.07
Bayhill Office Park[f]	0.0	(0.03)	-	(0.07)	(0.10)	0.10
Project - Buildout[g]	0.0	0.14	-	0.28	0.42	(0.42)
Total Additional Storage Required[h]	--	0.37	0.54	0.74	1.65	(0.25)

(a) Based on 25% of maximum day demand, as outlined in the 2012 WSMP.
(b) Based on demand for most severe fire flow recommended in pressure zone multiplied by corresponding recommended fire flow duration from Table 6-2 from the 2012 WSMP.
(c) Based on 50% of maximum day demand, as outlined in the 2012 WSMP.
(d) A 1.4 MG tank was recommended in the 2012 WSMP to alleviate Zone 3/5's storage capacity deficit; however, West Yost recommends upsizing the tank to 1.7 MG to meet buildout storage requirements with the Project.
(e) Required storage capacity to meet future demand, based on Table 8-3 from the 2012 WSMP.
(f) The future storage requirement projected in the 2012 WSMP for the Project site is based on the maximum day demand projected for the Bayhill Office Park. Average day demand projected for the Bayhill Office Park is presented in Table 3-10 of the 2012 WSMP.
(g) Required storage capacity based on Net Increase in Demand due to Project Buildout. Fire flow storage is not included in total since the fire flow requirement for Zone 3/5 without the Project is equal to the fire flow required by the Project.
(h) The Total Storage Required is based on the sum of the Available Storage and the Project, less the Bayhill Office Park.

HYDRAULIC EVALUATION

To evaluate the infrastructure needs of the Project, West Yost updated the existing system scenarios in the hydraulic model to include the projected water demands, discussed previously, and updated the model to include the proposed Phase I Development and Buildout pipelines, as presented on Figure 2.

The potable water distribution system was evaluated under maximum day demand plus fire flow and peak hour demand for the Phase I Development and Project Buildout conditions. These evaluations were completed to confirm that the City's existing distribution system would be able to deliver the required potable water to the proposed Project while meeting the City's adopted water system performance criteria.

Planning and Modeling Criteria

The planning and modeling criteria used to evaluate the proposed Project are based on the system performance and operational criteria developed in the WSMP. The criteria used to evaluate the existing water system and proposed pipelines for the Project consist of the following:

- Minimum allowable service pressure is 35 pounds per square inch (psi) under normal system operating conditions.
- Residual pressure at the flowing hydrant (during a maximum day demand plus fire flow condition) and at service locations throughout Pressure Zone 3/5 must be equal to or greater than 20 psi.
- Maximum allowable pipeline velocity is 4 feet per second (ft/s) during a non-fire demand condition.
- Maximum allowable pipeline velocity is 10 ft/s during a simulated fire condition. However, it is preferred to keep pipeline velocities below 7 ft/s during a simulated fire condition, if feasible.
- Any new, required pipelines, are modeled with a roughness coefficient (C-factor) of 130.
- Available fire flow demand must meet a minimum flow of 2,500 gpm for New and Existing General Commercial land uses or 3,000 gpm for Existing High-Density Commercial land uses.
- Fire flow demands for the Project site were assigned to either New General Commercial or Existing High-Density Commercial[4] land uses.
- The hydraulic model of the City's existing water distribution system from the Mills Park Development hydraulic evaluation (dated May 22, 2019) was used as the basis for this hydraulic evaluation.

[4] Existing High-Density Commercial buildings were assumed to be unsprinklered to provide a more conservative fire flow requirement.

Results

Two demand conditions were evaluated to determine the impacts of the Project on the City's water system. The following demand conditions were evaluated for the Phase I Development and Project Buildout scenarios:

- Maximum Day Demand plus Fire Flow
- Peak Hour Demand

Maximum Day Demand plus Fire Flow

The available fire flow capacity was simulated during a maximum day demand condition with the fire flow requirements shown on Figure 2 for the Phase I Development and Project Buildout. It is assumed that all new buildings within the Phase I Development will be sprinklered, resulting in a required fire flow of 2,500 gpm. Fire flow requirements for Project Buildout were evaluated under existing fire flow demand requirements of 2,500 gpm to 3,000 gpm, depending on existing land use, and may be conservative. As shown on Figures 3 and 4, multiple fire flow locations within the Project area are deficient (red dots) under the evaluated conditions because the proposed pipelines exceed the maximum pipeline velocity criterion of 10 ft/s.

To meet the fire flow requirements, it is recommended that the proposed pipeline in Grundy Lane be upsized to a 10-inch diameter pipe, and the proposed pipeline in Bayhill Drive be upsized to a 12-inch diameter pipe during the Phase I Development. As shown on Figure 5, all fire flow locations evaluated in Zone 3/5 will meet fire flow requirements under Project Buildout conditions with these recommended pipeline improvements. Though not shown, the recommended pipeline improvements also allow the fire flow requirements to be met under the Phase I Development condition. It is important to note that these results are based on the available pipeline capacity and may not be representative of the actual flow that each fire hydrant can produce.

Peak Hour Demand

Under Phase I Development peak hour demand conditions, system pressures in the Project area range from 65.1 psi to 109.0 psi. Under Project Buildout peak hour demand conditions, system pressures in the Project area range from 58.6 psi to 104.5 psi.

Figures 6 and 7 show that system pressures during a peak hour demand condition remain above the required minimum pressure of 35 psi, and the velocities in the proposed pipelines remain below the maximum allowable pipeline velocity of 4 ft/s under Phase I Development and Project Buildout conditions. However, most of the system pressures in the Project area exceed the maximum pressure criterion of 80 psi during a peak hour demand condition, and customer service connections at these locations should have individual pressure reducing valves installed.

It should be noted that existing pipelines in Cherry Avenue, Bayhill Drive, and Elm Avenue exceed the maximum allowable pipeline velocity requirement of 4 ft/s under Phase I Development and Project Buildout conditions. Because these existing pipelines exceed the pipeline velocity criterion prior to the addition of the Project demands, no improvements are specifically recommended for the Project.

EVALUATION FINDINGS AND CONCLUSIONS

The evaluation findings and recommendations, previously described in detail, are summarized below. It should be noted that the hydraulic evaluation performed for the Project is based on the assumptions listed above. If any of these items are changed or modified in any way, other than as described in this TM, additional hydraulic evaluation may be required.

Water Storage

Approximately 0.11 MG and 0.42 MG of water storage in Zone 3/5 will be required to serve the Project at Phase I Development and Project Buildout, respectively. However, Zone 3/5 does not currently have any storage capacity and therefore, lacks adequate storage capacity to serve both the Phase I Development and Project Buildout conditions. The 2012 WSMP recommended a new 1.4 MG storage tank to serve Zone 3/5, but a larger 1.7 MG tank is recommended in Zone 3/5 to serve Project Buildout due to the increase in water demands from the Project. A new booster pump station preliminarily sized at 4.3 mgd (firm capacity) will also be required at this new storage tank as previously recommended in the 2012 WSMP.

Water Distribution

Based on the hydraulic modeling evaluation described previously, the proposed pipelines as provided on the Phase I Development preliminary utility plans and shown on Figure 2 are not adequate to serve the Project. To meet the City's water system performance criteria, it is recommended that the Project's proposed pipelines should be upsized to 10-inch diameter along Grundy Lane and 12-inch diameter along Bayhill Drive, as shown on Figure 5. These increases in pipeline diameters are recommended to serve the required fire flows in Phase I and Buildout at adequate pressures while meeting the City's maximum pipeline velocity requirement of 10 ft/s in the recommended pipelines. As existing pipelines are replaced in the area, they should be evaluated in the hydraulic model to determine the appropriate size for replacement to meet the City's maximum pipeline velocity requirement. It should also be noted that system pressures in the Project area exceed 80 psi and individual pressure reducing valves should be installed as needed.

COST ALLOCATION OF NEW ZONE 3/5 TANK AND BOOSTER PUMP STATION

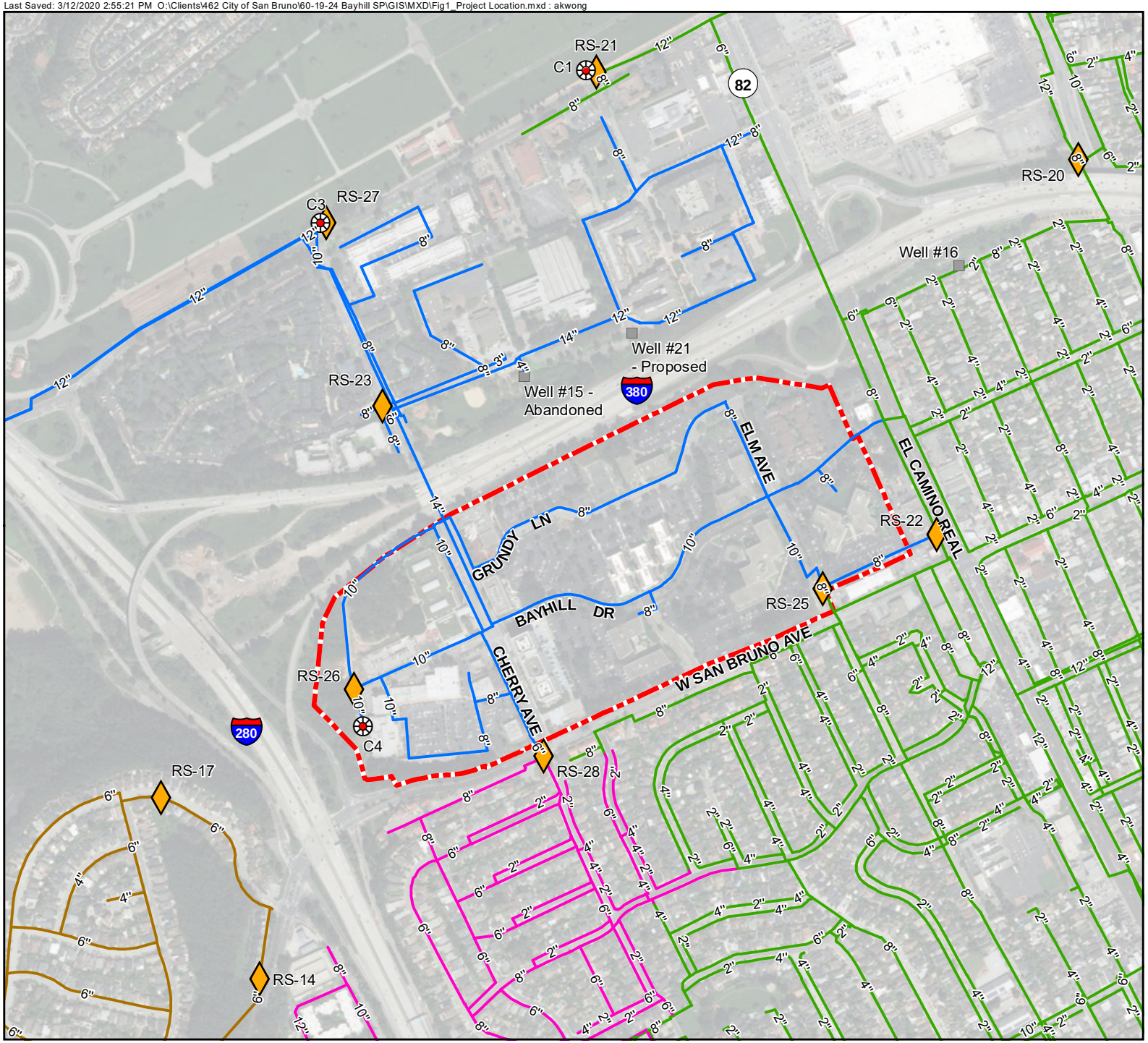
The cost allocation for the proposed Zone 3/5 Tank and Booster Pump Station between existing customers and future development is summarized in Table 5. Based on the storage capacity evaluation presented in Tables 3 and 4, the cost allocation of this new facility is approximately 70 percent to existing customers and 30 percent to future development. The estimated cost allocation specifically to the Bayhill Specific Plan development is 25 percent.

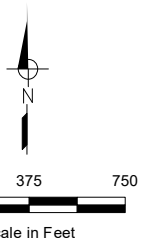
Table 5. Cost Allocation of New Zone 3/5 Tank and Booster Pump Station

Category	Storage Requirement, MG	Percent of Total
Existing Customers[a]	1.14	69.1%
Future Development in Zone 3/5 – Bayhill[b]	0.42	25.6%
Future Development in Zone 3/5 – Others[b]	0.09	5.5%
Total	1.65[c]	100%

(a) Refer to Table 3.
(b) Refer to Table 4.
(c) Recommended tank size is rounded up to 1.7 MG.

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Symbology

Existing Pipelines by Zone

- Zone 1/4
- Zone 2
- Zone 3/5
- Zone 6
- Turnout
- Well
- Pressure Regulating Station
- Project Location

City Of SAN BRUNO

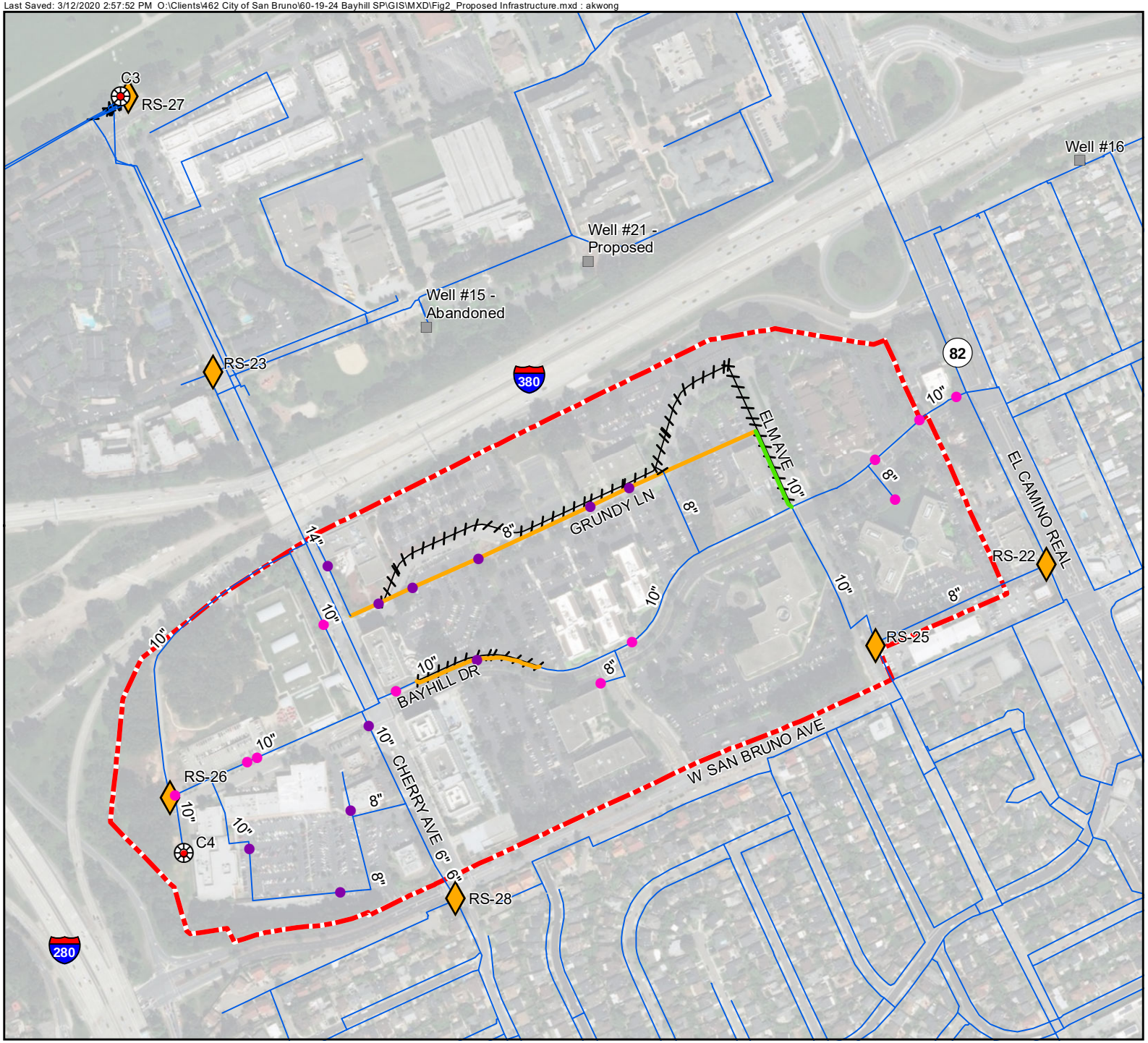
WEST YOST ASSOCIATES

Figure 1

Project Location

City of San Bruno
Bayhill Specific Plan
Water System Evaluation

Last Saved: 3/12/2020 2:57:52 PM O:\Clients\462 City of San Bruno\60-19-24 Bayhill SP\GIS\MXD\Fig2_Proposed Infrastructure.mxd : akwong



N

0 250 500

Scale in Feet

Symbology

- Abandon/Relocate Pipeline
- Existing Pipeline
- Proposed Pipeline (Phase 1)
- Proposed Pipeline (Buildout)
- 2,500 gpm Fire Flow Requirement
- 3,000 gpm Fire Flow Requirement
- Turnout
- Well
- Pressure Regulating Station
- Project Location

City of San Bruno

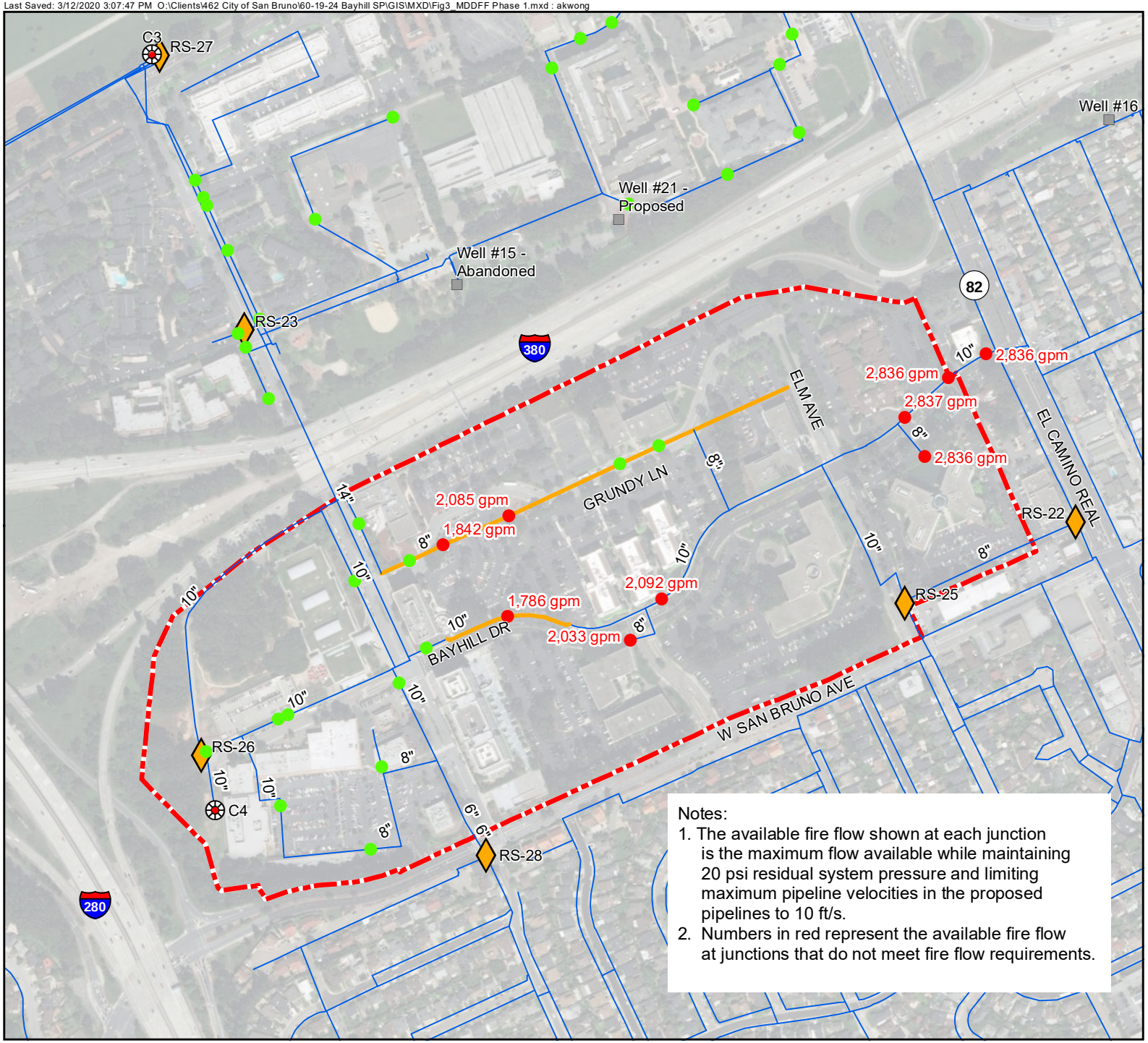
WEST YOST ASSOCIATES

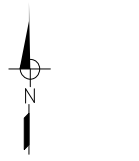
Figure 2

Proposed Pipeline Layout

City of San Bruno
Bayhill Specific Plan
Water System Evaluation

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Symbology

Available Fire Flow

- Does Not Meet Fire Flow Requirements
- Meets Fire Flow Requirements
- Existing Pipeline
- Proposed Pipeline
- Turnout
- Well
- Pressure Regulating Station
- Project Location

Notes:

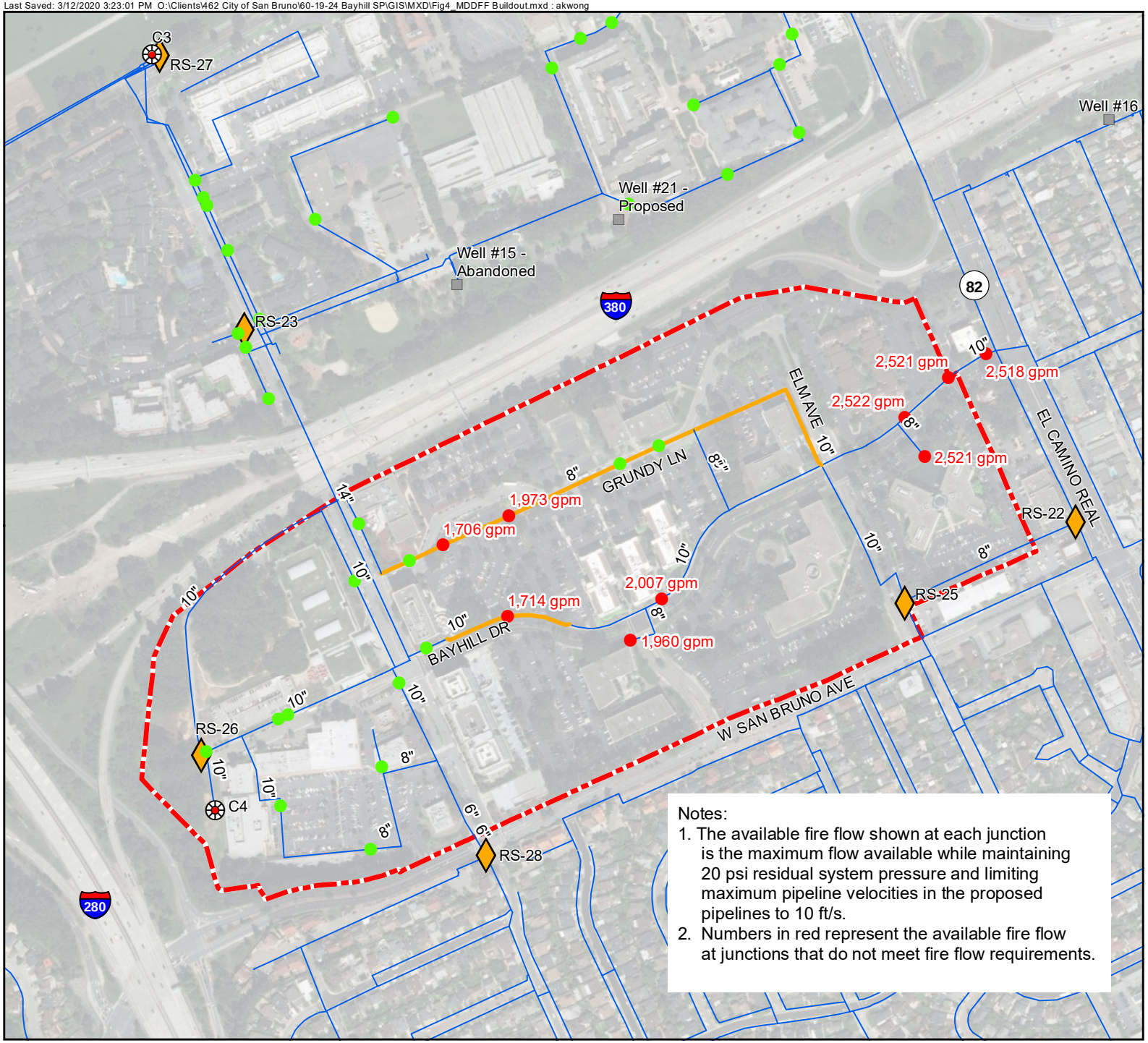
1. The available fire flow shown at each junction is the maximum flow available while maintaining 20 psi residual system pressure and limiting maximum pipeline velocities in the proposed pipelines to 10 ft/s.
2. Numbers in red represent the available fire flow at junctions that do not meet fire flow requirements.

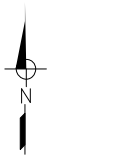
Figure 3

Maximum Day Plus Fire Flow for Phase 1 Development

City of San Bruno
Bayhill Specific Plan
Water System Evaluation

Last Saved: 3/12/2020 3:23:01 PM O:\Clients\462 City of San Bruno\60-19-24 Bayhill SP\GIS\MXD\Fig4_MDDFF Buildout.mxd : akwong





Symbology

Available Fire Flow

- Does Not Meet Fire Flow Requirements
- Meets Fire Flow Requirements
- Existing Pipeline
- Proposed Pipeline
- Turnout
- Well
- Pressure Regulating Station
- Project Location

Notes:

1. The available fire flow shown at each junction is the maximum flow available while maintaining 20 psi residual system pressure and limiting maximum pipeline velocities in the proposed pipelines to 10 ft/s.
2. Numbers in red represent the available fire flow at junctions that do not meet fire flow requirements.

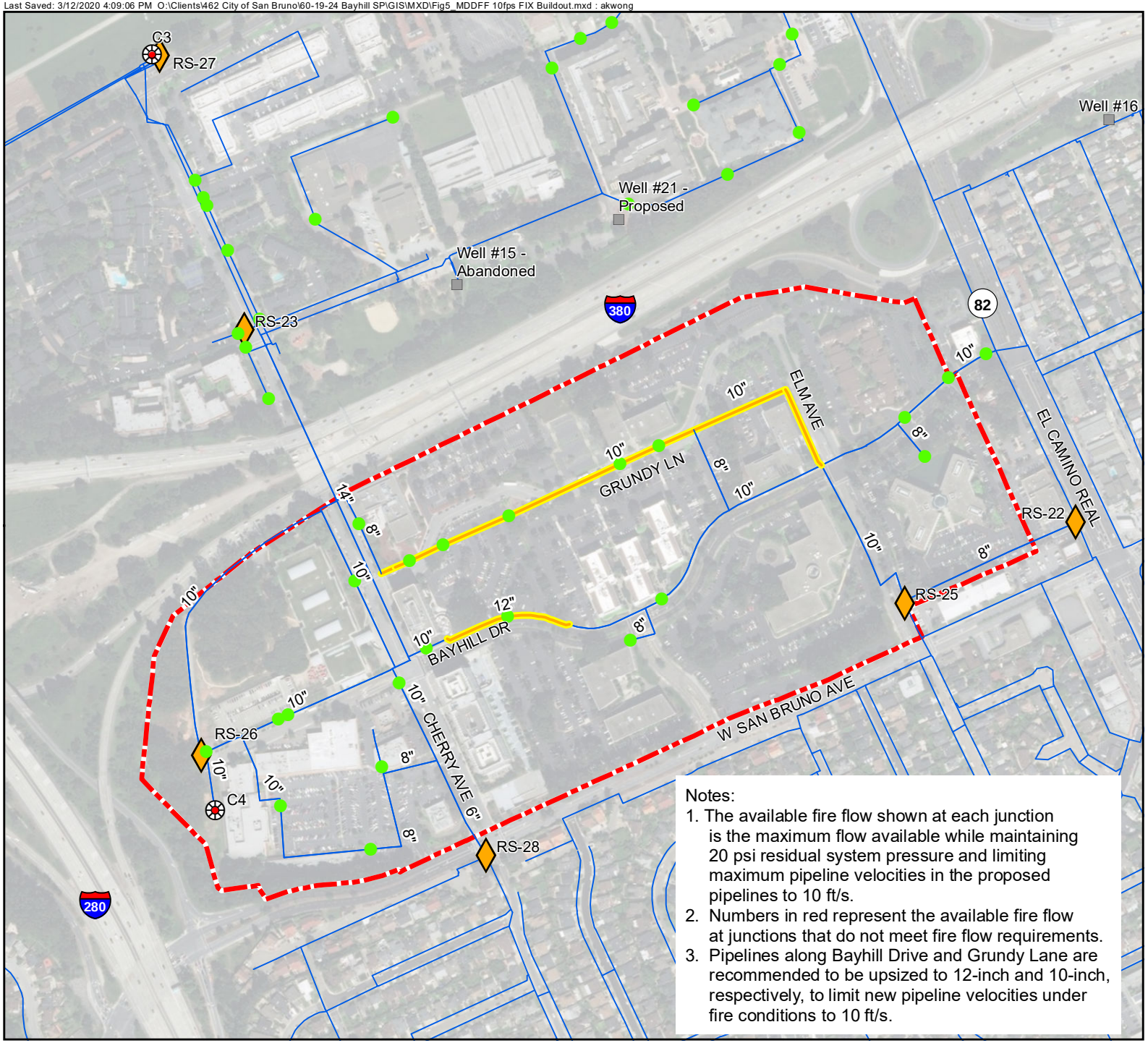
WEST YOST ASSOCIATES

Figure 4

Maximum Day Plus Fire Flow for Project Buildout

City of San Bruno
Bayhill Specific Plan
Water System Evaluation

Last Saved: 3/12/2020 4:09:06 PM O:\Clients\462 City of San Bruno\60-19-24 Bayhill SP\GIS\MXD\Fig5_MDDFF 10fps FIX Buildout.mxd : akwong



N

0 250 500

Scale in Feet

Symbology

Available Fire Flow

- Does Not Meet Fire Flow Requirements
- Meets Fire Flow Requirements
- Existing Pipeline
- Recommended Pipeline Improvement
- Turnout
- Well
- Pressure Regulating Station
- Project Location

Notes:

1. The available fire flow shown at each junction is the maximum flow available while maintaining 20 psi residual system pressure and limiting maximum pipeline velocities in the proposed pipelines to 10 ft/s.
2. Numbers in red represent the available fire flow at junctions that do not meet fire flow requirements.
3. Pipelines along Bayhill Drive and Grundy Lane are recommended to be upsized to 12-inch and 10-inch, respectively, to limit new pipeline velocities under fire conditions to 10 ft/s.

City Of SAN BRUNO

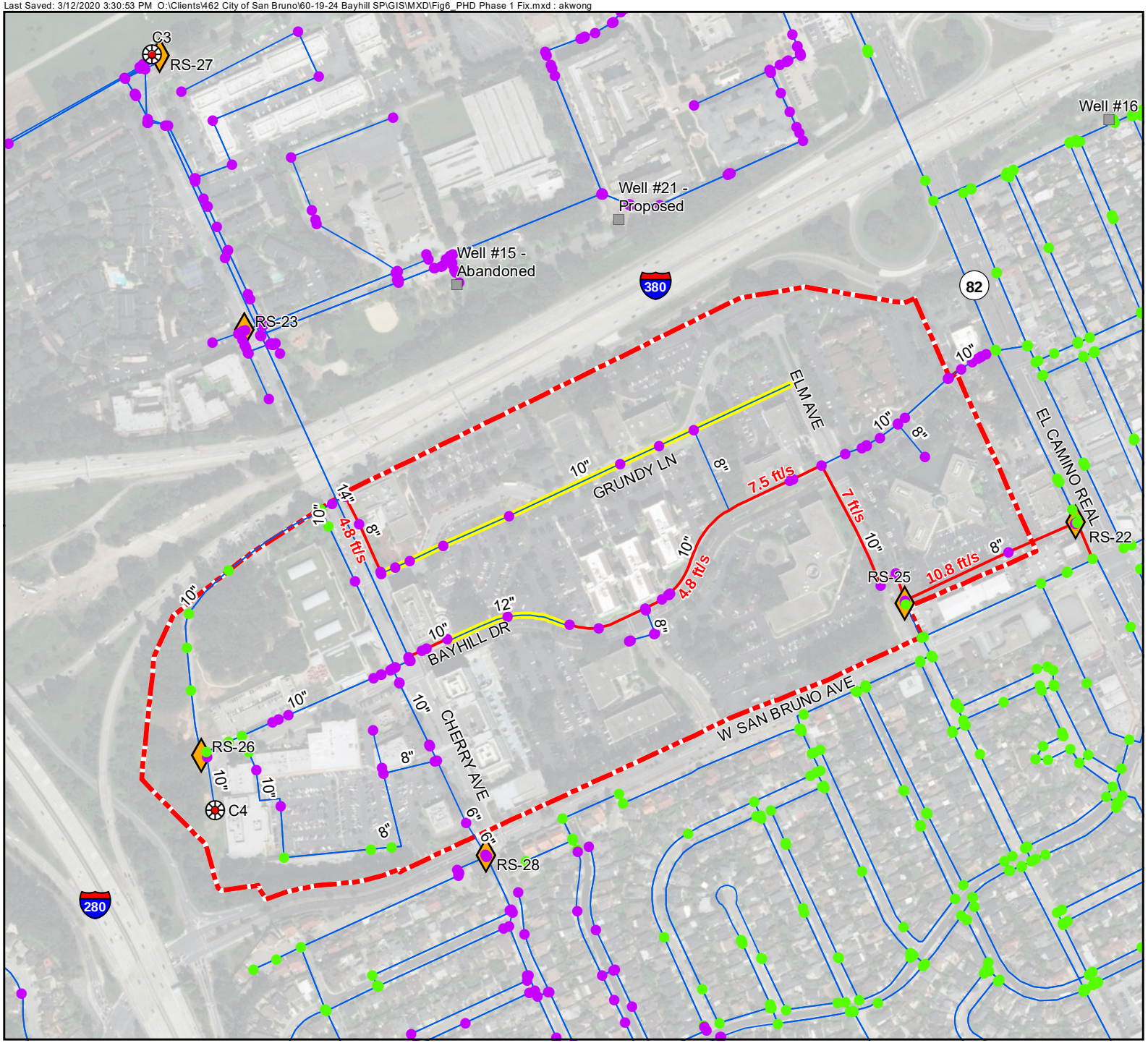
WEST YOST ASSOCIATES

Figure 5

Maximum Day Plus Fire Flow for Project Buildout with Improvements

City of San Bruno
Bayhill Specific Plan
Water System Evaluation

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0 250 500

Scale in Feet

Symbology

Junction Pressure

- Less than 35 psi
- 35 psi - 80 psi
- Greater than 80 psi
- Recommended Pipeline Improvement

Pipeline Velocity

- Less than or equal to 4 ft/s
- Greater than 4 ft/s
- Turnout
- Well
- Pressure Regulating Station
- Project Location

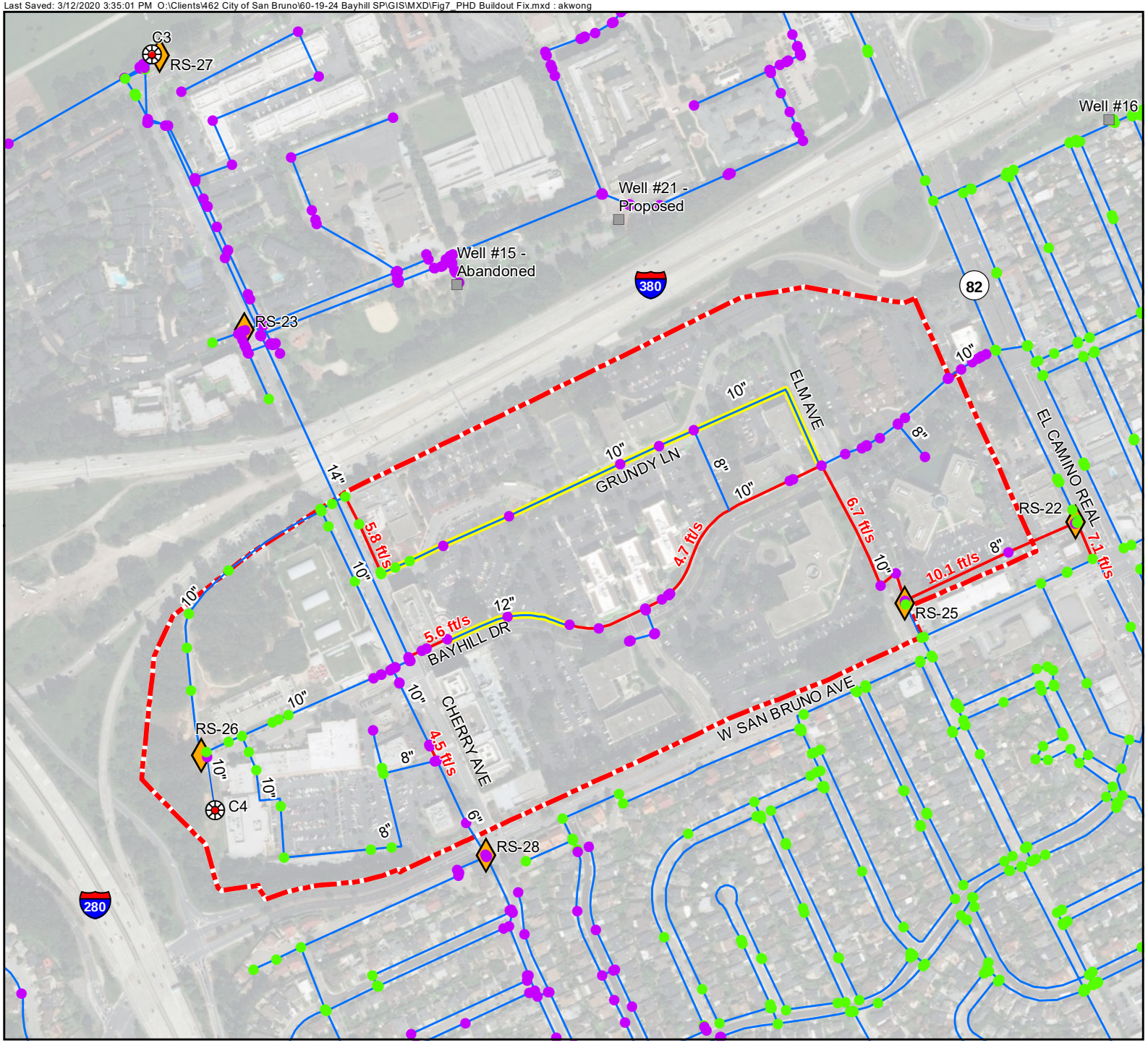
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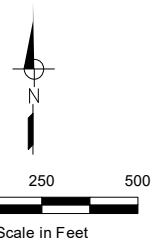
Figure 6

Peak Hour Demand for Phase 1 Development with Improvements

City of San Bruno
Bayhill Specific Plan
Water System Evaluation

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Symbology

Junction Pressure

- Less than 35 psi
- 35 psi - 80 psi
- Greater than 80 psi
- Recommended Pipeline Improvement

Pipeline Velocity

- Less than or equal to 4 ft/s
- Greater than 4 ft/s
- Turnout
- Well
- Pressure Regulating Station
- Project Location

WEST YOST ASSOCIATES

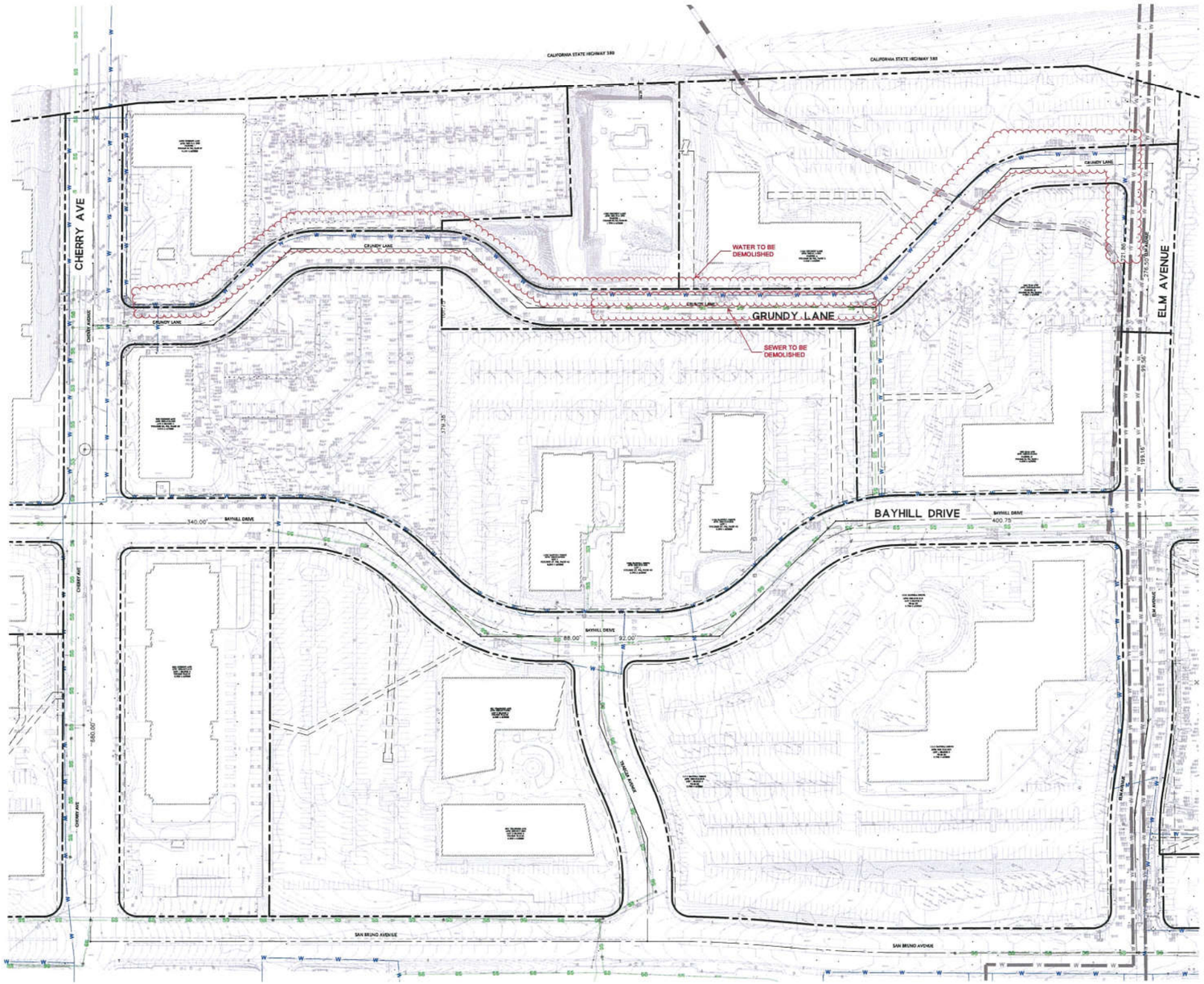
Figure 7

Peak Hour Demand for Project Buildout with Improvements

City of San Bruno
Bayhill Specific Plan
Water System Evaluation

ATTACHMENT A

Utility Plan (Phase I Development)



LEGEND:

PROPERTY LINE

EASEMENT

BENCHMARK STATEMENT:

THE ELEVATIONS SHOWN ON THIS SURVEY WERE BASED ON A 2" BRASS MONUMENT STAMPED "CITY OF SAN BRUNO, PUBLIC WORKS, HVCN SB-12" SET IN SIDEWALK ON COMMODORE DR. 2.20' FROM THE END OF SIDEWALK ACROSS FROM COMMODORE PARK. ELEVATION= 87.60' (NAVD88).

BASIS OF BEARINGS:

THE BEARING OF NORTH 25°27'34" WEST ALONG THE CENTERLINE OF ELM AVENUE AS SHOWN ON THAT CERTAIN PARCEL MAP ENTITLED "PARCEL MAP NO. 86-9" FILED FOR RECORD ON JULY 27, 1998, IN BOOK 61 OF MAPS AT PAGE 7, SAN MATEO COUNTY RECORDS, WAS TAKEN AS THE BASIS OF BEARINGS FOR THIS MAP.

UTILITY NOTE:

THE UTILITY LINES SHOWN ON THIS PLAN ARE DERIVED FROM SURFACE OBSERVATIONS AND ARE APPROXIMATE ONLY. NO WARRANTY IS IMPLIED AS TO THE ACTUAL LOCATION, SIZE OR PRESENCE OF ANY LINES SHOWN HEREON OR ANY ADDITIONAL UTILITY LINES NOT SHOWN ON THIS PLAN.

SURVEY NOTE:

THIS SURVEY WAS PREPARED BY BKF ENGINEERS. SURVEY WAS PERFORMED IN THE FIELD BETWEEN OCTOBER 28, 2016 AND DECEMBER 2, 2016, AND SUPPLEMENTAL TOPO BETWEEN SEPTEMBER 13, 2018 AND OCTOBER 1, 2018.
ALEX CALDER PLS 8863
BEN SANTOS PLS 9251

GRAPHIC SCALE
60 0 60 120

1" = 60'

shp

hok

hlw

BKF
ENGINEERS / SURVEYORS / PLANNERS

SURFACEDESIGN INC

nitēo

DESIGN ARCHITECT	ARCHITECT OF RECORD
SHoP ARCHITECTS	FLAK
OWNER/APPLICANT	DEVELOPMENT MANAGER
CIVIL ENGINEER	CAMPUS PLANNER
LIGHTING DESIGNER	LANDSCAPE ARCHITECT

PROJECT NAME
YouTube
PHASE 1

PROJECT ADDRESS
GRUNDY LANE
SAN BRUNO, CA 94066

SITE DIAGRAM

ISSUANCE

NO.	DATE	DESCRIPTION

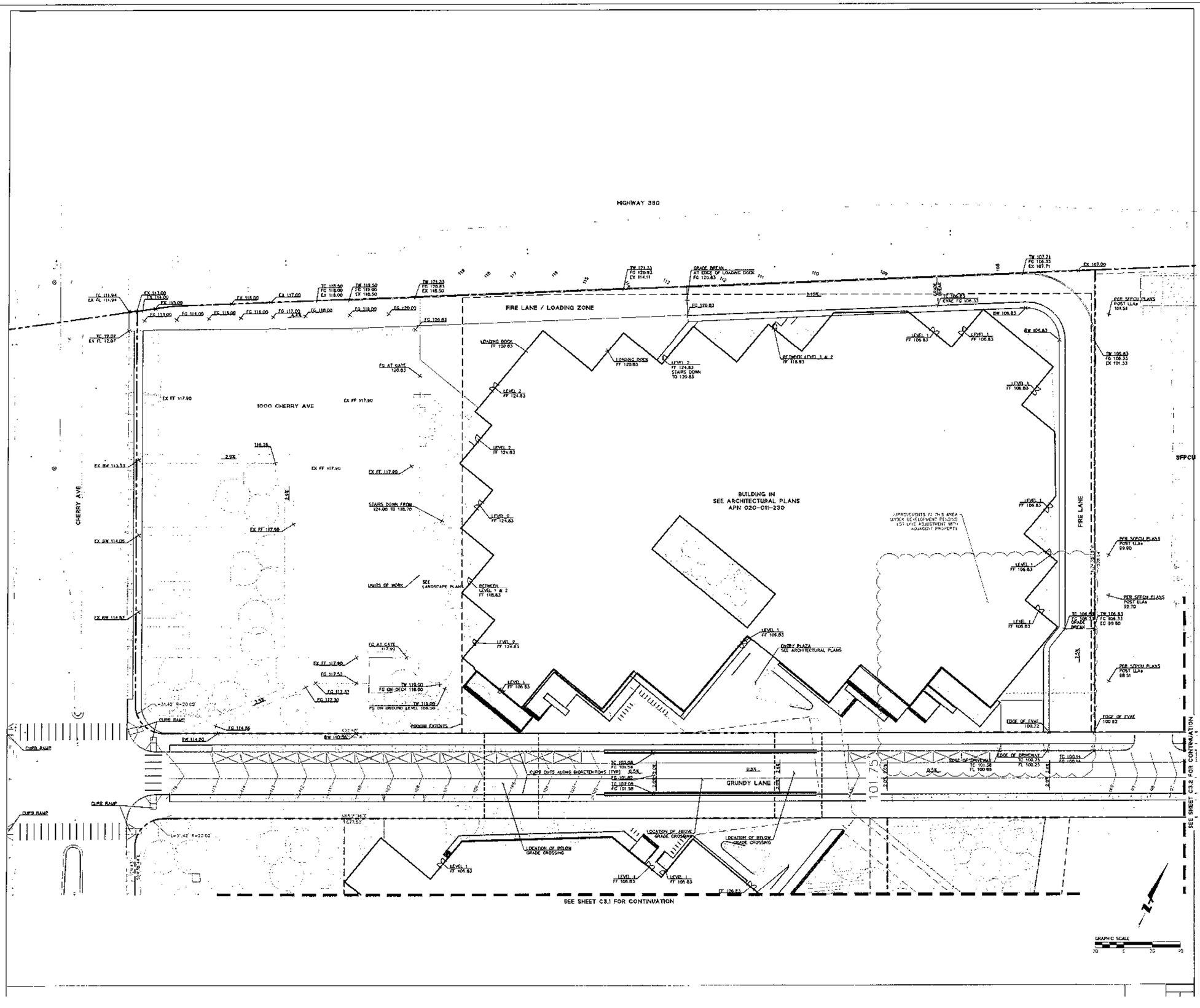
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DRAWING TITLE
EXISTING BOUNDARY AND EXISTING CONDITIONS PLAN

SEAL & SIGNATURE

DATE	04/05/19
PROJECT NO.	16917.0
DRAWN BY	MRC
CHECKED BY	AAZ

DRAWING NUMBER
C1.0



shp

hlw

BKF Engineers Surveyors Planners

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ARCHITECT	ARCHITECT OF RECORD
SHP ARCHITECTS	
OWNER/APPLICANT	DEVELOPMENT MANAGER
CIVIL ENGINEER	CAMPUS PLANNER
LIGHTING ENGINEER	LANDSCAPE ARCHITECT

PROJECT NAME
YouTube
PHASE 1

PROJECT ADDRESS
GRUNDY LANE
SAN BRUNO, CA 94066

SITE DIAGRAM

REVISIONS

NOT FOR CONSTRUCTION

DRAWING TITLE
GRADING PLAN - 1N

SEAL & SIGNATURE

DATE	06/30/21
PROJECT NO	19278
DRAWN BY	MEL
CHECKED BY	AAE

DRAWING NUMBER
C3.0

SEE SHEET C3.1 FOR CONTINUATION

SEE SHEET C3.2 FOR CONTINUATION

GRUNDY LANE

900 CHERRY AVE

BAYHILL DRIVE

340.00'

BUILDING 1S
SEE ARCHITECTURAL PLANS
APN 020-015-020

APN 020-017-010
850 CHERRY AVE

APN 020-017-020
851 TRAEGER AVE

SEE LANDSCAPE PLANS

CURB RAMP

CURB CUTS ALONG PROPERTIONS (TYP)

LOCATION OF ABOVE GRADE CROSSING

LOCATION OF BELOW GRADE CROSSING

ENTRY PLAZA
SEE ARCHITECTURAL PLANS

PODIUM EXTENTS

EDGE OF EVAE

EDGE OF DRIVEWAY

TEMP LANDSCAPED SLOPE DOWN TO EX 2:1 MAX

GRAPHIC SCALE
20 0 20 40

shp

hlw

BKF Engineers · Surveyors · Planners

SURFACEDESIGN INC

nteō

DESIGN ARCHITECT

ARCHITECT OF RECORD

OWNER'S REPRESENTATIVE

DEVELOPMENT MANAGER

CIVIL ENGINEER

CAMPUS PLANNER

LIGHTING DESIGNER

LANDSCAPE ARCHITECT

PROJECT NAME
YouTube
PHASE 1

PROJECT ADDRESS
GRUNDY LANE
SAN BRUNO, CA 94066

SITE DIAGRAM

NOT FOR CONSTRUCTION

DRAWING TITLE
GRADING PLAN - 1S

DATE 04.30.21
PROJECT NO 19011
DRAWN BY MC
CHECKED BY MG

DRAWING NUMBER
C3.1

SEE SHEETS C3.0 AND C3.1 FOR CONTINUATION

SFPCU
APN 020-011-290
1250 GRUNDY LANE

FIRE LANE

APN 020-011-330
AS RECONFIGURED BY GRUNDY LANE WORK
1100 GRUNDY LANE
FOR PARKING LAYOUT SEE SHEET C7.0

MARRIOTT
APN 020-011-360
1050 BAYHILL DRIVE

221.86'

276.50'

GRUNDY LANE

99.56'

APN 020-015-040
AS RECONFIGURED BY GRUNDY LANE WORK
950 ELM AVENUE
FOR PARKING LAYOUT SEE SHEET C7.0

199.16'

ELM AVENUE

APN 020-015-030
AS RECONFIGURED BY GRUNDY LANE WORK
1150, 1200, 1250 BAYHILL DRIVE
FOR TEMP PARKING LAYOUT SEE SHEET C6.0

BAYHILL DRIVE

GRAPHIC SCALE
30 0 30 60

shp

hlw

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DESIGN ARCHITECT

ARCHITECT OF RECORD

OWNER'S REPRESENTATIVE

DEVELOPMENT MANAGER

CIVIL ENGINEER

CAMPUS PLANNER

LIGHTING CONSULTANT

LANDSCAPE ARCHITECT

PROJECT NAME
YouTube
PHASE 1

PROJECT ADDRESS
GRUNDY LANE
SAN BRUNO, CA 94066

KEY DIAGRAM

SEAL

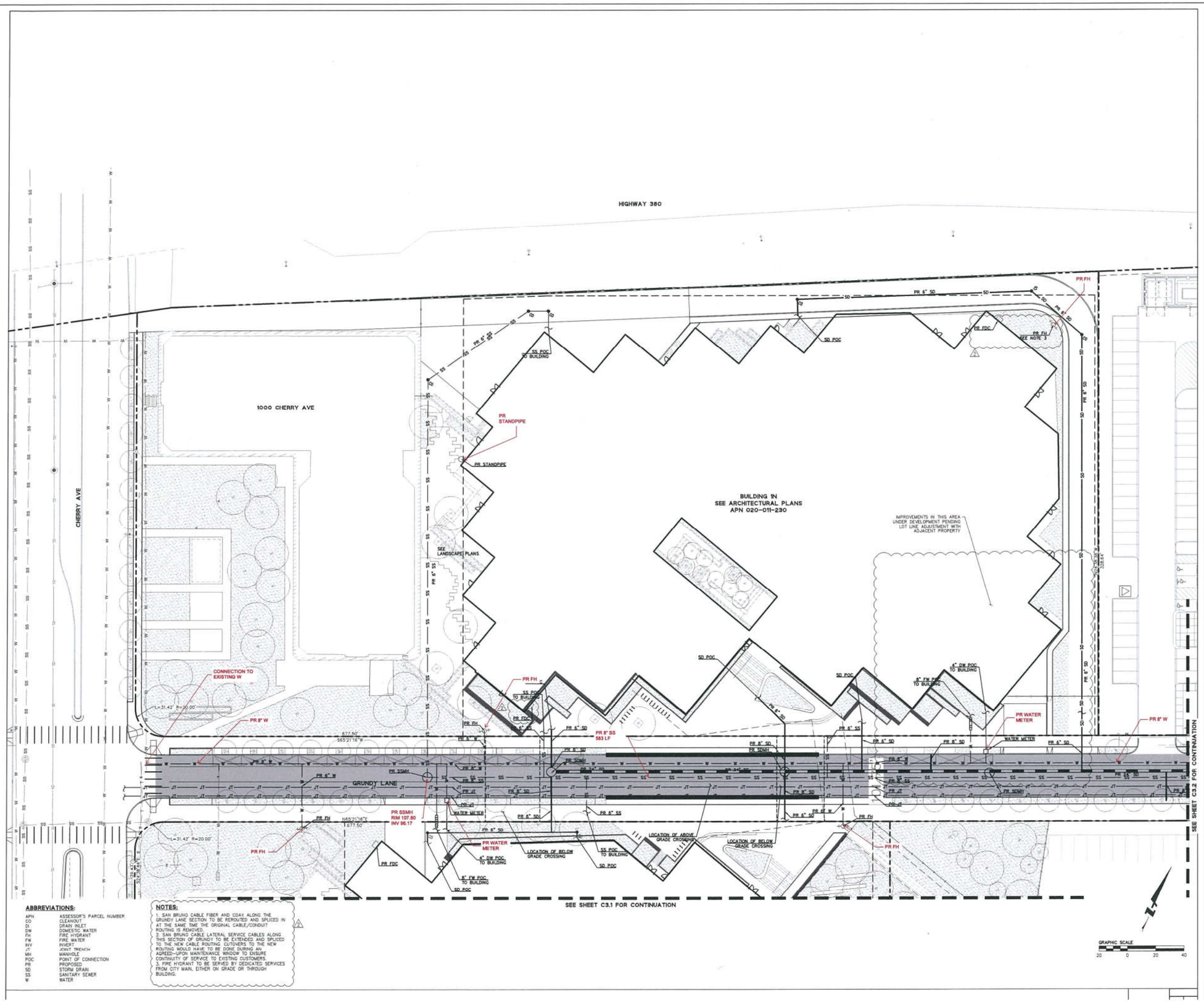
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GRADING PLAN - GRUNDY

SIGNATURE

DATE
PROJECT NO
DRAWN BY
CHECKED BY

DRAWING NUMBER
C3.2



ABBREVIATIONS:

APN	ASSESSOR'S PARCEL NUMBER
CO	CLEANOUT
DI	DRAIN INLET
DW	DOMESTIC WATER
FH	FIRE HYDRANT
FW	FIRE WATER
INV	INVERT
JT	JOINT TRENCH
MH	MANHOLE
POC	POINT OF CONNECTION
PR	PROPOSED
SD	STORM DRAIN
SS	SANITARY SEWER
W	WATER

NOTES:

1. SAN BRUNO CABLE FIBER AND COAX ALONG THE GRUNDY LANE SECTION TO BE REROUTED AND SPLICED IN AT THE SAME TIME THE ORIGINAL CABLE/CONDUIT ROUTING IS REMOVED.
2. SAN BRUNO CABLE LATERAL SERVICE CABLES ALONG THIS SECTION OF GRUNDY TO BE EXTENDED AND SPLICED TO THE NEW CABLE ROUTING. CUTOVERS TO THE NEW ROUTING WOULD HAVE TO BE DONE DURING AN AGREED-UPON MAINTENANCE WINDOW TO ENSURE CONTINUITY OF SERVICE TO EXISTING CUSTOMERS.
3. FIRE HYDRANT TO BE SERVED BY DEDICATED SERVICES FROM CITY MAIN, EITHER ON GRADE OR THROUGH BUILDING.

shp
hok
hlw
BKF ENGINEERS / SURVEYORS / PLANNERS
SURFACEDESIGN INC
nitēo

DESIGN ARCHITECT	ARCHITECT OF RECORD
SHoP ARCHITECTS	HLW
OWNER/APPLICANT	DEVELOPMENT MANAGER
GOOGLE LLC	ELLIS PARTNERS
CIVIL ENGINEER	CAMPUS PLANNER
BKF	HOK
LIGHTING DESIGNER	LANDSCAPE ARCHITECT
SITE LIGHTING	SURFACEDESIGN, INC.

PROJECT NAME
YouTube
PHASE 1

PROJECT ADDRESS
GRUNDY LANE
SAN BRUNO, CA 94066

SITE/DRAWING

ISSUANCE

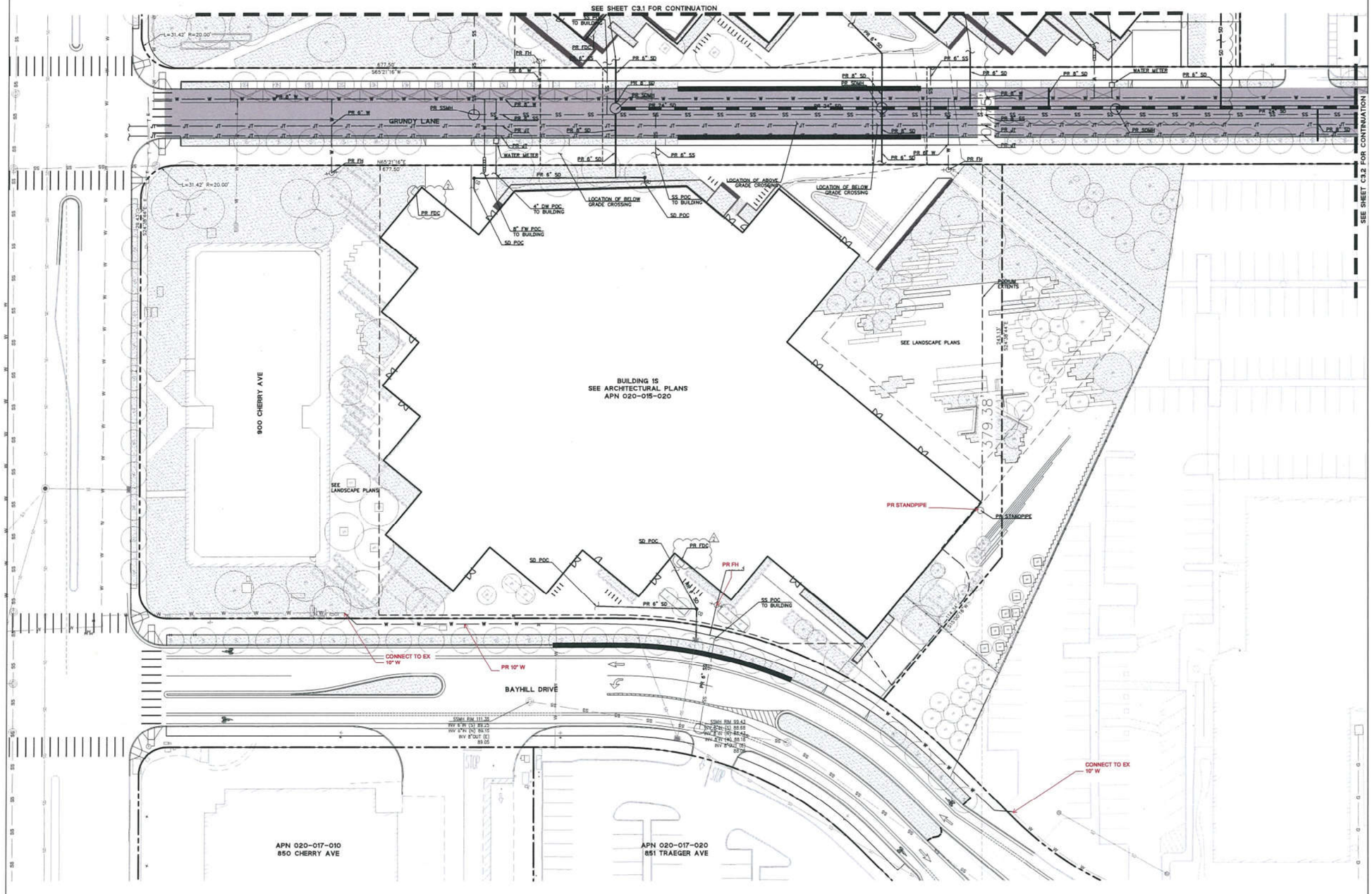
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DRAWING TITLE
UTILITY PLAN - 1N

SEAL & SIGNATURE

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PROJECT NO.	182012
DRAWN BY	MAL
CHECKED BY	MAE

DRAWING NUMBER
C4.0



ABBREVIATIONS:

APN	ASSESSOR'S PARCEL NUMBER
CO	CLEANOUT
DI	DRAIN INLET
DW	DOMESTIC WATER
FH	FIRE HYDRANT
FW	FIRE WATER
INV	INVERT
JT	JOINT TRENCH
MH	MANHOLE
POC	POINT OF CONNECTION
PR	PROPOSED
SD	STORM DRAIN
SS	SANITARY SEWER
W	WATER

NOTES:

1. SAN BRUNO CABLE FIBER AND COAX ALONG THE GRUNDY LANE SECTION TO BE REROUTED AND SPLICED IN AT THE SAME TIME THE ORIGINAL CABLE/CONDUIT ROUTING IS REMOVED.
2. SAN BRUNO CABLE LATERAL SERVICE CABLES ALONG THIS SECTION OF GRUNDY TO BE EXTENDED AND SPLICED TO THE NEW CABLE ROUTING. CUTOVERS TO THE NEW ROUTING WOULD HAVE TO BE DONE DURING AN AGREED-UPON MAINTENANCE WINDOW TO ENSURE CONTINUITY OF SERVICE TO EXISTING CUSTOMERS.

GRAPHIC SCALE
20 0 20 40

shp
o h+k
hlw
BKF ENGINEERS / SURVEYORS / PLANNERS
SURFACEDESIGN INC
niteo

DESIGN ARCHITECT	ARCHITECT OF RECORD
DEVELOPMENT MANAGER	OWNER/APPLICANT
CIVIL ENGINEER	CAMPUS PLANNER
LIGHTING DESIGNER	LANDSCAPE ARCHITECT

PROJECT NAME
YouTube
PHASE 1

PROJECT ADDRESS
GRUNDY LANE
SAN BRUNO, CA 94066

SITE DIAGRAM

ISSUANCE

NOT FOR CONSTRUCTION

DRAWING TITLE
UTILITY PLAN - 1S

SEAL & SIGNATURE

DATE	04/08/21
PROJECT NO.	16911
DRAWN BY	MKL
CHECKED BY	AAS

DRAWING NUMBER
C4.1

SEE SHEETS C3.0 AND C3.1 FOR CONTINUATION

SFPCU
APN 020-011-290
1250 GRUNDY LANE

APN 020-011-330
AS RECONFIGURED BY GRUNDY LANE WORK
1100 GRUNDY LANE
FOR PARKING LAYOUT SEE SHEET C7.0

MARRIOTT
APN 020-011-360
1050 BAYHILL DRIVE

APN 020-015-040
AS RECONFIGURED BY GRUNDY LANE WORK
950 ELM AVENUE
FOR PARKING LAYOUT SEE SHEET C7.0

APN 020-015-030
AS RECONFIGURED BY GRUNDY LANE WORK
1150, 1200, 1250 BAYHILL DRIVE
FOR TEMP PARKING LAYOUT SEE SHEET C6.0

GRUNDY LANE

BAYHILL DRIVE

ELM AVENUE

(2) RELOCATED 72" SD

PR 8" SS 583 LF

PR 8" SS 428 LF

SSMH RIM 93.91 INV 84.51

EX FH

PR 8" W

PR 8" SS

PR 24" SD

PR 8" SD

PR 8" SDCI

CONNECT TO EX 8" W

CONNECT TO EX SSMH RIM 77.20 INV 68.61

PR BIORETENTION

PR SDMH

PR JT

EX 8" W

EX 10" SS

441.77'
S65°21'16"W

524.01'

N63°56'29"E
40.11'

422.30'

276.50'

322.12'

TC @SDCB 60.64
INV 24"N (NW) 50.89
INV 24"OUT (SE) 50.39
SDMH RIM 59.94
INV 24"N (NW) 49.09
INV 24"N (SW) 48.64
INV 24"OUT (NE) 48.54

SDMH RIM 62.82
INV 8"N (NW) 54.82
INV 10"N (SW) 54.42
INV 18"OUT (NE) 54.37

SDMH RIM 58.48
INV 48"N (NW) 43.98
INV 18"N (SW) 43.86
INV 48"OUT (NE) 43.28

SDMH RIM 63.19
INV 6"N (S) 55.53
INV 10"N (N) 55.52
INV 24"N/W 54.12
INV 24"OUT (E) 54.02
SDMH RIM 58.27
INV 12"W (NW) 53.27
INV 24"N (NE) 52.57
INV 24"OUT (SE) 52.47

GRAPHIC SCALE
30 0 30 60

ABBREVIATIONS:

APN	ASSESSOR'S PARCEL NUMBER
CO	CLEANOUT
DI	DRAIN INLET
DW	DOMESTIC WATER
FH	FIRE HYDRANT
FW	FIRE WATER
INV	INVERT
JT	JOINT TRENCH
MH	MANHOLE
POC	POINT OF CONNECTION
PR	PROPOSED
SD	STORM DRAIN
SS	SANITARY SEWER
W	WATER

NOTES:

1. SAN BRUNO CABLE FIBER AND COAX ALONG THE GRUNDY LANE SECTION TO BE REROUTED AND SPLICED IN AT THE SAME TIME THE ORIGINAL CABLE/CONDUIT ROUTING IS REMOVED.
2. SAN BRUNO CABLE LATERAL SERVICE CABLES ALONG THIS SECTION OF GRUNDY TO BE EXTENDED AND SPLICED TO THE NEW CABLE ROUTING. CUTOVERS TO THE NEW ROUTING WOULD HAVE TO BE DONE DURING AN AGREED-UPON MAINTENANCE WINDOW TO ENSURE CONTINUITY OF SERVICE TO EXISTING CUSTOMERS.

shp
hok
hlw
BKF ENGINEERS / SURVEYORS / PLANNERS
SURFACEDESIGN INC
niteo

DESIGN ARCHITECT
SHP ARCHITECTS

ARCHITECT OF RECORD
HOK

OWNER/APPLICANT

DEVELOPMENT MANAGER
ELLIS PARTNERS

CIVIL ENGINEER
BKF

CAMPUS PLANNER
HOK

LIGHTING DESIGNER

LANDSCAPE ARCHITECT

PROJECT NAME
YouTube
PHASE 1

PROJECT ADDRESS
GRUNDY LANE
SAN BRUNO, CA 94066

SITE DIAGRAM

ISSUANCE

NOT FOR CONSTRUCTION

DRAWING TITLE
UTILITY PLAN - GRUNDY

SEAL & SIGNATURE

DATE	04/09/19
PROJECT NO.	16912
DRAWN BY	MEL
CHECKED BY	AAE

DRAWING NUMBER
C4.2

ATTACHMENT B
Proposed Land Use Plans

Project Maximum Office Scenario

	Office (sf)[a]	Retail (sf)	Hotel (sf)	Residential (DU) [b]
Existing Building Area	1,557,847	121,846	79,152 (133 rooms)	-
Existing to be Removed				
Phase I Development (2021)	138,524	-	-	-
Remaining Specific Plan Buildout	554,328	-	-	-
Total Existing to be Removed	**692,852**	**-**	**-**	**-**
Proposed New Construction				
Phase I Development	440,000	-		-
Remaining Specific Plan Buildout	2,712,699	-		-
Total Proposed	**3,152,699[a]**	**-**	**-**	**-**
Net Change	**2,459,847**	**-**	**-**	**-**
Total at Buildout	**4,017,694**	**121,846**	**79,152 (133 rooms)**	**-**

Footnote: The Specific Plan would also allow for an up to 50,000-sf civic use to be developed on a 2.1 acre parcel bordering San Bruno Avenue West. If the civic use were to be developed, the overall capacity of the Specific Plan area to accommodate new office uses would be reduced, and less office square footage would be developed. Thus, the civic use is not shown in the Maximum Office Scenario, which assumes that the maximum possible amount of office square footage is built. The potential civic use is discussed in this Draft EIR where relevant to the impact analysis.

[a] sf = square feet

[b] du = dwelling unit

Project Maximum Housing Scenario

	Office (sf) [a]	Retail (sf)	Hotel (sf)	Residential (DU) [b]
Existing Building Area	1,557,847	121,846	79,152 (133 rooms)	-
Existing to be Removed				
Phase I Development (2021)	138,524	-	-	-
Remaining Specific Plan Buildout	689,040	-	-	-
Total Existing to be Removed	**827,564**	-	-	-
Proposed New Construction				
Phase I Development (2021)	440,000	-	-	-
Remaining Specific Plan Buildout	2,330,460	-	-	573
Total Proposed	**2,770,460**	**-**	**-**	**573[a]**
Net Change	**1,942,896**	**-**	**-**	**573**
Total at Buildout	**3,500,743**	**121,846**	**79,152 (133 rooms)**	**573**

Footnote: The Specific Plan would also allow for an up to 50,000-sf civic use to be developed on a 2.1 acre parcel bordering San Bruno Avenue West. If the civic use were to be developed, the overall capacity of the Specific Plan area to accommodate new residential uses would be reduced, and fewer than 573 housing units would be developed. Thus, the civic use is not shown in the Maximum Housing Scenario, which assumes that the maximum possible number of residential dwelling units is built. The potential civic use is discussed in this Draft EIR where relevant to the impact analysis.

[a] sf = square feet

[b] du = dwelling unit

Increased Height Alternative Maximum Office Scenario

	Office (sf)[a]	Retail (sf)	Hotel (sf)	Residential (DU) [b]
Existing Building Area	1,557,847	121,846	79,152 (133 rooms)	-
Existing to be Removed				
Phase I Development (2021)	138,524	-	-	-
Remaining Specific Plan Buildout	554,328	-	-	-
Total Existing to be Removed	**692,852**	**-**	**-**	**-**
Proposed New Construction				
Phase I Development	440,000	-	-	-
Remaining Specific Plan Buildout	2,712,699	-	31,661 (53 rooms)	-
Total Proposed	**3,152,699[a]**	**-**	**110,813 (186 rooms)**	**-**
Net Change	**2,459,847**	**-**	**31,661 (53 rooms)**	**-**
Total at Buildout	**4,017,694**	**121,846**	**110,813 (186 rooms)**	**-**

Footnote: The Specific Plan would also allow for an up to 50,000-sf civic use to be developed on a 2.1 acre parcel bordering San Bruno Avenue West. If the civic use were to be developed, the overall capacity of the Specific Plan area to accommodate new office uses would be reduced, and less office square footage would be developed. Thus, the civic use is not shown in the Maximum Office Scenario, which assumes that the maximum possible amount of office square footage is built. The potential civic use is discussed in this Draft EIR where relevant to the impact analysis.

[a] sf = square feet

[b] du = dwelling unit

Increased Height Alternative Maximum Housing Scenario

	Office (sf) [a]	Retail (sf)	Hotel (sf)	Residential (DU) [b]
Existing Building Area	1,557,847	121,846	79,152 (133 rooms)	-
Existing to be Removed				
Phase I Development (2021)	138,524	-	-	-
Remaining Specific Plan Buildout	689,040	-	-	-
Total Existing to be Removed	**827,564**	-	-	-
Proposed New Construction				
Phase I Development (2021)	440,000	-	-	-
Remaining Specific Plan Buildout	2,330,460	-	31,661 (53 rooms)	1,070
Total Proposed	**2,770,460**	**-**	**110,813 (186 rooms)**	**1,070[a]**
Net Change	**1,942,896**	**-**	**31,661 (186 rooms)**	**1,070**
Total at Buildout	**3,500,743**	**121,846**	**110,813 (186 rooms)**	**1,070**

Footnote: The Specific Plan would also allow for an up to 50,000-sf civic use to be developed on a 2.1 acre parcel bordering San Bruno Avenue West. If the civic use were to be developed, the overall capacity of the Specific Plan area to accommodate new residential uses would be reduced, and fewer than 573 housing units would be developed. Thus, the civic use is not shown in the Maximum Housing Scenario, which assumes that the maximum possible number of residential dwelling units is built. The potential civic use is discussed in this Draft EIR where relevant to the impact analysis.

[a] sf = square feet

[b] du = dwelling unit

ATTACHMENT C

Project Alternative Buildout Evaluation

This attachment presents the Project Alternative Buildout water system evaluation findings and conclusions. Because the Increased Height Alternative – Maximum Housing Scenario resulted in the highest buildout water demand, it was evaluated as a possible project alternative. The Project Alternative Buildout scenario includes 3,500,743 sf of office buildings, 121,846 sf of retail buildings, a 186-room hotel, and 1,070 dwelling units (du) of multi-family residential housing (these totals include existing buildings that would remain).

ESTIMATED WATER DEMAND

Average day demands for the Project Alternative Buildout were estimated by West Yost in the Project WSA using unit water demand factors from the 2012 Water System Master Plan (WSMP) for Multi-Family Residential, Commercial Office, and Commercial Retail water uses, and actual hotel water use for a local San Francisco Bay Area water district. Maximum day and peak hour demands were estimated using peaking factors developed in the 2012 WSMP. Metered water demands from the existing developed parcels were subtracted from the projected water demands for the Project Alternative to determine the actual net increase in water demand from the Project Alternative.

Table C-1 summarizes the projected average day, maximum day, and peak hour water demands for the Project Alternative Buildout condition.

Table C-1. Summary of Average Day, Maximum Day, and Peak Hour Water Demands

Project Phase	Average Day Demand		Maximum Day Demand[a]		Peak Hour Demand[b]	
	gpm	gpd	gpm	gpd	gpm	gpd
Proposed Demand[c]						
Project Alternative Buildout	436.8	628,968	655.2	943,452	1,310.4	1,886,904
Existing Demand[d]						
Commercial Retail	128.4	184,854	192.6	277,281	385.2	554,562
Total Net Increase in Demand						
Project Alternative Buildout	308.4	444,114	462.6	666,171	925.2	1,332,342

(a) Maximum day demand is 1.5 times the average day demand, per the 2012 WSMP (see Table 3-7).
(b) Peak hour demand is 3.0 times the average day demand, per the 2012 WSMP (see Table 3-7).
(c) Based on Table 2-4 from the Project WSA.
(d) Based on the existing 2010 metered consumption data for the Bayhill Specific Plan parcels, provided by the City during development of the 2012 WSMP, and scaled to match the historical 2000/01 demands evaluated in the hydraulic model.

STORAGE CAPACITY EVALUATION

The storage capacity required to serve the Project Alternative Buildout was evaluated to determine the impacts, if any, on the City's existing water system. The storage capacity evaluation was based on the water system planning and design criteria defined in the 2012 WSMP.

The City's total water storage requirement can be described as the sum of operational storage, fire flow storage, and emergency storage, less a groundwater credit. Because the City is a participant in the Regional Groundwater Storage and Recovery (GSR) project and will no longer pump groundwater under normal supply conditions, the groundwater credit will no longer apply. The 2012 WSMP established water storage criteria for the City, as outlined below.

- **Operational Storage:** 25 percent of the maximum day demand
- **Fire Flow Storage:** Fire flow demand times duration for the most severe fire flow in pressure zone
- **Emergency Storage:** 50 percent of the maximum day demand

The storage capacity required to serve the net increase in demands from the Project Alternative Buildout is provided in Table C-2.

Table C-2. Required Water Storage to Serve Net Increase in Demand due to Project Alternative

Storage Component	Planning Criteria[a]	Increase in Required Storage Volume, MG
Operational Storage	25% of maximum day demand	0.17
Fire Storage[b]	3,000 gpm for 3 hours	0.54
Emergency Storage	50% of maximum day demand	0.33
	Total	1.04

(a) As presented in the 2012 WSMP (see Table 7-3).
(b) As presented in the 2012 WSMP (see Table 6-2).

The 2012 WSMP recommended a new 1.4 MG storage tank improvement in Zone 3/5 to eliminate the storage capacity deficit at buildout. However, as shown in Table C-3, under the Project Alternative Buildout condition, a new 1.4 MG storage tank would yield a storage deficit within Zone 3/5 of approximately 0.3 MG. Therefore, West Yost recommends increasing the capacity of the proposed new Zone 3/5 storage tank from 1.4 MG to 1.8 MG to accommodate for the increase in Zone 3/5 storage capacity required to serve the Project Alternative at buildout.

Table C-3. Water Storage Capacity under Project Alternative Buildout Condition

	Total Available Storage, MG	Required Storage Capacity, MG				Storage Capacity Surplus (Deficit), MG
		Operational[a]	Fire Flow[b]	Emergency[c]	Total	
Future Storage[d,e]	1.4	0.26	0.54	0.53	1.33	0.07
Bayhill Office Park[f]	0.0	(0.03)	-	(0.07)	(0.10)	0.10
Project Alternative - Buildout [g]	0.0	0.17	-	0.33	0.50	(0.50)
Total Storage Required[h]	1.4	0.40	0.54	0.79	1.73	(0.33)

(a) Based on 25% of maximum day demand, as outlined in the 2012 WSMP.
(b) Based on demand for most severe fire flow recommended in pressure zone multiplied by corresponding recommended fire flow duration from Table 6-2 from the 2012 WSMP.
(c) Based on 50% of maximum day demand, as outlined in the 2012 WSMP.
(d) A 1.4 MG tank was recommended in the 2012 WSMP to alleviate Zone 3/5's storage capacity deficit; however, West Yost recommends upsizing the tank to 1.8 MG to meet buildout storage requirements with the Project Alternative.
(e) Required storage capacity to meet future demand, based on Table 8-3 from the 2012 WSMP.
(f) The future storage requirement projected in the 2012 WSMP for the Project site is based on the maximum day demand projected for the Bayhill Office Park. Average day demand projected for the Bayhill Office Park is presented in Table 3-10 of the 2012 WSMP.
(g) Required storage capacity based on Net Increase in Demand due to Project Alternative Buildout. Fire flow storage is not included in total since the fire flow requirement for Zone 3/5 without the Project is equal to the fire flow required by the Project.
(h) The Total Storage Required is based on the sum of the Available Storage and the Project Alternative, less the Bayhill Office Park.

HYDRAULIC EVALUATION

Two demand conditions were evaluated to determine the impacts of the Project Alternative on the City's water system. The following demand conditions were evaluated for the Project Alternative Buildout scenario:

- Maximum Day Demand plus Fire Flow
- Peak Hour Demand

Maximum Day Demand plus Fire Flow

The available fire flow capacity was simulated during a maximum day demand condition with the fire flow requirements shown previously on Figure 2. It is assumed that fire flow requirements for the Project Alternative Buildout were evaluated under existing fire flow demand requirements of 2,500 gpm to 3,000 gpm, depending on existing land use, and may be conservative. As shown on Figure C-1, multiple fire flow locations within the Project area are deficient (red dots) at buildout because the proposed pipelines exceed the maximum pipeline velocity criterion of 10 ft/s.

To meet the fire flow requirements, it is recommended that the proposed pipeline in Grundy Lane be upsized to a 10-inch diameter pipe, and the proposed pipeline in Bayhill Drive be upsized to a 12-inch diameter pipe during the Phase I Development. As shown on Figure C-2, all fire flow locations evaluated in Zone 3/5 will meet fire flow requirements under the Project Alternative Buildout condition with these recommended pipeline improvements. It is important to note that these results are based on the available pipeline capacity and may not be representative of the actual flow that each fire hydrant can produce.

Peak Hour Demand

Under the Project Alternative Buildout peak hour demand condition, system pressures in the Project area range from 57.7 psi to 103.4 psi. System pressures during a peak hour demand condition remain above the required minimum pressure of 35 psi, and the velocities in the proposed pipelines remain below the maximum allowable pipeline velocity of 4 ft/s under the Project Alternative Buildout condition. However, most of the system pressures in the Project area exceed the maximum pressure criterion of 80 psi during a peak hour demand condition, and customer service connections at these locations should have individual pressure reducing valves installed.

It should be noted that existing pipelines in Cherry Avenue, Bayhill Drive, and Elm Avenue exceed the maximum allowable pipeline velocity requirement of 4 ft/s under the Project Alternative Buildout condition. Because these existing pipelines exceed the pipeline velocity criterion prior to the addition of the Project demands, no improvements are specifically recommended for the Project.

EVALUATION FINDINGS AND CONCLUSIONS

The evaluation findings and recommendations, previously described in detail, are summarized below. It should be noted that the hydraulic evaluation performed for the Project is based on the assumptions listed above. If any of these items are changed or modified in any way, other than as described in this TM, additional hydraulic evaluation may be required.

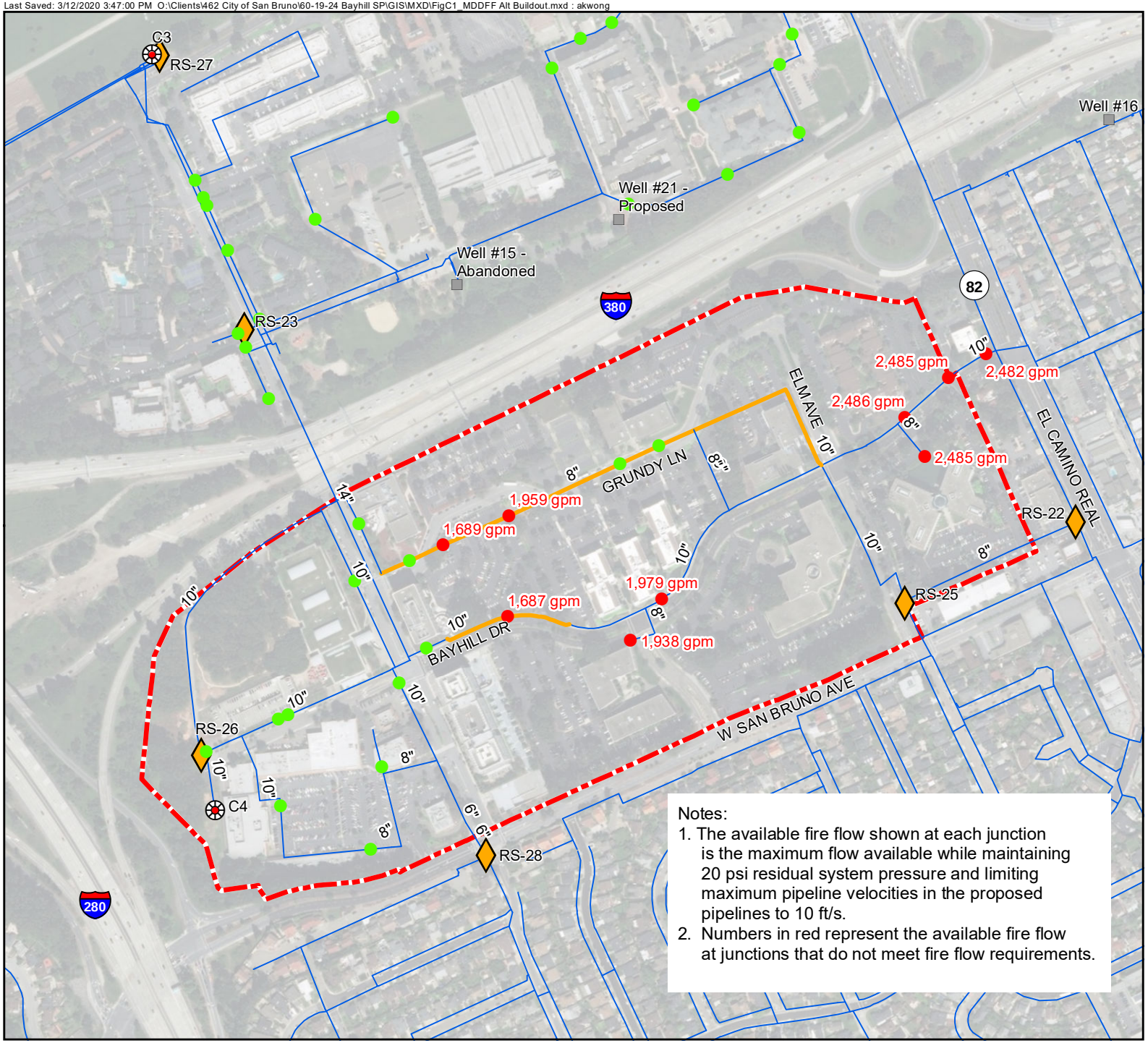
Water Storage

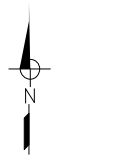
Approximately 0.50 MG of water storage in Zone 3/5 will be required to serve the Project Alternative Buildout. However, Zone 3/5 does not currently have any storage capacity and therefore, lacks adequate storage capacity to serve both the Phase I Development and Project Alternative Buildout conditions. The 2012 WSMP recommended a new 1.4 MG storage tank to serve Zone 3/5, but a larger 1.8 MG tank is recommended in Zone 3/5 to serve Project Alternative Buildout due to the increase in water demands from the Project. A new booster pump station preliminarily sized at 4.3 mgd (firm capacity) will also be required at this new storage tank as previously recommended in the 2012 WSMP.

Water Distribution

Based on the hydraulic modeling evaluation described previously, the proposed pipelines as provided on the Phase I Development preliminary utility plans are not adequate to serve the Project. To meet the City's water system performance criteria, it is recommended that the Project's proposed pipelines should be upsized to 10-inch diameter along Grundy Lane and 12-inch diameter along Bayhill Drive. These increases in pipeline diameters are recommended to serve the required fire flows in Phase I and Buildout at adequate pressures while meeting the City's maximum pipeline velocity requirement of 10 ft/s in the recommended pipelines. As existing pipelines are replaced in the area, they should be evaluated in the hydraulic model to determine the appropriate size for replacement to meet the City's maximum pipeline velocity requirement. It should also be noted that system pressures in the Project area exceed 80 psi and individual pressure reducing valves should be installed as needed.

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Symbology

Available Fire Flow

- Does Not Meet Fire Flow Requirements
- Meets Fire Flow Requirements
- Existing Pipeline
- Proposed Pipeline
- Turnout
- Well
- Pressure Regulating Station
- Project Location

Notes:

1. The available fire flow shown at each junction is the maximum flow available while maintaining 20 psi residual system pressure and limiting maximum pipeline velocities in the proposed pipelines to 10 ft/s.
2. Numbers in red represent the available fire flow at junctions that do not meet fire flow requirements.

City of San Bruno

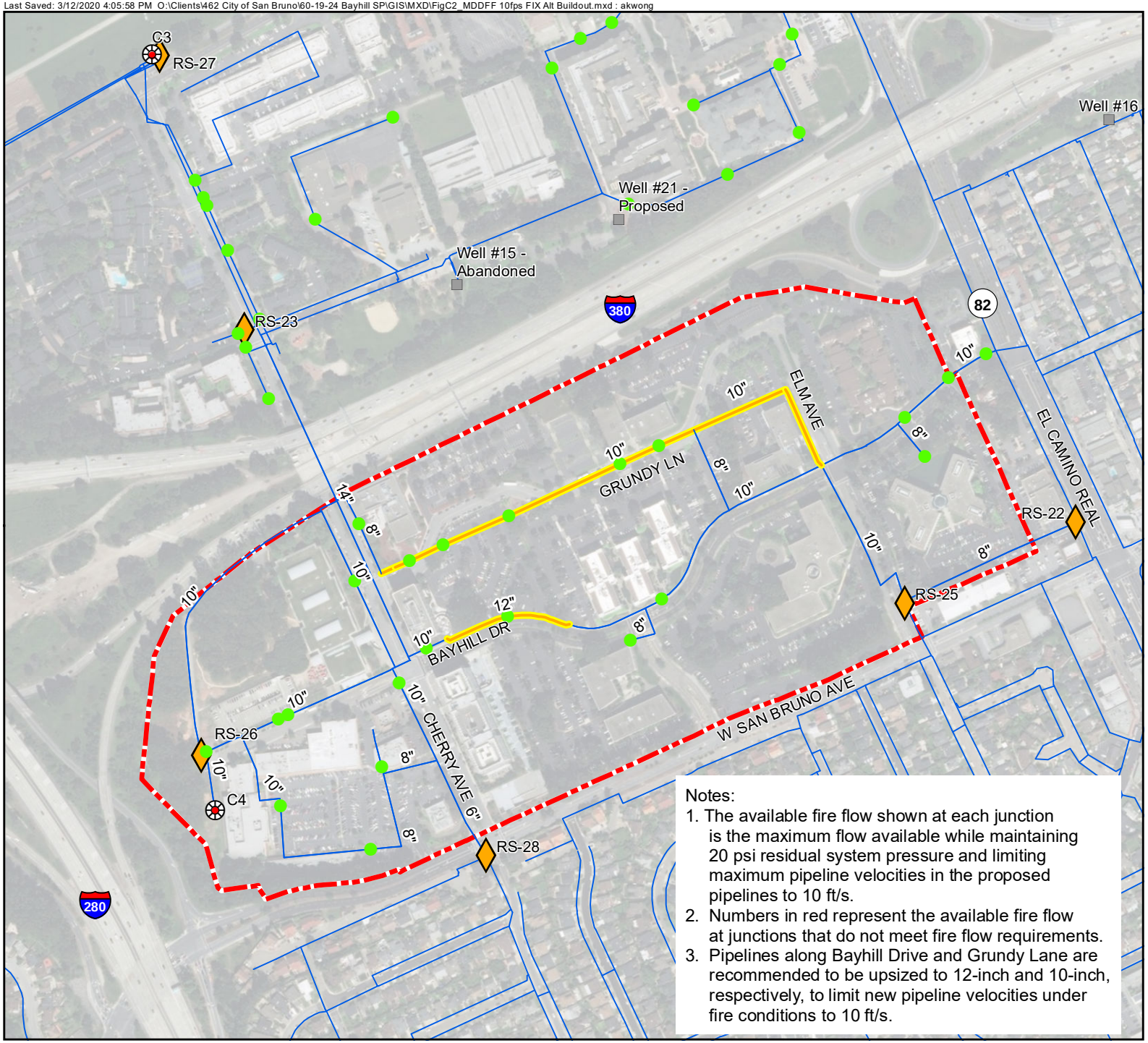
WEST YOST ASSOCIATES

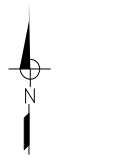
Figure C-1

Maximum Day Plus Fire Flow for Alternative Buildout

City of San Bruno
Bayhill Specific Plan
Water System Evaluation

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Symbology

Available Fire Flow

- Does Not Meet Fire Flow Requirements
- Meets Fire Flow Requirements
- Existing Pipeline
- Recommended Pipeline Improvement
- Turnout
- Well
- Pressure Regulating Station
- Project Location

Notes:
1. The available fire flow shown at each junction is the maximum flow available while maintaining 20 psi residual system pressure and limiting maximum pipeline velocities in the proposed pipelines to 10 ft/s.
2. Numbers in red represent the available fire flow at junctions that do not meet fire flow requirements.
3. Pipelines along Bayhill Drive and Grundy Lane are recommended to be upsized to 12-inch and 10-inch, respectively, to limit new pipeline velocities under fire conditions to 10 ft/s.

WEST YOST ASSOCIATES

Figure C-2

Maximum Day Plus Fire Flow for Alternative Buildout with Improvements

City of San Bruno
Bayhill Specific Plan
Water System Evaluation

Appendix 3.11-3

Sanitary Sewer Impact Study

DRAFT TECHNICAL MEMORANDUM

TO: City of San Bruno

PREPARED BY: Gisa Ju, Woodard & Curran, PE No. 31823
Katie Howes, Woodard & Curran, EIT No. 159022

REVIEWED BY: Cathy Greenman, Woodard & Curran, PE No. 66157

DATE: August 26, 2019

RE: Sanitary Sewer Impact Study for Bayhill Specific Plan Area

The City of San Bruno is preparing a Draft Environmental Impact Report (EIR) to address the potential impacts of the proposed Bayhill Specific Plan and Phase I of YouTube's 20-year campus expansion plan. The City has requested that Woodard & Curran evaluate the potential sanitary sewer capacity impact of the proposed Specific Plan and Phase I development using the City's sanitary sewer hydraulic model. The model was originally developed for the City's 2014 Sewer Master Plan to guide improvements to the City's sanitary sewer system to accommodate current and future development. This Technical Memorandum (TM) summarizes the results of the evaluation.

1. PROJECT DESCRIPTION

The Bayhill Specific Plan area includes the area bounded by Interstate 280 on the west, Interstate 380 on the north, San Bruno Avenue West on the south, and El Camino Real on the east. The Bayhill Specific Plan area includes the area bounded by Interstate 280 on the west, Interstate 380 on the north, San Bruno Avenue West on the south, and El Camino Real on the east, except the portions that are part of the Transit Corridor Plan. The project area includes 17 large parcels, including the existing Bayhill Shopping Center and multiple parcels and office buildings owned by YouTube, as well as other commercial and office developments.

The first phase of the project is YouTube's campus expansion plan (Phase I development), which also includes the proposed re-alignment of Grundy Lane and replacement of the utilities in that portion of the roadway. The EIR preferred buildout alternative includes up to approximately 2.46 million square feet of new office development, with a housing overlay that allows for the potential for replacing some of that office development with housing and adding residential (mixed use) development in the Bayhill shopping center area. These two scenarios are referred to as the Maximum Office and Maximum Housing scenarios in this TM. The modeling also evaluated two alternate scenarios (Alternate Maximum Office and Alternate Maximum Housing), which are based on the potential for increased building height limits in the area. Table 1 summarizes the development quantities for each scenario.

Table 1: Total Land Use Quantities for Bayhill Specific Plan Development Scenarios

Scenario	Office (sq. ft.)	Retail (sq. ft.)	Residential (DUs)	Hotel (rooms)
Existing	1,557,847	121,846	--	133
Phase I	1,859,323	121,846	--	133
Maximum Office	4,017,694	121,846	--	133
Maximum Housing	3,500,743	121,846	573	133
Alternate Maximum Office	4,017,694	121,846	--	186
Alternate Maximum Housing	3,500,743	121,846	1,070	186

2. EXISTING AND PLANNED WASTEWATER FACILITIES

The Bayhill Specific Plan area is served by local sewers located along Cherry Avenue, Bayhill Drive, and Grundy Lane, and a major (18- to 24-inch) trunk sewer that runs through the area from San Bruno Avenue West along Traeger Avenue, Bayhill Drive, across El Camino Real and I-380 and through the Tanforan Mall to Sneath Lane and then east on Sneath Lane and Tanforan Avenue. This trunk sewer ultimately discharges to the City of South San Francisco's Shaw Road Pump Station located on Shaw Road east of San Mateo Avenue, from where the flow is conveyed to the South San Francisco Water Quality Control Plant (WQCP). In addition to the Bayhill Specific Plan area, the downstream portion of the 24-inch trunk sewer east of El Camino Real conveys flow from the entire portion of the City's sewer service area located west of I-280, and the portion of the trunk sewer running through the Specific Plan area carries flows from about one-third of this area.

The location of the Specific Plan area and the existing sewers within and in the vicinity of the Bayhill Specific Plan area are shown in Figure 1. Figure 2 highlights these sewers and the downstream trunk sewer system to which the Bayhill Specific Plan area is tributary. Note that the figures reflect the proposed Phase I re-alignment of Grundy Lane including installation of a new sewer in that street, as well as a new sewer extension in Grundy Lane flowing west from Elm Avenue to serve future uses. Although the new sewer mains within Grundy Lane were modeled as 8-inch pipes, City standards require sewer mains to have a minimum inner diameter of eight inches within commercial and industrial areas. Therefore, at a minimum, 10-inch HDPE pipes shall be installed for new sewer mains within the Bayhill Specific Plan area.

Figure 1: Modeled Sewers Within and in Vicinity of Bayhill Specific Plan Area

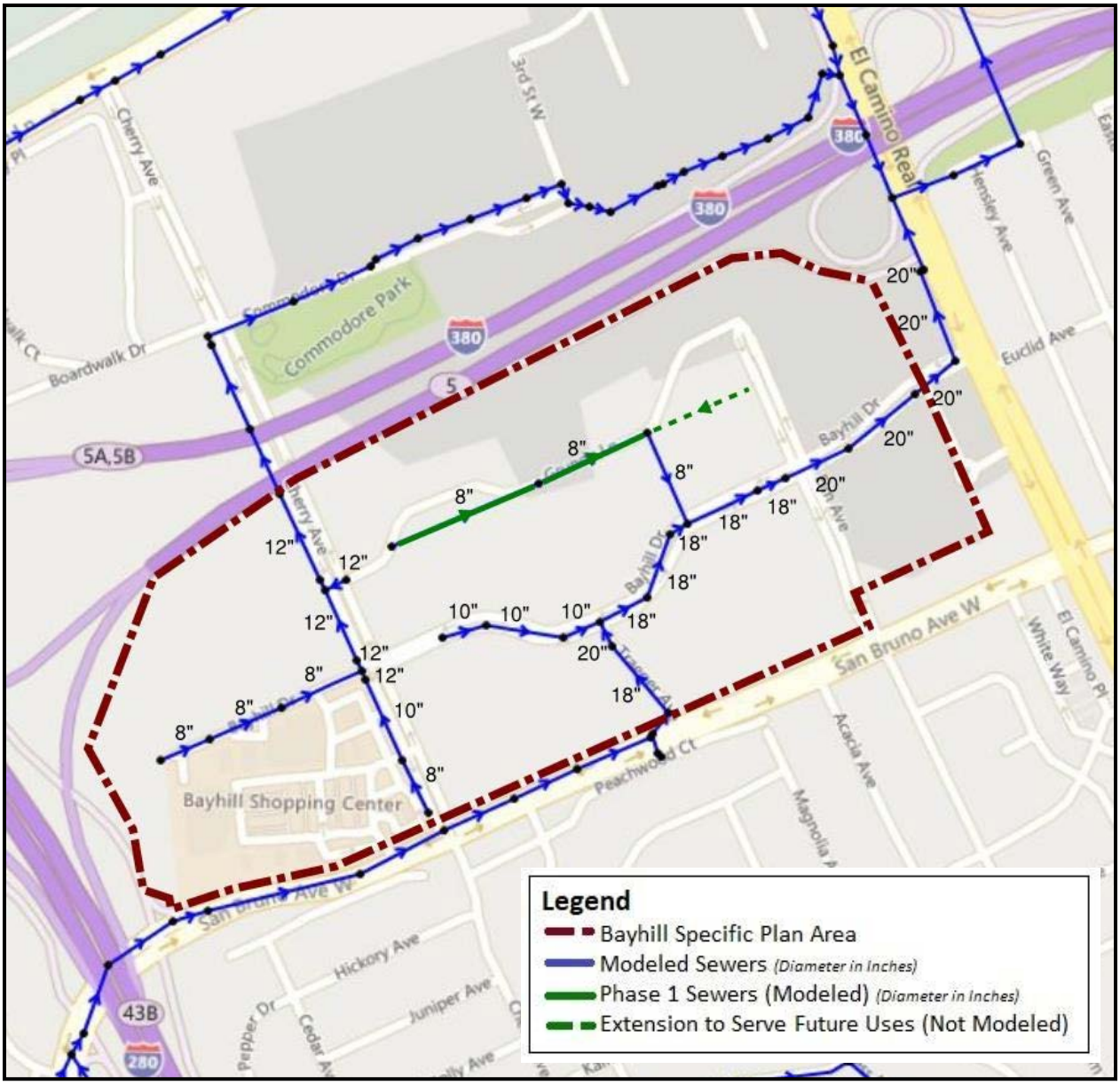
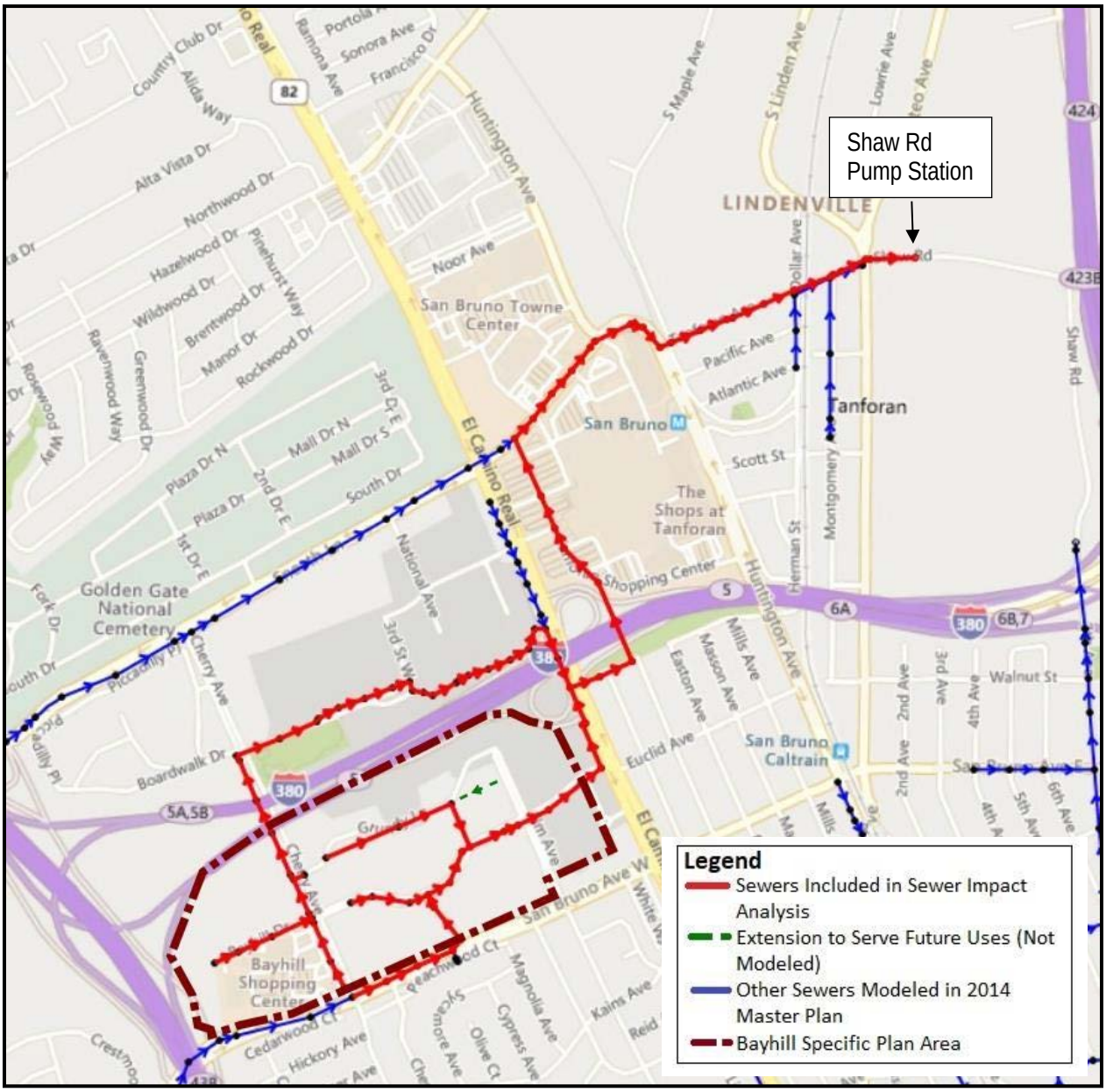


Figure 2: Bayhill Specific Plan Sewers and Downstream Trunks Included in Sewer Impact Analysis



3. MODEL INPUT

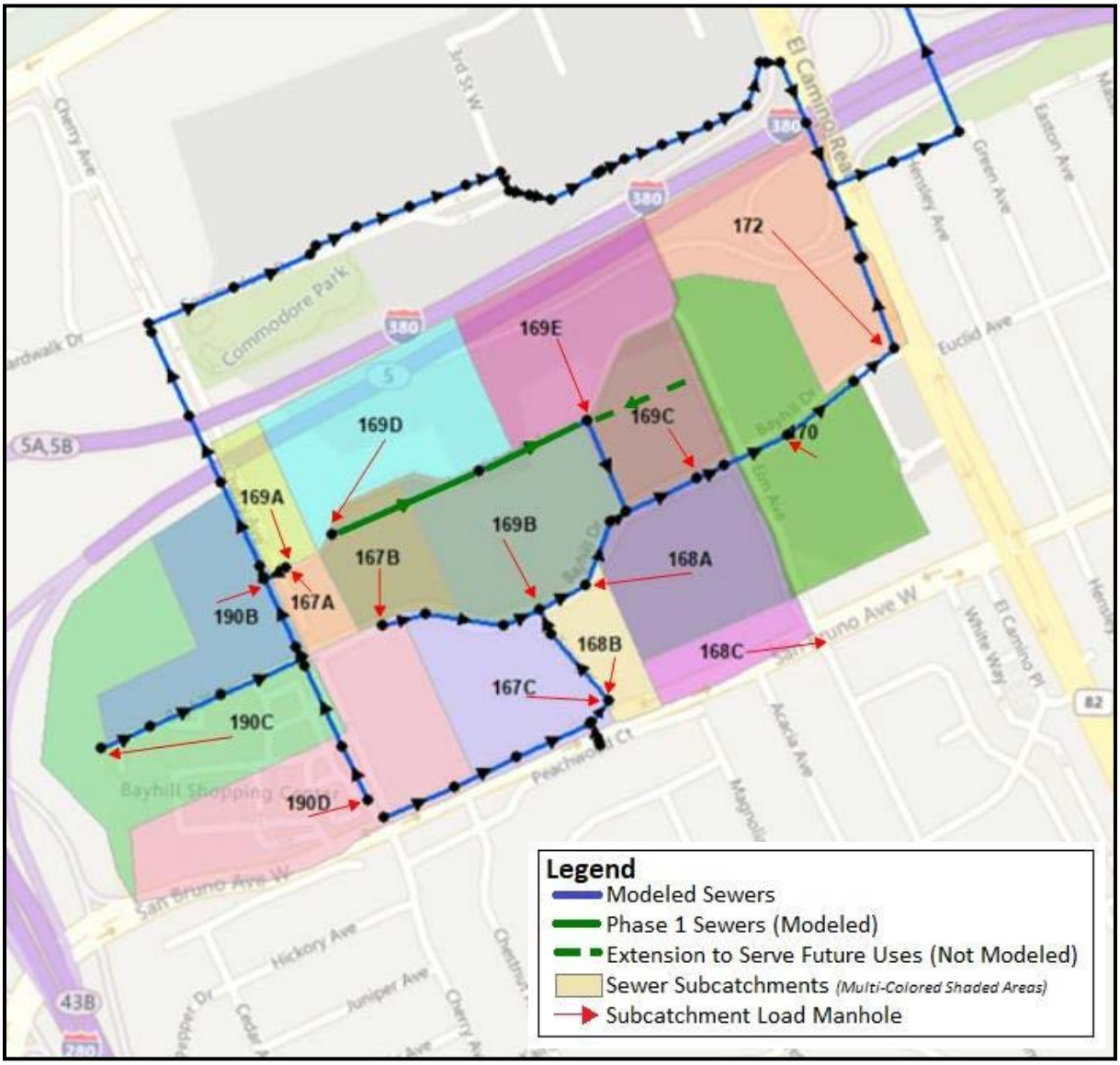
The model developed for the 2014 Master Plan was used to evaluate the sanitary sewer capacity within and downstream of the Bayhill Specific Plan area with the addition of the proposed development. The estimated flows in the original model were based on 2010 census information, winter water consumption and flow monitoring data from the 2010/2011 period, and projections of future development available at that time. The model was created in InfoWorks™ CS and was recently converted to InfoWorks ICM, the current version of the InfoWorks modeling software. Updates to the model were made for this analysis, as described below.

3.1 Sewer Network

This analysis used the City's trunk system network that was developed for the 2014 Master Plan, which included primarily 10-inch and larger pipes and selected smaller diameter pipes that effectively serve as "trunk" sewers. For this analysis, additional small diameter pipe segments within the Bayhill Specific Plan area were added to the network, as well as the alignment of the proposed new sewer along Grundy Lane, as proposed by YouTube to be constructed as part of the Phase I development. The model network data for these additions, as well as the entire previously modeled trunk sewers within and downstream of the Bayhill Specific Plan area as highlighted in Figure 2, were updated for this study. The update included manhole locations and IDs based on the City's current geographic information system (GIS) sewer layers, and associated ground elevations and pipe lengths, sizes, and invert elevations based on a combination of latest GIS data, manhole rim and invert elevations shown on AutoCAD sewer mapping developed by the City in 2003, and as-built sewer drawings where available. No updates to the model were made for portions of the City's system beyond the sewershed of the Bayhill Specific Plan area and downstream trunk sewers.

In addition to updates to the model pipe network, the sewer "subcatchments", or areas of the system discharging to the modeled system, were further subdivided in order to establish the model "loads" to each pipe with the Specific Plan area. Figure 3 shows the updated sewer subcatchments.

Figure 3: Bayhill Specific Plan Sewer Subcatchments



3.2 Sewer Loads

In order to update the model to current conditions, the existing model loads (representing the sanitary sewer flow contributions, or base wastewater flow (BWF), from residential and non-residential customers) were updated based on recent water consumption data. The City provided water meter readings by water account for winter months (January through April), which can be assumed to be representative of primarily indoor water use and corresponding wastewater flows. The water usage data for the 2017/18 winter period were linked to address points in GIS and associated with the relevant sewer subcatchments based on geographical location. For the Bayhill Specific Plan area, an alternate estimate of existing sewer loads was also calculated by applying design unit flow factors (discussed below) to the square footage of existing building floor space, as provided by the EIR project team. This was done because there appeared to be some buildings within the Specific Plan area that were not included in the initial download of the water account data.

Note that the updated total existing (2018) average BWF in the system is lower than that estimated in the 2014 Sewer Master Plan based on 2010/2011 water consumption and sewer flow monitoring data. This is consistent with the findings of many Bay Area cities and wastewater agencies, which have experienced decreases in wastewater flows due to recent drought years and water conservation measures.

To estimate the model loads from future development in the Specific Plan area, the City's EIR team provided a detailed tabulation of the existing and proposed building square footage, residential dwelling units, and hotel rooms by parcel for the proposed development for each of the Specific Plan planning scenarios. The future loads from these developments were assigned to their associated model subcatchments. In addition, the City's planning staff provided listings with details of other proposed development projects within the City ("related projects") in order to estimate cumulative impacts for the EIR. Attachment A provides a list of the related projects included in the buildout scenarios. Note that most of these related projects are not tributary to the trunk sewers that serve the Bayhill Specific Plan area.

Future flows were calculated based on the design unit flow factors shown in Table 2 below. Note that for consistency with the water system impact analysis, the unit flow factors for residential and commercial development were based on indoor water use factors developed for the City's Water Master Plan, which differ somewhat from those that were used to estimate future development flows for the Sewer Master Plan. In general, the commercial factors from the Water Master Plan are somewhat higher (more conservative), and the residential factors are slightly lower than the Sewer Master Plan factors.

Table 2: New Development Unit Flow Factors

Type of Development	Design Unit Flow Factor (average daily flow)
Single Family Residential	160 gpd/DU
Multi-Family Residential	120 gpd/DU
Commercial Office	0.13 gpd/sf
Commercial Retail	0.19 gpd/sf
Hotel	150 gpd/room

gpd = gallons per day
DU = dwelling unit
sf = square feet of building floor space

The same BWF diurnal curves for residential flows and non-residential flows, as well as the same infiltration/inflow (I/I) rates as applied in the 2014 Master Plan, were used for this analysis. Note than no additional I/I was added due to the future development. This is consistent with the 2014 Sewer Master Plan, which assumed that any increase in I/I due to deterioration of existing sewers will be offset by a decrease due to the City's ongoing sewer rehabilitation and replacement efforts, and that new sewers and building laterals will be constructed of watertight materials and contribute minimal I/I flows.

3.3 Design Flow Parameters and Capacity Deficiency Criteria

System capacity was evaluated based on the ability of the sanitary sewer system to convey future peak dry weather flow (PDWF) and future design storm peak wet weather flow (PWWF). This analysis used the same 10-year return period design storm as the 2014 Master Plan. In the 2014 Sewer Master Plan, sewers were considered deficient and in need of capacity upgrades if PDWF resulted in surcharge in the sewer pipes (water level above the crown of the pipes) or if PWWF resulted in surcharge to within four feet of the ground. For this study, however, any significant surcharge under PWWF was also identified as a potential impact from the proposed development.

4. MODEL RESULTS

The model was evaluated under the existing, Phase I, and buildout development scenarios as defined by the EIR team. For this study, the sewer impact analysis was limited to only those sewers within and downstream of the Bayhill Specific Plan area, as highlighted in Figure 2, and does not address other areas of the system. Furthermore, this study did not include analysis of the potential impacts on City of South San Francisco facilities that convey flows from San Bruno to the South San Francisco WQCP. However, the total flows from the City of San Bruno system, as predicted by the model, were tabulated and are presented in this TM.

Note that a small portion of the Bayhill Specific Plan area (identified in Figure 3 as Subcatchment 168C) that fronts on San Bruno Avenue West east of Traeger Avenue (and includes part of the housing overlay) would likely discharge to the existing 6-inch sewer in San Bruno Avenue that then flows east and south through other 6-inch pipes and connects to a modeled 10-inch sewer in Kains Avenue at El Camino Real. The Kains Avenue sewer from Hensley Avenue downstream was replaced in 2014 with a 14-inch pipe (not included in the current model) so is assumed to have adequate capacity for future flows. Because this part of the Bayhill Specific Plan area is very small, any capacity improvements, if needed, could be evaluated at a future date once the specific location of any new office or housing at this location is more accurately identified.

4.1 Model Results for Peak Dry Weather Flow Conditions

The modeling indicated that all sewers within and downstream of the Bayhill Specific Plan area would have adequate capacity to convey PDWF without surcharge under all development scenarios. The major trunk sewers would flow between roughly 1/3 and 1/2 full under PDWF conditions.

4.2 Model Results for Peak Wet Weather Flow Conditions

The model indicated that all sewers within the Bayhill Specific Plan area, including the 18- to 24-inch trunk sewer from San Bruno Avenue West at Traeger Avenue extending downstream to Sneath Lane, would have adequate capacity to convey the design storm PWWF without surcharge under all development scenarios. However, a small amount of surcharge under PWWF due to a "throttle" condition (peak flow exceeding full pipe capacity) could occur at two locations in the downstream portion of the 24-inch trunk sewer: in Sneath Lane downstream of El Camino Real (manhole 1350) and in Tanforan Avenue at Herman Street (manhole 5370). The surcharge at manhole 1350 would range from 0.6 feet over the pipe crown under existing conditions to a maximum of 1.3 feet under the most critical scenario (Alternate Maximum Housing); however, there would still be substantial freeboard (over 12 feet at this location

and over 8 feet in the nearby downstream manholes). At manhole 5370, the surcharge would range from 0.7 feet under existing conditions to 0.9 feet under the most critical scenario with a freeboard of about 5 feet. However, neither of these conditions would be considered a capacity deficiency warranting an improvement project.

Attachment B to this TM includes model hydraulic profiles of the downstream portion of the 24-inch trunk sewer under the existing, Phase I, Maximum Housing and Alternate Maximum Housing PWWF scenarios. Attachment C includes profiles of the other sewers within and downstream of the Bayhill Specific Plan area under the Maximum Housing PWWF scenario (the most critical EIR preferred scenario). Note that in all cases, the Maximum Housing scenarios generate higher flows than the Maximum Office scenarios so are considered the worst case scenarios with respect to potential impact on the sanitary sewer system.

It is expected that the locations of new office space within the Bayhill Specific Plan area may ultimately differ somewhat from the currently envisioned plan, that is, less development may occur on some parcels and more on others. However, the total development quantities would not change. Relatively small shifts in parcel development (e.g. ±20 percent) will not impact the flows in the system enough to result in need for any additional capacity improvements.

4.3 Total System Flows

Table 2 summarizes the total average dry weather flow (ADWF), PDWF, and PWWF for each of the scenarios at the two major "outfalls" (discharge points into the South San Francisco system) from the San Bruno sewer system: Tanforan Avenue (which includes the Bayhill Specific Plan area) and 7th Avenue. Note that since the model does not include recent or proposed capacity improvements in other parts of the City's sewer system, the peak wet weather flows do not reflect the total flow that could reach the South San Francisco system if upstream capacity deficiencies in the system were relieved. Furthermore, the buildout peak flows do not include other potential future development projects that have not yet been specifically identified as related development projects for this study.

Table 3: Summary of Total System Flows

Scenario	Outfall at Tanforan Avenue			Outfall at 7th Avenue		
	ADWF[a] (mgd)	PDWF (mgd)	PWWF[b] (mgd)	ADWF[a] (mgd)	PDWF (mgd)	PWWF[b] (mgd)
Existing	1.91	3.11	12.1	0.98	1.60	8.2
Future: Phase I	1.96	3.20	12.1	0.98	1.60	8.2
Future: Max Office	2.24	3.66	12.4	1.08	1.78	8.2
Future: Max Housing	2.24	3.66	12.4	1.08	1.78	8.2
Future: Alternate Max Office	2.24	3.67	12.4	1.08	1.78	8.2
Future: Alternate Max Housing	2.31	3.79	12.5	1.08	1.78	8.2

a. ADWF includes wintertime groundwater infiltration.
b. PWWF reaching system outfalls reflects upstream capacity deficiencies in the system that could result in flow backup and potential overflows during design storm conditions, including areas that may have already been relieved by improvement projects constructed by the City in the past five years. PWWF at the outfalls would be higher if upstream capacity constrictions were relieved.

Attachment A
Related Development Projects

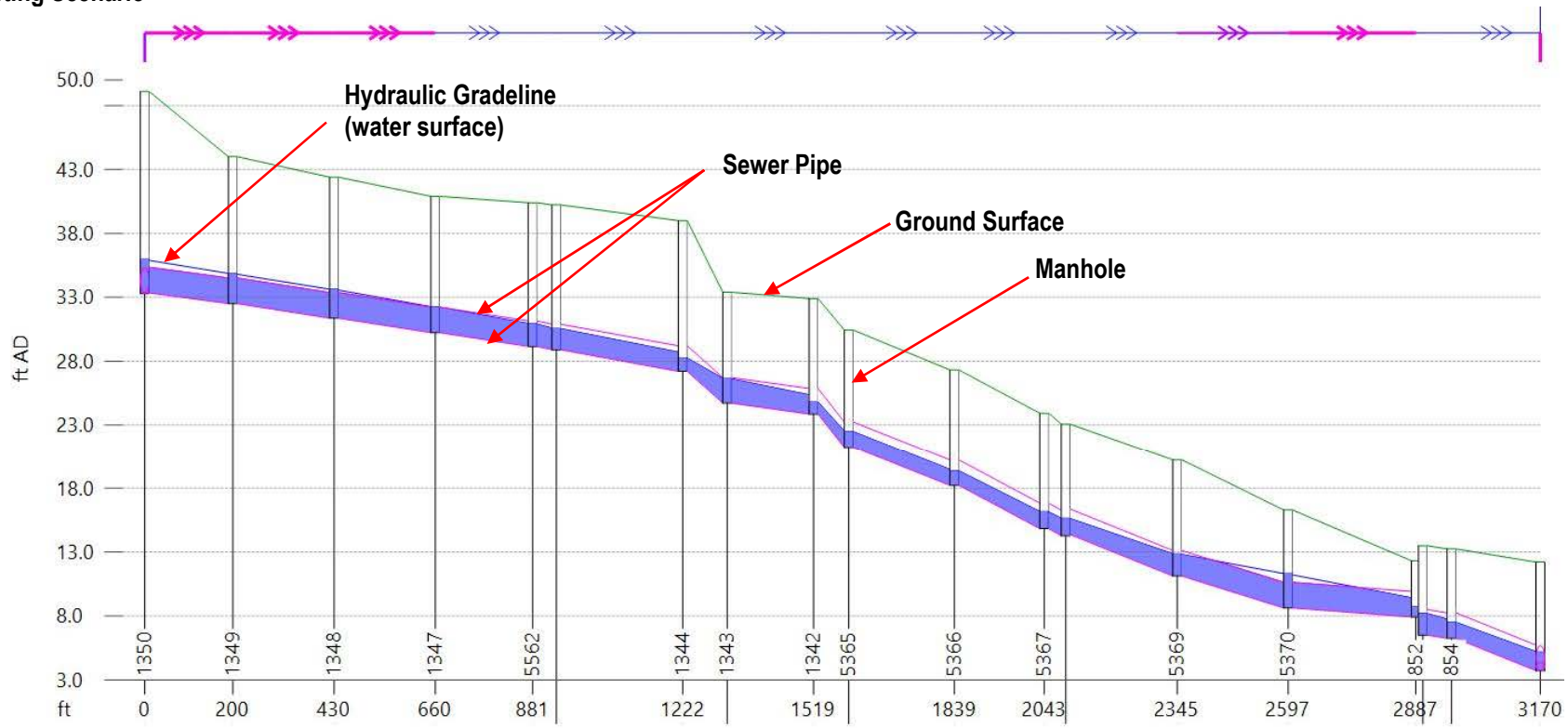
Development Name	Type	Single Family (DUs)	Multi-Family (DUs)	Office (sq. ft.)	Commerical (sq. ft.)	Hotel (rooms)
406 San Mateo Ave	Mixed Use		83		6,975	
841 San Bruno Ave	Medical office			15,223		
Skyline College Housing	Residential	40	30			
271 El Camino Real	Residential		24			
111 San Bruno Ave	Mixed Use		62		7,600	
Mills Park Plaza[1]	Mixed Use		425		54,200	
500 Sylvan Ave	Residential		9			
160 El Camino Real	Hotel					34
Glenview Terrace	Residential	29				
APN 020-012-160[2]	Office			287,000		

1. The Mills Park Plaza project is still subject to a final decision by the San Bruno City Council. The project description reflects the most recent development application on file at the time of the Draft EIR analysis. The project is still included in this sewer impact study for reference; however, it is not tributary to the main Bayhill sewershed.

2. This project could be constructed under an existing, fully entitled develpoment agreement or, if the development agreement expires, as part of buildout under the Bayhill Specific Plan project. Therefore, it is conservatively evaluated as both a component of the Specific Plan and a related project. As stipulated in the Specific Plan, if the project is developed under the existing development agreement, the maximum permitted density for this parcel in the Specific Plan would be reduced from 287,000 to zero square feet.

Attachment B
Model Hydraulic Profiles of 24" trunk sewer in Sneath Lane and Tanforan Avenue under Design PWWF

Existing Scenario

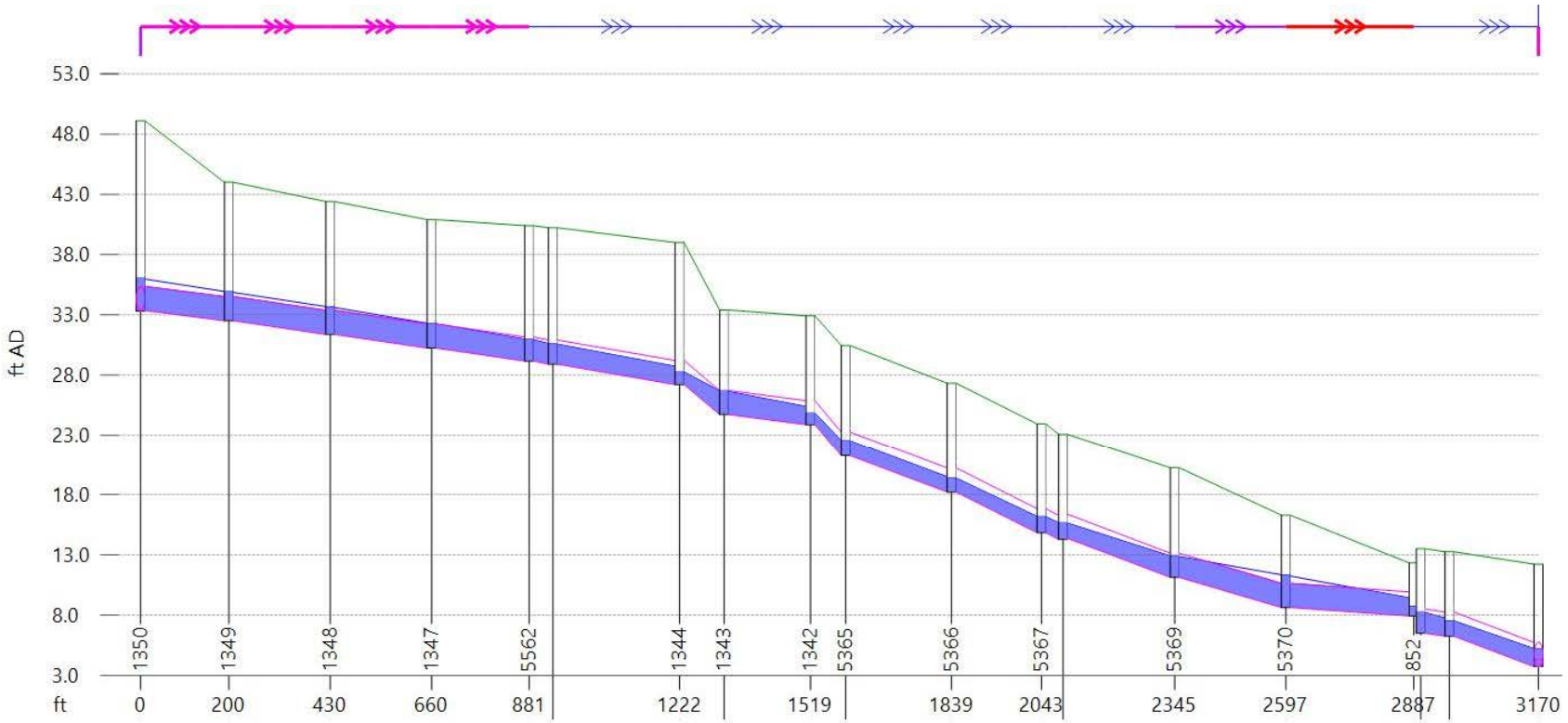


Link	1350.1	1349.1	1348.1	1347.1	-	1345.1	-	1343.1	-	5365.1	5366.1	-	5368.1	5369.1	5370.1	-	854.1
width (in)	24.0	24.0	24.0	24.0	-	24.0	24.0	24.0	-	24.0	24.0	-	24.0	24.0	24.0	-	24.0
surc	2.00	2.00	2.00	0.99	-	0.82	0.97	0.94	-	0.62	0.67	-	0.86	1.00	2.00	-	0.74
DS flow (MGD)	10.3790	10.3794	10.9398	10.9396	-	11.1200	-	11.1197	-	11.1197	11.1196	-	11.1182	11.1178	11.1177	-	11.1177
Node	-	1349	1348	1347	-	1345	1344	1343	-	5365	5366	-	5368	5369	5370	852	854	-

Link	741.1
width (in)	18.0
surc	0.31
DS flow (MGD)	1.8523
Node	741

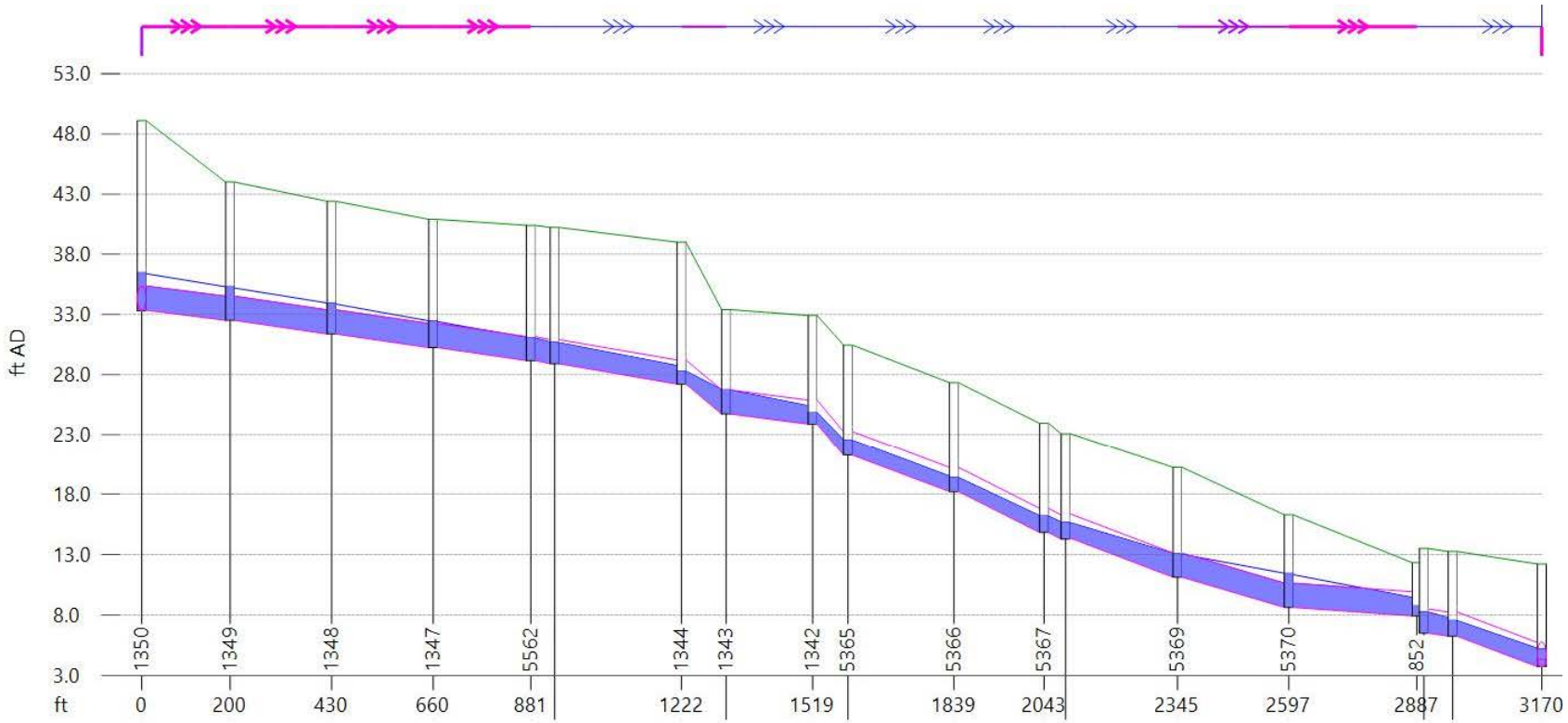
Model Pipe ID
Pipe diameter
d/D (1.00 – surcharged due to backwater, 2.00 – surcharged due to peak flow > full pipe capacity)
Peak flow
Manhole ID

Phase I Scenario



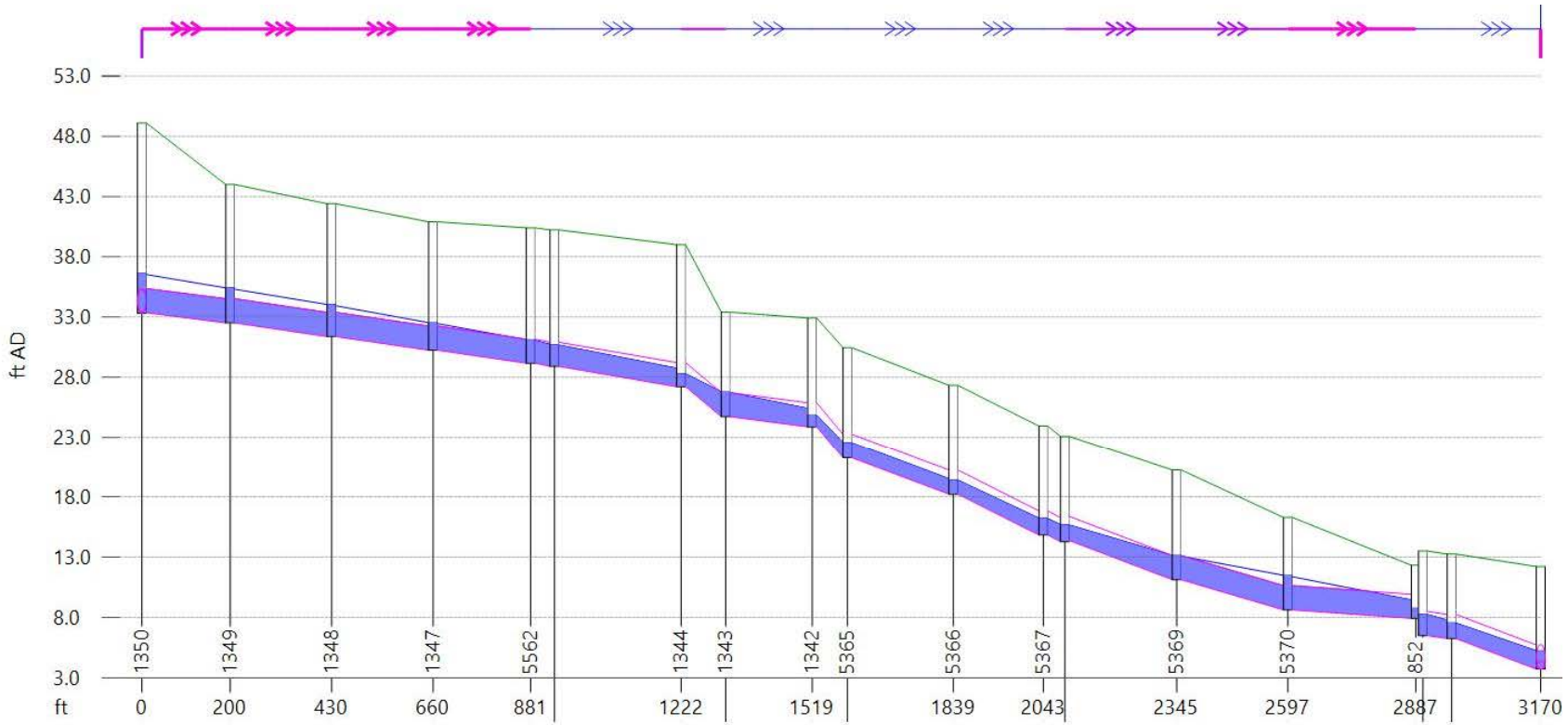
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width (in)		24.0		24.0		24.0		24.0	-	24.0		24.0	24.0		-	24.0		24.0	-	24.0		24.0		24.0		-	24.0					
surc		2.00		2.00		2.00		2.00	-	0.82		0.98	0.95		-	0.62		0.67	-	0.88		1.00		2.00		-	0.74					
DS flow (MGD)		10.4335		10.4337		10.9927		10.9926	-	11.1728		-	11.1726		-	11.1724		11.1724	-	11.1713		11.1710		11.1709		-	11.1709					
Node	-		1349		1348		1347		-	1345		1344	1343		-	5365		5366	-	5368		5369		5370		852		854	-			

Maximum Housing Scenario



| | | |

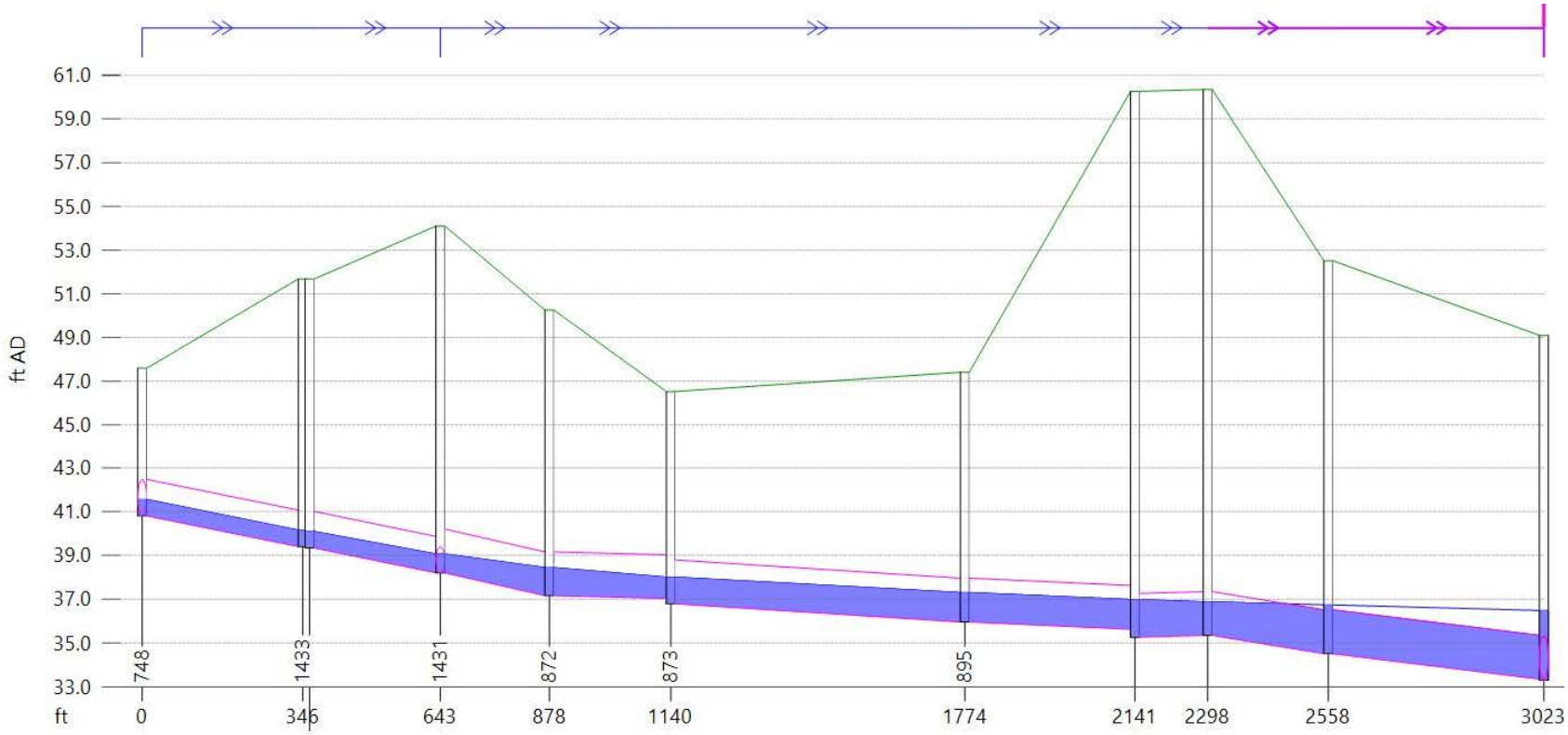
Alternate Maximum Housing



Link		1350.1	1349.1	1348.1	1347.1	-	1345.1	-	1343.1	-	5365.1	5366.1	-	5368.1	5369.1	5370.1	-	854.1					
width (in)		24.0	24.0	24.0	24.0	-	24.0	24.0	24.0	-	24.0	24.0	-	24.0	24.0	24.0	-	24.0					
surc		2.00	2.00	2.00	2.00	-	0.88	1.00	1.00	-	0.64	0.69	-	1.00	1.00	2.00	-	0.76					
DS flow (MGD)		10.8248	10.8249	11.3734	11.3735	-	11.5501	-	11.5500	-	11.5500	11.5500	-	11.5494	11.5493	11.5493	-	11.5493					
Node	-		1349		1348		1347	-		1345		1344		1343	-		5365		5366	-		5368		5369		5370		852		854	-

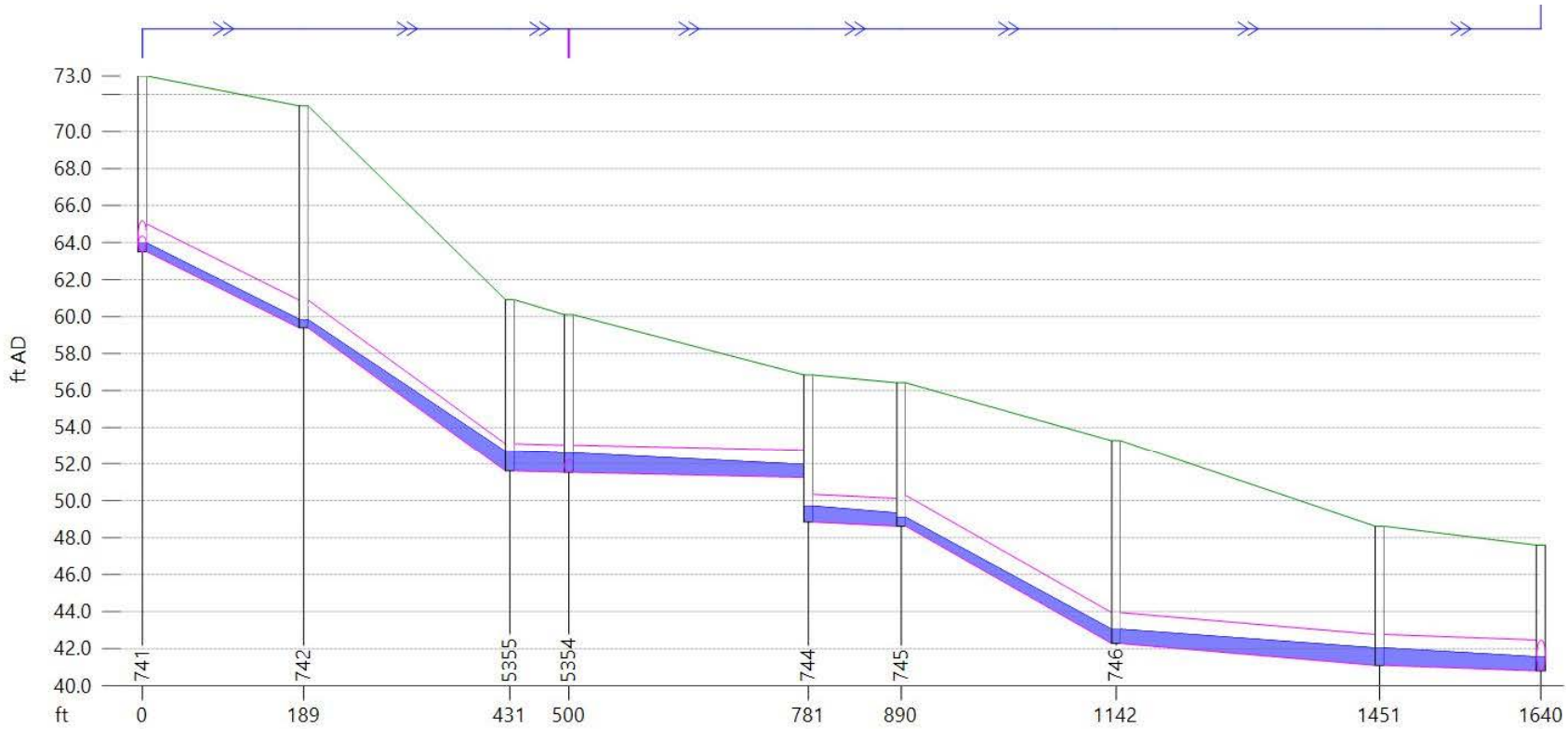
Attachment C
Model Hydraulic Profiles of Other Sewers under Maximum Housing Scenario Design PWWF

El Camino Real, Bayhill Dr. to Sneath Lane



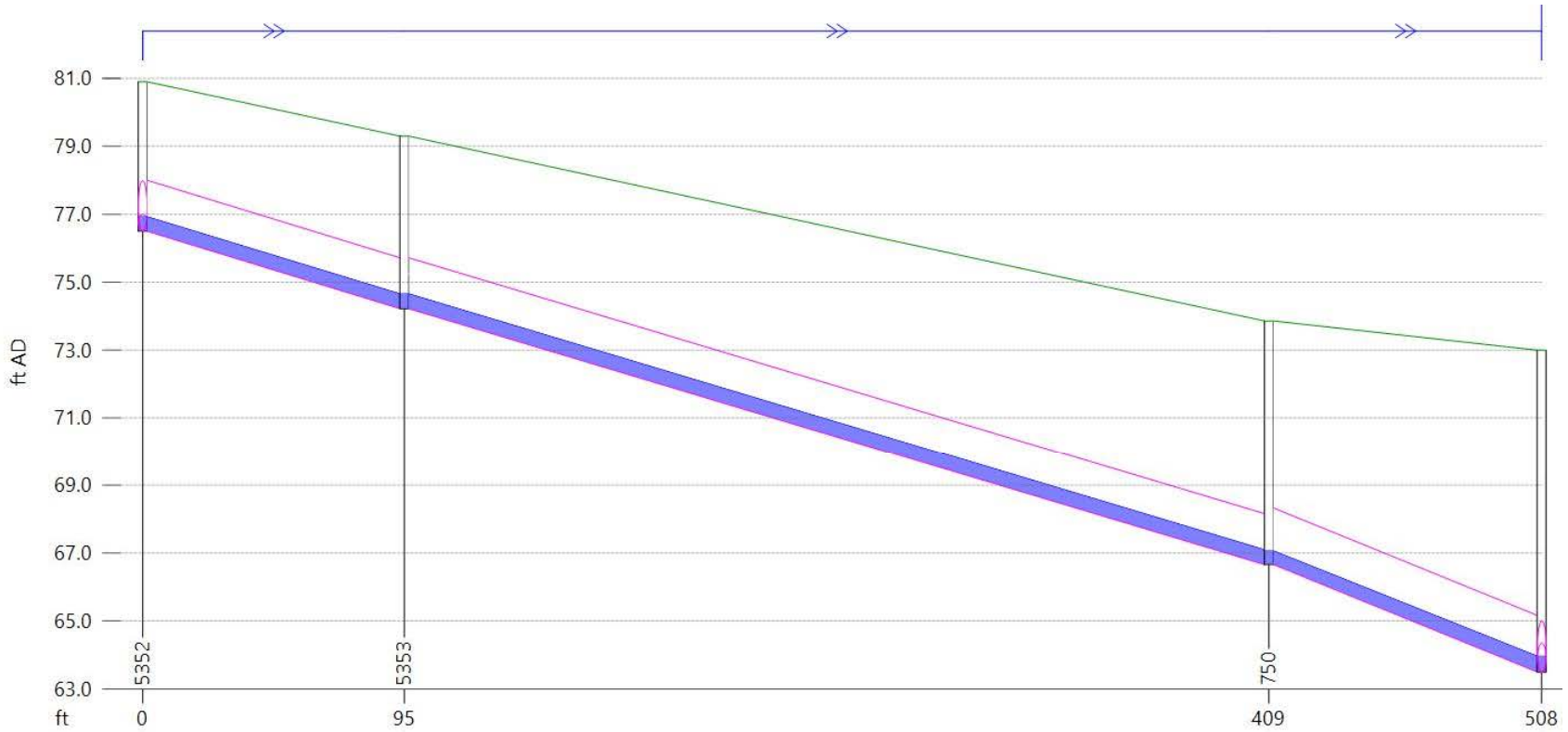
Link	748.1	1432.1	1431.1	872.1	873.1	895.1	1833.1	1834.1	1835.1
width (in)	20.0	20.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
surc	0.45	0.52	0.64	0.64	0.67	0.68	0.86	1.00	1.00
DS flow (MGD)	2.3625	2.3628	3.5413	3.5390	3.5203	3.4969	3.4843	3.4580	3.4697
Node	748	1433	1432	1431	872	873	895	1833	1834	1835	1350

Bayhill Drive, Traeger Avenue to El Camino Real



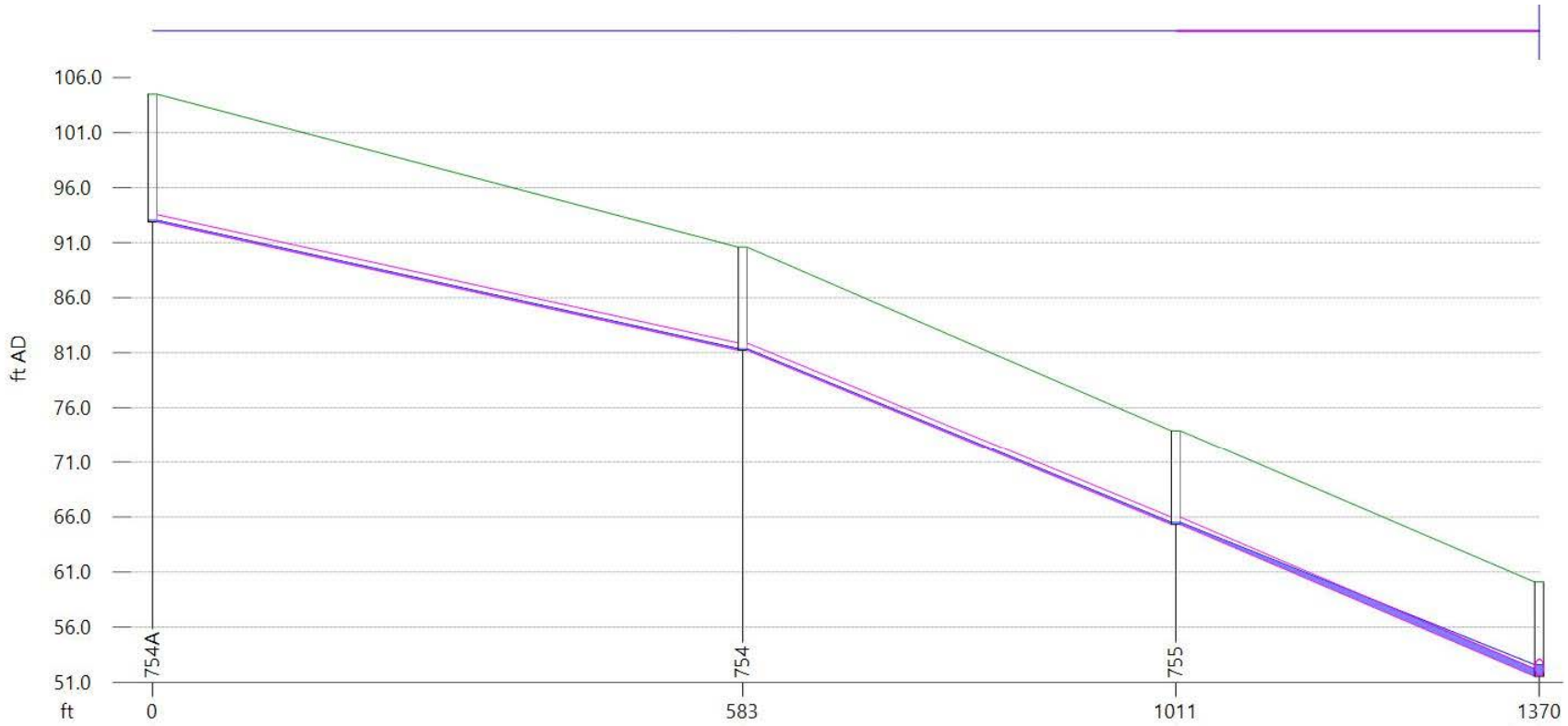
Link	741.1	742.1	-	5354.1	744.1	745.1	746.1	747.1
width (in)	18.0	18.0	18.0	18.0	18.0	20.0	20.0	20.0
surc	0.31	0.71	0.71	0.70	0.57	0.46	0.56	0.56
DS flow (MGD)	1.8523	1.9727	-	2.1283	2.1835	2.1835	2.3357	2.3356
Node	741	742	5355	5354	744	745	746	747	748

Traeger Avenue, San Bruno Avenue W to Bayhill Drive



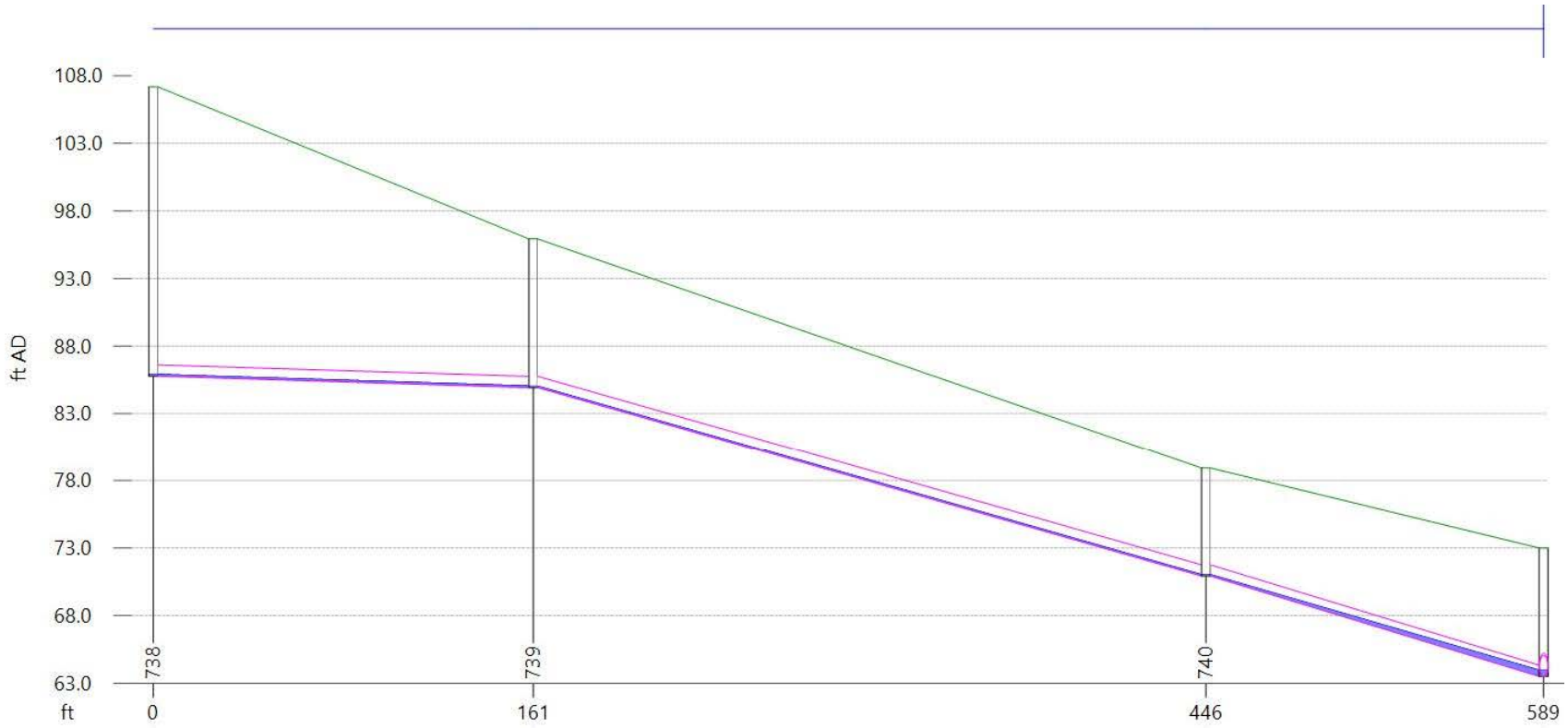
Link	5352.1	5353.1		750.1
width (in)	18.0	18.0		20.0
surc	0.29	0.29		0.28
DS flow (MGD)	1.5759	1.6973		1.6973
Node	5352	5353	750	741

Grundy Lane (Phase 1 Sewer) and Easement to Bayhill Drive



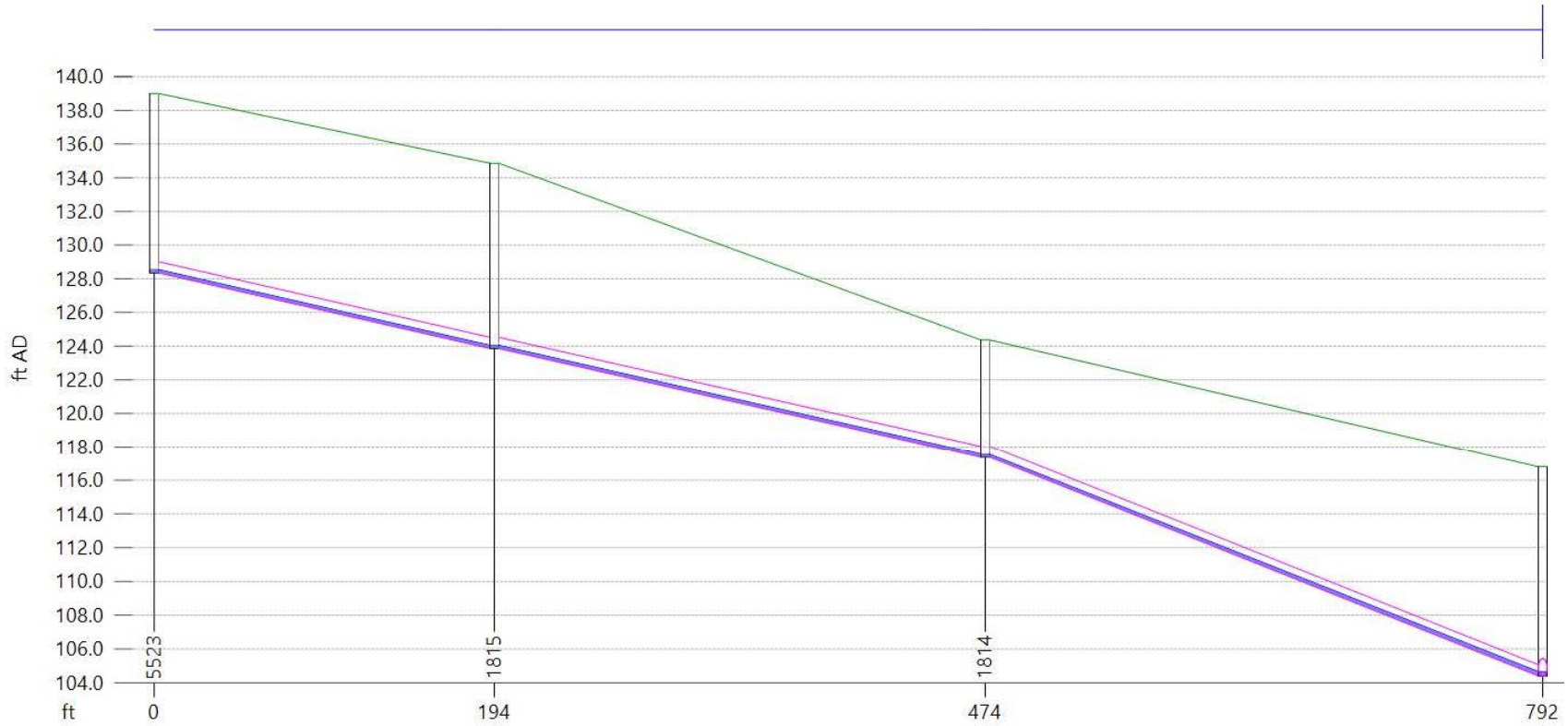
Link	754A.1	754.1	755.1	
width (in)	8.0	8.0	8.0	
surc	0.21	0.26	1.00	
DS flow (MGD)	0.0817	0.0817	0.1935	
Node	754A	754	755	5354

Bayhill Drive west of Traeger Avenue



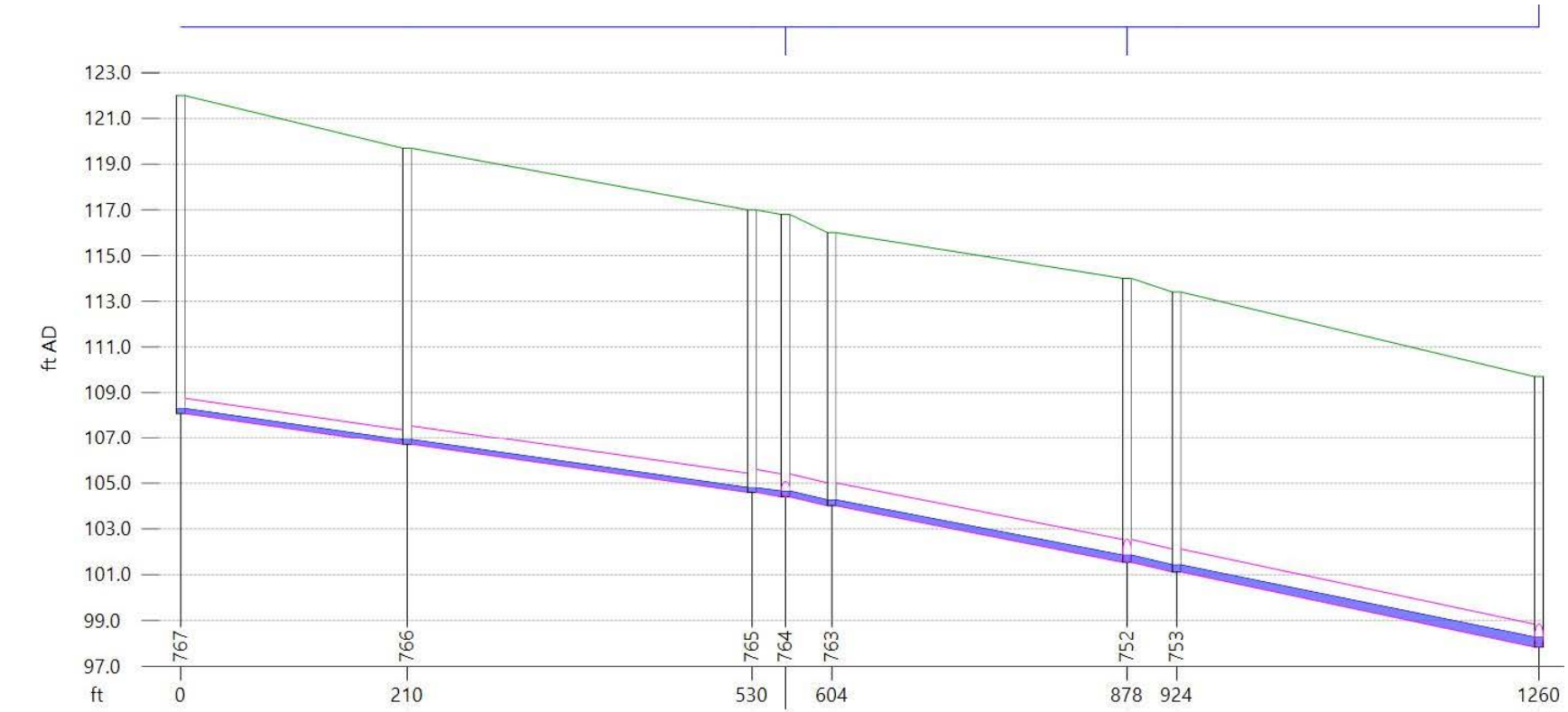
Link		738.1	739.1	740.1
width (in)		10.0	10.0	10.0
surc		0.16	0.13	0.55
DS flow (MGD)		0.0427	0.0427	0.0427
Node	738	739	740	741

Bayhill Drive west of Cherry Avenue



Link		5523.1	1815.1	1814.1
width (in)		8.0	8.0	8.0
surc		0.27	0.27	0.37
DS flow (MGD)		0.1671	0.1671	0.1670
Node	5523	1815	1814	764

Cherry Avenue, Bayhill Shopping Center to I-380



Link		767.1		766.1	-	-		763.1	-		753.1	
width (in)		8.0		10.0	-	12.0		12.0	12.0		12.0	
surc		0.32		0.24	-	0.25		0.31	0.31		0.43	
DS flow (MGD)		0.1264		0.1264	-	-		0.2718	-		0.4336	
Node	767		766		765	-	763		752	753		762

Appendix 4

Equivalency Analysis

Appendix 4
Equivalency Analysis

Introduction to the Equivalency Program Analysis

This appendix contains the Equivalency Program analysis for the Bayhill Specific Plan. As described in Chapter 2, *Project Description,* 180,347 square feet of the new office development included in the EIR buildout projections (Tables 2-3 and 2-4) is not allocated to any particular parcel. This square footage may be dedicated to regional office use (and is assumed to be regional office use in this EIR analysis). However, to provide flexibility for the expansion of non-office land uses, the Specific Plan allows for the conversion of this unallocated office square footage to non- regional office uses such as hotel or retail commercial uses at the following ratios:

- 190 square feet of retail commercial use per 1,000 square feet of regional office use
- 640 square feet of hotel use per 1,000 square feet of regional office use[1]

By way of example, if all of the unallocated 180,347 square feet were dedicated to retail use, 34,265 square feet of retail use could be developed. If all the unallocated square feet were dedicated to hotel use, 115,422 square feet of hotel use could be developed. This appendix provides an analysis of the equivalency exchanges and demonstrates that the potential environmental impacts of the equivalency exchanges under the Equivalency Program would be within the scope of the analysis included in the EIR.[2]

Analysis

Methodology

Commercial office, retail, and hotel activities present different demands on resources due to different expected populations and activities. This difference in resource demand rates can result in varied impacts to numerous resource areas. This appendix analyzes how the ratios of converted square footage under the Equivalency Program would affect resource demands and potential environmental impacts, comparing conditions under each version of the Equivalency Program (conversion to retail or hotel) to the conclusions reached in the EIR, inclusive of both the Project and the Phase I Development. Resource areas analyzed herein include Air Quality and Greenhouse Gases, Energy, Public Services, Population and Housing, Noise, Transportation, and Utilities. The analyses of potential environmental impacts to the resources areas listed above that would result from Project implementation outside of the Equivalency Program can be found in Chapters 3.2, 3.3, 3.4, 3.7, 3.8, 3.9, 3.10, and 3.11 of the EIR, respectively.

All development within the Project Site, including development that could be pursued as part of the Equivalency Program, would be subject to all applicable regulatory requirements, mitigation measures,

[1] Impacts from hotel uses are sometimes evaluated in units of rooms rather than square footage. For these analyses, this Equivalency Analysis assumes a conversation rate of 595.13 square feet per hotel room, based on the ratio of square footage to rooms in the existing Marriot hotel on the Project Site.

[2] Subsequent to the preparation of this analysis, the unallocated square footage in the Specific Plan was adjusted from 180,347 square feet to 180,718 square feet, a difference of 371 square feet (equal to a square measuring 19 by 19 feet). This nominal difference would not change the conclusions of this analysis.

and Specific Plan policies described in the EIR. Because it would be speculative to presume construction timeframes and equipment for currently unplanned development within the Project Site under the Equivalency Program, and because future development would be required to comply with all measures as previously described, the Equivalency Program focuses its analysis on the degree to which operational changes would result in impacts similar to those evaluated in the EIR.

Certain resources are not expected to experience any changes under the Equivalency Program. Resource areas that would be unaffected by the Equivalency Program include Aesthetics, Hydrology and Water Quality, and Land Use. The analyses of potential environmental impacts to these resources that would result from Project implementation can be found in Chapters 3.1, 3.5, and 3.6 of the EIR, respectively. Additionally, as described in Chapter 3, *Environmental Impact Analysis*, during the scoping process for this Draft EIR, the City of San Bruno determined that Project implementation would not result in significant environmental impacts on: Agriculture and Forestry Resources, Biological Resources, Cultural Resources (including Tribal Cultural Resources), Geology and Soils, Hazards and Hazardous Materials, Mineral Resources, and Wildfire. Therefore, these issues are not discussed in detail in this Draft EIR, and are also excluded from the Equivalency Program analysis.

Equivalency Program Impact Analysis

Air Quality and Greenhouse Gas

As described in greater detail under Energy below, both the hotel and retail exchanges under the Equivalency Program would result in slight changes in energy usage across a variety of sources. These slight changes in energy usage could result in subsequent minor variations in air quality and greenhouse gas emissions, as discussed below. Because the Maximum Office Scenario for the Project would result in the greatest level of impacts related to both air quality and greenhouse gases, it is the scenario used as the baseline comparison for variations that may occur with the Equivalency Program.

Air Quality

Table 1, below, displays the estimated maximum daily unmitigated criteria pollutant emissions that would result from Project implementation, both with and without the Equivalency Program (hotel and retail). "Project (Maximum Office Scenario) Without Equivalency Program" values in Table 1 vary slightly from the values displayed in Table 3.2-6 in Section 3.2, *Air Quality,* in the EIR because additional decimal places have been included to better display changes that would occur through the Equivalency Program. Criteria pollutant sources that reflect a positive or negative change in emissions when compared to the values analyzed in the EIR represented in bold.

Table 1. Estimated Maximum Daily Unmitigated Emissions from the Project Implementation, With and Without Equivalency Program Adoption (pounds/day)

Condition/Source	ROG	NOx	CO	PM10	PM2.5
Project (Maximum Office Scenario) Without Equivalency Program					**Project**
Area Sources	95.62	0.00	0.43	0.00	0.00
Energy Sources	2.31	21.01	17.65	1.60	1.60
Mobile Sources	32.39	64.67	454.10	738.84	120.86
Stationary Sources	6.24	27.89	15.90	0.92	0.92
Total 2040	136.56	113.57	488.09	741.36	123.38
Project (Maximum Office Scenario) + Equivalency Program (Hotel)					**Project + Equivalency Program (Hotel)**
Area Sources	97.50	0.00	0.41	0.00	0.00
Energy Sources	2.33	21.19	17.80	1.61	1.61
Mobile Sources	32.39	64.67	454.10	738.84	120.86
Stationary Sources	6.24	27.89	15.90	0.92	0.92
Total 2040, Maximum Office Scenario + Equivalency Program (Hotel)	138.45	113.75	488.21	741.37	123.39
Difference from Project Conditions Without Equivalency Program (Hotel)	+1.89	+0.18	+0.12	+0.01	+0.01
Project (Maximum Office Scenario) + Equivalency Program (Retail)					**Project + Equivalency Program (Retail)**
Area Sources	97.50	0.00	0.41	0.00	0.00
Energy Sources	2.11	19.22	16.14	1.46	1.46
Mobile Sources	32.39	64.67	454.10	738.84	120.86
Stationary Sources	6.24	27.89	15.90	0.92	0.92
Total 2040, Maximum Office Scenario + Equivalency Program (Retail)	138.24	111.78	486.55	741.22	123.24
Difference from Project Conditions Without Equivalency Program (Retail)	+1.68	-1.79	-1.54	-0.14	-0.14

Notes: The values displayed in this table under Project conditions without the Equivalency Program vary slightly from those displayed in Table 3.2-6 in Section 3.2, *Air Quality,* in the EIR due to increased accuracy resulting from decimals displayed. Because the variations in criteria emissions are so slight, quantities have been displayed to two decimal places to reflect potential changes.

As displayed above in Table 1, the Equivalency Program (hotel) scenario would result in a combined total increase in 2.21 lbs/day of all criteria pollutant emissions when compared to worst case scenario Project conditions without program implementation. Adoption of the Equivalency Program (retail) scenario would result in a combined total decrease in 1.93 lbs/day of criteria pollutant emissions when compared to worst case scenario Project conditions without program implementation. Further, the total emissions presented in Table 3.2-6 in Section 3.2, *Air Quality*, in the EIR represent the worst-case impacts between all land use scenarios that could occur with the Equivalency Program, as noted in the table footnote. Therefore, while the hotel scenario would result in a slight increase in emissions, it would not result in exceedances of additional thresholds beyond those identified in the EIR.

Though the Equivalency Program would not result in additional threshold exceedances from those identified in the EIR, it is reasonably foreseeable that despite incorporation of Specific Plan policies that would reduce criteria pollutant emissions, development under either the hotel or retail Equivalency Programs could generate emissions in excess of BAAQMD's project-level thresholds. Future development under the Equivalency Program would be required to adhere to the same mitigation measures as the Project. **Mitigation Measure TRA-1** would require all property owners, including retail and hotel uses, to prepare and implement a transportation demand management (TDM) program and submit annual monitoring studies. Additionally, **Mitigation Measure AQ-7** would offset operational criteria pollutant emissions resulting from development through the purchase of mitigation credits. Offsetting emissions below BAAQMD's threshold levels would ensure future development under the Specific Plan, including development that may occur under the Equivalency Program, would not contribute a significant level of air pollution such that regional air quality within the air basin would be degraded. Both mitigation measures are described in greater detail in Section 3.2, *Air Quality*. Similar to the Project, it is reasonable to assume that offset programs will be available in the future and thus that emissions can be reduced below threshold levels. Should offsets programs be available for future development, operational criteria pollutant emissions associated with the Equivalency Program would be less than significant with mitigation. However, because it cannot be concluded that offset programs would be available in the future at the time and in the amount needed for any given future development, for the purposes of this EIR analysis, operational air quality impacts for the Equivalency Program are also conservatively assumed to be ***significant and unavoidable*.**

Greenhouse Gas

Table 2, below, displays the estimated maximum daily unmitigated greenhouse gas emissions that would result from Project implementation, both with and without the Equivalency Program. "Project (Maximum Office Scenario) Without Equivalency Program" values displayed in Table 2 vary slightly from the values displayed in Table 3.4-3 in Section 3.4, *Greenhouse Gases*, in the EIR because additional decimal places have been included to better display changes that would occur through the Equivalency Program. Greenhouse gas emissions sources that reflect a positive or negative change in emissions when compared to the values analyzed in the EIR are bolded.

Table 2. Estimated Annual Specific Plan Operational GHG Emissions (Maximum Office Scenario) With and Without Implementation of the Equivalency Program (metric tons)

Condition/Source	CO_2	CH_4	N_2O	CO_2e	% of Total CO_2e[a]
Project (Maximum Office Scenario) Without Equivalency Program					
Area Sources	0.08	<0.01	0.00	0.08	<0.01%
Energy Sources	4,696.46	0.18	0.10	4,730.71	11.93%
Mobile Sources	31,408.77	2.21	2.13	32,099.00	80.92%
Stationary Sources	17.36	0.00	0.00	17.43	0.04%
Waste Generation	799.22	47.23	0.00	1,980.03	4.99%
Water Consumption	231.26	18.95	0.45	838.81	2.11%
Total 2040 With Specific Plan[a]	37,153.14	68.56	2.68	39,666.05	100%
Project (Maximum Office Scenario) + Equivalency Program (Hotel)					
Area Sources	**0.07**	<0.01	0.00	0.08	<0.01
Energy Sources	**4,702.62**	**0.17**	**0.10**	**4,736.55**	11.93
Mobile Sources	31,408.77	2.21	2.13	32,099.00	80.92
Stationary Sources	17.36	**<0.01**	0.00	17.43	0.04%
Waste Generation	**742.64**	**43.89**	0.00	**1,839.87**	**4.64%**
Water Consumption	**266.71**	**22.15**	**0.53**	**977.00**	**2.46%**
Total, Maximum Office Scenario + Equivalency Program (Hotel)	**37,138.18**	**68.42**	**2.76**	**39,669.92**	100%
Difference from Project Conditions Without Equivalency Program (Hotel)	**-14.96**	**-0.14**	**-0.08**	**+3.87**	**N/A**
Project (Maximum Office Scenario) + Equivalency Program (Retail)					
Area Sources	**0.07**	<0.01	0.00	0.08	<0.01%
Energy Sources	**4,316.57**	**0.16**	**0.09**	**4,348.28**	**11.05%**
Mobile Sources	31,408.77	2.21	2.13	32,099.00	**81.57%**
Stationary Sources	17.36	<0.01	0.00	17.43	0.04%
Waste Generation	**764.07**	**45.16**	0.00	**1,892.94**	**4.81%**
Water Consumption	**271.03**	**22.50**	**0.53**	**992.54**	**2.52%**
Total, Maximum Office Scenario + Equivalency Program (Retail)	**36,777.88**	**70.03**	**2.76**	**39,350.26**	100%
Difference from Project Conditions Without Equivalency Program (Retail)	**-375.26**	**+1.47**	**+0.08**	**-315.79**	**N/A**

Notes:
[a] Values may not add due to rounding

As displayed in Table 2 above, the Equivalency Program (hotel) would result in lower CO_2, CH_4, and N_2O emissions than would occur under Project conditions evaluated in the EIR. The Equivalency Program (hotel) would result in an increase of 3.87 annual tons of CO_2e, predominantly related to indirect GHG emissions that would result from the production of electricity used to convey, treat, and distribute water and wastewater. Comparatively, the Equivalency Program (retail) would result in lower CO_2 and CO_2e emissions than would occur under Project conditions, but an increase in 1.47 annual metric tons of CH_4 and an increase of 0.08 annual metric tons of N_2O. These elevated GHG emissions would also primarily correspond to the production of electricity used to convey, treat, and distribute water and wastewater. The total emissions presented in Table 3.4-3 in Section 3.4, *Greenhouse Gases*, in the EIR represent the worst-case impacts between all land use scenarios that could occur with the Equivalency Program, as noted in the table footnote. Therefore, while the Equivalency Program would result in a slight increase in some emissions, it would not result in exceedances of additional thresholds beyond those identified in the EIR.

Adherence to Specific Plan policies would reduce water use, thus reducing the amount of electricity necessary to convey, treat, and distribute water and wastewater, correspondingly reducing associated greenhouse gas emissions. Additionally, as part of the Project and as described in greater detail in Section 3.4, *Greenhouse Gases*, Impact GHG-1, developers operating under the Equivalency Program would be required to adhere to **Mitigation Measure TRA-1** to address on-road emissions and **Mitigation Measure GHG-2**, which includes requirements for LEED certification or equivalent, electric space and water heating, solar roofs, and waste diversion programs to address other operational GHG emissions. Similar to the Project, should all requirements not be implemented, **Mitigation Measure GHG-3**, would require the purchase of GHG mitigation credits (for requirements not implemented), thus reducing impacts to less than significant levels. Therefore, either scenario under the Equivalency Program would be ***less than significant with mitigation***.

Energy

As displayed in Table 3.3-4 in Section 3.3, *Energy*, the Project Site currently consumes approximately 304,360 million British thermal Units (BTUs) per year (MMBTU/year) of energy through electricity, natural gas, and mobile (gasoline and diesel) sources. Energy use within the Project Site by 2040 with implementation of the Maximum Office Scenario (the "worst case scenario" with respect to energy use) would result in a 73 percent increase in onsite energy use. As described in the footnote to Table 3.3-4, the impact analysis of energy use by 2040 under the Maximum Office Scenario considered the most energy-intensive use, including energy demands that would result from the Equivalency Program. Though not required to reduce potential impacts to less than significant levels, implementation **Mitigation Measure GHG-2** and **Mitigation Measure TRA-1** would both reduce gasoline and diesel usage to below the levels conservatively estimated in Table 3.3-4, therefore resulting in a 13 percent reduction in gasoline and diesel uses below anticipated levels. Development under the Equivalency Program would also be subject to applicable mitigation measures and Specific Plan policies that would promote energy efficiency.

Furthermore, though the impact analysis in Section 3.3, *Energy,* evaluates the "worst case scenario" inclusive of the Equivalency Program, all future Project development, including development that could occur under the Equivalency Program, would be subject to state and local regulatory requirements intended to improve energy efficiency (CALGreen, Executive Order B-16-12, SB 350, SB 100, Peninsula Clean Energy 2018 Integrated Resource Plan, San Mateo County Energy Strategy 2012, and specific components of the City of San Bruno General Plan).

Therefore, because the analysis of Project-related energy impacts included under Impact EN-1 fully covers all impacts that would occur under the Equivalency Program, and impacts would be less than significant under that analysis, impacts would remain ***less than significant*** under the Equivalency Program.

Noise

Though operational noise conditions under the Equivalency Program would be largely similar to those that would occur under the "worst case" Maximum Office Scenario, as described in Section 3.7, *Noise*, the Equivalency Program could result in slight increases in traffic-generated noise resulting from land use changes when compared to the Maximum Office Scenario.

The Equivalency Program (retail) has the potential to result in a maximum increase in PM peak hour traffic volumes of approximately 13 percent on surrounding roadway segments, according to the EIR traffic consultant. The biggest percent increase (13 percent) would occur along El Camino Real. A 13 percent increase in PM peak hour traffic volumes along this roadway segment would result in a noise level increase of approximately 0.5 dB when compared to the Maximum Office Scenario (given the higher trip generation rate of retail uses). Other roadway segments may also experience slight traffic noise increases under the Equivalency Program (retail), but the increases would be smaller than the 0.5 dB level estimated for El Camino Real.

Table 3.7-12 in Section 3.7, *Noise*, of the EIR describes modeled traffic noise impacts on existing land uses adjacent to roadway segments. For the Project analysis, a significant increase was determined to occur if Project-related traffic resulted in an increase of more than 5 dBA, regardless of the existing ambient noise level or, if in places where the existing or resulting noise environment is "conditionally acceptable," "normally unacceptable," or "clearly unacceptable" (based on the City of San Bruno Land Use Compatibility Guidelines), any noise increase greater than 3 dBA were to occur.

For all roadway segments where a Project-related traffic noise increase was determined to occur, the increase was at least 2.0 dB below the allowable increase. Implementation of the Maximum Office Scenario with the Equivalency Program (retail) would result in similar operational traffic noise levels as the Project. Although an increase of up to 0.5 dB for analyzed segments may occur on some segments, this would not trigger any analyzed segment to result in a traffic noise increase in excess of the allowable level. Therefore, traffic noise increases resulting from the Project would not exceed the allowable increase levels with implementation of the Equivalency Program, and impacts relating to traffic noise under the Equivalency Program would be ***less than significant***.

Public Services

An increase in population is generally associated with increased demands for public services, such as police and fire services, schools, parks, and other municipal services such as libraries. As described below and in Section 3.8, *Population and Housing*, the Maximum Office Scenario would result in a total of 2,459,847 sf of office space, which would generate a total of 9,840 employees. The 9,840 employees would overall generate 6,564 total households via indirect population generation both within San Bruno (2,510 residents in 869 households) and outside of San Bruno (15,947 residents in 5,695 households). The Maximum Housing Scenario would generate 7,772 employees and 5,185 total households, consisting of 1,656 onsite residents within 573 onsite households, 1,983 residents within 686 households in the City of San Bruno, and 15,579 residents within 4,499 households outside of San Bruno.

As described in greater detail in the Population and Housing discussion below, exchanging 180,347 square feet of office use for either 34,265 sf of retail use or 115,422 sf of hotel use under the Equivalency Program

would reduce the total quantity of onsite employees from 9,840 to 9,255 employees under a retail exchange or from 9,840 to 9,227 employees under a hotel exchange. Comparatively, the Equivalency Program in exchange for 180,347 square feet of Maximum Housing Scenario office space would reduce this total amount of onsite employees from 7,772 to approximately 7,188 employees under a retail exchange or 7,160 employees under a hotel exchange.

In either of the two scenarios described above, the reduction in employees would result in a subsequent reduction in household generation. Therefore, the Equivalency Program would reduce demands for public services through corresponding population reduction. Furthermore, future development under the Equivalency Program, if adopted, would be required to comply with all state and local regulatory requirements, and Specific Plan policies with respect to public services. Though the Equivalency Program would reduce impacts on public services when compared to Project conditions, as part of future development, developers operating under the program would be required to pay a one-time Development Impact Fee (DIF) in compliance with the City's DIF Ordinance to improve and expand public capital facilities and infrastructure throughout the City to serve new residential and commercial growth. A portion of the DIF would be used for public safety, including police and fire capital facilities, infrastructure, and equipment, park facilities, and libraries.

In addition to slightly reduced demands on police and fire services, the reduced population associated with the Equivalency Program would subsequently result in reduced demands on public school services due to the lower population than that expected from Project conditions. Similarly, as required under the Project, development under the Equivalency Program would be subject to developer fees which would fully mitigate the impact of new development on school districts.

Therefore, because the Equivalency Program would result in slightly lower population generation than is anticipated under Project conditions, , impacts to public services under the Equivalency Program would remain ***less than significant***.

Population and Housing

As described in Section 3.8, *Population and Housing*, the Project (Maximum Office Scenario) would be the "worst case scenario" for population and housing impacts. The Equivalency Program analysis is therefore carried forward under the Maximum Office Scenario.

Exchanging 180,347 square feet of office use for either 34,265 sf of retail use or 115,422 sf of hotel use would require the addition of employees to the Project Site to serve such land uses. Applying the conservative rate of 250 sf/employee for office development to the 34,265 sf of retail space, the retail space under the Equivalency Program (retail) would generate approximately 137 employees. Based on the reduction in employees in the converted office space and the addition of this quantity of retail employees, the Equivalency Program (retail), would generate a total of 9,255 onsite employees, 585 fewer employees than would be generated under the Maximum Office Scenario evaluated in the EIR. The reduced employment would correspondingly result in reduced population and housing impacts compared to the EIR analysis.

The 79,152 sf, 133-room hotel onsite currently has an estimated staff of approximately 75 employees, a rate of approximately 1,056 sf per hotel employee, or 1.77 employees per room.[3] Therefore, it is estimated that exchanging 180,347 square feet of office use for 115,422 sf of hotel space under the Equivalency Program would generate approximately 109 employees. Based on the reduction in employees in the

[3] Economic & Planning Systems, August 2019.

converted office space and the addition of this quantity of hotel employees, the Equivalency Program (hotel), would generate a total of 9,227 onsite employees, 613 fewer employees than would be generated under the Maximum Office Scenario evaluated in the EIR. The reduced employment would correspondingly result in reduced population and housing impacts compared to the EIR analysis.

Because implementation of the Equivalency Program (retail) would generate 585 fewer employees than would be generated under the Maximum Office Scenario, and the Equivalency Program (hotel) would generate 613 fewer employees than would be generated under the Maximum Office Scenario, both Equivalency Program scenarios would generate lower indirect housing demand than is anticipated under the Project as evaluated in the EIR, and impacts would remain ***less than significant***.

Transportation

Section 3.10, Transportation analyzes potential Project-related impacts on traffic and transportation. As shown in Table 3.10-6, in Section 3.10, "home-base other trips" are typically shorter than "home-base work/commute trips," Therefore, it can be reasonably assumed that converting office to hotel or retail uses under the Equivalency Program would result in less vehicle miles traveled (VMT), since users are typically making local trips and are not traveling long distances. It is anticipated that numerous hotel patrons would be traveling to the Project Site from San Francisco International Airport, located approximately 2.5 miles away; though these patrons may not reside locally, their trips between the airport and the hotel would be reflective of other local trips between nearby residents and the Project Site. In the event that hotel patrons make longer road trips to the hotel, these are typically one-off events and upon reaching the hotel destination, patrons typically make shorter local trips.

The EIR traffic consultant developed conversion rates for the exchange of 180,347 square feet of office use for either 34,112 sf of retail use or 345 hotel rooms under the Equivalency Program. The conversion factors, shown in Table 4, are based on PM peak hour trips which generate the highest peak hour trips. The exchange of 180,347 square feet of office use for either 34,112 sf of retail use or 345 hotel rooms under the Equivalency Program would align with the conversion rates shown in Table 4 indicating that PM peak hour trip generation under the Equivalency Program exchanges would be within the peak hour trip generation rates assumed in the EIR analysis. While PM peak hour trips to not directly correlate to average daily trips, it is reasonable to assume that with lower VMT and equal or reduced PM peak hour trips the land use exchanges under the Equivalency Program would not generate greater transportation impacts than what was evaluated in the EIR.

Table 3. PM Peak Hour Conversion Ratios[a]

Land Use (Converting From)	Units	ITE Rate	Land Use (Converting To)[b]			
			Hotel	Housing	Retail	Office
Hotel	Rooms	0.6	1.00	1.36	0.10	0.52
Retail	KSF	6.08	10.13	13.82	1.00	5.29
Office	KSF	1.15	1.92	2.61	0.19	1.00

Notes:

a The conversion ratios correlate to PM peak hours, and do not directly correlate to other impact evaluation factors such as VMT, internalization, etc. However, PM peak hour trip generation is generally the most impactful effect of this type of project, and it can be reasonably assumed that increases/decreases in PM peak hour generation would result in corollary changes in other evaluation factors.

b Ratios equate units of one land use with units of another. For example, 100 KSF of office space is equivalent to 192 hotel rooms, 261 KSF of housing, and 19 KSF of retail space. The conversions result in more hotel rooms for the same number of PM peak hour trips because the trip generation rate for hotel rooms is lower than the rates for office and retail space.

Utilities and Service Systems

Section 3.11, *Utilities and Service Systems*, analyzes potential Project-related impacts associated with water facilities and entitlements; wastewater facilities; stormwater drainage facilities; solid waste generation and disposal; and natural gas, electricity, and telecommunications services and systems. For water demand and wastewater generation, the Maximum Housing Scenario would result in the greatest degree of impact and is thus analyzed as the "worst case scenario", and for solid waste generation, the Maximum Office Scenario would result in the greatest degree of impact, and respectively, is carried forward in the EIR for analysis as the "worst case scenario." The Equivalency Program analysis for utilities and service systems is herein carried forward in accordance with whichever scenario would result in the greatest degree of impact for each specific utility system. As described in greater detail in the Energy section above, the Project would result in increased energy demands, including electricity and natural gas demands, when compared to non-Project conditions. However, the Project inclusive of the Equivalency Program was analyzed in Section 3.3, *Energy* of the EIR, and found impacts were found to be less than significant during operation. Therefore, the Equivalency Program would not result in new impacts on electricity or natural gas utility services beyond those evaluated in the EIR.

Utility demands generally increase with increased population. As described in greater detail above in the Public Services and Population and Housing sections, exchanging 180,347 square feet of office use for either 34,265 sf of retail use or 115,422 sf of hotel use would reduce this total amount of onsite employees utilizing utility services from 9,840 to 9,255 employees under a retail exchange or from 9,840 to 9,227 employees under a hotel exchange.

Table 5, below, displays the maximum anticipated utility usage for each utility type under whichever scenario (of the Maximum Office Scenario or the Maximum Housing Scenario) would result in "worst case scenario" circumstances to demonstrate potential variations in utility demands that could occur with the Equivalency Program. Because the unit demand factors for water use are equivalent to the unit demand factors for wastewater generation, they are analyzed together. Table 5 does not evaluate potential impacts to stormwater drainage facilities, as it is presumed that the Equivalency Program footprint will be equal to that of the Project without incorporation of the Equivalency Program, and thus no difference would result.

Table 4. Anticipated Utility Demands for the Project With Incorporation of the Each Equivalency Program Option[a]

Proposed Land Use	Unit Demand Factor[b]	Full Quantity at Proposed Buildout (including Existing to remain)	Future Demand (existing + buildout)[b]
Project (Maximum Housing Scenario), Without Equivalency Program – Water Use and Wastewater Generation			
Office	0.13 gpd/sf	3,500,743 gsf	455,096.59
Retail	0.19 gpd/sf	121,846 gsf	23,150.74
Hotel	120 gal/room	133 rooms	15,960.0
Residential	120 gal/du	573 du	68,760.0
Total			**562,967.33 GPD**
Maximum Housing Scenario + Equivalency Program (Retail) – Water Use and Wastewater Generation			
Office	0.13 gpd/sf	3,320,396 gsf	431,651.48
Retail	0.19 gpd/sf	156,111 gsf	29,661.09
Hotel	120 gal/room	133 rooms	15,960.0
Residential	120 gal/du	573 du	68,760.0
Total			**546,032.57 GPD**
Maximum Housing Scenario + Equivalency Program (Hotel) – Water Use and Wastewater Generation			
Office	0.13 gpd/sf	3,320,396 gsf	431,651.48
Retail	0.19 gpd/sf	121,846 gsf	23,150.74
Hotel	120 gal/room	248 rooms	29,760.0
Residential	120 gal/du	573 du	68,760.0
Total			**555,322.22 GPD**
Project (Maximum Office Scenario), Without Equivalency Program – Solid Waste Generation			
Office	10.7 lb/employee/day	9,840 employees	105,288 lbs/day
Retail	2.5 lbs/100 sf/day	121,846 gsf	3,046.15 lbs/day
Hotel	2.9 lbs/room/day	133 rooms	385.7 lbs/day
Residential	4.4 lb/capita/day	0 residents	0 lbs/day
Total			**108,659.85 lbs/day**
Maximum Office Scenario + Equivalency Program (Retail) – Solid Waste Generation			
Office	10.7 lb/employee/day	9,255 employees	99,028.5 lbs/day
Retail	2.5 lbs/100 sf/day	156,111 gsf	3,902.775 lbs/day
Hotel	2.9 lbs/room/day	133 rooms	385.7 lbs/day
Residential	4.4 lb/capita/day	0 residents	0 lbs/day
Total			**103,316.975 lbs/day**

Proposed Land Use	Unit Demand Factor[b]	Full Quantity at Proposed Buildout (including Existing to remain)	Future Demand (existing + buildout)[b]
Maximum Office Scenario + Equivalency Program (Hotel) – Solid Waste Generation			
Office	10.7 lb/employee/day	9,227 employees	98,728.9 lbs/day
Retail	2.5 lbs/100 sf/day	121,846 gsf	3,046.15 lbs/day
Hotel	2.9 lbs/room/day	248 rooms	719.2 lbs/day
Residential	4.4 lb/capita/day	0 residents	0 lbs/day
Total			**102,494.25 lbs/day**

Source: West Yost Associates 2019, Woodard & Curran 2019, CalRecycle 2019.

Notes:

[a] Landscaping is not considered a significant source of water usage under this analysis, because landscaping plans would include water-saving strategies such as bioretention planters, turf, and drought-tolerant vegetation. Unit Demand Factors account for irrigation demand (West Yost Associates 2016).

[b] Future demand rates are presented in GPD for water use and wastewater generation and lbs/day for solid waste generation to provide a more detailed comparison of how utility demands under the Equivalency Program may vary from demands that would occur under Project conditions without the program.

Key:

GPD = gallons per day

lbs = pounds

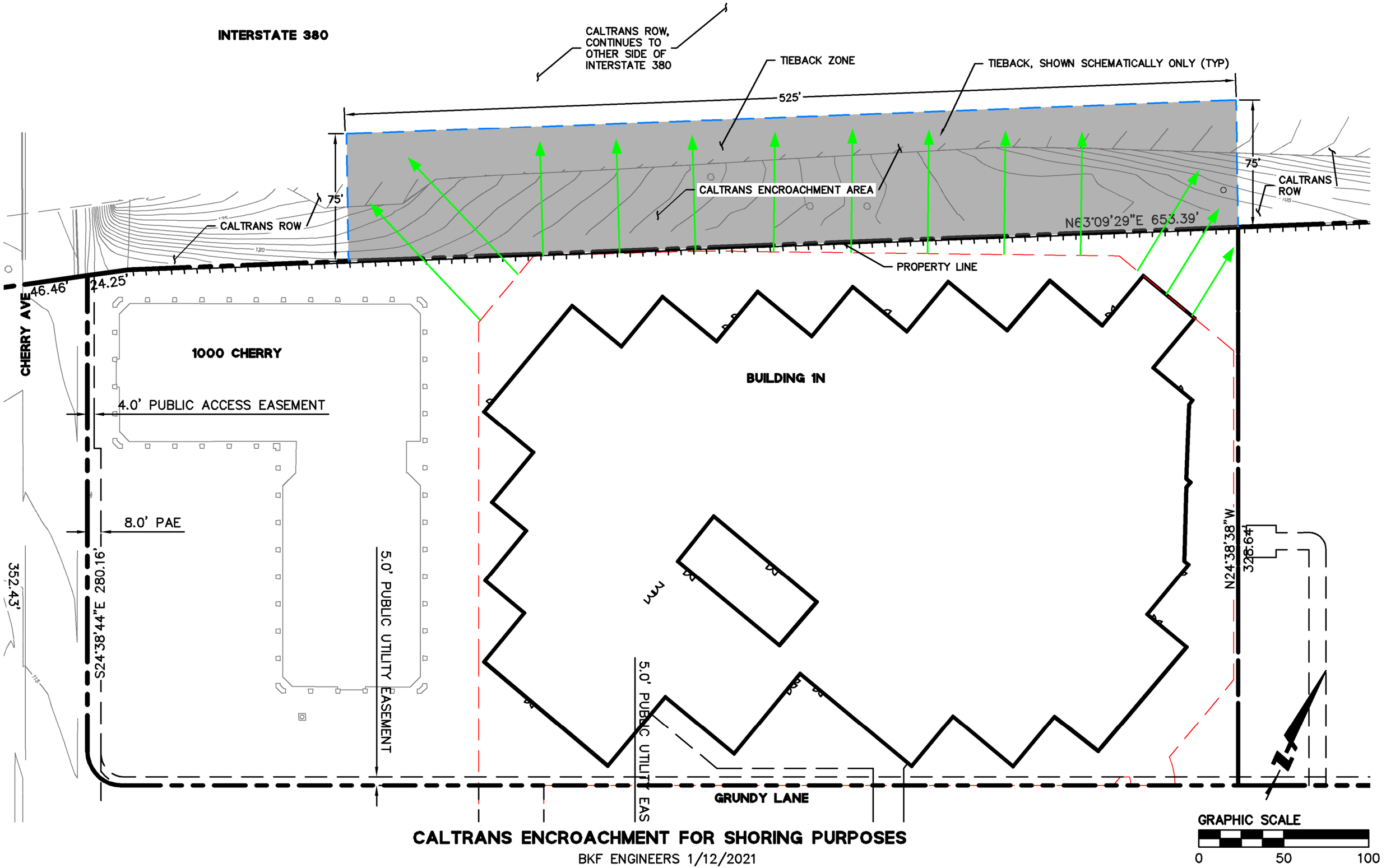
gsf = gross square feet

du = dwelling unit

As displayed in Table 4, both the retail and hotel exchanges under the Equivalency Program would result in lower utility demand rates on water, wastewater generation, and solid waste disposal than the respective "worst case scenario" circumstances under the Project. As described in greater detail in Section 3.11, *Utilities and Services Systems*, Impacts UT-1 through UT-4, the existing utility systems that serve the Project Site would be able to continue providing such services under full Project buildout with the incorporation of identified mitigation measures and Specific Plan policies. Because the Equivalency Program would reduce utility demands to below the levels evaluated in the EIR, impacts on utility and service systems would remain ***less than significant with mitigation*** under the Equivalency Program.

Appendix 5

Phase I Temporary Shoring Plan and Caltrans Encroachment Exhibit



CALTRANS ENCROACHMENT FOR SHORING PURPOSES

BKF ENGINEERS 1/12/2021

TEMPORARY EARTH RETENTION SYSTEM

YOUTUBE PROJECT PHASE 1

SAN BRUNO, CALIFORNIA

SHORING CONTRACTOR:

CASE PACIFIC

6850 NATIONAL DRIVE
LIVERMORE, CA 94550
www.casepacific.com

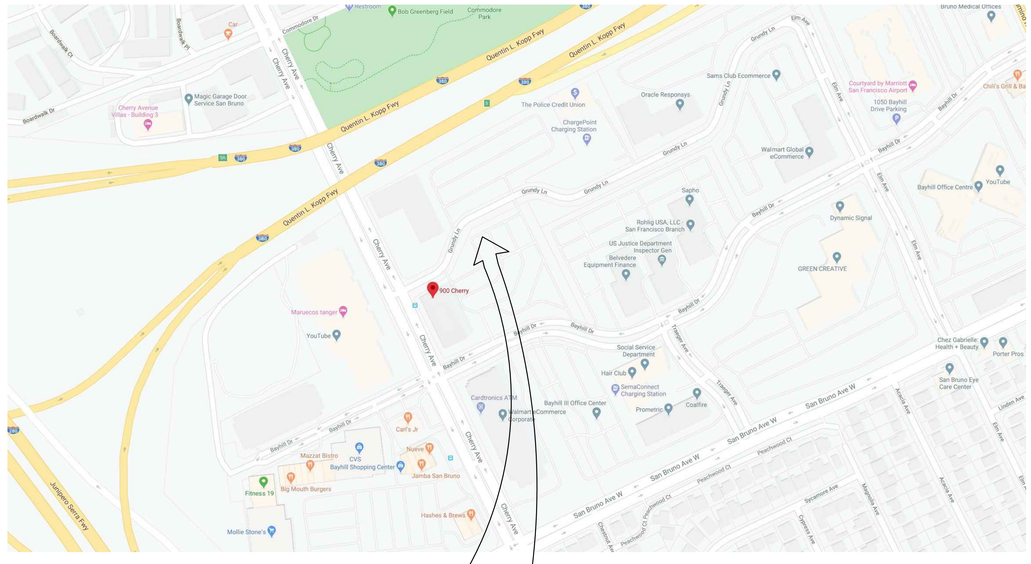
SHORING ENGINEER:

38 YEARS PB&A inc.
Structural Engineering
Geo-Structures • EarthRetention

810 5TH AVE. SUITE 100 SAN RAFAEL CALIFORNIA 94901
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JOB NO. 192300
PERMIT SUBMITTAL: 09/21/2020



THIS SITE

SITE LOCATION PLAN

N

GENERAL:

1. SCOPE OF WORK:
   1.1. TEMPORARY SOLDIER PILE WALL WITH TIEBACKS ABOUT THE PERIMETER OF THE SITE.
   1.2. TEMPORARY SOIL NAIL WALL TO PROTECT-IN-PLACE EXISTING SOIL UNDER GRUNDY LANE.

2. ALL CONSTRUCTION SHALL CONFORM TO THE CALIFORNIA BUILDING CODE (2019 ED.) AND ALL APPLICABLE REGULATIONS OF CITY OF SAN FRANCISCO.

3. ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH:
   3.1. THE GUIDELINES ESTABLISHED IN THE "GEOTECHNICAL ENGINEERING CIRCULAR NO. 7 SOIL NAIL WALLS" PUBLISHED BY FEDERAL HIGHWAY ADMINISTRATION, DATED FEBRUARY 2015 PUBLICATION NO. FHWA-NHI-14-007
   3.2. CALTRANS TRENCHING AND SHORING MANUAL 2011 EDITION
   3.3. THE GUIDELINES ESTABLISHED IN THE "GEOTECHNICAL ENGINEERING CIRCULAR NO. 4, GROUND ANCHORS AND ANCHORED SYSTEMS" PUBLISHED BY FEDERAL HIGHWAY ADMINISTRATION, DATED JUNE 1999 PUBLICATION NO. FHWA-IF-99-015
   3.4. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) STEEL DESIGN MANUAL 14TH EDITION
   3.5. AMERICAN WELDING SOCIETY, AWS D1.1 "STRUCTURAL WELDING CODE" 2010
   3.6. AMERICAN CONCRETE INSTITUTE, BUILDING CODE REQUIREMENT FOR STRUCTURAL CONCRETE (ACI 318-19)
   3.7. ANNUAL BOOK OF AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
   3.8. RECOMMENDATION FOR PRESTRESSED ROCK AND SOIL ANCHORS (PTI DC35.1-14) BY POST-TENSIONING INSTITUTE.
   3.9. ALSO COMPLY WITH THE APPLICABLE SECTIONS OF CALTRANS SPECIAL PROVISIONS FOR THE CONSTRUCTION OF SOIL NAIL WALLS AND SOLDIER BEAM WALLS.
   3.10. THE GUIDELINES ESTABLISHED IN THE "MICROPILE DESIGN AND CONSTRUCTION REFERENCE MANUAL", PUBLICATION NO. FHWA NHI-05-039, 2005 PROVIDED BY FHWA, U.S. DEPARTMENT OF TRANSPORTATION.

3. EXCAVATIONS SHALL BE MADE IN COMPLIANCE WITH THE MOST RECENT EDITION OF THE CALIFORNIA CONSTRUCTION SAFETY ORDERS (CAL-OSHA) REGULATIONS.

4. DIMENSIONS, OFFSETS, LINES AND GRADE ELEVATIONS SHOWN ON THIS PLANS ARE FOR REFERENCE ONLY. THE GENERAL CONTRACTOR IS RESPONSIBLE TO COORDINATE DIMENSIONS, OFFSETS, LINES AND GRADE ELEVATIONS WITH THE CIVIL SITE PLAN AT THE SITE AND SHALL ESTABLISH TO INSURE PROPER HORIZONTAL AND VERTICAL ALIGNMENT OF WALLS. THE CONTRACTOR IS RESPONSIBLE TO REPORT ANY DISCREPANCIES AND LACK OF COORDINATION BETWEEN THESE DRAWINGS AND SITE CONDITION TO THE ENGINEER (PB&A, INC.) IN A TIMELY MANNER.

5. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES AND OTHER OBSTACLES IN THE FIELD. ALL EXISTING UTILITIES SHOWN ON THESE PLANS ARE FOR REFERENCE ONLY. GENERAL CONTRACTOR IS RESPONSIBLE TO POTHOLE ALL UTILITIES (AS NEEDED) BEFORE WALL CONSTRUCTION IS TO BEGIN. GENERAL CONTRACTOR IS TO REPORT ALL INTERFERENCES BETWEEN THE UTILITIES OR OTHER OBSTACLE WITH THE SOIL NAILS/TIEBACKS TO THE ENGINEER (PB&A, INC.) IN A TIMELY MANNER.

6. THE CONTRACTOR IS RESPONSIBLE TO VERIFY THE INTERFERENCE BETWEEN THE SOIL NAILS/TIEBACKS AT ALL CORNERS AND BENDS. SOIL NAILS/TIEBACKS AT ALL CORNERS AND BENDS MAY BE ROTATED ±5° AND RELOCATED ±6" VERTICALLY OR HORIZONTALLY TO AVOID INTERFERENCE BETWEEN EACH OTHER.

REFERENCE DRAWINGS:

THESE DRAWINGS ARE BASED ON AND MUST BE READ IN CONJUNCTION WITH;

1. YOUTUBE GRUNDY LANE SAN BRUNO, CA 94066 FOUNDATION & MASS EXCAVATION PACKAGE PREPARED BY NISHKIAN MENNINGER, SURFACEDESIGN INC., BKF, AND HLW, DATED 12/16/2019

DESIGN CRITERIA:

THE DESIGN OF THE EARTH RETENTION SYSTEM IS BASED ON THE INFORMATION CONTAINED IN THE "YOUTUBE CAMPUS PHASE I SAN BRUNO, CALIFORNIA GEOTECHNICAL REPORT" DATED JULY 09, 2019 PREPARED BY ENGEO.

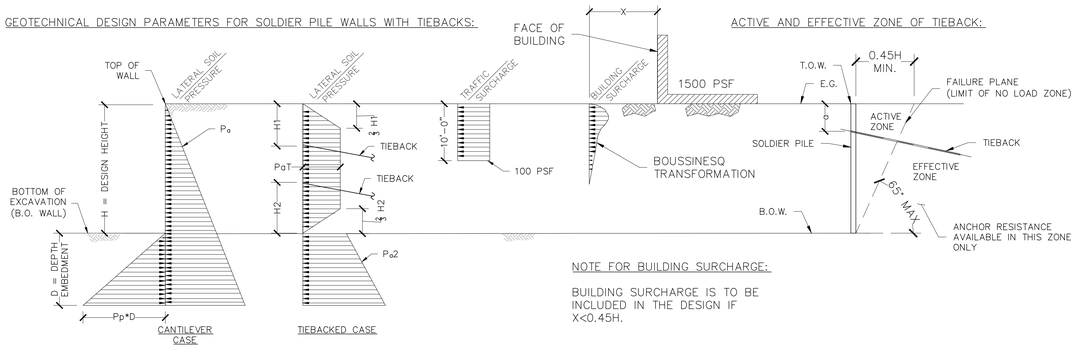
GEOTECHNICAL DESIGN PARAMETERS FOR SOIL NAIL WALLS:

1. COIMA FORMATION
   UNIT WEIGHT OF SOIL, γ = 130 PCF
   FRICTION ANGLE, φ = 40°
   COHESION, C = 0 PSF
   ULTIMATE PULLOUT STRENGTH, μ = 5760 PSF (40.0 PSI) - TO BE VERIFIED BY TESTING PROGRAM

F.O.S. TEMPORARY SOIL NAIL WALLS = 1.35 (STATIC)

*NOTE: GROUNDWATER IS NOT ENCOUNTERED.

GEOTECHNICAL DESIGN PARAMETERS FOR SOLDIER PILE WALLS WITH TIEBACKS:



ACTIVE AND EFFECTIVE ZONE OF TIEBACK:

NOTE FOR BUILDING SURCHARGE:

BUILDING SURCHARGE IS TO BE INCLUDED IN THE DESIGN IF X<0.45H.

ACTIVE EARTH PRESSURE, Pa1 = 35 PCF
ACTIVE EARTH PRESSURE, PaT = 25H PSF
ACTIVE EARTH PRESSURE, Pa2 = 26.5 PCF
PASSIVE EARTH PRESSURE, Pp = 550 PCF

NOTES:

1. ASSUMED ULTIMATE BOND STRESS FOR TIEBACK IS 60 PSI AND IT IS TO BE VERIFIED BY FIELD TESTING.

QUALITY CONTROL AND SPECIAL INSPECTION PROGRAM:

A CERTIFIED TESTING AGENCY WILL PROVIDE THE SPECIAL INSPECTION AND TEST BY SPECIAL INSPECTOR UNDER DIRECT SUPERVISION OF PB&A INC. IN COMPLIANCE WITH SECTION 1701 OF THE CALIFORNIA BUILDING CODE AND 4-333 OF THE CALIFORNIA ADMINISTRATIVE CODE. THE INSPECTOR OF THE TESTING AGENCY MUST HAVE VERIFIABLE EXPERIENCE IN INSPECTING THE CONSTRUCTION OF PERMANENT SOIL NAIL WALLS. SUBMIT QUALIFICATIONS FOR THE STRUCTURAL ENGINEER OF EARTH RETENTION SYSTEM FOR REVIEW AND APPROVAL.

1. ITEMS INSPECTED BY THE TESTING AGENCY. ITEMS BELOW MAY BE INSPECTED UNDER PERIODIC INSPECTION.
   a. DRILLING HOLES AND INSTALLATION OF SOIL NAIL/TIEBACK AND INSPECT ALL REQUIRED ITEMS
   b. TESTING OF SOIL NAIL/TIEBACK.
   c. CONCRETE AND GROUT TAKING OF SPECIMENS AND PLACEMENT
   d. BOLT/ANCHORAGE INSTALL IN CONCRETE
   e. REINFORCING STEEL PLACEMENT
   f. SHOTCRETE
   g. FIELDING WELDING, STRUCTURAL WELDING
   h. STEEL SHOP FABRICATION
   i. INSTALLATION OF SOLDIER PILES, DRILLED HOLES

2. ITEMS OBSERVED BY THE GEOTECHNICAL ENGINEER. VERIFICATION THAT THE SOIL/ROCK STRATA ENCOUNTERED ARE IN GENERAL COMPLIANCE WITH THE FINDINGS OF THE GEOTECHNICAL INVESTIGATION.

3. THE CONTRACTOR SHALL PERFORM LOAD TESTING ON THE INITIAL TEN PROOF TEST SOIL NAILS IN THE PRESENCE OF PB&A. PB&A SHALL VERIFY THE CONTRACTOR'S SOIL NAIL INSTALLATION METHODS AND DESIGN PULLOUT RESISTANCE. ALSO THE COMPLIANCE WITH THE REQUIREMENTS OF QUALITY CONTROL PROGRAM PRESCRIBED HEREIN SHALL BE VERIFIED BY PB&A.

4. PB&A IS TO PERFORM PERIODIC SITE OBSERVATION AND REVIEW TESTING AND MONITORING REPORTS. ANY OBSERVED NONCOMPLIANCE ITEMS ARE TO BE REPORTED TO PB&A, PROJECT INSPECTOR, ARCHITECTS AND THE BUILDING OFFICIAL.

PRE-CONSTRUCTION OF TEST PANELS:

BEFORE BEGINNING CONSTRUCTION, FURNISH AT LEAST 1 PRECONSTRUCTION TEST PANEL FOR EACH SHOTCRETE MIX DESIGN AND NOZZLEMAN USING THE SAME EQUIPMENT THAT WILL BE USED FOR CONSTRUCTION. USE MINIMUM 18 X 18 INCHES FORMS AT LEAST 4" THICK FOR TEST PANELS.

DETERMINE AIR CONTENT FOR SHOTCRETE PRODUCED BY THE WET MIX PROCESS IN ACCORDANCE WITH AASHTO T152 OR T196. BATCH, DELIVER, MIX AND PLACE SHOTCRETE IN ACCORDANCE WITH THE APPLICABLE SECTION OF THE STANDARD SPECIFICATIONS OR SPECIAL PROVISION FOR THE APPLICATION. MAKE PRECONSTRUCTION TEST PANELS WITH FORMS IN A VERTICAL POSITION AND FROM THE SAME SHOOTING POSITION ANTICIPITED FOR CONSTRUCTION. DO NOT DISTURB TEST PANELS WITHIN THE FIRST 24 HOURS AND CURE PANELS IN ACCORDANCE WITH AASHTO T23 WITHOUT IMMERSING PANELS.

DRILL 3" DIA. CORES IN ACCORDANCE WITH AASHTO T24. EXTRACT 6 CORES FROM EACH PRECONSTRUCTION TEST PANEL AND PROVIDE THEM TO THE ENGINEER. THE COMPRESSIVE STRENGTH OF THE SHOTCRETE WILL BE CONSIDERED THE AVERAGE COMPRESSIVE STRENGTH TEST RESULTS OF 3 CYLINDER SPECIMENS FROM THE SAME PRECONSTRUCTION TEST PANEL AT 28 DAYS.

MONITORING PROGRAM:

1. MONITORING OF SETTLEMENT AND MOVEMENT OF SHORING WALLS IS TO BE CARRIED OUT BY A LICENSED SURVEYOR.

2. PRIOR TO THE START OF CONSTRUCTION, MONITORING POINTS ARE TO BE ESTABLISHED AT THE PERIMETER OF THE EXCAVATION WITH TWO POINTS DIRECTLY UNDERNEATH EACH APPLICATION 18'-0" (3 LIFTS) APART. THE POINTS ON THE SOIL NAIL WALLS/SOLDIER BEAM WALLS ARE TO BE ESTABLISHED AS THE WALLS ARE EXPOSED. A PLAN IS TO BE PREPARED WITH INDICATING ALL MONITORING POINTS AND SUBMITTED TO PB&A FOR REVIEW AND APPROVAL. SUGGESTED LOCATIONS OF MONITORING POINTS ARE SHOWN IN THE DRAWINGS.

3. THESE MONITORING POINTS ARE NOT TO BE MORE THAN 50' APART AND ARE TO BE SURVEYED AT A FREQUENCY OF AT LEAST ONCE A WEEK FOR THE DURATION OF THE SHORING CONSTRUCTION. THE FREQUENCY MAY BE INCREASED OR DECREASED AT THE DISCRETION OF THE STRUCTURAL ENGINEER FOR EARTH RETENTION SYSTEM, PB&A INC.. SHOULD ANY DETECTABLE MOVEMENT OR LACK THERE OF WARRANT IT.

4. A LOG OF THE MONITORING SURVEY, COMPLETE WITH A PLAN INDICATING THE LOCATION OF EACH OF THE MONITORING POINTS MUST BE KEPT AND SUBMITTED TO THE STRUCTURAL ENGINEER OF THE EARTH RETENTION SYSTEM (PB&A INC.), THE GEOTECHNICAL ENGINEER OF RECORD, THE PROJECT ENGINEERS, THE ARCHITECT, AND THE OWNER.

FIELD QUALITY CONTROL:

1. TESTING AND INSPECTION SHALL BE PROVIDED BY THE OWNER'S TESTING AGENCY AS SPECIFIED.

2. FREQUENCY TESTS:
   a. APPROVED INSPECTOR SHALL CONTINUOUSLY INSPECT CONSTRUCTION OF SHORING WALLS.

3. PROTECT INSTALLED PRODUCTS UNTIL COMPLETION OF PROJECT.

4. TOUCH-UP, REPAIR OR REPLACE DAMAGED PRODUCTS BEFORE SUBSTANTIAL COMPLETION.

DRAWING LISTS:

SH1.00 TO SH1.02	SHORING GENERAL NOTES
SH2.00 TO SH2.07	SHORING PLAN
SH3.00 TO SH3.06	SHORING ELEVATIONS
SH4.00 TO SH4.02	SHORING SECTIONS
SH5.00 TO SH5.02	SHORING DETAILS
SH6.00 TO SH6.02	SHORING SCHEDULES

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CA: 1-800-642-2444
CALL TWO WORKING DAYS BEFORE YOU DIG

ABBREVIATION:

B.O.	BOTTOM OF	S.P.	SOLDIER PILE
B.O.W.	BOTTOM OF WALL	SPAC.	SPACING
C	CENTERLINE	THK.	THICKNESS
E	EXISTING	T.O.	TOP OF
EL.	ELEVATION	T.O.W.	TOP OF WALL
EMBED.	EMBEDMENT	TBD	TO BE DETERMINED
E.G.	EXISTING GRADE	TEMP.	TEMPORARY
F.G.	FINISHED GRADE	TYP.	TYPICAL
F.O.	FACE OF	U.N.O.	UNLESS NOTED OTHERWISE
GR.	GRADE	S.S.D.	SEE STRUCTURAL DRAWINGS
INFO.	INFORMATION		
MAX.	MAXIMUM		
MIN.	MINIMUM		
N.T.S.	NOT TO SCALE		
NECESS.	NECESSARY		
℄	PLATE		
REF.	REFERENCE		
REQ'D	REQUIRED		
SCHE.	SCHEDULE		
STIFF.	STIFFENER		

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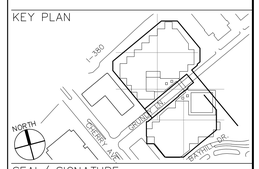
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38 YEARS PB&A inc. Structural Engineering GeoStructures*EarthRetention

CASE PACIFIC

NO.	DATE	ISSUES
0	09/04/20	PERMIT SUBMITTAL

KEY PLAN



SEAL/ SIGNATURE

REGISTERED PROFESSIONAL ENGINEER
PHOUZ BASTIEN
CE 26101
SE 2502
Exp.03/31/22
CIVIL
STRUCTURAL
STATE OF CALIFORNIA

SHEET TITLE

SHORING GENERAL NOTES

PROJECT NO.
192300

SCALE: AS INDICATED
DATE: 09/21/2020
CHECKED BY: PB/BM
DRAWN BY: ML

SHEET NO.

SH1.00

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MATERIALS:

SOIL NAIL:

1. SOIL NAIL BAR: THREADED REINFORCING BAR TO CONFORM WITH THE REQUIREMENTS OF ASTM A-615 GR. 75 KSI OR EQUIVALENT.
2. BAR COUPLER SHALL DEVELOP 100% OF FULL ULTIMATE TENSILE STRENGTH OF THE BAR AS CERTIFIED BY THE MANUFACTURER. BEARING PLATES: ASTM A36 GR. 36 KSI.
3. NUTS: HEXAGONAL FITTED WITH BEVELED WASHER OR SPHERICAL SEAT TO PROVIDE UNIFORM BEARING.
4. SOIL NAIL GROUT: SAND/CEMENT MIXTURE WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI PER ASTM C109

REINFORCING STEEL:

1. ASTM A615 GR. 60.

WELDED WIRE FABRIC:

1. ALL WELDED WIRE FABRIC SHALL CONFORM TO REQUIREMENTS OF ASTM A-185 OR A497 GR. 65 KSI.

STEEL FOR SOLDIER PILES:

1. ALL WIDE FLANGE STEEL ARE TO BE MINIMUM ASTM A572 GR. 50 OR EQUAL GRADE.

DRILLED SHAFTS:

1. SHAFTS ARE TO BE MACHINE DRILLED. SHAFTS ARE TO BE ACCURATELY LOCATED SO THAT THE SOLDIER BEAMS ARE IN THE PROPER RELATION TO STRUCTURAL WALLS.
2. PROVIDE PROTECTION AGAINST SLOUGHING OR CAVING AS REQUIRED.
3. DRILLED HOLES TO BE LEFT OPEN OVER-NIGHT SHALL BE SECURED/COVERED WITH PLYWOOD.
4. ALL WATER SHOULD BE REMOVED FROM THE SHAFT PRIOR TO FILLING WITH CONCRETE, IF POSSIBLE. IF ALL WATER CANNOT BE REMOVED BY PUMPING, CONCRETE SHALL BE CAREFULLY PUMPED INTO THE SOLDIER PILE SHAFT FROM THE BOTTOM UP THROUGH A RIGID PIPE AND DESIGN STRENGTH OF CONCRETE SHALL BE INCREASED BY 1000 PSI.
5. DRILLED HOLE FOR SOLDIER PILES IS TO BE FILLED WITH STRUCTURAL CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI BELOW THE BOTTOM OF THE EXCAVATION. DRILLED HOLE TO BE FILLED WITH 2 SACK CLSM ABOVE B.O. WALL LEVEL.

WELDING:

1. ALL WELDING SHALL CONFORM TO A.W.S. D1.1 STANDARDS AND BE DONE BY CERTIFIED WELDERS HAVING A CURRENT CERTIFICATION & USING E70XX ELECTRODES..

TIEBACK

1. TIEBACKS SHALL BE FABRICATED FROM 0.6-INCH DIAMETER, SEVEN-WIRE, LOW RELAXATION STRANDS CONFORMING TO ASTM A-416 WITH A GUARANTEED ULTIMATE MINIMUM STRENGTH OF 270 KSI. STRANDED ANCHORAGE ASSEMBLY SHALL CONFORM TO PTI'S "RECOMMENDATIONS FOR PRESTRESSED ROCK AND SOIL ANCHORS" 5TH EDITION. STRANDS SHALL NOT BE WELDED OR USED FOR GROUNDING WELDING EQUIPMENT.
2. CENTRALIZERS – MANUFACTURED FROM PVC PIPING.
3. GROUT USED IN TIEBACK SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3,000 PSI, MIN. 6 SACKS OF CEMENT PER CUBIC YARD.
4. BEARING PLATES ARE TO BE ASTM A572, GR. 50.
5. NUTS: HEXAGONAL FITTED WITH BEVELED WASHER OR SPHERICAL SEAT TO PROVIDED UNIFORM BEARING.

ALL OTHER MATERIALS FOR SOLDIER PILE WALL:

1. STRUCTURAL STEEL FOR MISCELLANEOUS ITEMS, SUCH AS ANGLES & STIFFENER PLATES, CONFORM TO THE REQUIREMENTS OF ASTM A36 GR. 36.
2. LAGGINGS SHALL BE D.F.# 2 PRESSURE TREATED.

DRAINAGE:

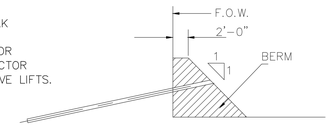
1. PIPE: ASTM 1785 SCHEDULE 40 PVC PERFORATED.

SHOTCRETE:

1. SHOTCRETE SHALL BE PRODUCED BY A WET MIX PROCESS W/ TYPE V CEMENT ACHIEVING A MINIMUM COMPRESSIVE STRENGTH OF 2000 PSI IN 7 DAYS AND 4000 PSI IN 28 DAYS. SUBSEQUENT EXCAVATION STEPS SHALL NOT BE COMMENCED UNTIL THE FACING HAS ATTAINED AT LEAST 1000 PSI STRENGTH IN THE AREA OF THE PROPOSED CUT. PROVIDE SHOTCRETE MIX SUBMITTAL FOR THE EARTH RETENTION SYSTEM STRUCTURAL ENGINEER'S REVIEW AND APPROVAL.
2. PROVIDE EQUIPMENT CAPABLE OF DELIVERING THE PREMIXED MATERIAL ACCURATELY, UNIFORMLY AND CONTINUOUSLY THROUGH THE DELIVERY HOSE. PROVIDE A SUPPLY OF CLEAN DRY AIR ADEQUATE FOR MAINTAINING SUFFICIENT NOZZLE VELOCITY FOR ALL PARTS OF THE WORK AND IF REQUIRED, FOR SIMULTANEOUS OPERATION OF A SUITABLE BLOW PIPE FOR CLEARING AWAY REBOUND. THE COMPRESSOR IS TO DELIVER A MINIMUM OF 175 CFM PER OPERATING NOZZLE.
3. SCREED OFF EXCESSIVE MATERIAL TO PROVIDE PLANAR SURFACE. CLEAN AREA AT THE BASE OF EACH LIFT TO ENSURE GOOD JOINTS BETWEEN LIFTS.
4. AFTER EACH STAGE CUT, IN ANTICIPATION OF SHOTCRETING, CLEAN SURFACES OF ALL LOOSE MATERIAL, MUD, REBOUND FROM PREVIOUSLY PLACED SHOTCRETE, AND OTHER FOREIGN MATTER THAT WILL PREVENT BOND OF SHOTCRETE.
5. WHEN A LAYER OF SHOTCRETE IS TO BE COVERED IT SHALL FIRST BE ALLOWED TO DEVELOP ITS INITIAL SET IN AN HOUR, THEN ALL LOOSE MATERIAL AND REBOUND MUST BE REMOVED.
6. FIRMLY POSITION THE WIRE FABRIC AND THE REBARS TO PREVENT VIBRATION WHILE THE SHOTCRETE IS BEING APPLIED. LAP MESH 8" IN BOTH DIRECTIONS. TIE WIRES SHALL BE BENT FLAT IN THE PLANE OF THE MESH AND NOT FORM LARGE KNOTS.
7. CONTROL THICKNESS, METHOD OF SUPPORT, AIR PRESSURE AND WATER CONTENT OF SHOTCRETE TO PRECLUDE SAGGING OR SLOUGHING OFF.
8. SHOTCRETE SHALL BE APPLIED FROM THE BOTTOM UP TO PREVENT THE ACCUMULATION OF REBOUND ON THE SURFACE STILL TO BE COVERED.
9. SHOTCRETE SHALL BE APPLIED BY A QUALIFIED NOZZLEMAN. SUBMIT QUALIFICATION FOR THE STRUCTURAL ENGINEER OF EARTH RETENTION SYSTEM FOR REVIEW AND APPROVAL.
10. COURSE AGGREGATE SHALL NOT EXCEED 3/8 INCH (19 MM).
11. ANY REBOUND OR ACCUMULATED LOOSE AGGREGATE SHALL BE REMOVED FROM THE SURFACES TO BE COVERED PRIOR TO PLACING THE INITIAL OR ANY SUCCEEDING LAYERS OF SHOTCRETE. REBOUND SHALL NOT BE REUSED AS AGGREGATE.
12. WITH THE EXCEPTION OF HORIZONTAL EDGES OF SEQUENTIAL LIFTS OF SHOTCRETE, UNFINISHED WORK SHALL NOT BE ALLOWED TO STAND FOR MORE THAN 30 MINUTES UNLESS ALL EDGES ARE SLOPED TO A THIN EDGE. BEFORE PLACING ADDITIONAL MATERIAL ADJACENT TO PREVIOUSLY APPLIED WORK, SLOPING AND SQUARE EDGES OF HORIZONTAL EDGES OF SEQUENTIAL LEVELS OF SHOTCRETE SHALL BE CLEANED AND WETTED PRIOR TO THE APPLICATION SUBSEQUENT LIFT OF SHOTCRETE BELOW.
13. IN-PLACE SHOTCRETE WHICH EXHIBITS SAGS OR SLOUGHS, SEGREGATION, HONEYCOMBING, SAND POCKETS OR OTHER OBVIOUS DEFECTS SHALL BE REMOVED AND REPLACED. SHOTCRETE ABOVE SAGS AND SLOUGHS SHALL BE REMOVED AND REPLACED WHILE STILL PLASTIC.
14. DURING THE CURING PERIODS SPECIFIED HEREIN, SHOTCRETE SHALL BE MAINTAINED ABOVE 40° F. IN INITIAL CURING, SHOTCRETE SHALL BE KEPT CONTINUOUSLY MOIST FOR 24 HOURS AFTER PLACEMENT IS COMPLETE OR CURED WITH AN APPROVED CURING COMPOUND.
15. STRENGTH TEST FOR SHOTCRETE SHALL BE MADE BY AN APPROVED AGENCY ON SPECIMENS WHICH ARE REPRESENTATIVE OF WORK AND WHICH HAVE BEEN WATER SOAKED FOR AT LEAST 24 HOURS PRIOR TO TESTING.
16. PROVIDE SPECIMEN TAKEN AT LEAST ONCE EACH SHIFT OR LESS THAN ONE FOR EACH 50 CUBIC YARDS OF SHOTCRETE; OR FROM TEST PANELS: MADE NOT LESS THAN ONCE EACH SHIFT OR NOT LESS THAN ONE FOR EACH 50 CUBIC YARDS (38.2 M3) OF SHOTCRETE PLACED. THE TEST PANELS SHALL HAVE A MINIMUM DIMENSION OF 18 X 18 INCHES.
17. PANELS SHALL BE GUNNED IN THE SAME POSITION AS THE WORK, DURING THE COURSE OF THE WORK AND BY NOZZLEMAN DOING THE WORK. THE CONDITION UNDER WHICH THE PANELS ARE CURED SHALL BE THE SAME AS THE WORK.

EXCAVATION PROCEDURE FOR SOIL NAIL WALL IF SLOUGHING OCCURS:

THE GRADING AND EXCAVATION FOR THE PROPOSED RETAINING WALLS MUST BE COORDINATED SUCH THAT OVERBREAK AND SLOUGHING BE MINIMIZED. THE EXCAVATION CONTRACTOR SHALL PROVIDE BENCHES APPROXIMATELY 20' WIDE IN LIFTS. THE ELEVATION OF THE PAD IS APPROXIMATELY 2' BELOW THE LEVEL OF THE NAILS. THE GRADING CONTRACTOR SHALL MAKE VERTICAL CUTS APPROXIMATELY 12" THICKER THAN THE FINAL CUT EXCAVATION. THE GRADING CONTRACTOR SHALL TRIM FINAL 12" AND SPOILS THEREFORE SHALL BE REMOVED BY THE GRADING CONTRACTOR IN THE SUCCESSIVE LIFTS.



IF ENCOUNTER WITH GRANULAR SOIL ESPECIALLY AT TOP ROW AND LOCALIZED SLOUGHING COULD OCCUR IN WHICH CASE THE FOLLOWING SUGGESTED PROCEDURE IS TO BE FOLLOWED;

a. LEAVE A 1:1 BERM, 2' THICK AT TOP IN FRONT OF THE FACE OF THE FINAL CUT.

b. DRILL THRU THE BERM AND FOLLOW THE PROCEDURE FOR INSTALLATION OF THE NAILS AS DESCRIBED ABOVE.

c. CAREFULLY EXCAVATE BETWEEN THE NAILS AND PRIOR TO THE INSTALLATION OF DRAINAGE SYSTEM, WALER BARS, AND WELDED WIRE FABRIC, APPLY A THIN LAYER OF SHOTCRETE IN ORDER TO CONTAIN THE LOOSE SOIL BEFORE THE APPLICATION OF THE FINAL SHOTCRETE WALL. PROVIDE 2" Ø HOLES IN THE FLASH COAT IN THE AREAS WHERE WEEP HOLES ARE TO BE INSTALLED FOR DRAINAGE.

CONSTRUCTION PROCEDURE FOR SOIL NAIL WALL:

1. LINES AND GRADES SHALL BE ESTABLISHED BY THE CONTRACTOR TO INSURE PROPER HORIZONTAL ALIGNMENT OF WALL AND LOCATION OF SOIL NAILS.
2. CONSTRUCTION PROCEDURES SHALL BE ESTABLISHED SUCH THAT EXCAVATIONS OF LIFTS WILL BE IMMEDIATELY FOLLOWED WITH THE INSTALLATION OF THE SOIL NAIL WALL. THE PURPOSE OF THIS TANDEM SEQUENCING IS TO INSURE THAT AN EXPOSED EXCAVATED EMBANKMENT WILL NOT GO UNSUPPORTED FOR LONGER THAN 24 HOURS. THE CONTRACTOR SHALL BASE HIS EXCAVATION PROCEDURES UPON THIS PREMISE.
3. UNDER NO CIRCUMSTANCES WHEN PRECIPITATION IS PRESENT, CAN A CUT SLOPE BE EXPOSED TO WEATHER LONGER THAN 8 HOURS.
4. EXCAVATION SHALL OCCUR IN VERTICAL LIFTS NOT TO EXCEED 6 FT. VERTICALLY IN EACH LIFT ACCORDING TO THE PROCEDURE DESCRIBED ABOVE AND SHALL PROCEED IN THE SAME TANDEM SEQUENCE OF EXCAVATION/INSTALLATION OF SHOTCRETE FACING AS DESCRIBED IN NOTES 1 AND 2.
5. WHERE SLOUGHING OCCURS, RECOMMEND INSTALLATION OF FLASH COAT OF SHOTCRETE APPROXIMATELY 1" THICK.
6. PROVISIONS SHALL BE MADE TO ALLOW FOR 8" LAPPING OF THE WELDED WIRE FABRIC.
7. THE HORIZONTAL WALER REBAR AND VERTICAL REBAR SHALL BE PLACED ALONG EACH ROW OF SOIL NAILS AS SHOWN ON DETAILS.

SOIL NAIL TESTING PROCEDURES:

LOAD TESTING CONSISTS OF VERIFICATION TESTS AND PROOF TESTS. SOIL NAILS SHALL NOT BE TESTED UNTIL ANCHOR LENGTH GROUT HAS ATTAINED A MINIMUM STRENGTH OF 1500 PSI. A MINIMUM 48 HOURS OF WAITING PERIOD SHALL OCCUR BEFORE TESTING THE NAILS. THE TEST MAY BE PERFORMED BEFORE THAT TIME IF THE CONTRACTOR SUBMITS COMPRESSIVE STRENGTH TEST RESULTS VERIFYING THAT THE NAIL GROUT AND SHOTCRETE MIXES BEING USED WILL PROVIDE THE SPECIFIED COMPRESSIVE STRENGTH.

1. ALL TEST SOIL NAILS ARE SACRIFICIAL SOIL NAILS.
2. ONCE THE TESTING PROCEDURE IS COMPLETED, THE UNGROUNDED PORTION OF THE PRODUCTION/TEST NAIL IS TO BE CLEANED AND IS TO BE FREE OF ANY DEBRIS AND DELETERIOUS MATERIAL.
3. AT NO TIME, NAIL LOAD MAY EXCEED 90% OF THE NAIL BAR TENSILE ALLOWABLE LOAD.
4. TESTING RESULTS NEED TO BE SUBMITTED TO STRUCTURE ENGINEER OF EARTH RETENTION SYSTEM FOR REVIEW AND APPROVAL.
5. TEST PROCEDURE IS TO FOLLOW THE "LONG NAIL/ SHORT NAIL SYSTEM" PER MANUFACTURER'S RECOMMENDATIONS.

VERIFICATION TEST (2 * DESIGN LOAD, M):

AT LEAST ONE VERIFICATION TEST PER WALL IS TO BE PERFORMED PRIOR TO INSTALLATION OF PROOF TESTING AND PRODUCTION NAILS TO CONFIRM THE CONTRACTOR'S DRILLING AND INSTALLATION METHODS AND TO VERIFY THE REQUIRED NAIL NOMINAL BOND STRENGTH.

VERIFICATION TEST LOADING SCHEDULE:
AL (ALIGNMENT LOAD) = 0.05M (1 MIN. HOLD)
0.50M (10 MIN. HOLD)
0.75M (10 MIN. HOLD)
1.00M (10 MIN. HOLD)
1.25M (10 MIN. HOLD)
1.50M (CREEP TEST-60 MIN. HOLD)
1.75M (10 MIN. HOLD)
2.00M (10 MIN. HOLD) (MAXIMUM LOAD)

1. MEASURE AND RECORD NAIL MOVEMENTS DURING THE CREEP PORTION OF THE TEST IN INCREMENTS OF 1 MINUTE, 2, 3, 5, 6, 10, 20, 30, 50, AND 60 MINUTES. MAINTAIN THE LOAD DURING THE CREEP TEST WITHIN 2 PERCENT OF THE INTENDED LOAD BY THE USE OF LOAD CELL.

PROOF TEST (1.5 * DESIGN LOAD, M):

TEST 5% OF TOTAL SOIL NAILS OR LOCATIONS PROVIDED IN SHEETS SH4.00.

PROOF TEST LOADING SCHEDULE:
AL (ALIGNMENT LOAD) = 0.05M (UNTIL MOVEMENT STABILIZES)
0.25M (UNTIL MOVEMENT STABILIZES)
0.50M (UNTIL MOVEMENT STABILIZES)
0.75M (UNTIL MOVEMENT STABILIZES)
1.00M (UNTIL MOVEMENT STABILIZES)
1.25M (UNTIL MOVEMENT STABILIZES)
1.50M (CREEP TEST, SEE BELOW) (MAXIMUM LOAD)

1. THE CREEP PERIOD SHALL START AS SOON AS THE MAXIMUM TEST LOAD (1.50M) IS APPLIED AND THE NAIL MOVEMENT SHALL BE MEASURED AND RECORDED AT 1 MINUTE, 2, 3, 5, 6, AND 10 MINUTES. WHERE THE NAIL MOVEMENT BETWEEN 1 MINUTE AND 10 MINUTES EXCEEDS 1 mm (0.04 in), MAINTAIN THE MAXIMUM TEST LOAD FOR AN ADDITIONAL 50 MINUTES AND RECORD MOVEMENTS AT 20, 30, AND 50 MINUTES. MAINTAIN ALL LOAD INCREMENTS WITHIN 5 PERCENT OF THE INTENDED LOAD.

WHERE, M= DESIGN LOAD
M= μ X L X π X D)/2.0 (FS) = 45.22 KIPS
μ= NOMINAL BOND STRENGTH PROVIDED IN "DESIGN PARAMETERS FOR SOIL NAIL WALLS" SECTION
π= 3.14
L= BOND LENGTH (10'-0" MIN.)
D= DRILL HOLE DIAMETER (6")

1. THE VALUE OF M IS LINEARLY DEPENDENT ON THE GROUTED LENGTH, L. THE GIVEN VALUE OF M IS ONLY FOR BONDED LENGTH L=10 FT. FOR OTHER VALUES OF L, AS MEASURED IN THE FIELD, THE VALUE OF M NEEDS TO BE ADJUSTED ACCORDINGLY.
2. TESTING RESULTS NEED TO BE SUBMITTED TO PB&A FOR REVIEW AND APPROVAL.

PROCEDURE IN CASE OF A TEST NAIL FAILURE

1. REVIEW THE DRILLING AND GROUTING PROCEDURE OF THE ALREADY INSTALLED FAILED SOIL NAIL. PLACE TWO NEW TEST SOIL NAILS APPROXIMATELY 6 FEET AWAY ON BOTH SIDES OF THE FAILED TEST SOIL NAIL. APPLY MODIFIED GROUTING AND DRILLING METHOD IF APPLICABLE.
2. TEST THE NEWLY INSTALLED TEST SOIL NAILS. IF THEY PASS THE TEST CONTINUE USING THE MODIFIED GROUTING AND DRILLING METHOD.
3. IF THE NEWLY INSTALLED TEST SOIL NAILS FAIL, THE ENGINEER OF RECORD OF THE EARTH RETENTION SYSTEM IS TO EVALUATE THE RESULTS AND DETERMINE THE APPROPRIATE REMEDIAL ACTION.

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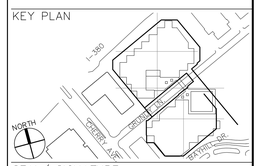
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CASE PACIFIC

NO.	DATE	ISSUES
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KEY PLAN



SEAL/ SIGNATURE



SHEET TITLE

SHORING GENERAL NOTES

PROJECT NO.
192300

SCALE: AS INDICATED
DATE: 09/21/2020

CHECKED BY: PB/BM
DRAWN BY: ML

SHEET NO.

SH1.01

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SOIL NAIL TESTING PROCEDURES (CONTINUED:

TEST NAIL ACCEPTANCE CRITERIA

1. FOR VERIFICATION TESTS, THE TOTAL CREEP MOVEMENT IS LESS THAN 2 mm (0.08 in) BETWEEN THE 6– AND 60–MINUTE READINGS AND THE CREEP RATE IS LINEAR OR DECREASING THROUGHOUT THE CREEP TEST LOAD HOLD PERIOD.

2. FOR PROOF TESTS, THE TOTAL CREEP MOVEMENT IS LESS THAN 1 mm (0.04 in) DURING THE 10–MINUTE READING OR THE TOTAL CREEP MOVEMENT IS LESS THAN 2 mm (0.08 in) BETWEEN THE 60–MINUTE READING AND THE CREEP RATE IS LINEAR OR DECREASING THROUGHOUT THE CREEP TEST LOAD HOLD PERIOD.

3. FOR VERIFICATION AND PROOF TESTS, THE TOTAL MEASURED MOVEMENT AT THE MAXIMUM TEST LOAD EXCEEDS 80 PERCENT OF THE THEORETICAL ELASTIC ELONGATION OF THE TEST NAIL UNBONDED LENGTH.

   $\Delta L = \frac{P\ UL}{EA}$

   WHERE, P= MAXIMUM LOAD
   UL= UNBONDED LENGTH (FROM BACK OF THE REFERENCE PLATE TO TOP OF THE GROUT LENGTH)
   A= CROSS–SECTIONAL AREA OF THE NAIL BAR
   E= YOUNG'S MODULUS OF STEEL (29000 KSI)

4. A PULLOUT FAILURE DOES NOT OCCUR AT MAXIMUM TEST LOADS.

CONSTRUCTION PROCEDURE FOR SOLDIER BEAM WALL W/ TIEBACK:

1. DRILL HOLE AND PLACE SOLDIER BEAM TO THE DEPTH INDICATED AT THE LOCATIONS SHOWN ON PLAN AND ALIGN.

2. FILL THE DRILLED HOLE WITH THE MATERIAL SPECIFIED IN MATERIAL SECTION.

3. EXCAVATE AND PLACE LAGGING TO PREVENT LOSS OF GROUND. PLACEMENT OF LAGGING BELOW THE DEPTH OF EXCAVATION MAY CEASE, W/ WRITTEN PERMISSION FROM THE SHORING ENGINEER IN APPROPRIATE LOCATIONS AND AS GROUND CONDITIONS WARRANT. LAGGING SHALL BE LOWERED AND INSTALLED SIMULTANEOUSLY AS THE EXCAVATION PROCEEDS.

4. EXCAVATE AND LAG IN LIFTS TO NOT MORE THAN 2'–0" BELOW THE LEVEL OF THE TIEBACK OR AS SOIL STABILITY ALLOWS (5' MAX.). AN APPROPRIATE BERM IS TO BE CREATED SO THAT THE DRILL RIG CAN DRILL THE HOLE FOR THE TIEBACKS.

5. THEN DRILL HOLE FOR THE TIEBACKS TO THE SUGGESTED DEPTH AS NECESSARY. FILL THE DRILLED HOLE THROUGHOUT WITH GROUT TIEBACKS MAY BE REGROUTED AS NECESSARY TO ASSURE COMPLIANCE WITH THE TESTING SCHEDULE.

6. TEST TIEBACKS NO EARLIER THAN 72 HOURS AFTER GROUTING ACCORDING TO THE PROCEDURE DESCRIBED ON TIEBACK TESTING PROCEDURE.

7. CONTINUE EXCAVATION AND LAG.

8. ANY LOSS OF GROUND FROM BEHIND LAGGING IS TO BE REPLACED WITH NATIVE SOIL. IF EXCESSIVE CAVING OCCURS, FILL VOIDS WITH 1–SACK CLSM.

TIEBACK TESTING PROCEDURE:

THE FIRST TWO TIEBACKS ARE TO BE PERFORMANCE TESTED. THEREAFTER, MINIMUM 5% OF THE REMAINING TIEBACKS OR TIEBACKS MARKED AS '*P' ARE TO BE PERFORMANCE TESTED.

THEREAFTER, ALL TIEBACKS EXCEPT MARKED AS '*P' ON ELEVATIONS AND SCHEDULES SHALL BE PROOF TESTED IN ACCORDANCE WITH FHWA–IF–99–15 "GEOTECHNICAL ENGINEERING CIRCULAR NO. 4, GROUND ANCHORS AND ANCHOR SYSTEMS".

TESTING SHALL BE PERFORMED BY INCREMENTALLY LOADING THE TIEBACK IN ACCORDANCE WITH THE SCHEDULES SHOWN BELOW. AT EACH LOAD INCREMENT THE MOVEMENT OF THE END OF THE TIEBACK SHALL BE RECORDED TO THE NEAREST .001" WITH RESPECT TO AN INDEPENDENT FIXED REFERENCE POINT NOT ATTACHED TO THE SHORING WALL. THE ANCHOR LOAD SHALL BE MEASURED WITH A PRESSURE GAUGE CALIBRATED WITH THE JACK, WHICH SHALL BE ACCURATE ENOUGH TO READ 200 PSI CHANGES IN HYDRAULIC PRESSURE, OR A 4–KIP (4000 POUNDS) DIFFERENTIAL IN FORCE, WHICHEVER IS THE LESSER. THE EQUIPMENT SHALL BE CALIBRATED WITHIN A MONTH PRIOR TO TESTING. THE PUMP SHALL BE CAPABLE OF APPLYING EACH LOAD INCREMENT IN LESS THAN ONE MINUTE, AND SHALL MAINTAIN THE TEST LOAD AS REQUIRED DUE TO CREEP OF THE TIEBACKS AND/OR MOVEMENT OF THE WALL.

FOR EACH PROOF TEST THE FOLLOWING INFORMATION SHALL BE RECORDED:

a. TIEBACK NUMBER AND LOCATION.

b. INSTALL FREE LENGTH AND BONDED LENGTH OF THE TIEBACK.

DURING TIEBACK TESTING, THE FOLLOWING INFORMATION SHALL BE RECORDED FOR EACH LOAD INCREMENT AND CORRESPONDING OBSERVATION PERIOD:

a. LOAD SEQUENCE NUMBER AND % OF DESIGN LOAD: MAXIMUM LOAD PER SCHEDULE.

b. DIAL PRESSURE AND CORRESPONDING LOAD IN KIPS (200 PSI INCREMENTS).

c. OBSERVATION PERIOD IN MINUTES AND/OR SECONDS FROM THE TIME AT WHICH THE SPECIFIED LOAD IS REACHED.

d. MOVEMENT OF THE END OF THE TIEBACKS TO THE NEAREST .001 INCH. ZERO MOVEMENT SHALL BE ASSUMED AT THE INITIAL ALIGNMENT LOAD (AL), WHICH IS SEQUENCE NUMBER 1.

e. IN THE EVENT A TIEBACK FAILS TO MEET THE TEST CRITERIA, THE SHORING CONTRACTOR IS TO REGROUT AND RETEST THE TIEBACK. IF THE REGROUTING AND RETESTING FAILS, LOCK–OFF THE TIEBACK AT NOT MORE THAN 50% OF THE LOAD MAINTAINED DURING THE 10–MINUTE HOLD AND PROVIDE ADDITIONAL MAKE–UP TIEBACK PER BELOW.

f. SHORING CONTRACTOR SHALL PROVIDE AND TEST ADDITIONAL MAKE–UP TIEBACK. MAKE–UP TIEBACK SHALL HAVE A DESIGN LOAD EQUAL TO THE DIFFERENCE BETWEEN THE LOCK–OFF LOAD OF THE FAILED TIEBACK AND DESIGN LOAD SHOWN IN THE TIEBACK SCHEDULES. MAKE–UP TIEBACK SHALL BE INSTALLED 2'–0" BELOW THE FAILED TIEBACK.

PROOF TEST

ALL TIEBACKS SHALL BE PROOF TESTED. THE PROOF TEST SHALL BE PERFORMED BY INCREMENTALLY LOADING THE TIEBACKS IN ACCORDANCE WITH THE SCHEDULE SHOWN BELOW. AT EACH INCREMENT THE LOAD SHALL BE MAINTAINED UNTIL THE RATE OF TIEBACK MOVEMENT IS CLEARLY APPROACHING ZERO. THE MINIMUM OBSERVATION PERIOD SHALL BE ONE MINUTE. THE 1.33DL MAXIMUM TEST LOAD SHALL BE HELD FOR AT LEAST 10 MINUTES, AND AS MUCH AS 60 MINUTES, AS DESCRIBED BELOW. INCREMENTS OF LOADS SHALL BE IN ACCORDANCE OF THE SCHEDULE. FOR FINAL SEQUENCE MAXIMUM TEST LOAD, THE TIEBACK SHALL BE LOADED TO 1.33DL AND THE TIEBACK MOVEMENT SHALL BE RECORDED FOR OBSERVATION PERIODS OF 1, 2, 3, 4, 5, 6, AND 10 MINUTES. IF THE TOTAL ELONGATION BETWEEN 1 MINUTE AND 10 MINUTES DOES NOT EXCEED .04 INCHES, THEN THE TIEBACK SHALL BE CONSIDERED ACCEPTABLE AND THE TEST MAY BE DISCONTINUED. IF THE ELONGATION BETWEEN 1 MINUTE AND 10 MINUTES EXCEEDS .04 INCHES, THEN MONITORING OF TIEBACK MOVEMENT SHALL CONTINUE FOR AN ADDITIONAL 50 MINUTES, WITH MOVEMENTS RECORDED AT 15, 20, 25, 30, 45 AND 60 MINUTES SO THAT A CREEP CURVE CAN BE PLOTTED. AT THE END OF THE PROOF TEST THE TIEBACK SHALL BE LOCKED OFF AT LOCK–OFF LOAD, AS SPECIFIED IN THE SCHEDULE. THE MAXIMUM 1.33DL TEST LOAD ELONGATION IS MEASURED FOR 60 MINUTES, THE TIEBACK WILL BE CONSIDERED ACCEPTABLE IF THE ELONGATION DOES NOT EXCEED 0.08".

PERFORMANCE TEST

TIEBACKS AS MARKED AS '(P)' ON SCHEDULES ARE TO BE PERFORMANCE TESTED. THE PERFORMANCE TEST SHALL BE PERFORMED BY CYCLICALLY LOADING THE TIEBACKS IN ACCORDANCE WITH THE SCHEDULE AS SHOWN. INITIALLY ALIGNMENT LOAD SHALL BE APPLIED TO ENSURE THAT THE TEST EQUIPMENT IS PLACED AT THE PROPER POSITION. THE DISPLACEMENT READING IS ZEROED UPON THE STABILIZATION OF THE ALIGNMENT LOAD. AT EACH CYCLE, THE INCREMENTAL MOVEMENT AT EACH LOAD STEP AND THE RESIDUAL DISPLACEMENT AT THE END OF THE CYCLE WHEN REDUCED BACK TO ALIGNMENT LOAD SHALL BE RECORDED. AT THE END OF CYCLE 6, A TEST LOAD OF 1.5DL SHALL BE HELD FOR 10 MINUTES PRIOR TO REDUCING THE LOAD TO THE LOCK–OFF LOAD. DURING THIS 10 MINUTES LOAD HOLD TIME, TIEBACK MOVEMENT SHALL BE RECORDED FOR OBSERVATION PERIODS OF 1, 2, 3, 4, 5, 6, AND 10 MINUTES. IF THE TOTAL ELONGATION BETWEEN 1 MINUTE AND 10 MINUTES DOES NOT EXCEED 0.04 INCHES, THEN THE TIEBACK SHALL BE CONSIDERED ACCEPTABLE AND THE TEST MAY BE DISCONTINUED. IF THE ELONGATION BETWEEN 1 MINUTE AND 10 MINUTES EXCEEDS 0.04 INCHES, THEN MONITORING OF TIEBACK MOVEMENT SHALL CONTINUE FOR AN ADDITIONAL 50 MINUTES, WITH MOVEMENTS RECORDED AT 20, 30, 40, 50 AND 60 MINUTES SO THAT A CREEP CURVE CAN BE PLOTTED. AT THE END OF THE TEST, THE TIEBACK SHALL BE LOCKED OFF AT LOCK–OFF LOAD AS SPECIFIED IN THE LOAD SCHEDULE. THE MAXIMUM 1.5DL TEST LOAD ELONGATION IS MEASURED FOR 60 MINUTES, THE TIEBACK WILL BE CONSIDERED ACCEPTABLE IF THE ELONGATION DOES NOT EXCEED 0.08".

TIEBACK PROOF TEST SCHEDULE
LOADING SEQUENCE
ALIGNMENT LOAD
0.25 DESIGN LOAD
0.50 DESIGN LOAD
0.75 DESIGN LOAD
1.00 DESIGN LOAD
1.25 DESIGN LOAD
1.33 DESIGN LOAD

TIEBACK PERFORMANCE TEST SCHEDULE						
CYCLE	APPLIED LOAD					
1	0.25DL	AL				
2	0.25DL	0.50DL	AL			
3	0.25DL	0.50DL	0.75DL	AL		
4	0.25DL	0.50DL	0.75DL	1.00DL	AL	
5	0.25DL	0.50DL	0.75DL	1.00DL	1.25DL	AL
6	0.25DL	0.50DL	0.75DL	1.00DL	1.25DL	1.50DL

LOCK OFF LOAD FOR TIEBACK = 0.8xDL

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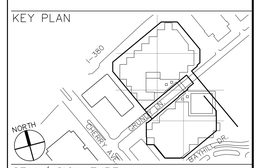
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SHEET TITLE

SHORING SCHEDULE

PROJECT NO.
192300

SCALE: AS INDICATED
DATE: 09/21/2020
CHECKED BY: PB/BM
DRAWN BY: ML

SHEET NO.

SH1.02

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KEY

Work either within the Caltrans Right of Way or associated with such.

1000 CHERRY AVE.
(3 STORY+1 BASEMENT)

1000 CHERRY AVE.
(3 STORY+1 BASEMENT)

901 CHERRY AVE.
(1 BASEMENT)

900 CHERRY AVE.
(6 STORY)

1250 GRUNDY LN.

1250 BAYHILL DR.

CHERRY AVE

GRUNDY LN

BAYHILL DR

10' PUBLIC ACCESS EASEMENT

4.0' PUBLIC ACCESS EASEMENT

5.0' PUBLIC UTILITY EASEMENT

1 SHORING KEY PLAN
SCALE: 1"=30'_XREF_XREF_XREF_XREF

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SHEET TITLE

SHORING KEY PLAN

PROJECT NO. 192300

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MATCHLINE 1/SH2.06

MATCHLINE 1/SH2.02

1SC.2 | 1SD | 1SD.1 | 1SD.3 | 1SE | 1SE.1 | 1SE.2 | 1SF | 1SG | 1SG.1 | 1SH | 1S03 | 1S04 | 1S05 | 1S06 | 1S07 | 1S08 | 1S08.1 | 1S09 | 1S10 | 1S11 | 1S11.1 | 1S12

BEGIN S.P. WALL @ STA. 10+0.46

B.O.F.=61.7'

6 SPACED @ 9'-6" O.C.

4 SPACED @ 9'-7" O.C.

B.O.F.=62.2'

B.O.F.=58.7'

9 SPACED @ 10'-0" O.C.

B.O.F.=61.7'

B.O.F.=58.7'
1-B04

10 SPACED @ 10'-0" O.C.

8'-10" 7'-2"

10 SPACED @ 9'-8" O.C.

10'-2"

B.O.F.=61.7'

B.O.F.=60.7'

1-B11

EL. ±66.7'

EL. ±75.5'

EL. ±85.0'

EL. ±86.4'

243.13'
S24°38'44"E

114.34'
S5°00'14"W

67'-6"

SLOPE 1 : 12

SLOPE 1 : 12

38 SPACED @ 10'-0" O.C

END S.P. WALL @ STA. 33+93.79

00'0+00

00'0+13

00'1+00

00'2+00

32+0.00

33+0.00

33+73.79

1 SH3.00 | 2 SH3.00 | 1 SH4.00 | 1 SH3.04 | 2 SH3.04

1 PARTIAL SHORING PLAN

SCALE: 3/32" = 1'-0"

LEGENDS:

ANGLE ORIENTATION

S-PILE WORK POINT

X.X — DENOTES S-PILE NUMBER

TIEBACK, SEE SCHED.

XX.XX — DENOTES PAD ELEVATION

B01 — DENOTES BORING NUMBER AND LOCATION

01 — DENOTES WORK POINT NUMBER

DENOTES GRADE BEAM/ FOUNDATION LINE

DENOTES (N) UTILITY REFERENCE ONLY AND TO BE RELOCATED AS NECESSARY

—UTIL— DENOTES (E) UTILITY

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KEY PLAN



SEAL/ SIGNATURE



SHEET TITLE

SHORING PLAN

PROJECT NO.
192300

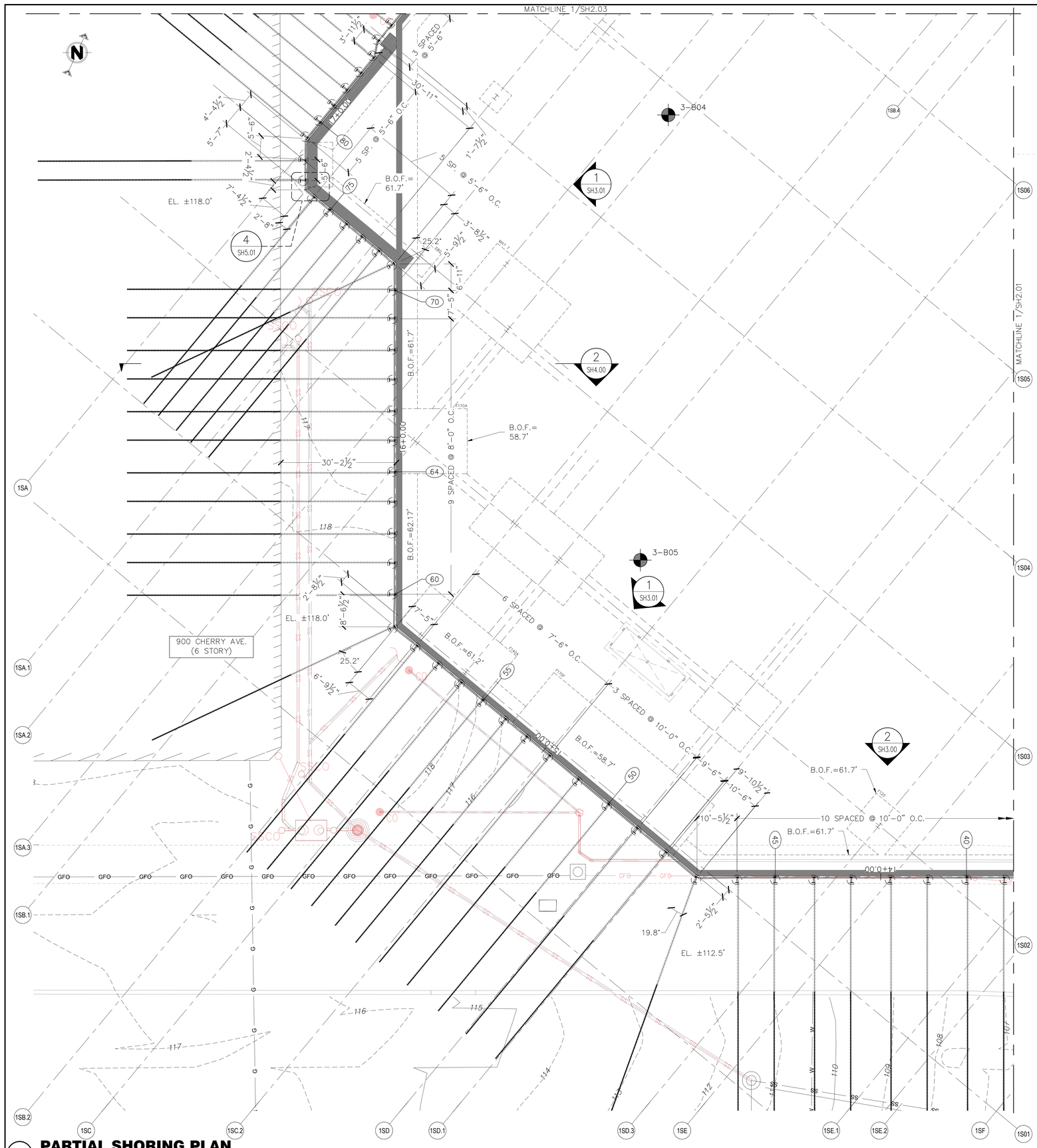
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1 PARTIAL SHORING PLAN

SCALE: 3/32" = 1'-0"

LEGENDS:

ANGLE ORIENTATION

S-PILE WORK POINT

X.X — DENOTES S-PILE NUMBER

TIEBACK, SEE SCHED.

XX.XX — DENOTES PAD ELEVATION

B01 — DENOTES BORING NUMBER AND LOCATION

01 — DENOTES WORK POINT NUMBER

DENOTES GRADE BEAM/ FOUNDATION LINE

—UTIL— DENOTES (N) UTILITY REFERENCE ONLY AND TO BE RELOCATED AS NECESSARY

— —UTIL— — DENOTES (E) UTILITY

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Website: pbaindesc.com Phone: (415) 259 - 9191

CASE PACIFIC

KEY PLAN



SEAL/ SIGNATURE

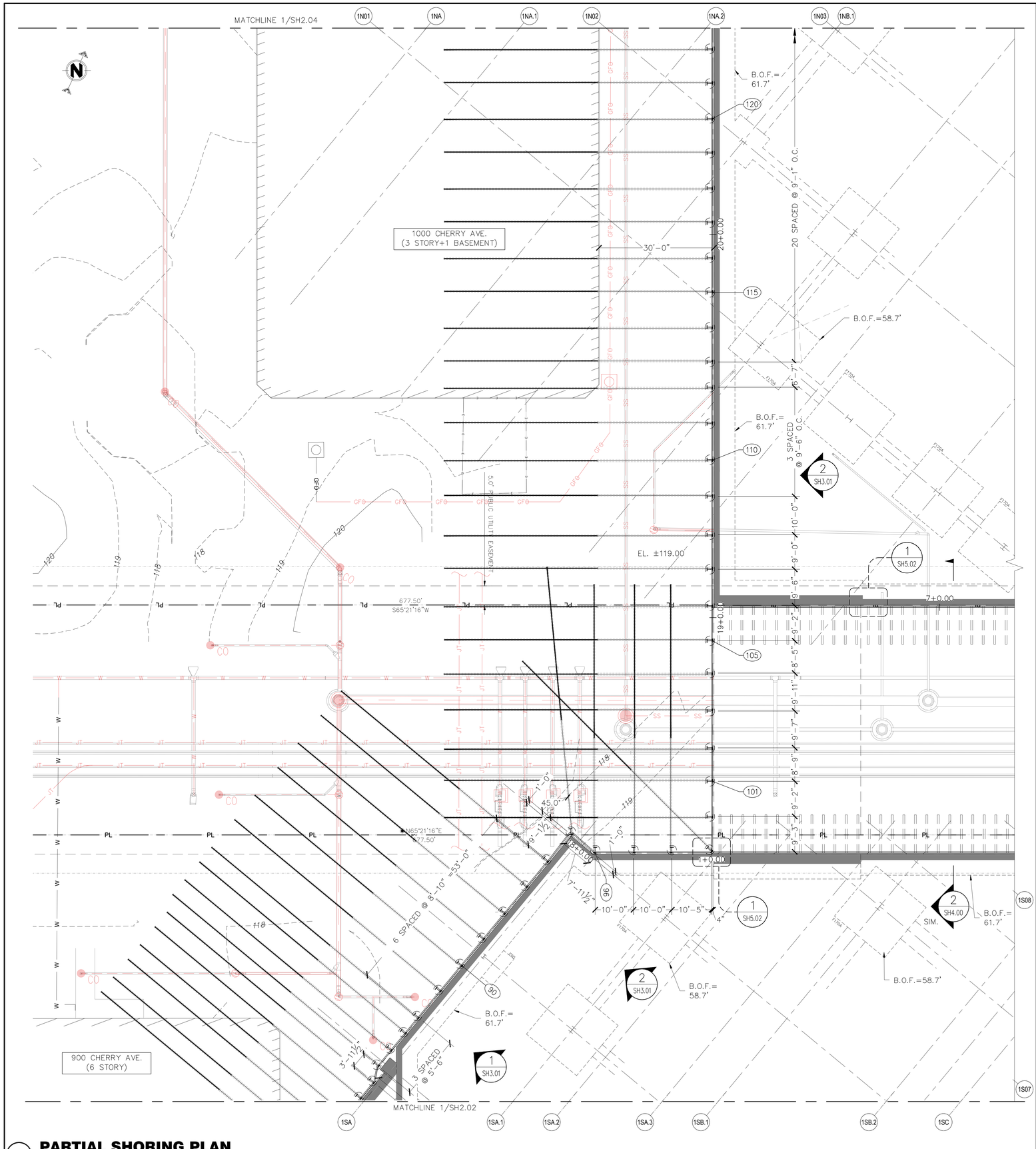
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SHEET TITLE

SHORING PLAN

PROJECT NO. 192300	
SCALE: AS INDICATED	DATE: 09/21/2020
CHECKED BY: PB/BM	DRAWN BY: ML
SHEET NO.	SH2.02

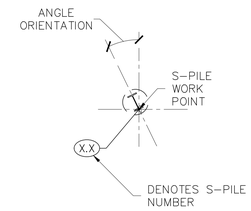
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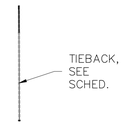


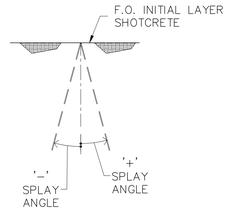
1 PARTIAL SHORING PLAN

SCALE: 3/32" = 1'-0"

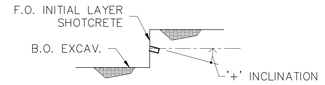
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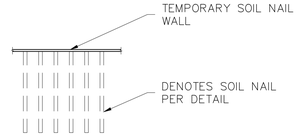


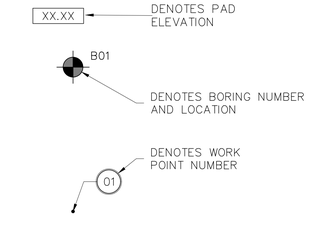


PLAN VIEW



SECTION VIEW





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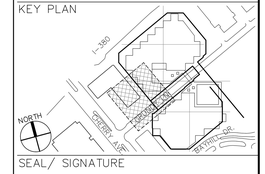
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CASE PACIFIC

KEY PLAN



SEAL/ SIGNATURE



SHEET TITLE

SHORING PLAN

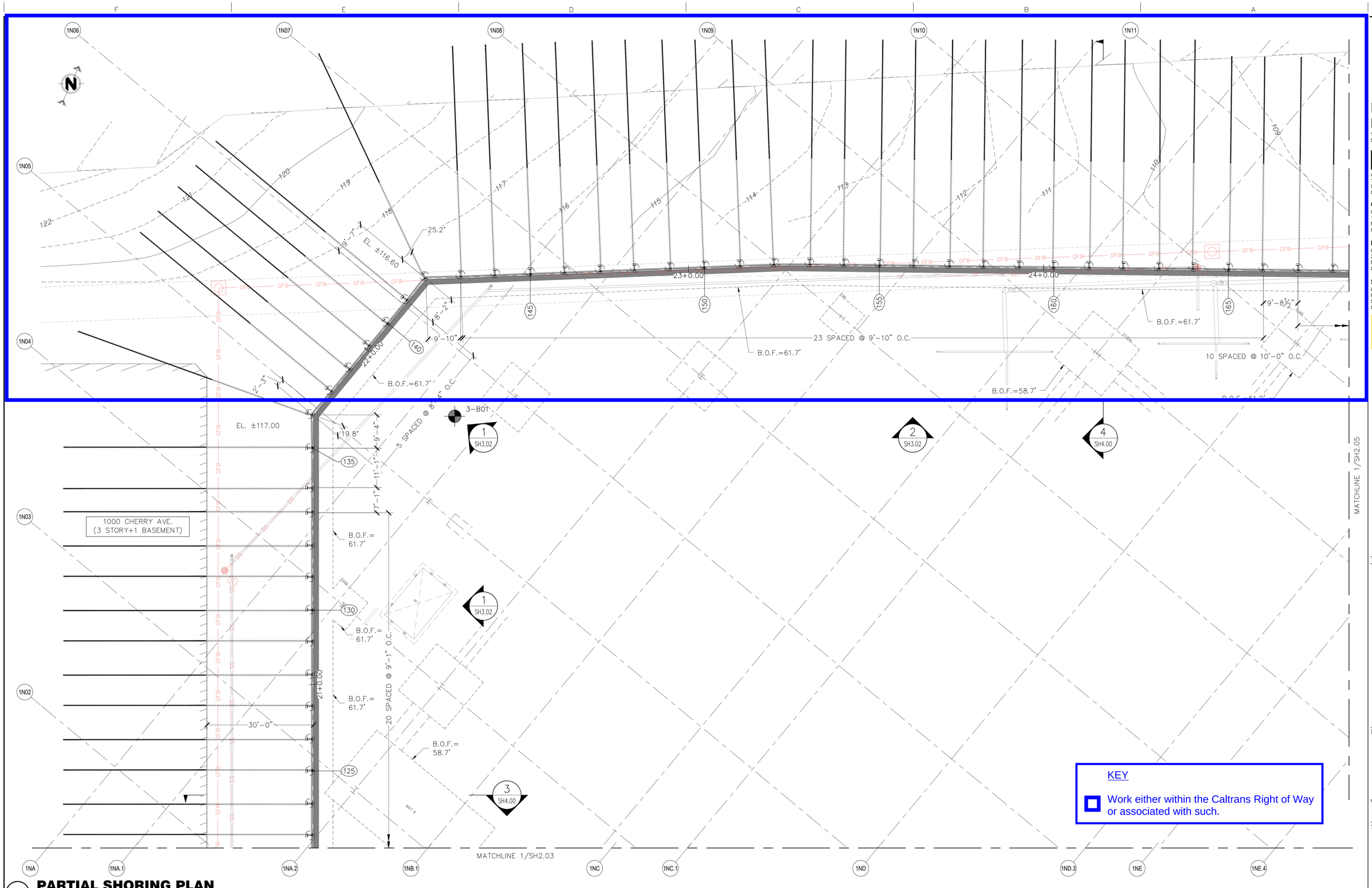
PROJECT NO.
192300

SCALE: AS INDICATED
DATE: 09/21/2020
CHECKED BY: PB/BM
DRAWN BY: ML

SHEET NO.

SH2.03

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KEY

Work either within the Caltrans Right of Way or associated with such.

1 PARTIAL SHORING PLAN

SCALE: 3/32" = 1'-0"

LEGENDS:

- ANGLE ORIENTATION
- S-PILE WORK POINT
- X.X — DENOTES S-PILE NUMBER
- TIEBACK, SEE SCHED.
- XX.XX — DENOTES PAD ELEVATION
- B01 — DENOTES BORING NUMBER AND LOCATION
- 01 — DENOTES WORK POINT NUMBER
- DENOTES GRADE BEAM/ FOUNDATION LINE
- —UTIL— DENOTES (N) UTILITY REFERENCE ONLY AND TO BE RELOCATED AS NECESSARY
- —UTIL— DENOTES (E) UTILITY

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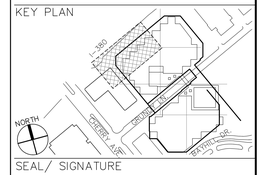
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CASE PACIFIC

KEY PLAN



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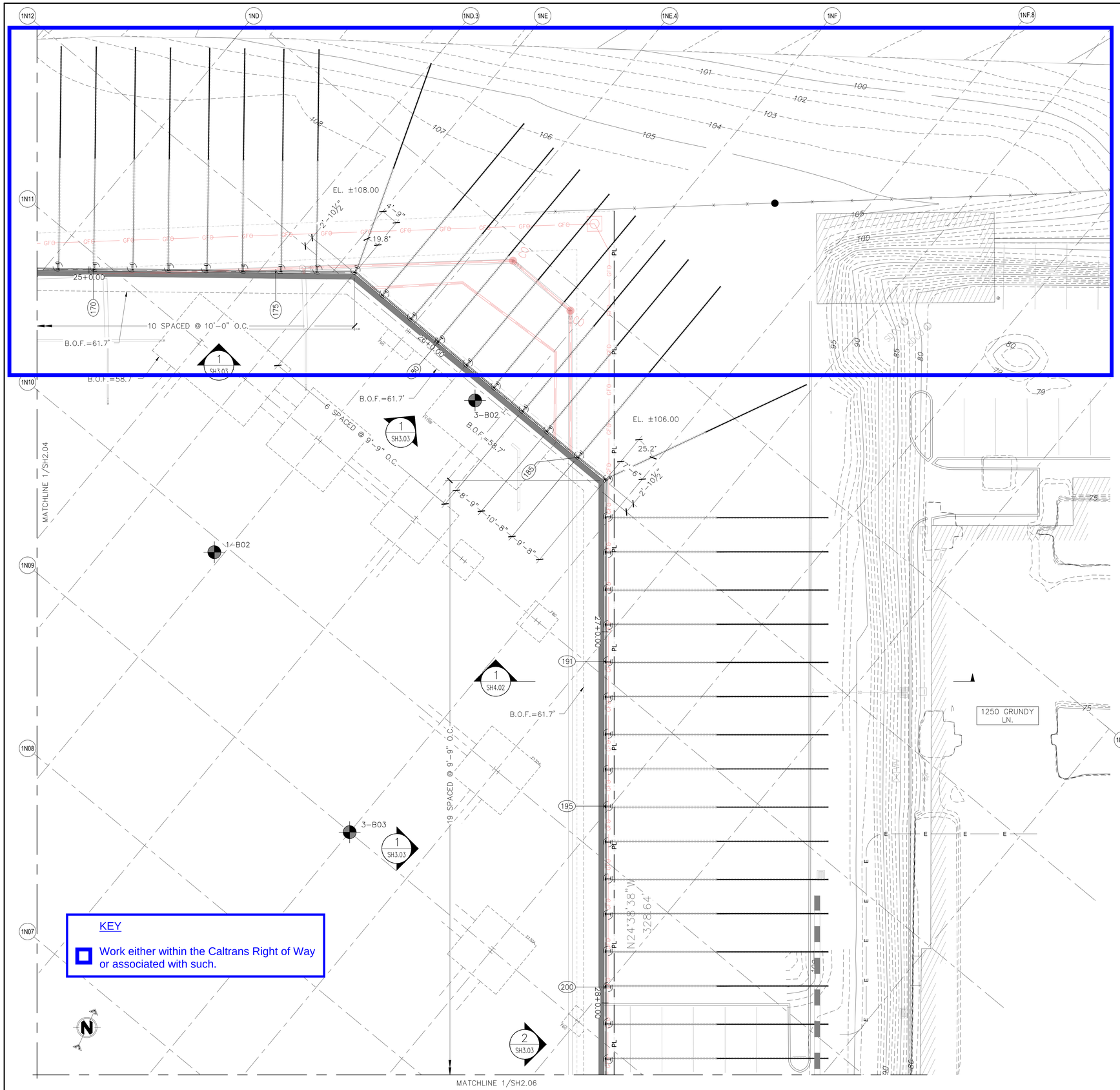


SHEET TITLE

SHORING PLAN

PROJECT NO. 192300	
SCALE: AS INDICATED	DATE: 09/21/2020
CHECKED BY: PB/BM	DRAWN BY: ML
SHEET NO.	SH2.04

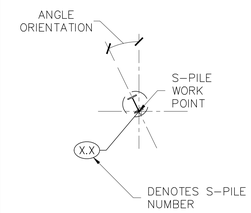
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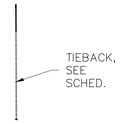


1 PARTIAL SHORING PLAN

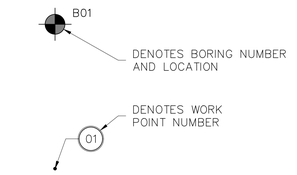
SCALE: 3/32" = 1'-0"

LEGENDS:





XX.XX — DENOTES PAD ELEVATION



1. TOP OF SLAB EL.= 66.2' (66'-2¼")
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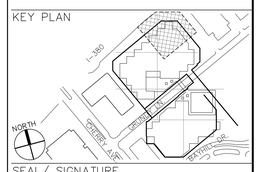
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CASE PACIFIC

KEY PLAN



SEAL/ SIGNATURE

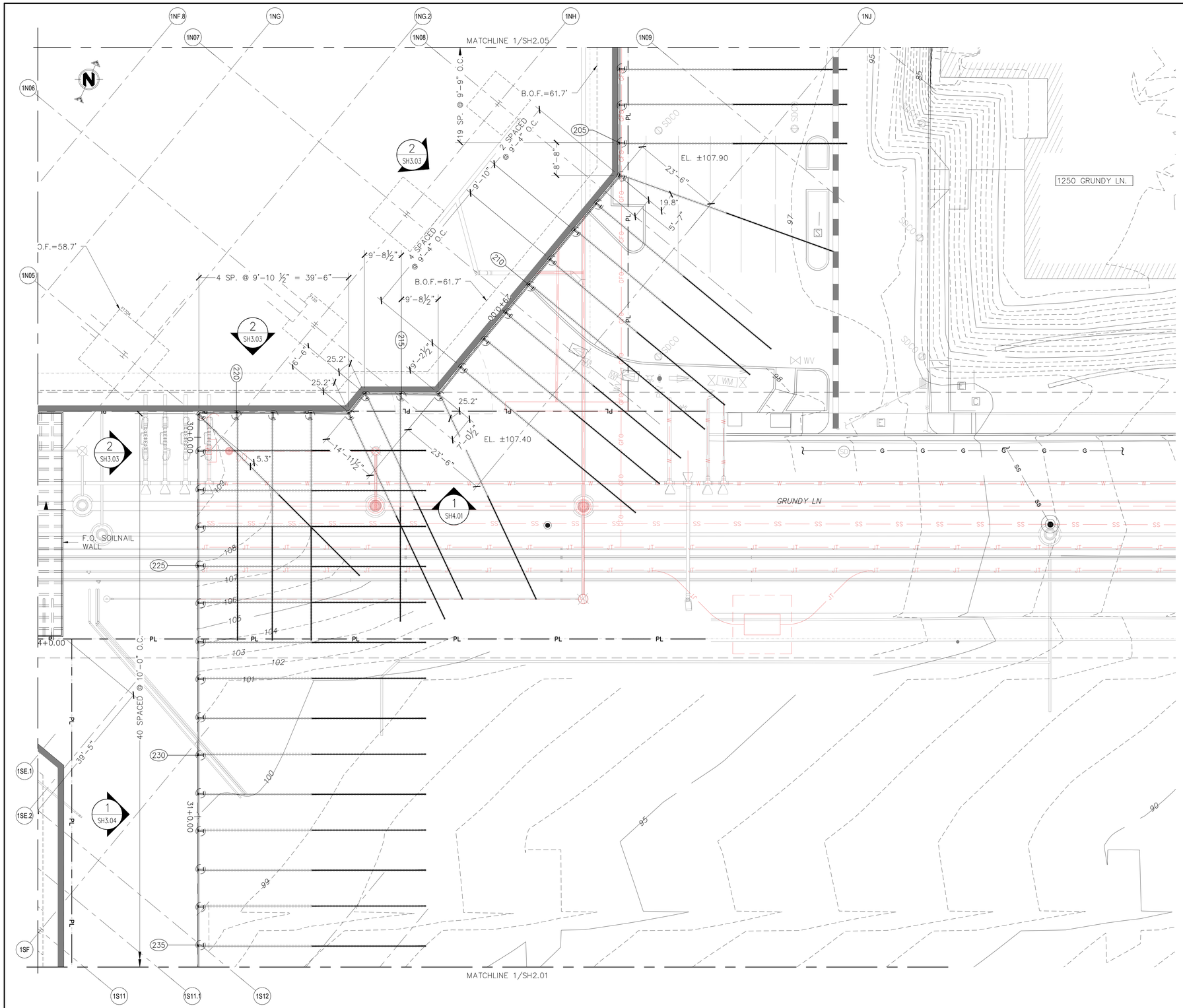


SHEET TITLE

SHORING PLAN

PROJECT NO. 192300	
SCALE: AS INDICATED	DATE: 09/21/2020
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SHEET NO.	SH2.05

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1 PARTIAL SHORING PLAN

SCALE: 3/32" = 1'-0"

LEGENDS:

ANGLE ORIENTATION

S-PILE WORK POINT

X.X — DENOTES S-PILE NUMBER

TIEBACK, SEE SCHED.

XX.XX — DENOTES PAD ELEVATION

B01 — DENOTES BORING NUMBER AND LOCATION

01 — DENOTES WORK POINT NUMBER

DENOTES GRADE BEAM/ FOUNDATION LINE

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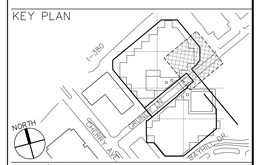
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CASE PACIFIC

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SHEET TITLE

SHORING PLAN

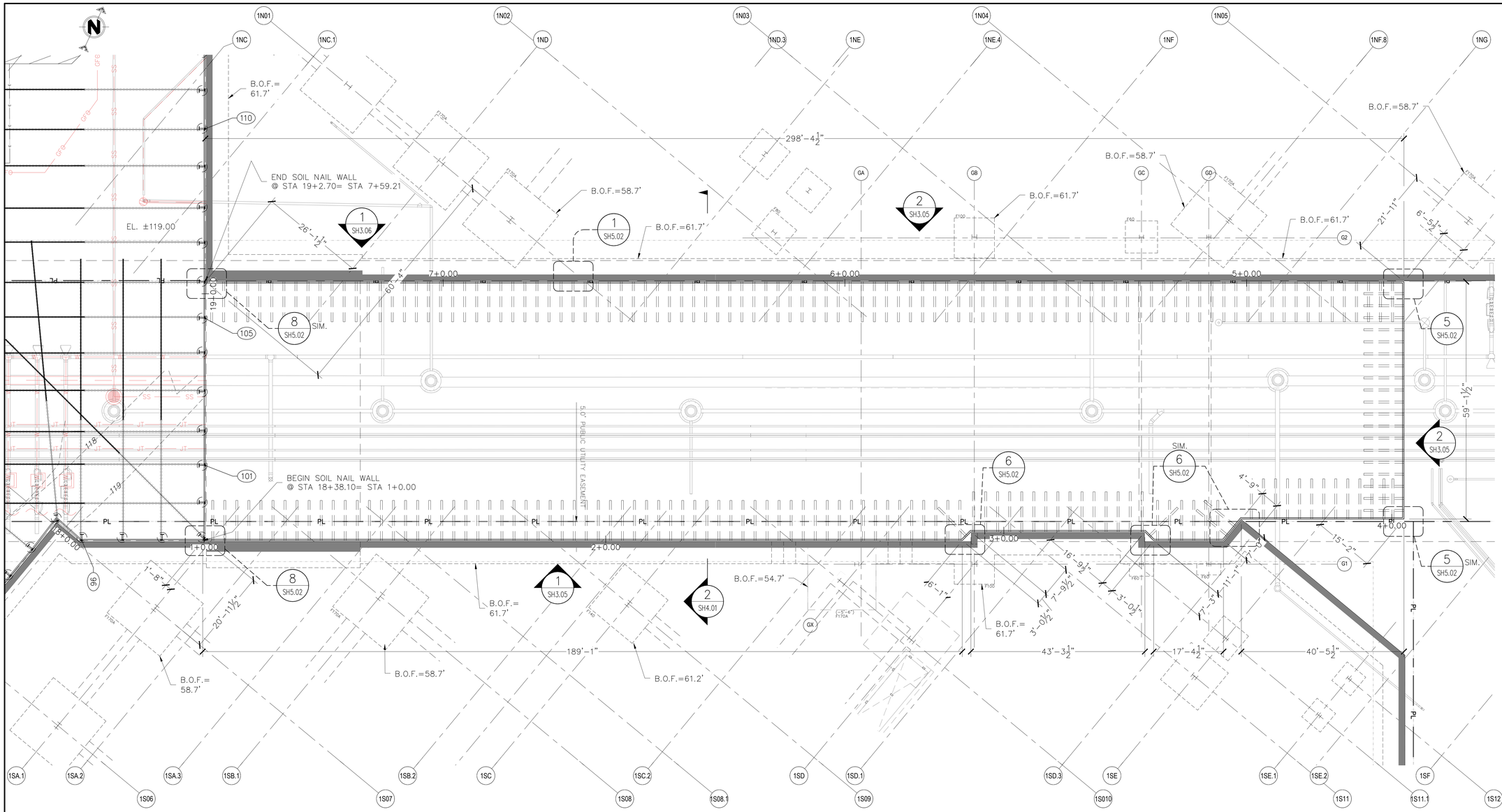
PROJECT NO. 192300

SCALE:	DATE:
AS INDICATED	09/21/2020
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SHEET NO.

SH2.06

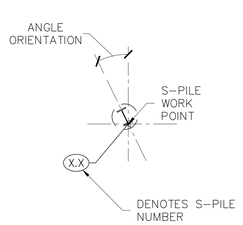
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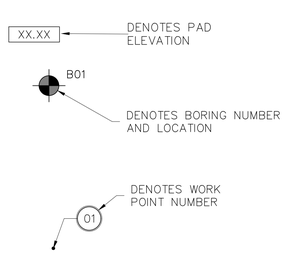


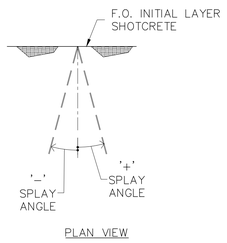
1 PARTIAL SHORING PLAN

SCALE: 3/32" = 1'-0"

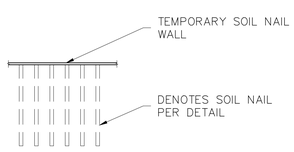
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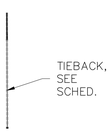


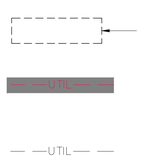


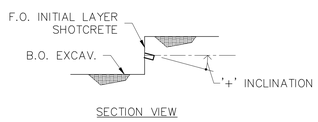


PLAN VIEW









SECTION VIEW

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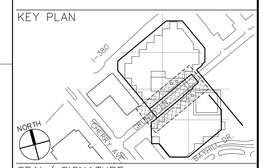
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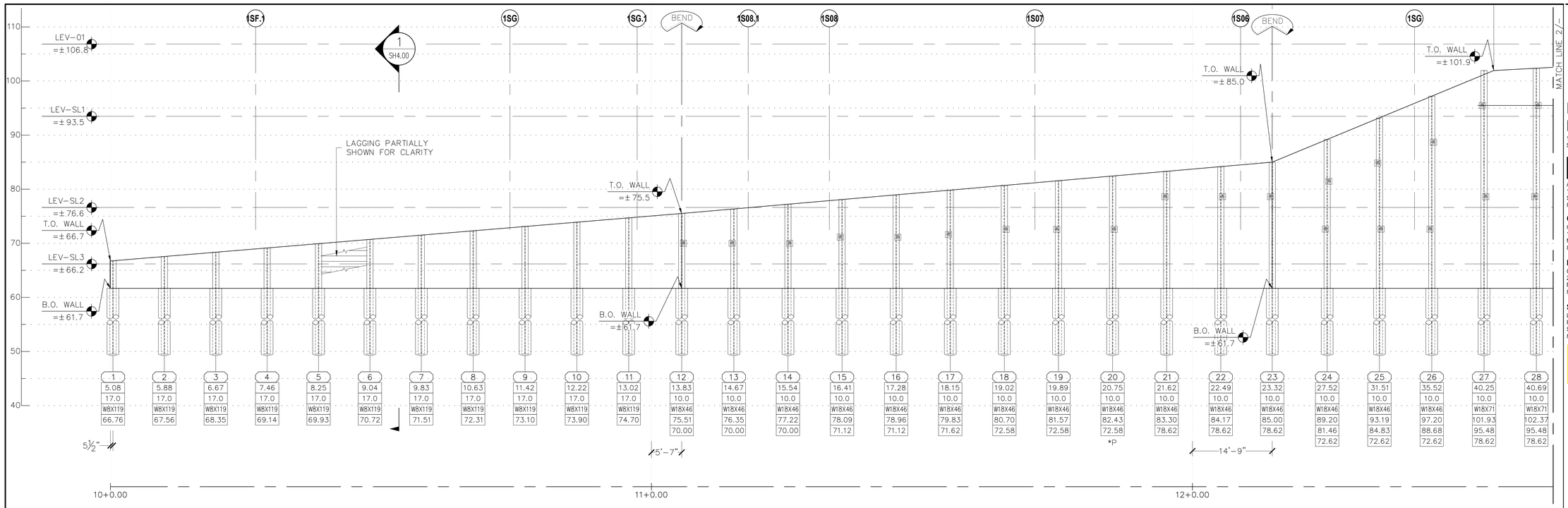
SHEET TITLE

SHORING PLAN

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SCALE: AS INDICATED	DATE: 09/21/2020
CHECKED BY: PB/BM	DRAWN BY: ML
SHEET NO.	

SH2.07

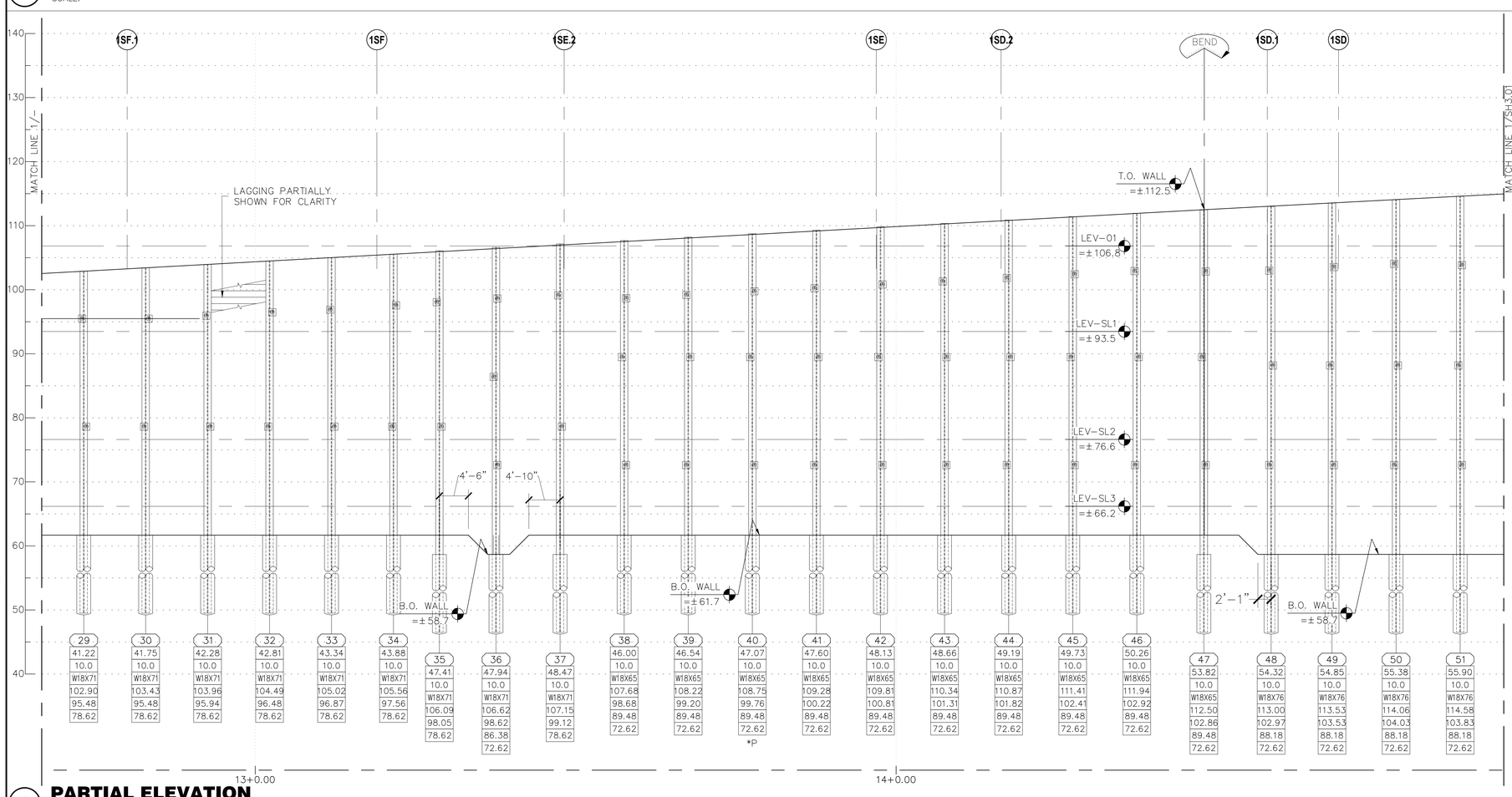
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5.08	5.88	6.67	7.46	8.25	9.04	9.83	10.63	11.42	12.22	13.02	13.83	14.67	15.54	16.41	17.28	18.15	19.02	19.89	20.75	21.62	22.49	23.32	27.52	31.51	35.52	40.25	40.69
17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	17.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
W8X119	W8X119	W8X119	W8X119	W8X119	W8X119	W8X119	W8X119	W8X119	W8X119	W8X119	W18X46	W18X46	W18X46	W18X46	W18X46	W18X46	W18X46	W18X46	W18X46	W18X46	W18X46	W18X46	W18X46	W18X46	W18X46	W18X71	W18X71
66.76	67.56	68.35	69.14	69.93	70.72	71.51	72.31	73.10	73.90	74.70	75.51	76.35	77.22	78.09	78.96	79.83	80.70	81.57	82.43	83.30	84.17	85.00	89.20	93.19	97.20	101.93	102.37
											70.00	70.00	70.00	71.12	71.12	71.62	72.58	72.58	72.58	78.62	78.62	78.62	81.46	84.83	88.68	95.48	95.48
																			*P				72.62	72.62	72.62	78.62	78.62

1 PARTIAL ELEVATION

SCALE: 1/8" = 1'-0"

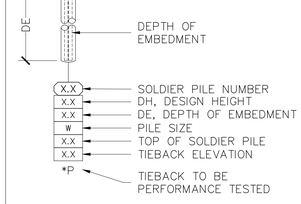


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10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
W18X71	W18X71	W18X71	W18X71	W18X71	W18X71	W18X71	W18X71	W18X71	W18X65	W18X65	W18X65	W18X65	W18X65	W18X65	W18X65	W18X65	W18X65	W18X65	W18X76	W18X76	W18X76	W18X76
102.90	103.43	103.96	104.49	105.02	105.56	106.09	106.62	107.15	107.68	108.22	108.75	109.28	109.81	110.34	110.87	111.41	111.94	112.50	113.00	113.53	114.06	114.58
95.48	95.48	95.94	96.48	96.87	97.56	98.05	98.62	99.12	98.68	99.20	99.76	100.22	100.81	101.31	101.82	102.41	102.92	102.86	102.97	103.53	104.03	103.83
78.62	78.62	78.62	78.62	78.62	78.62	78.62	86.38	78.62	89.48	89.48	89.48	89.48	89.48	89.48	89.48	89.48	89.48	89.48	88.18	88.18	88.18	88.18
							72.62		72.62	72.62	72.62	72.62	72.62	72.62	72.62	72.62	72.62	72.62	72.62	72.62	72.62	72.62

1 PARTIAL ELEVATION

SCALE: 1/8" = 1'-0"

LEGENDS:



NOTES:

1. SEE SH6.00 TO SH6.02 FOR TIEBACK SCHEDULES.
2. LAGGINGS ARE 4X12 TYPICAL FOR SPACING LESS THAN AND EQUAL TO 10'-6".
3. LAGGINGS ARE DOUBLE LAYER OF 4X12 FOR SPACING MORE THAN 10'-0".

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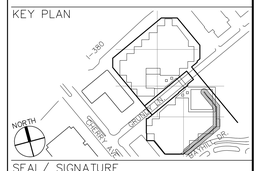
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KEY PLAN



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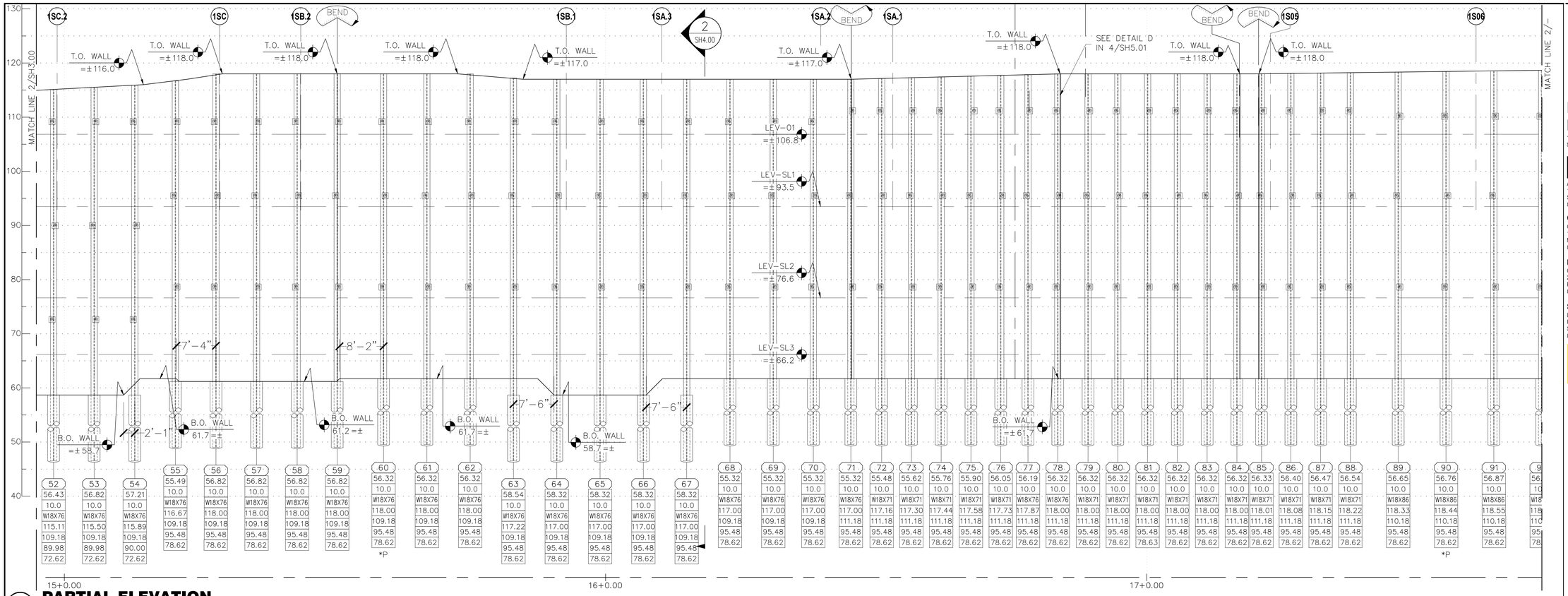
SHORING ELEVATIONS

PROJECT NO. 192300	
SCALE: AS INDICATED	DATE: 09/21/2020
CHECKED BY: PB/BM	DRAWN BY: ML

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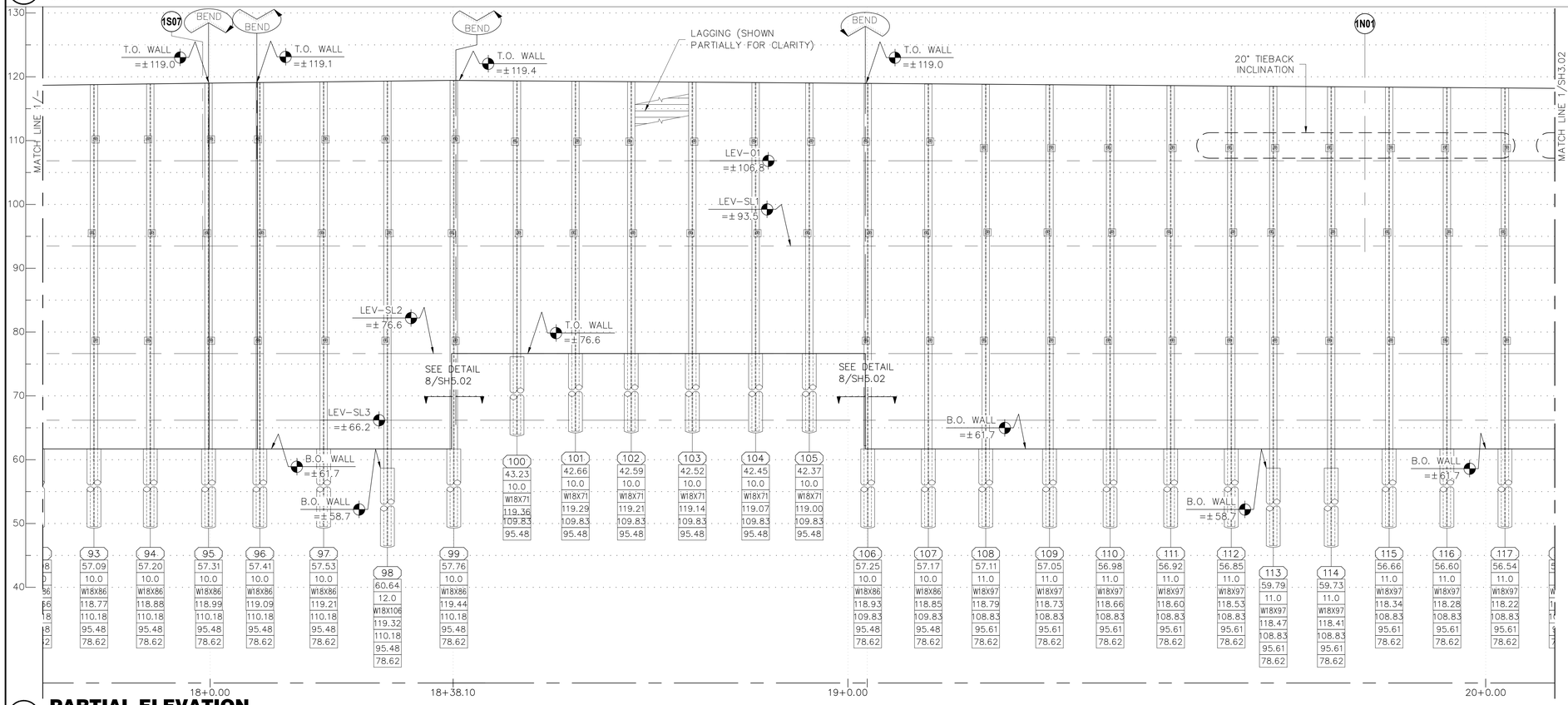
SH3.00

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1 PARTIAL ELEVATION

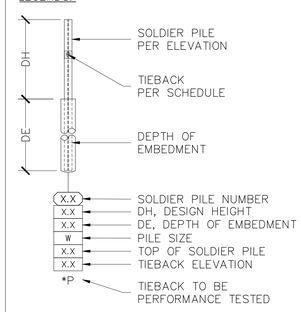
SCALE: 1/8" = 1'-0"



2 PARTIAL ELEVATION

SCALE: 1/8" = 1'-0"

LEGENDS:



NOTES:

1. SEE SH6.00 TO SH6.02 FOR TIEBACK SCHEDULES.
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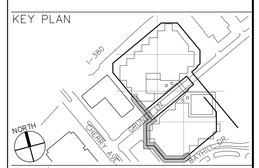
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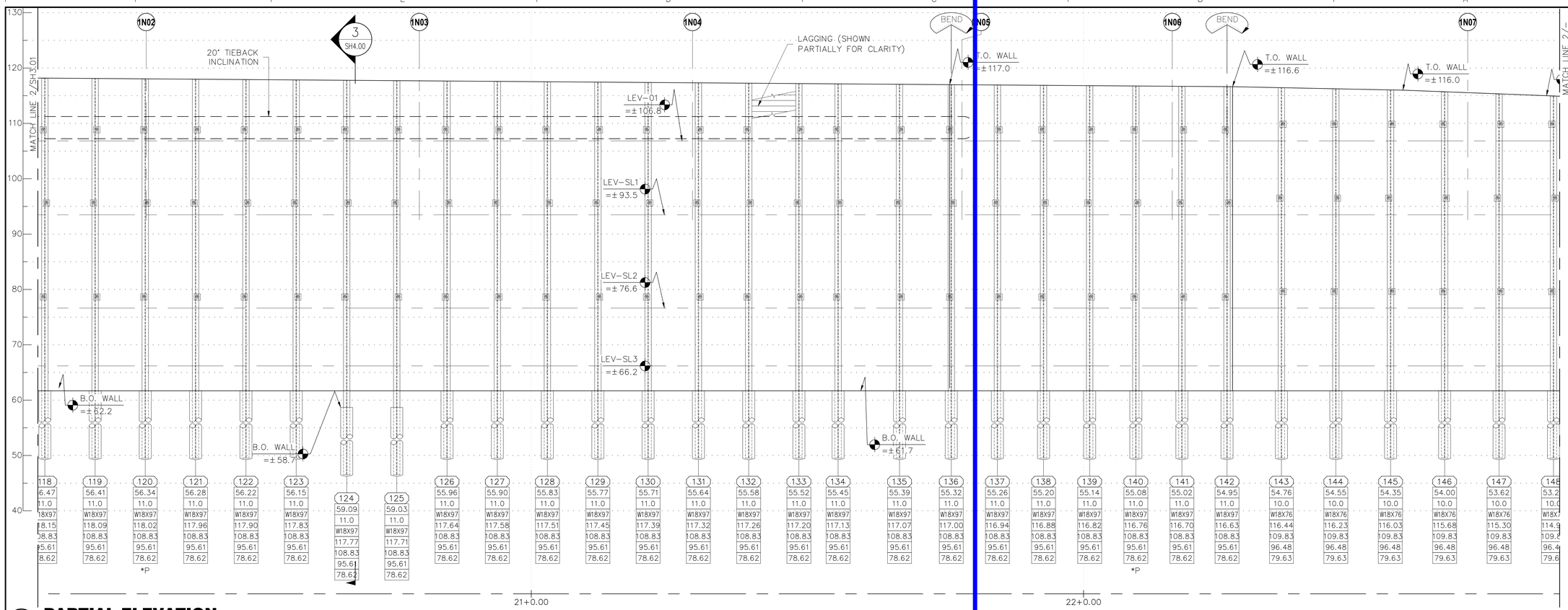


SHEET TITLE

SHORING ELEVATIONS

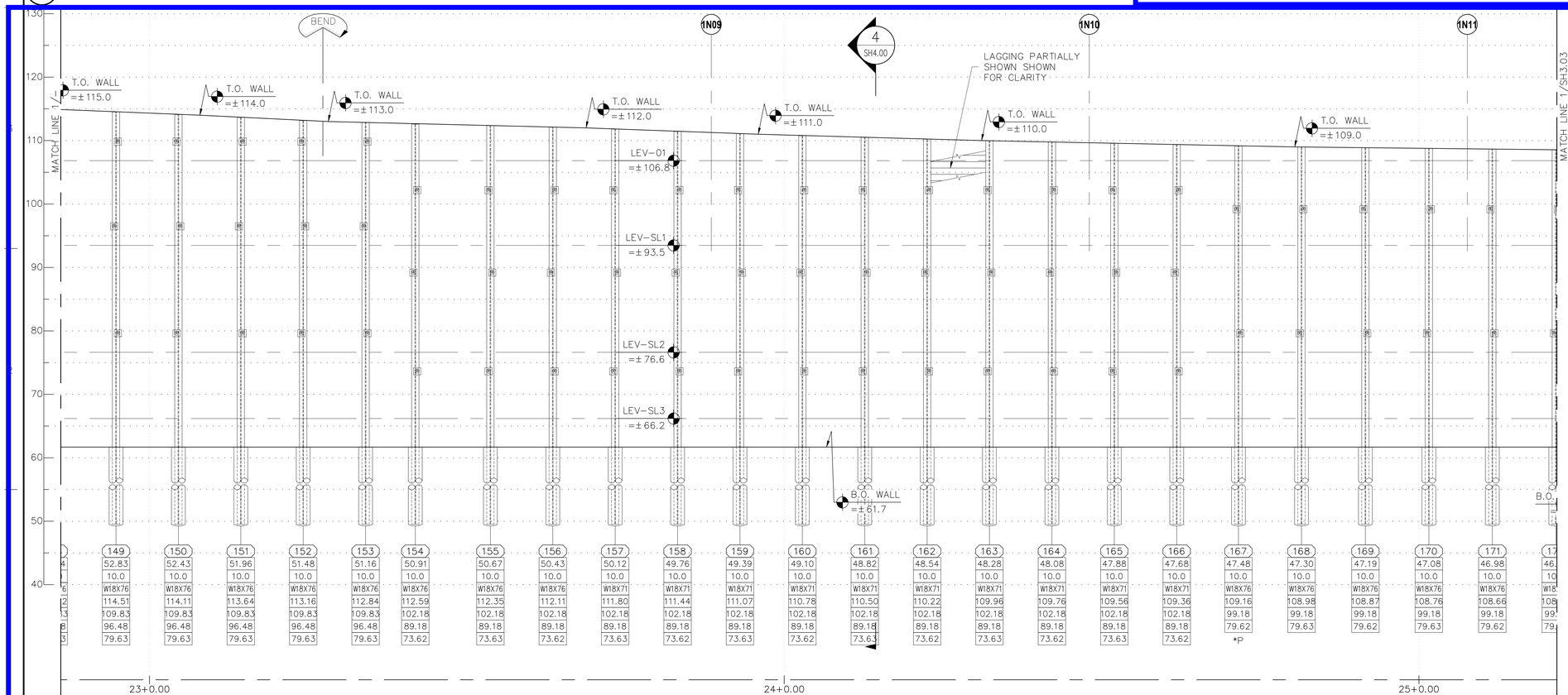
PROJECT NO. 192300	
SCALE: AS INDICATED	DATE: 09/21/2020
CHECKED BY: PB/BM	DRAWN BY: ML
SHEET NO.	SH3.01

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1 PARTIAL ELEVATION

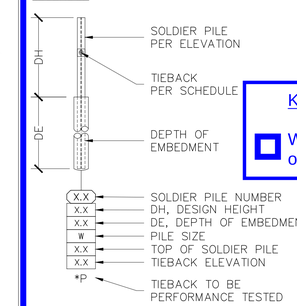
SCALE: 1/8" = 1'–0"



2 PARTIAL ELEVATION

SCALE: 1/8" = 1'–0"

LEGENDS:



NOTES:

1. SEE SH6.00 TO SH6.02 FOR TIEBACK SCHEDULES.
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3. LAGGINGS ARE DOUBLE LAYER OF 4X12 FOR SPACING MORE THAN 10'–0".

KEY

Work either within the Caltrans Right of Way or associated with such.

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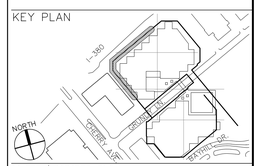
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SHORING ELEVATIONS

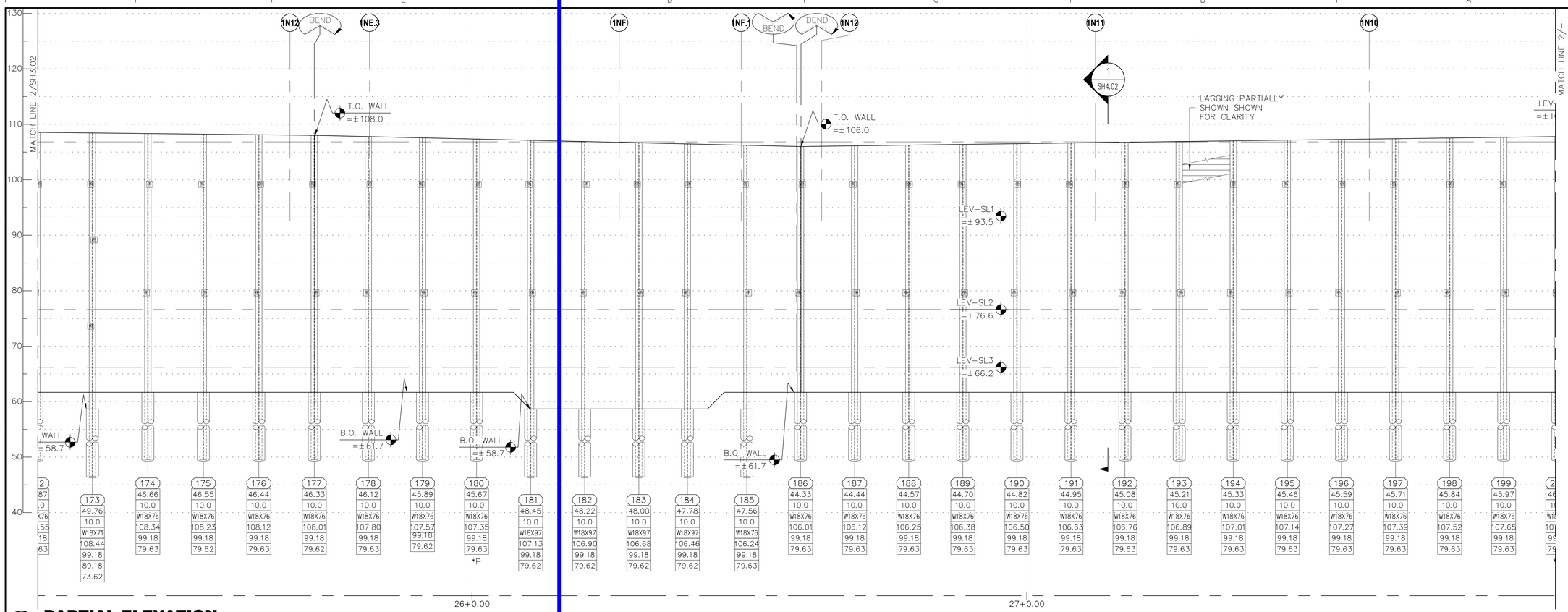
PROJECT NO.
192300

SCALE: AS INDICATED
DATE: 09/21/2020
CHECKED BY: PB/BM
DRAWN BY: ML

SHEET NO.

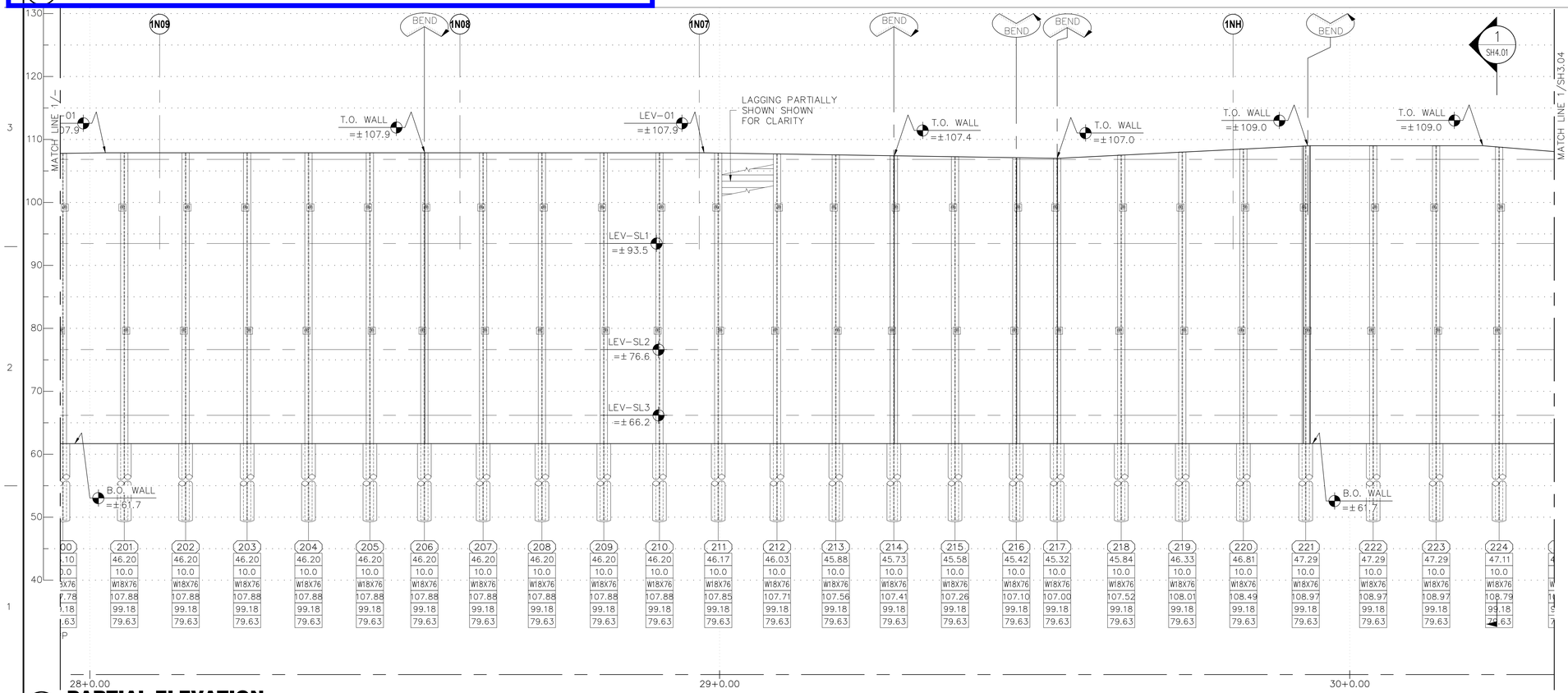
SH3.02

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1 PARTIAL ELEVATION

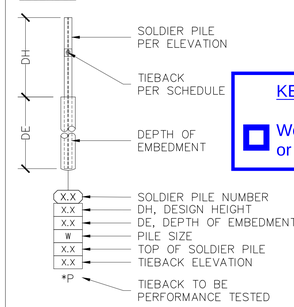
SCALE: 1/8" = 1'-0"



2 PARTIAL ELEVATION

SCALE: 1/8" = 1'-0"

LEGENDS:



NOTES:

1. SEE SH6.00 TO SH6.02 FOR TIEBACK SCHEDULES.
2. LAGGINGS ARE 4X12 TYPICAL FOR SPACING LESS THAN AND EQUAL TO 10'–6".
3. LAGGINGS ARE DOUBLE LAYER OF 4X12 FOR SPACING MORE THAN 10'–0".

KEY

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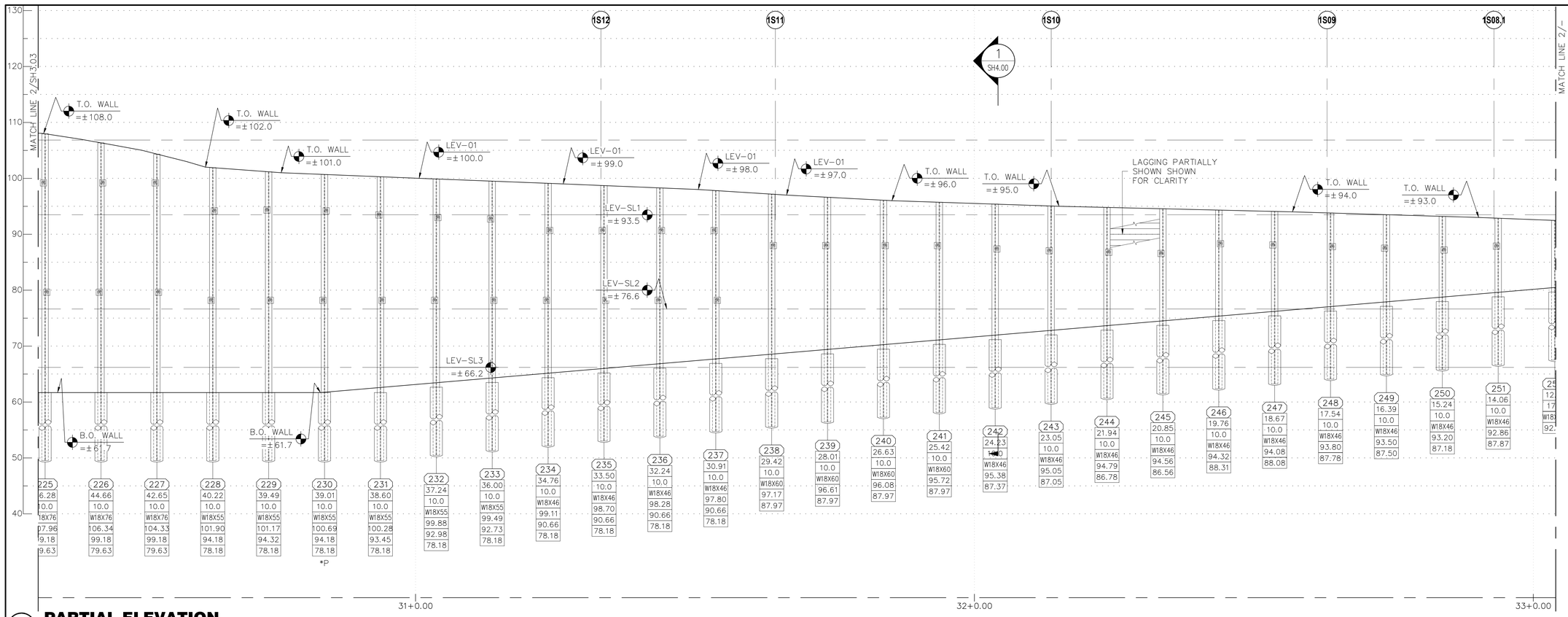


SHEET TITLE

SHORING ELEVATIONS

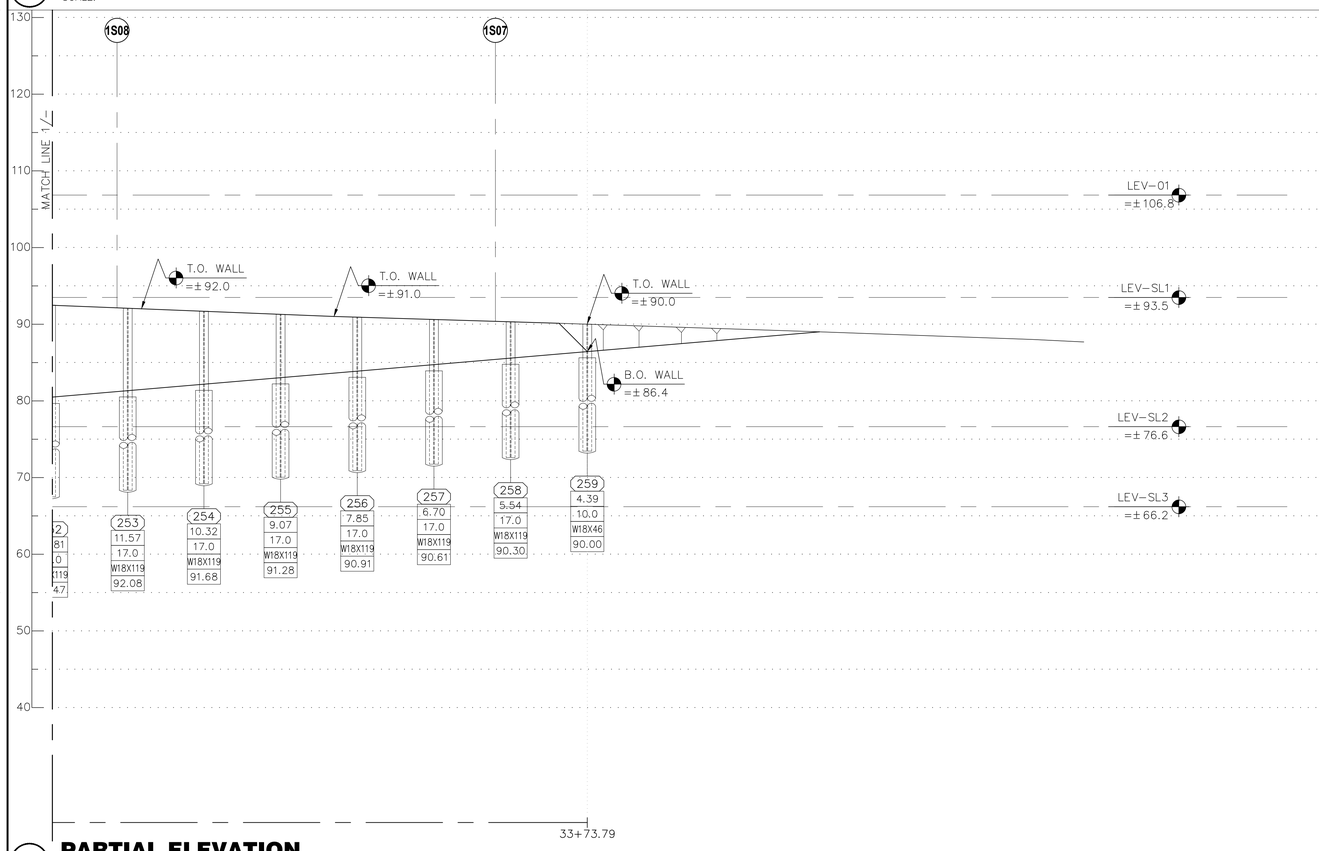
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CHECKED BY: PB/BM	DRAWN BY: ML
SHEET NO.	SH3.03

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1 PARTIAL ELEVATION

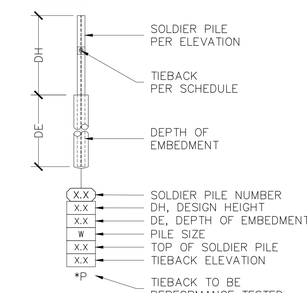
SCALE: 1/8" = 1'–0"



2 PARTIAL ELEVATION

SCALE: 1/8" = 1'–0"

LEGENDS:



NOTES:

1. SEE SH6.00 TO SH6.02 FOR TIEBACK SCHEDULES.
2. LAGGINGS ARE 4X12 TYPICAL FOR SPACING LESS THAN AND EQUAL TO 10'–6".
3. LAGGINGS ARE DOUBLE LAYER OF 4X12 FOR SPACING MORE THAN 10'–0".

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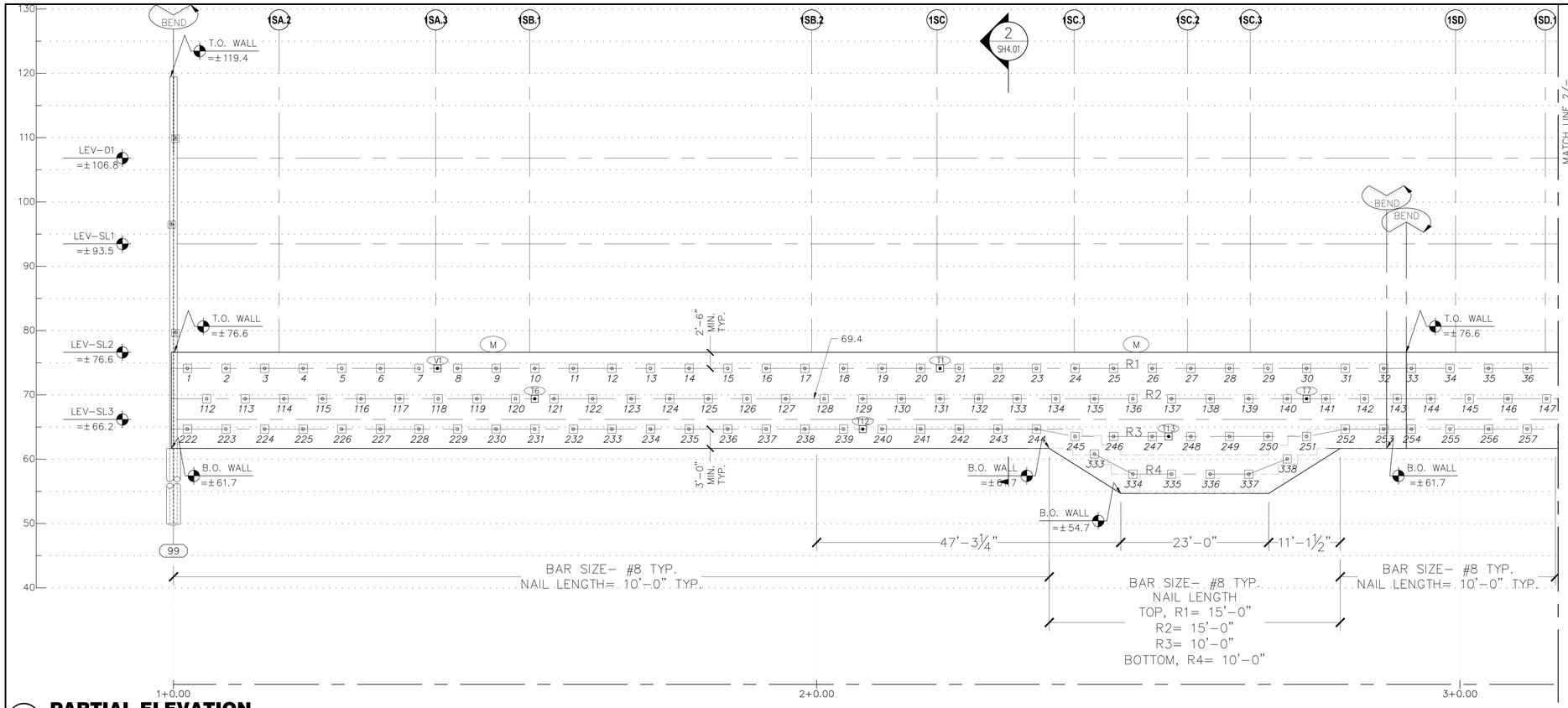


SHEET TITLE

SHORING ELEVATIONS

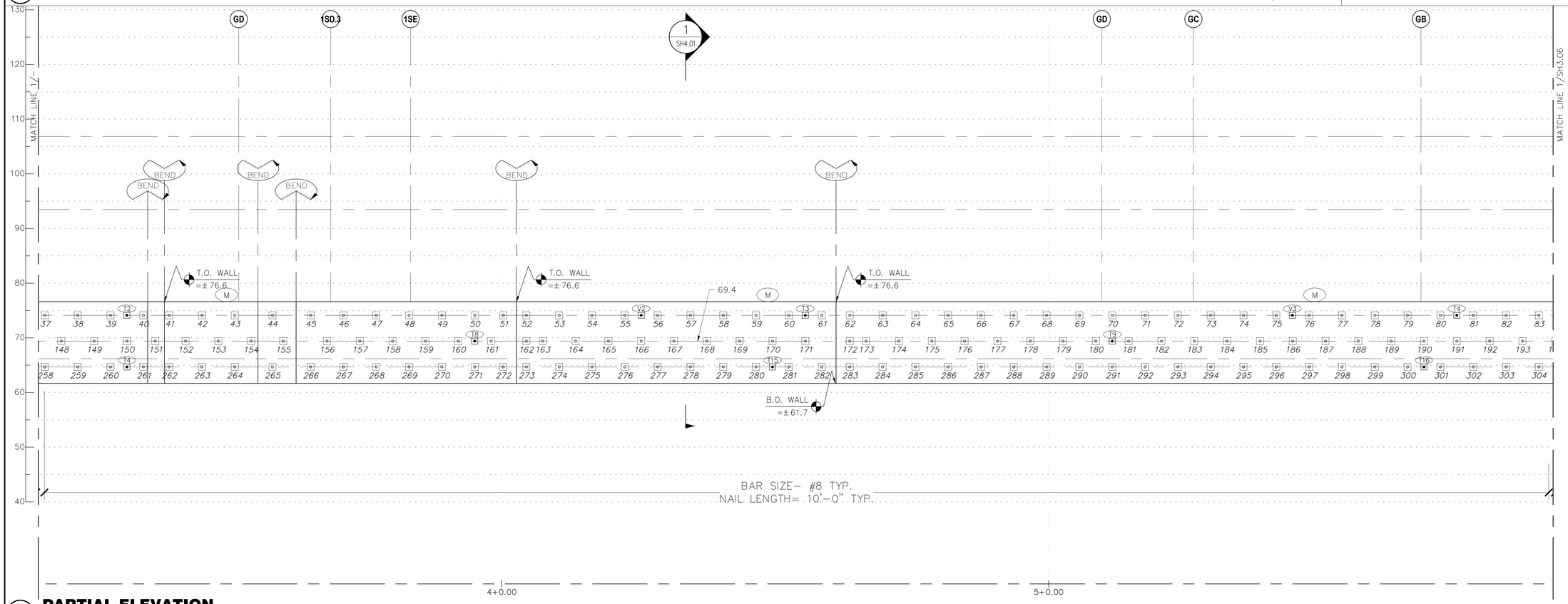
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CHECKED BY: PB/BM	DRAWN BY: ML
SHEET NO.	SH3.04

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1 PARTIAL ELEVATION

SCALE: 1/8" = 1'-0"



2 PARTIAL ELEVATION

SCALE: 1/8" = 1'-0"

LEGENDS:

- SOIL NAIL / 1 — SOIL NAIL NUMBER
- T1 — PROOF TEST NAIL
- V1 — VERIFICATION TEST NAIL
- M — SUGGESTED LOCATION OF MONITORING POINT

NOTE:

1. SHOTCRETE FACING IS 4" THICK TYPICAL.

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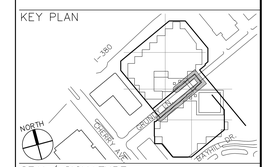
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REGISTERED PROFESSIONAL ENGINEER PATRICK BARRETT CE 26101 SE 2502 Exp.03/31/22 CIVIL STRUCTURAL STATE OF CALIFORNIA

SHEET TITLE

SHORING ELEVATIONS

PROJECT NO. 192300

SCALE: AS INDICATED

DATE: 09/21/2020

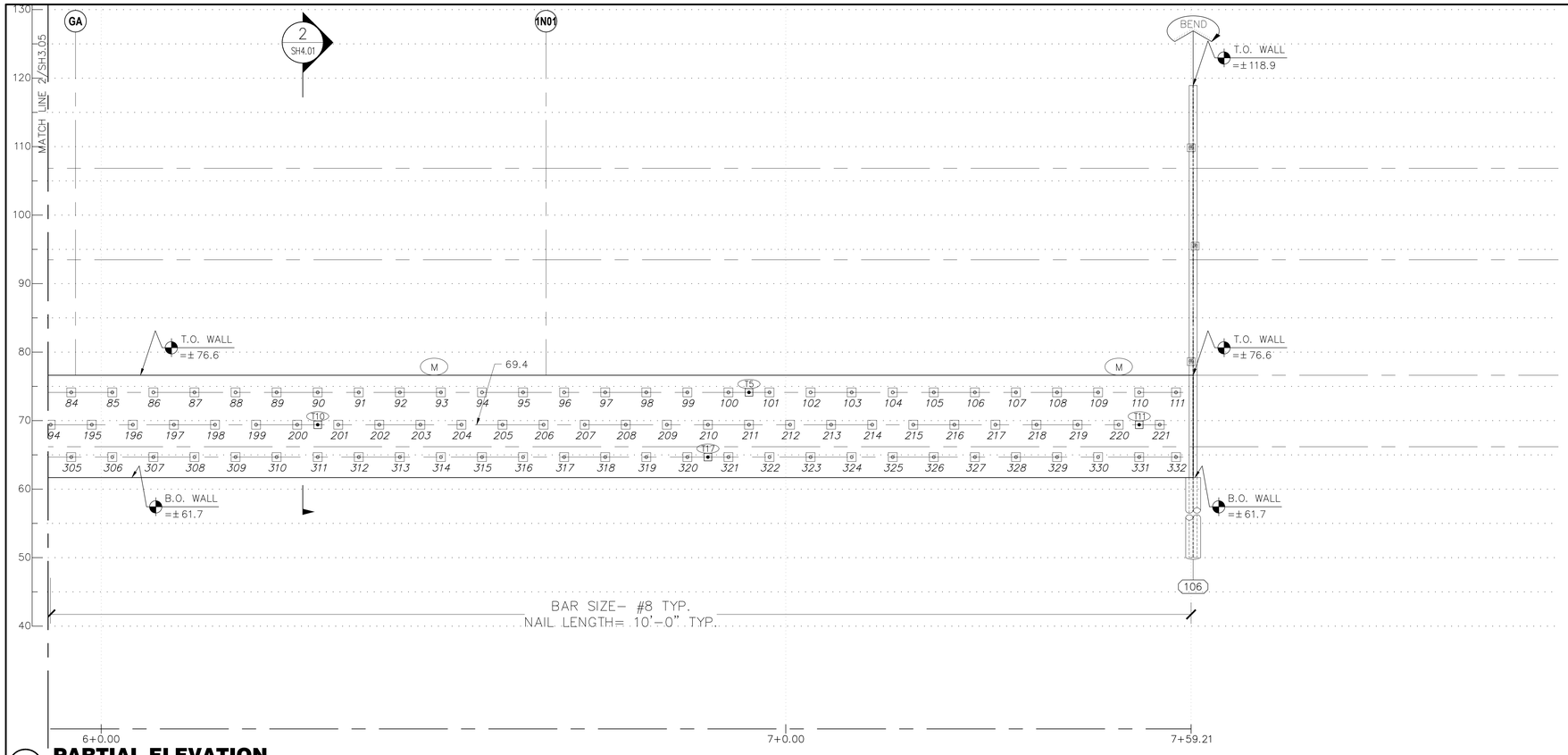
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DRAWN BY: ML

SHEET NO.

SH3.05

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1 PARTIAL ELEVATION

SCALE: 1/8" = 1'-0"

LEGENDS:

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- V1 — VERIFICATION TEST NAIL
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NOTE:

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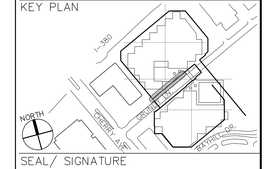
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SHORING ELEVATION

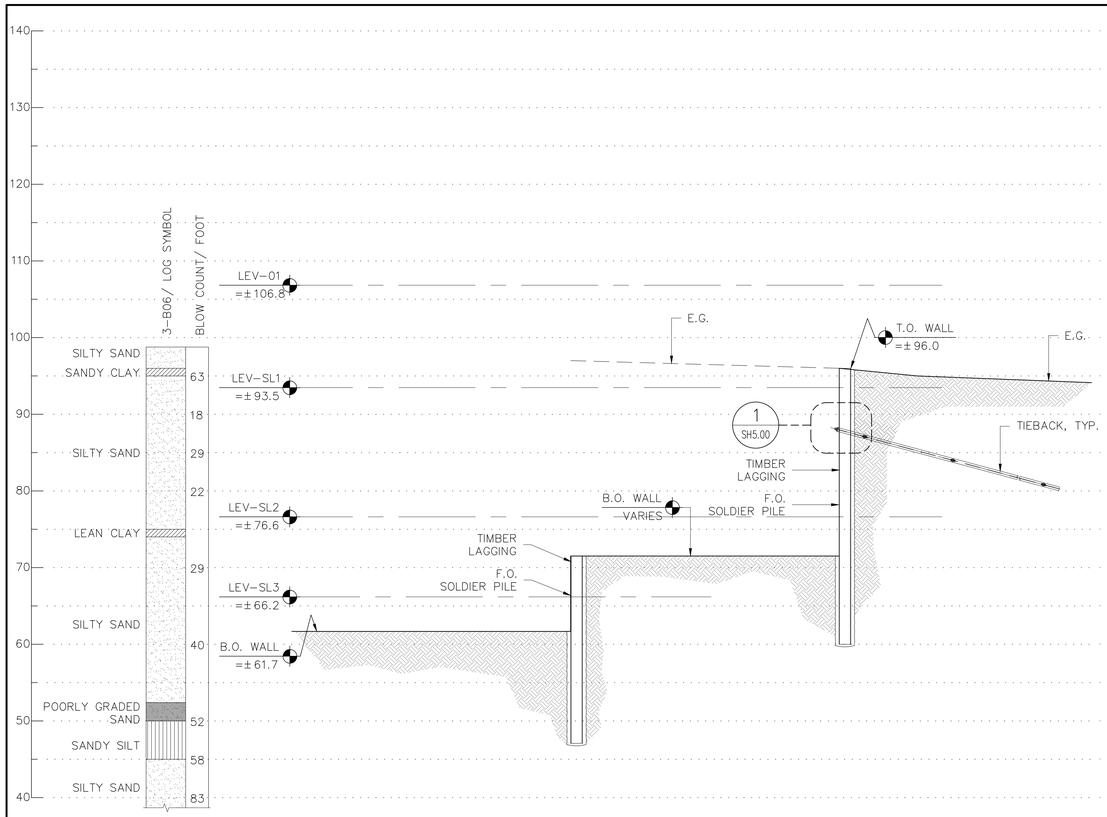
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192300

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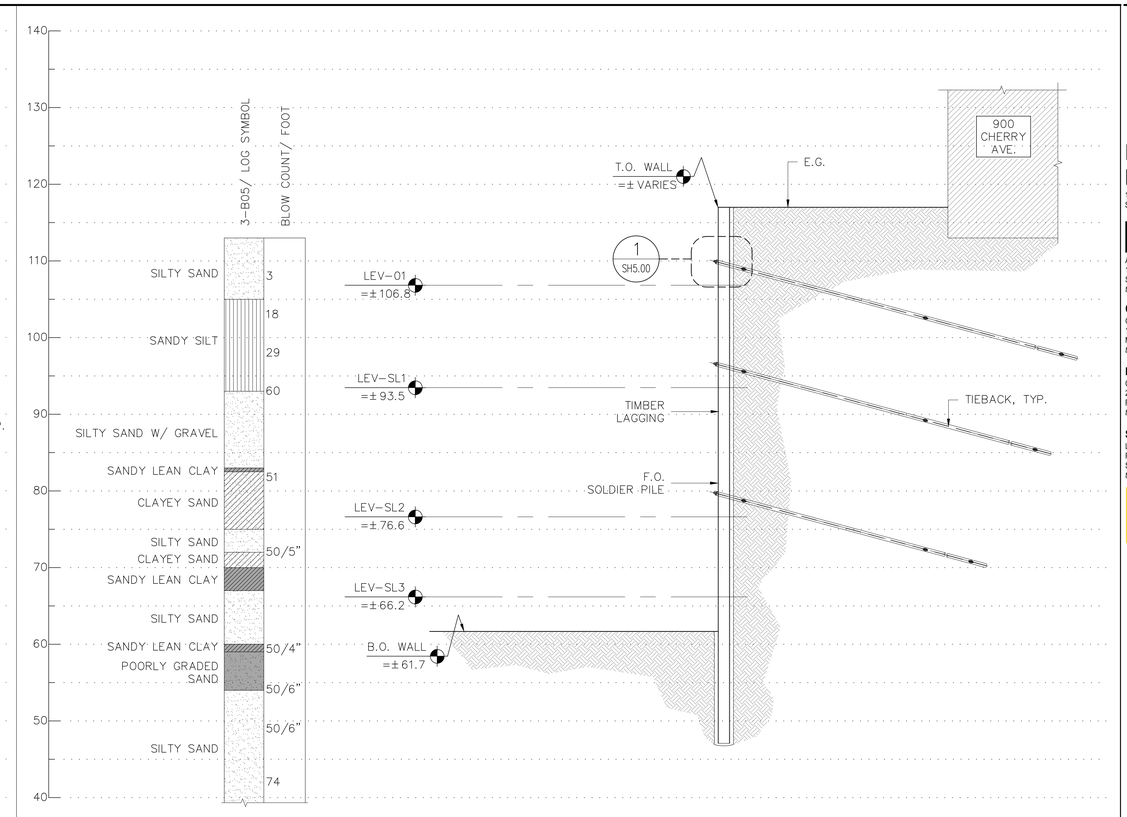
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SH3.06

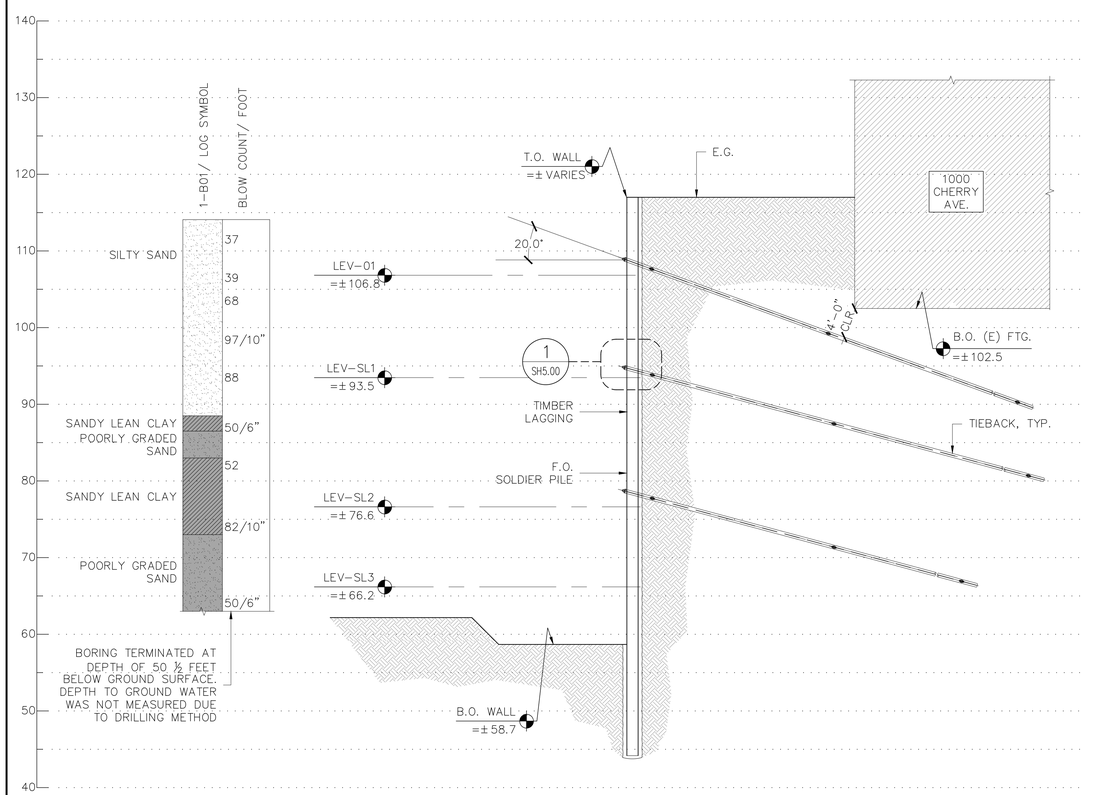
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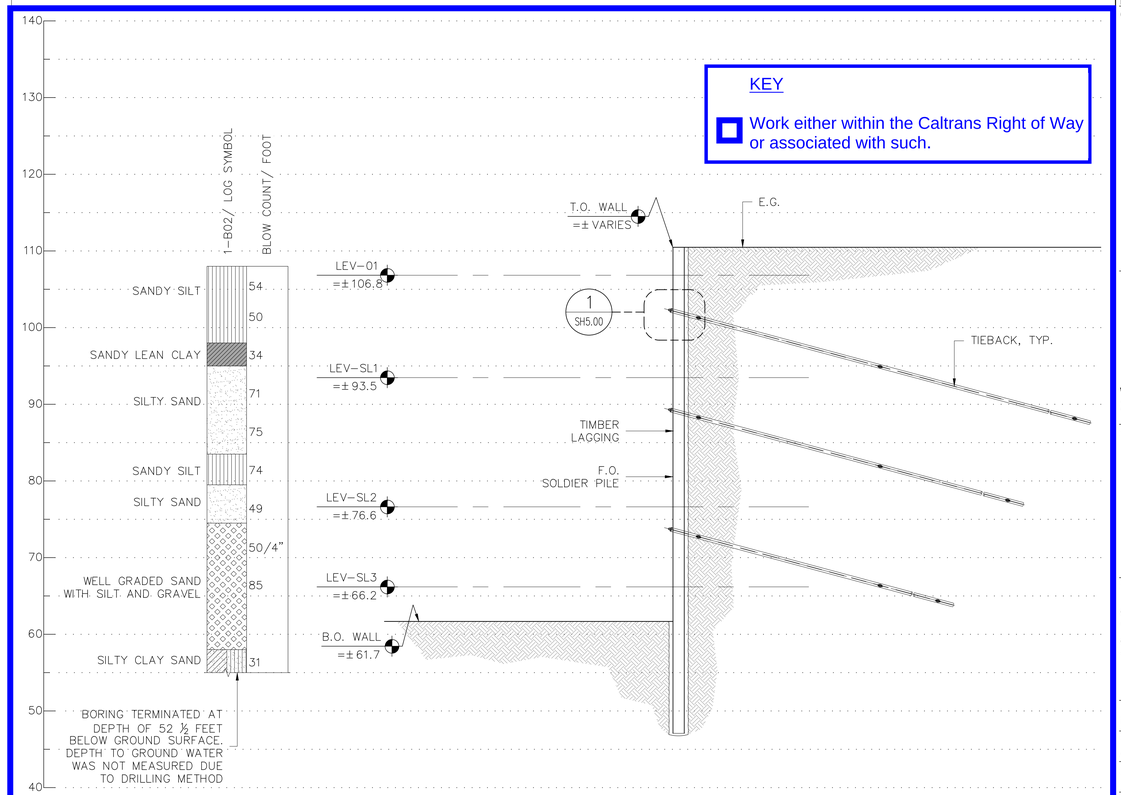
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SCALE: 1/8" = 1'-0"



2 SECTION
SCALE: 1/8" = 1'-0"



3 SECTION
SCALE: 1/8" = 1'-0"



4 SECTION
SCALE: 1/8" = 1'-0"

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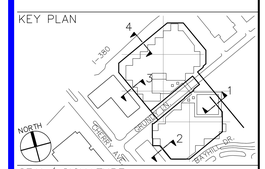
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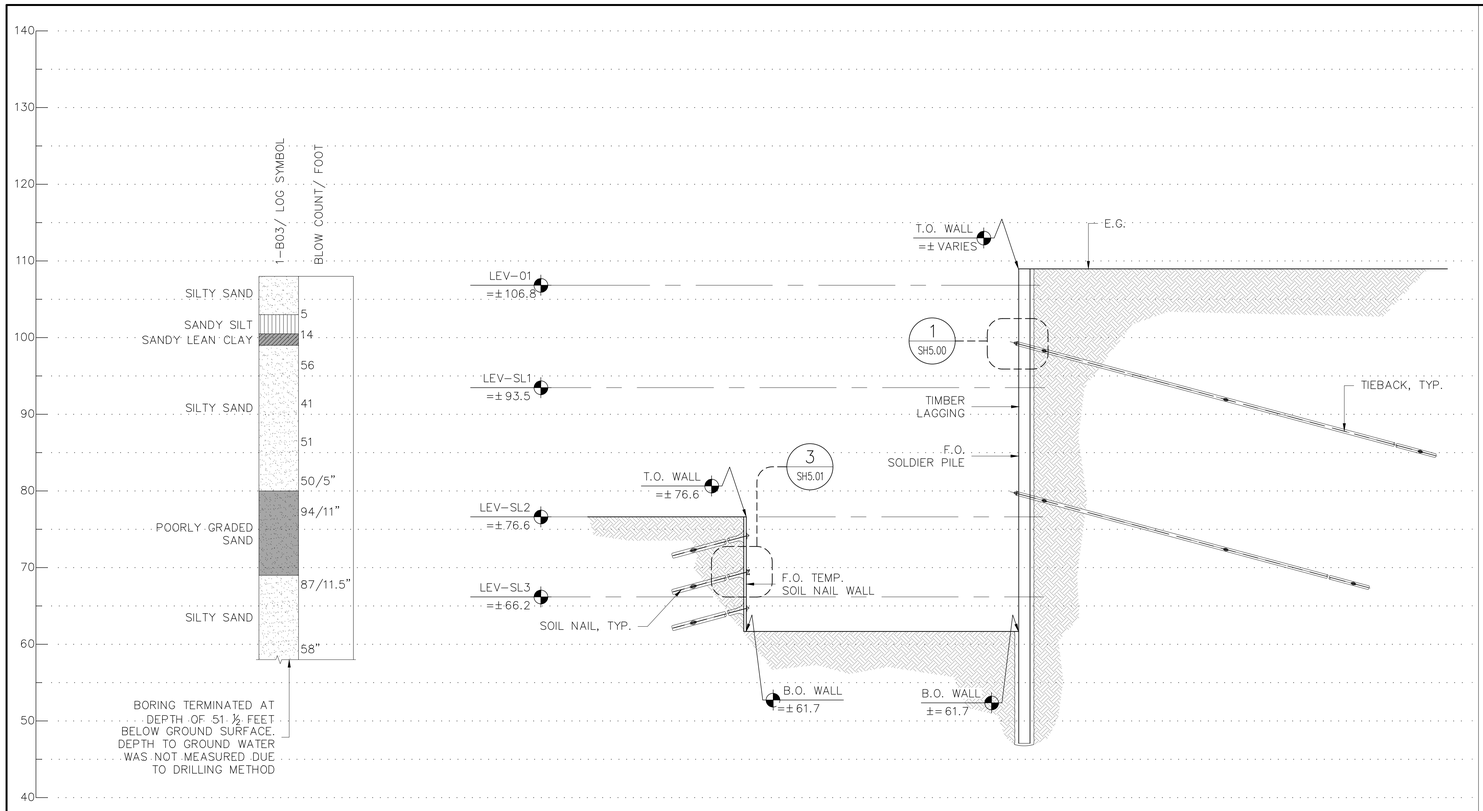
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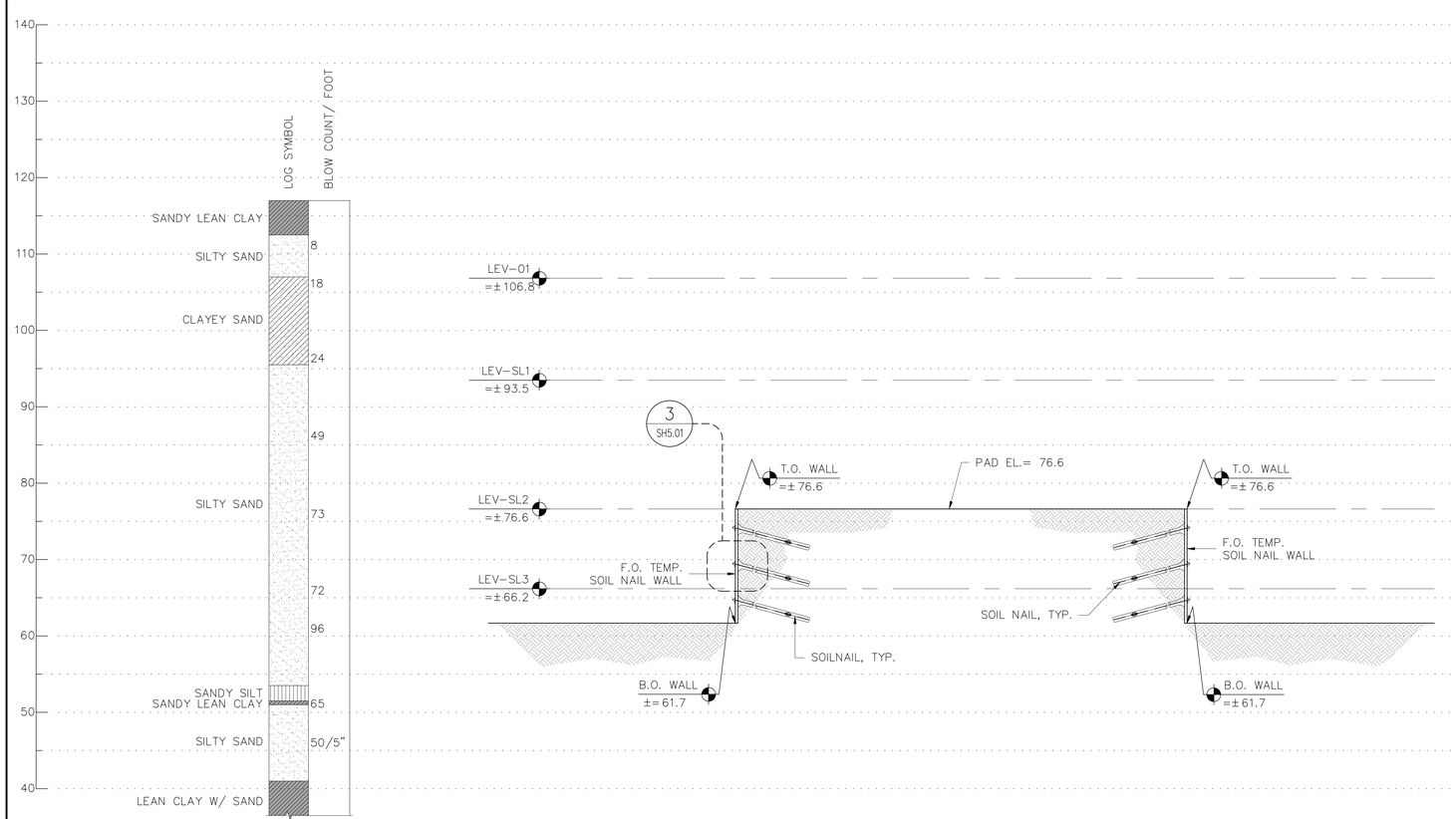
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2 SECTION
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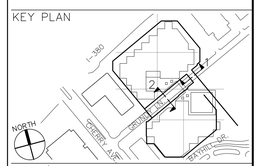
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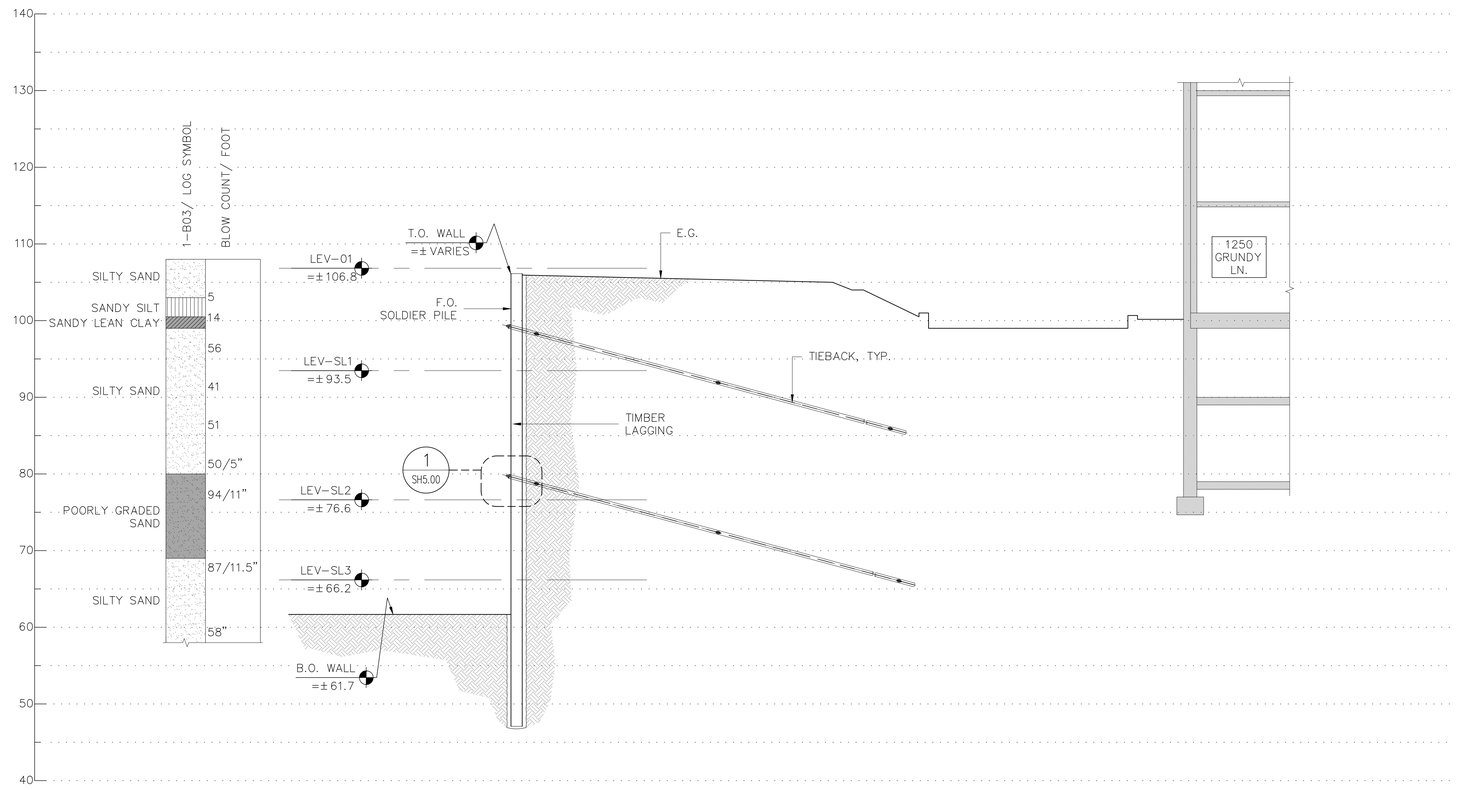
SHORING SECTIONS

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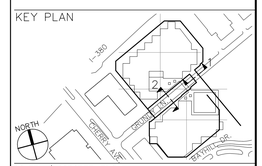
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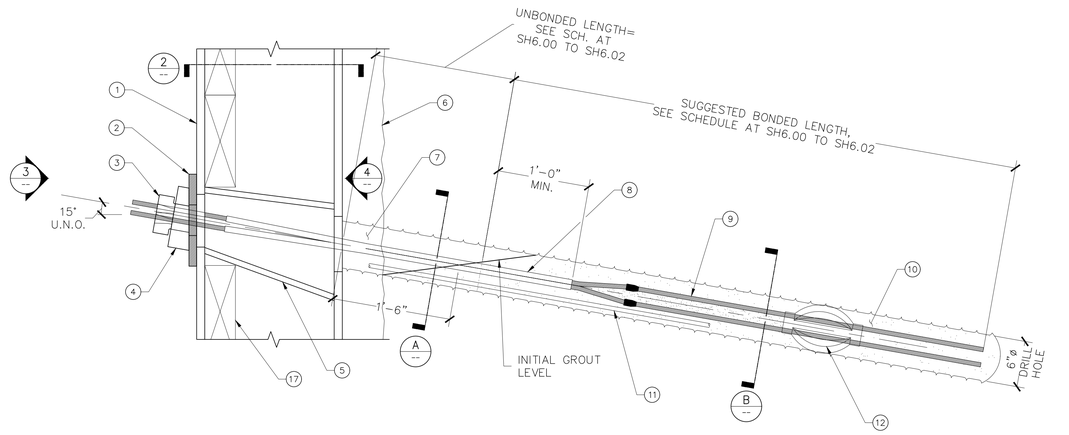
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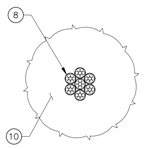
KEY PLAN





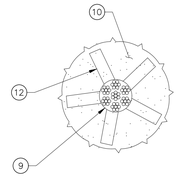
1 TEMPORARY TIEBACK DETAIL

SCALE: 1 1/2" = 1'-0"



A ANCHOR SECTION AT UNBONDED LENGTH

SCALE: 3" = 1'-0"

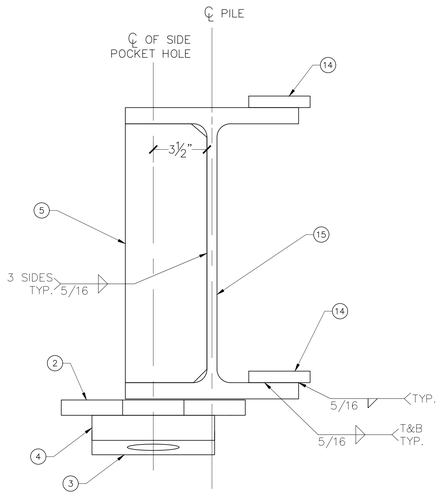


B ANCHOR SECTION AT BONDED LENGTH

SCALE: 3" = 1'-0"

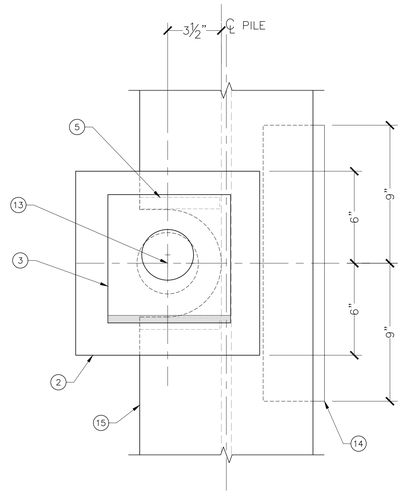
LEGEND

1. FACE OF PILE
2. 12" SQ. FRONT BEARING PL W/ CENTERED HOLE (TO BE DETERMINED BY MANU. SPEC.)
   UPTO 4 STRANDS, USE 1½" THICK PL.
   MORE THAN 4 STRANDS, USE 2" THICK PL.
3. WEDGE GRIPPER
4. 8" SQ. WEDGE PLATE SEAT
5. ¾" THICK STIFFENER PL
6. BACK OF DRILLED HOLE
7. LEAVE GAP IN GROUT BEHIND SOLDIER PILE FINAL GROUT TO BE FILLED AFTER TESTING
8. EXTRUDED AND GREASED SHEATHING IN UNBONDED ZONE
9. BARE 7 STRANDS IN BONDED ZONE
10. CEMENT GROUT FIELD GROUTED
11. POST GROUT TUBE AS REQUIRED
12. CENTRALIZER @ 10'-0" O.C. (3'-0" FROM TIP OF DRILLED HOLE)
13. ℄ TIEBACK
14. ADD PL ¾" THK. X 4" WIDE X 1'-6" LONG
15. SOLDIER PILE
16. EDGE OF 7"ø CUT HOLE AT SOLDIER PILE
17. LAGGING, SEE SH2.01 TO SH2.07



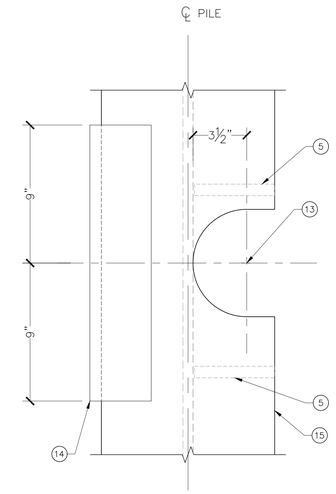
2 PLAN VIEW DETAILS

SCALE: 3" = 1'-0"



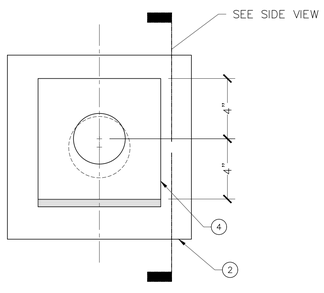
3 FRONT POCKET AND BEARING PLATE DETAIL

SCALE: 3" = 1'-0"

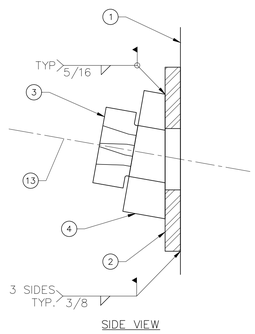


4 BACK POCKET DETAIL

SCALE: 3" = 1'-0"



FRONT VIEW



SIDE VIEW

5 WEDGE AND BEARING PLATE DETAILS

SCALE: 3" = 1'-0"

ABBREVIATION

MANU.	MANUFACTURER
O.C.	ON CENTER
SCH.	SCHEDULE
SPEC.	SPECIFICATION
SQ.	SQUARE
T&B	TOP AND BOTTOM
TYP.	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE

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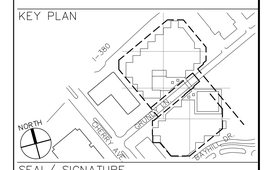
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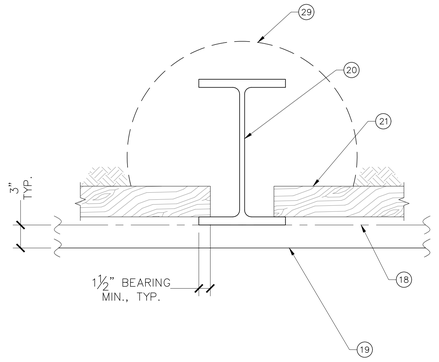
SHEET TITLE

SHORING DETAILS

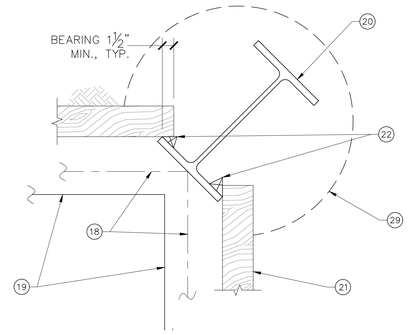
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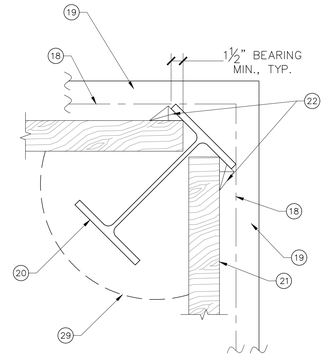
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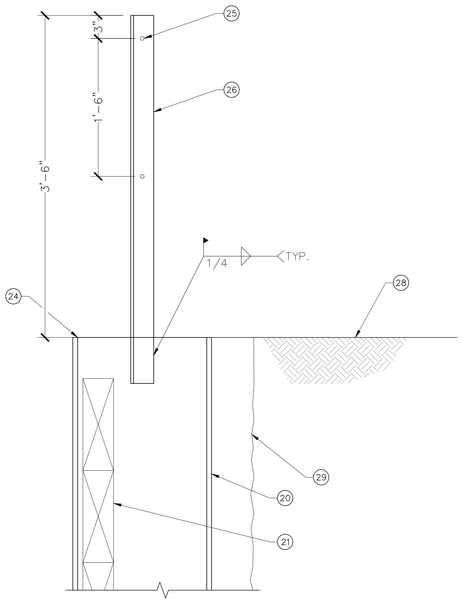
1 TYPICAL LAGGING DETAIL
SCALE: 1 1/2" = 1'-0"



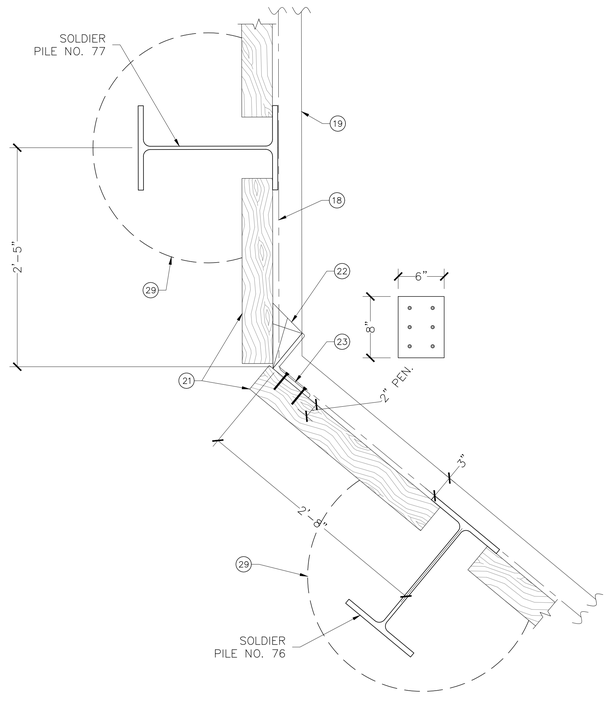
2 LAGGING DETAIL AT OUTSIDE CORNER
SCALE: 1 1/2" = 1'-0"



3 LAGGING DETAIL AT INSIDE CORNER
SCALE: 1 1/2" = 1'-0"



5 SOLDIER PILE SAFETY RAILING (OPTIONAL)
SCALE: 1 1/2" = 1'-0"



4 CORNER DETAIL - PILE NOS. 76 & 77
SCALE: 1 1/2" = 1'-0"

LEGEND

18	FACE OF SHORING
19	FACE OF BUILDING
20	SOLDIER PILE
21	LAGGING, SEE SH2.01 TO SH2.07
22	TIGHT PACK WITH WOOD WEDGE
23	ANGLE IRON 6X6X¼ X 8" LONG WITH (6) ½"ø LAG SCREWS
24	TOP OF PILE
25	HOLE FOR ½"ø GALVANIZED CABLE
26	GUARDRAIL L3x3x⅜ X 4'-0" LONG
28	EXISTING GRADE
29	30"ø SHAFT

ABBREVIATION

MIN.	MINIMUM
O.C.	ON CENTER
PEN.	PENETRATION
SQ.	SQUARE
TYP.	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE

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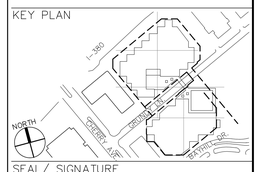
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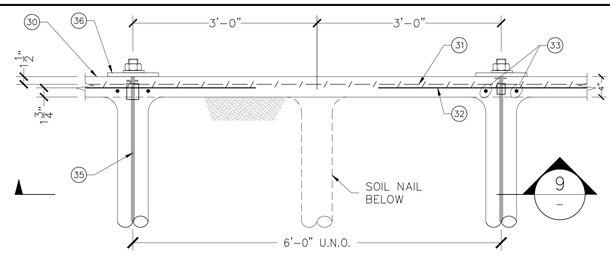
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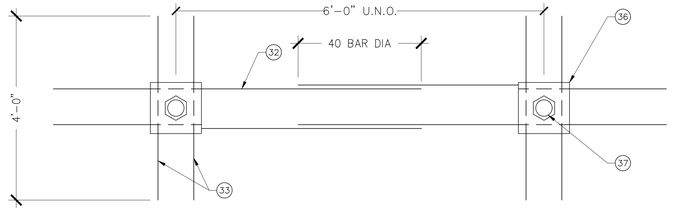
SHEET NO.

SH5.01

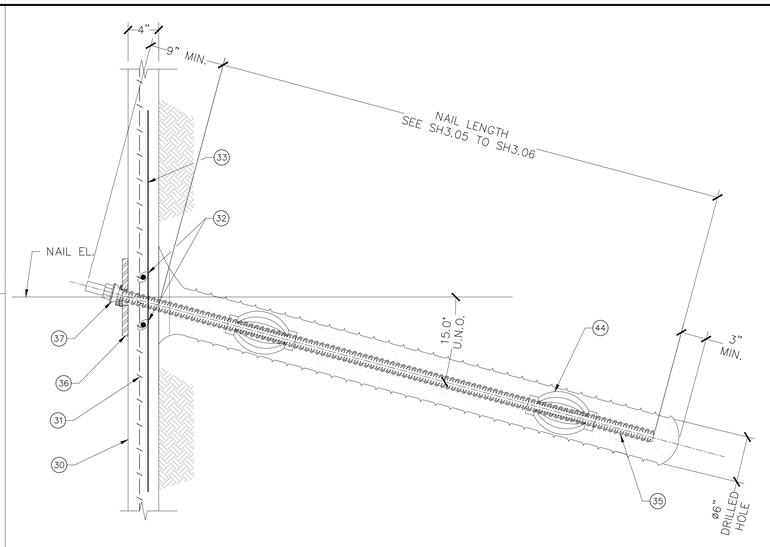
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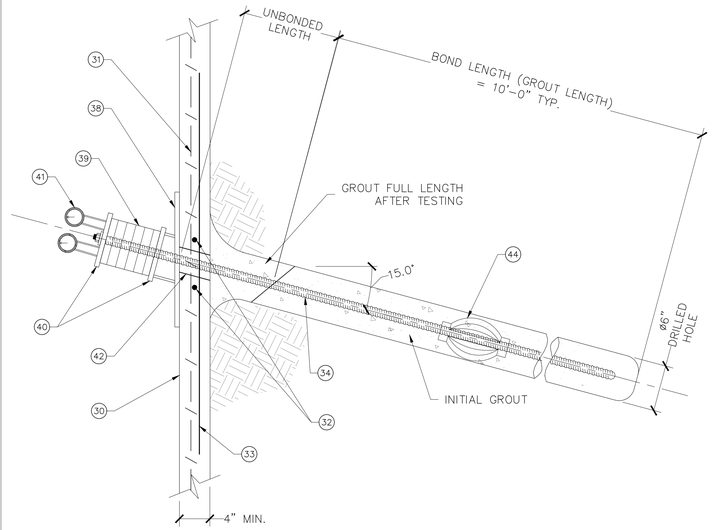
1 TEMPORARY SOILNAIL DETAIL
SCALE: 1" = 1'-0"



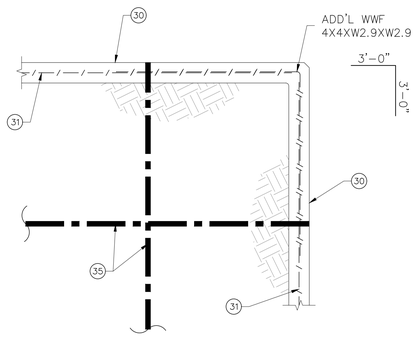
2 TEMPORARY SOILNAIL SECTION DETAIL
SCALE: 1" = 1'-0"



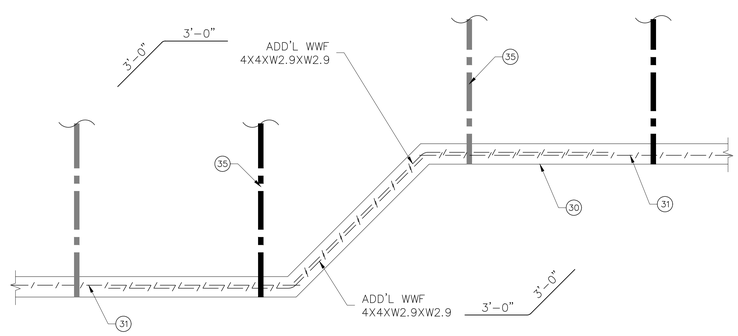
3 TEMPORARY SOILNAIL SECTION DETAIL
SCALE: 1 1/2" = 1'-0"



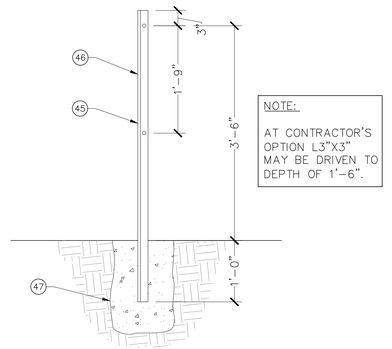
4 TEST-NAIL DETAIL
SCALE: 1 1/2" = 1'-0"



5 CORNER WALL DETAIL
SCALE: 1" = 1'-0"



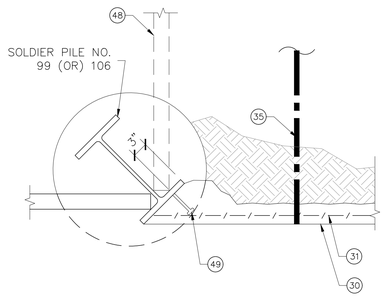
6 CORNER WALL DETAIL
SCALE: 1" = 1'-0"



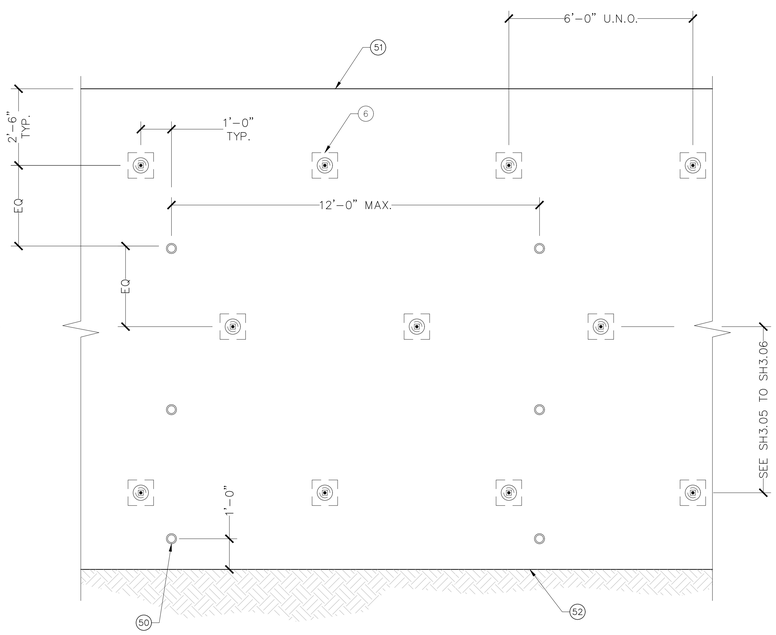
NOTE:

AT CONTRACTOR'S OPTION L3"X3" MAY BE DRIVEN TO DEPTH OF 1'-6".

7 SOIL NAIL SAFETY RAILING (OPTIONAL)
SCALE: 1" = 1'-0"



8 SOLDIER PILE TO SOILNAIL WALL TRANSITION DETAIL
SCALE: 1" = 1'-0"



9 PARTIAL WALL ELEVATION DETAIL
SCALE: NTS

LEGEND

30 FACE OF 4" INITIAL LAYER SHOTCRETE WALL
31 WELDED WIRE FABRIC 4X4 – W2.9XW2.9
32 (2) #4 HORIZ. WALER BARS BY 4'-0" AT EACH LEVEL OF SOIL NAILS
33 (2) #4 VERT. BARS BY 4'-0" CENTERED @ NAIL TIP
34 TEST NAIL
35 SOIL NAIL, TYP.
36 BEARING PL ¾"X0'-8"X0'-8" W/ +1/16" OVERSIZED HOLE FOR SOIL NAIL
37 BEVELED WASHER AND NUT
38 TEST PL 1"X18"X1'-6"
39 HYDRAULIC JACK
40 JACK SUPPORT
41 DIAL GAUGE ATTACHED TO SUPPORT INDEPENDENT OF WALL
42 PVC BLOCKOUT
44 PLASTIC CENTRALIZER @ 10'-0" O.C., MIN 2 PER NAIL
45 L3X3X3/8 – 36 KSI 6'-0" O.C.
46 HOLE FOR ½"ø GALVANIZED CABLE
47 HAND DUG PIT 12" SQ. X 1'-6" DEEP FILL W/ 200 PSI SLURRY MIX
48 TIMBER LAGGING, ABOVE
49 NELSON TYPE S3L, ¾–3⅞ MS, PART NO. 101–098–127 @ 24" O.C.
50 3" PVC OUTLET WEEP HOLE, TYP.
51 TOP OF WALL
52 BOTTOM OF WALL

ABBREVIATION

ADD'L	ADDITIONAL
HORZ.	HORIZONTAL
MIN.	MINIMUM
O.C.	ON CENTER
SCH.	SCHEDULE
SQ.	SQUARE
T&B	TOP AND BOTTOM
TYP.	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
VERT.	VERTICAL

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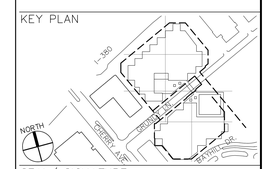
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CASE PACIFIC

NO.	DATE	ISSUES
0	09/04/20	PERMIT SUBMITTAL

KEY PLAN



SEAL/ SIGNATURE



SHEET TITLE

SHORING DETAILS

PROJECT NO. 192300	
SCALE: AS INDICATED	DATE: 09/21/2020
CHECKED BY: PB/BM	DRAWN BY: ML
SHEET NO.	

SH5.02

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PILE NO.	W SHAPE	DESIGN HEGHT (FT)	EMBED (FT)	TOTAL LENGTH (FT)	TOP OF PILE ELEV.(FT)	TB1 (TOP)						TB2						TB3					
						ELEV (FT)	DL (KIP)	TL(KIP)	UBL (FT)	BL (FT)	NO. STRANDS	ELEV (FT)	DL (KIP)	TL(KIP)	UBL (FT)	BL (FT)	NO. STRANDS	ELEV (FT)	DL (KIP)	TL(KIP)	UBL (FT)	BL (FT)	NO. STRANDS
1	W18X119	4.58	17	22	66.76		–	–	–	–	–		–	–	–	–	–		–	–	–	–	–
2	W18X119	5.38	17	23	67.56		–	–	–	–	–		–	–	–	–	–		–	–	–	–	–
3	W18X119	6.17	17	24	68.35		–	–	–	–	–		–	–	–	–	–		–	–	–	–	–
4	W18X119	6.96	17	24	69.14		–	–	–	–	–		–	–	–	–	–		–	–	–	–	–
5	W18X119	7.75	17	25	69.93		–	–	–	–	–		–	–	–	–	–		–	–	–	–	–
6	W18X119	8.54	17	26	70.72		–	–	–	–	–		–	–	–	–	–		–	–	–	–	–
7	W18X119	9.34	17	27	71.52		–	–	–	–	–		–	–	–	–	–		–	–	–	–	–
8	W18X119	10.13	17	28	72.31		–	–	–	–	–		–	–	–	–	–		–	–	–	–	–
9	W18X119	10.92	17	28	73.1		–	–	–	–	–		–	–	–	–	–		–	–	–	–	–
10	W18X119	11.71	17	29	73.89		–	–	–	–	–		–	–	–	–	–		–	–	–	–	–
11	W18X119	12.5	17	30	74.68		–	–	–	–	–		–	–	–	–	–		–	–	–	–	–
12	W18X46	13.29	10	24	75.47	70	100	133	15	15	3												
13	W18X46	14.17	10	25	76.35	70	100	133	15	15	3												
14	W18X46	15.04	10	26	77.22	70	100	133	15	15	3												
15	W18X46	15.91	10	26	78.09	71.12	100	133	15	15	3												
16	W18X46	16.78	10	27	78.96	71.12	100	133	15	15	3												
17	W18X46	17.65	10	28	79.83	71.62	100	133	15	15	3												
18	W18X46	18.52	10	29	80.7	72.58	100	133	15	15	3												
19	W18X46	19.39	10	30	81.57	72.62	100	133	15	15	3												
20	W18X46	20.25	10	31	82.43	73.19	100	133	15	15	3												
21	W18X46	21.12	10	32	83.3	78.62	100	133	15	15	3												
22	W18X46	21.99	10	32	84.17	78.67	100	133	15	15	3												
23	W18X46	23.01	10	34	85.19	78.62	100	133	15	15	3												
24	W18X46	27.02	10	38	89.2	81.46	132	176	15	20	4	72.62	132	176	15	20	4						
25	W18X46	31.02	10	42	93.2	84.84	132	176	15	20	4	72.62	132	176	15	20	4						
26	W18X46	35.02	10	46	97.2	88.68	132	176	15	20	4	72.62	132	176	15	20	4						
27	W18X71	39.75	10	50	101.93	88.68	195	260	15	29	6	72.62	210	280	15	31	6						
28	W18X71	40.19	10	51	102.37	95.48	195	260	16	29	6	78.62	210	280	15	31	6						
29	W18X71	40.72	10	51	102.9	95.48	195	260	16	29	6	78.62	210	280	15	31	6						
30	W18X71	41.25	10	52	103.43	95.48	195	260	16	29	6	78.62	210	280	15	31	6						
31	W18X71	41.78	10	52	103.96	95.94	195	260	16	29	6	78.62	210	280	15	31	6						
32	W18X71	42.31	10	53	104.49	96.48	195	260	16	29	6	78.62	210	280	15	31	6						
33	W18X71	42.84	10	53	105.02	96.87	195	260	17	29	6	78.62	210	280	15	31	6						
34	W18X71	43.38	10	54	105.56	97.56	195	260	17	29	6	78.62	210	280	15	31	6						
35	W18X71	43.91	10	54	106.09	98.05	195	260	17	29	6	78.62	210	280	15	31	6						
36	W18X71	44.44	10	55	106.62	98.62	195	260	17	29	6	78.62	210	280	15	31	6						
37	W18X71	44.97	10	55	107.15	99.12	195	260	18	29	6	78.62	210	280	15	31	6						
38	W18X65	45.5	10	56	107.68	98.68	185	247	18	28	6	89.48	190	253	15	29	6	72.62	190	253	15	29	6
39	W18X65	46.04	10	57	108.22	99.2	185	247	18	28	6	89.48	190	253	15	29	6	72.62	190	253	15	29	6
40	W18X65	46.57	10	57	108.75	99.76	185	247	18	28	6	89.48	190	253	15	29	6	72.62	190	253	15	29	6
41	W18X65	47.1	10	58	109.28	100.22	185	247	18	28	6	89.48	190	253	15	29	6	72.62	190	253	15	29	6
42	W18X65	47.63	10	58	109.81	100.81	185	247	19	28	6	89.48	190	253	15	29	6	72.62	190	253	15	29	6
43	W18X65	48.16	10	59	110.34	101.31	185	247	19	28	6	89.48	190	253	15	29	6	72.62	190	253	15	29	6
44	W18X65	48.69	10	59	110.87	101.82	185	247	19	28	6	89.48	190	253	15	29	6	72.62	190	253	15	29	6
45	W18X65	49.23	10	60	111.41	102.41	185	247	19	28	6	89.48	190	253	15	29	6	72.62	190	253	15	29	6
46	W18X65	49.76	10	60	111.94	102.92	185	247	19	28	6	89.48	190	253	15	29	6	72.62	190	253	15	29	6
47	W18X65	50.29	10	61	112.47	102.86	185	247	19	28	6	89.48	190	253	15	29	6	72.62	190	253	15	29	6
48	W18X76	53.82	10	64	113	102.97	226	301	21	34	7	88.18	222	296	15	33	7	72.62	217	289	15	32	7
49	W18X76	54.35	10	65	113.53	103.53	226	301	21	34	7	88.18	222	296	15	33	7	72.62	217	289	15	32	7
50	W18X76	54.88	10	65	114.06	104.03	226	301	21	34	7	88.18	222	296	15	33	7	72.62	217	289	15	32	7
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52	W18X76	55.93	10	66	115.11	109.18	160	213	24	24	5	89.98	161	215	15	24	5	72.62	213	284	15	32	7
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72	W18X71	54.98	10	65	117.16	111.18	146	195	23	22	5	95.48	176	235	16	26	6	78.62	187	249	15	28	6
73	W18X71	55.12	10	66	117.3	111.18	146	195	23	22	5	95.48	176	235	16	26	6	78.62	187	249	15	28	6
74	W18X71	55.26	10	66	117.44	111.18	146	195	23	22	5	95.48	176	235	16	26	6	78.62	187	249	15	28	6
75	W18X71	55.4	10	66	117.58	111.18	146	195	23	22	5	95.48	176	235	16	26	6	78.62	187	249	15	28	6
76	W18X71	55.55	10	66	117.73	111.18	146	195	23	22	5	95.48	176	235	16	26	6	78.62	187	249	15	28	6
77	W18X76	55.69	10	66	117.87	111.18	146	195	23	22	5	95.48	176	235	16	26	6	78.62	187	249	15	28	6
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88	W18X71	56.04	10	67	118.22	111.18	227	302	23	34	7	95.48	211	281	16	32	6	78.62	276	368	15	41	8
89	W18X86	56.15	10	67	118.33	110.18	227	302	23	34	7	95.48	211	281	16	32	6	78.62	276	368	15	41	8
90	W18X86	56.26	10	67	118.44	110.18	227	302	23	34	7	95.48	211	281	16	32	6	78.62	276	368	15	41	8
91	W18X86	56.37	10	67	118.55	110.18	227	302	23	34	7	95.48	211	281	16	32	6	78.62	276	368	15	41	8
92	W18X86	56.48	10	67	118.66	110.18	227	302	23	34	7	95.48	211	281	16	32	6	78.62	276	368	15	41	8
93	W18X86	56.59	10	67	118.77	110.18	227	302	23	34	7	95.48	211	281	16	32	6	78.62	276	368	15	41	8

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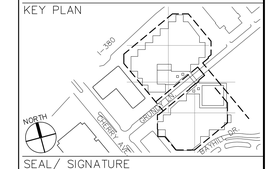
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CASE PACIFIC

NO.	DATE	ISSUES
0	09/04/20	PERMIT SUBMITTAL

KEY PLAN



SEAL/ SIGNATURE



SHEET TITLE

SHORING SCHEDULES
SOLDIER PILES AND TIEBACKS

PROJECT NO.
192300

SCALE:
AS INDICATED

DATE:
09/21/2020

CHECKED BY:
PB/BM

DRAWN BY:
ML

SHEET NO.

SH6.00

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PILE NO.	W SHAPE	DESIGN HEGHT (FT)	EMBED (FT)	TOTAL LENGTH (FT)	TOP OF PILE ELEV.(FT)	TB1 (TOP)						TB2						TB3					
						ELEV (FT)	DL (KIP)	TL(KIP)	UBL (FT)	BL (FT)	NO. STRANDS	ELEV (FT)	DL (KIP)	TL(KIP)	UBL (FT)	BL (FT)	NO. STRANDS	ELEV (FT)	DL (KIP)	TL(KIP)	UBL (FT)	BL (FT)	NO. STRANDS
94	W18X86	57.2	10	68	118.88	110.18	227	302	23	34	7	95.48	211	281	16	32	6	78.62	276	368	15	41	8
95	W18X86	27.31	10	38	118.99	110.18	227	302	15	34	7	95.48	211	281	15	32	6	78.62	276	368	15	41	8
96	W18X86	57.41	10	68	119.09	110.18	227	302	23	34	7	95.48	211	281	16	32	6	78.62	276	368	15	41	8
97	W18X86	57.53	10	68	119.21	110.18	227	302	23	34	7	95.48	211	281	16	32	6	78.62	276	368	15	41	8
98	W18X106	60.64	12	73	119.32	110.18	236	314	25	35	7	95.48	235	313	18	35	7	78.62	325	433	15	48	10
99	W18X86	57.76	10	68	119.44	110.18	227	302	23	34	7	95.48	211	281	16	32	6	78.62	276	368	15	41	8
100	W18X71	43.23	10	54	119.36	109.83	195	260	16	29	6	95.48	210	280	15	31	6						
101	W18X71	42.66	10	53	119.29	109.83	195	260	16	29	6	95.48	210	280	15	31	6						
102	W18X71	42.59	10	53	119.21	109.83	195	260	16	29	6	95.48	210	280	15	31	6						
103	W18X71	42.52	10	53	119.14	109.83	195	260	16	29	6	95.48	210	280	15	31	6						
104	W18X71	42.45	10	53	119.07	109.83	195	260	16	29	6	95.48	210	280	15	31	6						
105	W18X71	42.37	10	53	119	109.83	195	260	16	29	6	95.48	210	280	15	31	6						
106	W18X86	57.25	10	68	118.93	109.83	227	302	23	34	7	95.48	211	281	16	32	6	78.62	276	368	15	41	8
107	W18X86	57.17	10	68	118.85	109.83	227	302	23	34	7	95.48	211	281	16	32	6	78.62	276	368	15	41	8
108	W18X97	57.11	11	69	118.79	108.83	235	313	22	35	7	95.61	205	273	16	31	6	78.62	275	366	15	41	8
109	W18X97	57.05	11	69	118.73	108.83	235	313	22	35	7	95.61	205	273	16	31	6	78.62	275	366	15	41	8
110	W18X97	56.98	11	68	118.66	108.83	235	313	22	35	7	95.61	205	273	16	31	6	78.62	275	366	15	41	8
111	W18X97	56.92	11	68	118.6	108.83	235	313	22	35	7	95.61	205	273	16	31	6	78.62	275	366	15	41	8
112	W18X97	56.85	11	68	118.53	108.83	218	290	22	33	7	95.61	188	251	16	28	6	78.62	280	373	15	42	8
113	W18X97	59.79	11	71	118.47	108.83	218	290	24	33	7	95.61	188	251	18	28	6	78.62	280	373	15	42	8
114	W18X97	59.73	11	71	118.41	108.83	218	290	24	33	7	95.61	188	251	18	28	6	78.62	280	373	15	42	8
115	W18X97	56.66	11	68	118.34	108.83	218	290	22	33	7	95.61	188	251	16	28	6	78.62	280	373	15	42	8
116	W18X97	56.6	11	68	118.28	108.83	218	290	22	33	7	95.61	188	251	16	28	6	78.62	280	373	15	42	8
117	W18X97	56.54	11	68	118.22	108.83	218	290	22	33	7	95.61	188	251	16	28	6	78.62	280	373	15	42	8
118	W18X97	56.47	11	68	118.15	108.83	218	290	22	33	7	95.61	188	251	16	28	6	78.62	280	373	15	42	8
119	W18X97	56.41	11	68	118.09	108.83	218	290	22	33	7	95.61	188	251	16	28	6	78.62	280	373	15	42	8
120	W18X97	56.34	11	68	118.02	108.83	218	327	22	33	7	95.61	188	282	16	28	7	78.62	280	420	15	42	9
121	W18X97	56.28	11	68	117.96	108.83	218	290	22	33	7	95.61	188	251	16	28	6	78.62	280	373	15	42	8
122	W18X97	56.22	11	68	117.9	108.83	218	290	22	33	7	95.61	188	251	16	28	6	78.62	280	373	15	42	8
123	W18X97	56.15	11	68	117.83	108.83	218	290	22	33	7	95.61	188	251	16	28	6	78.62	280	373	15	42	8
124	W18X97	59.09	11	71	117.77	108.83	218	290	24	33	7	95.61	188	251	18	28	6	78.62	280	373	15	42	8
125	W18X97	59.03	11	71	117.71	108.83	218	290	24	33	7	95.61	188	251	18	28	6	78.62	280	373	15	42	8
126	W18X97	55.96	11	67	117.64	108.83	218	290	22	33	7	95.61	188	251	16	28	6	78.62	280	373	15	42	8
127	W18X97	55.9	11	67	117.58	108.83	218	290	22	33	7	95.61	188	251	16	28	6	78.62	280	373	15	42	8
128	W18X97	55.83	11	67	117.51	108.83	218	290	22	33	7	95.61	188	251	16	28	6	78.62	280	373	15	42	8
129	W18X97	55.77	11	67	117.45	108.83	218	290	22	33	7	95.61	188	251	16	28	6	78.62	280	373	15	42	8
130	W18X97	55.71	11	67	117.39	108.83	218	290	22	33	7	95.61	188	251	16	28	6	78.62	280	373	15	42	8
131	W18X97	55.64	11	67	117.32	108.83	218	290	22	33	7	95.61	188	251	16	28	6	78.62	280	373	15	42	8
132	W18X97	55.58	11	67	117.26	108.83	218	290	22	33	7	95.61	188	251	16	28	6	78.62	280	373	15	42	8
133	W18X97	55.52	11	67	117.2	108.83	218	290	22	33	7	95.61	188	251	16	28	6	78.62	280	373	15	42	8
134	W18X97	55.45	11	67	117.13	108.83	218	290	22	33	7	95.61	188	251	16	28	6	78.62	280	373	15	42	8
135	W18X97	55.39	11	67	117.07	108.83	235	313	22	35	7	95.61	205	273	16	31	6	78.62	275	366	15	41	8
136	W18X97	55.32	11	67	117	108.83	218	290	22	33	7	95.61	188	251	16	28	6	78.62	280	373	15	42	8
137	W18X97	55.26	11	67	116.94	108.83	218	290	22	33	7	95.61	188	251	16	28	6	78.62	280	373	15	42	8
138	W18X97	55.2	11	67	116.88	108.83	218	290	22	33	7	95.61	188	251	16	28	6	78.62	280	373	15	42	8
139	W18X97	55.14	11	67	116.82	108.83	218	290	22	33	7	95.61	188	251	16	28	6	78.62	280	373	15	42	8
140	W18X97	55.08	11	67	116.76	108.83	218	327	22	33	7	95.61	188	282	16	28	7	78.62	280	420	15	42	9
141	W18X97	55.02	11	67	116.7	108.83	218	290	22	33	7	95.61	188	251	16	28	6	78.62	280	373	15	42	8
142	W18X97	54.95	11	66	116.63	108.83	218	290	22	33	7	95.61	188	251	16	28	6	78.62	280	373	15	42	8
143	W18X76	54.76	10	65	116.44	109.83	179	239	23	27	6	96.48	206	274	17	31	6	79.63	259	345	15	39	8
144	W18X76	54.55	10	65	116.23	109.83	179	239	23	27	6	96.48	206	274	17	31	6	79.63	259	345	15	39	8
145	W18X76	54.35	10	65	116.03	109.83	179	239	23	27	6	96.48	206	274	17	31	6	79.63	259	345	15	39	8
146	W18X76	54	10	64	115.68	109.83	179	239	23	27	6	96.48	206	274	17	31	6	79.63	259	345	15	39	8
147	W18X76	53.62	10	64	115.3	109.83	179	239	23	27	6	96.48	206	274	17	31	6	79.63	259	345	15	39	8
148	W18X76	53.24	10	64	114.92	109.83	179	239	23	27	6	96.48	206	274	17	31	6	79.63	259	345	15	39	8
149	W18X76	52.83	10	63	114.51	109.83	179	239	23	27	6	96.48	206	274	17	31	6	79.63	259	345	15	39	8
150	W18X76	52.43	10	63	114.11	109.83	179	239	23	27	6	96.48	206	274	17	31	6	79.63	259	345	15	39	8
151	W18X76	51.96	10	62	113.64	109.83	179	239	23	27	6	96.48	206	274	17	31	6	79.63	259	345	15	39	8
152	W18X76	51.48	10	62	113.16	109.83	179	239	23	27	6	96.48	206	274	17	31	6	79.63	259	345	15	39	8
153	W18X76	51.16	10	62	112.84	109.83	179	239	23	27	6	96.48	206	274	17	31	6	79.63	259	345	15	39	8
154	W18X76	50.91	10	61	112.59	102.18	179	239	19	27	6	89.18	206	274	15	31	6	73.62	259	345	15	39	8
155	W18X76	50.67	10	61	112.35	102.18	179	239	19	27	6	89.18	206	274	15	31	6	73.62	259	345	15	39	8
156	W18X76	50.43	10	61	112.11	102.18	179	239	19	27	6	89.18	206	274	15	31	6	73.62	259	345	15	39	8
157	W18X71	50.12	10	61	111.8	102.18	194	259	19	29	6	89.18	173	231	15	26	5	73.63	192	345	15	29	8
158	W18X71	49.76	10	60	111.44	102.18	194	259	19	29	6	89.18	173	231	15	26	5	73.63	192	345	15	29	8
159	W18X71	49.39	10	60	111.07	102.18	194	259	19	29	6	89.18	173	231	15	26	5	73.63	192	345	15	29	8
160	W18X71	49.1	10	60	110.78	102.18	194	259	19	29	6	89.18	173	231	15	26	5	73.63	192	345	15	29	8
161	W18X71	48.82	10	59	110.5	102.18	194	259	19	29	6	89.18	173	231	15	26	5	73.63	192	345	15	29	8
162	W18X71	48.54	10	59	110.22	102.18	194	259	19	29	6	89.18	173	231	15	26	5	73.63	192	345	15	29	8
163	W18X71	48.28	10	59	109.96	102.18	194	259	19	29	6	89.18	173	231	15	26	5	73.63	192	345	15	29	8
164	W18X71	48.08	10	59	109.76	102.18	194	259	19	29	6	89.18	173	231	15	26	5	73.63	192	345	15	29	8
165	W18X71	47.88	10	58	109.56	102.18	194	259	19	29	6	89.18	173	231	15	26	5	73.63	192	345	15	29	8
166	W18X71	47.68	10	58	109.36	102.18	194	259	19	29	6	89.18	173	231	15	26	5	73.63	192	345	15	29	8
167	W18X76	47.48	10	58	109.16	99.18	207	311	18	31	7	79.63	240	360	15	36	8						
168	W18X76	47.3	10	58	108.98	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
169	W18X76	47.19	10	58	108.87	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
170	W18X76	47.08	10	58	108.76	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
171	W18X76	46.98	10	57	108.66	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
172	W18X76	46.87	10	57	108.55	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
173	W18X71	49.76	10	60	109.36	99.18	194	259	19	29	6	89.18	173	231	15	26	5	73.63	192	345	15	29	8
174	W18X76	46.66	10	57	108.34	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
175	W18X76	46.55	10	57	108.23	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
176	W18X76	46.44	10	57	108.12	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
177	W18X76	46.33	10	57	108.02	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
178	W18X76	46.12	10	57	107.8	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
179	W18X76	45.89	10	56	107.57	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
180	W18X76	45.67	10	56	107.35	99.18	207	311	18	31	7	79.63	240	360	15	36	8						
181	W18X97	48.45	10	59	107.13	99.18	185	247	19	28	6	79.63	271	361	15	40	8						
182	W18X97	48.22	10	59	106.9	99.18	185	247	19	28	6	79.63	271	361	15	40	8						
183	W18X97	48	10	58	106.68	99.18	185	247	19	28	6	79.63	271	361	15	40	8						
184	W18X97	47.78	10	58	106.46	99.18	185	247	19	28	6	79.63	271	361	15	40	8						
185	W18X76	47.56	10	58	106.24	99.18	207	276	19	31	6	79.63	240	320	15	36	7						

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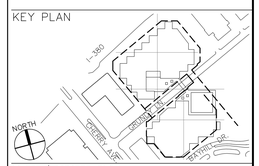
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CASE PACIFIC

NO.	DATE	ISSUES
0	09/04/20	PERMIT SUBMITTAL

KEY PLAN



SEAL/ SIGNATURE



SHEET TITLE

SHORING SCHEDULES
SOLDIER PILES AND TIEBACKS

PROJECT NO.
192300

SCALE: AS INDICATED
DATE: 09/21/2020
CHECKED BY: PB/BM
DRAWN BY: ML

SHEET NO.

SH6.01

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PILE NO.	W SHAPE	DESIGN HEGHT (FT)	EMBED (FT)	TOTAL LENGTH (FT)	TOP OF PILE ELEV.(FT)	TB1 (TOP)						TB2						TB3					
						ELEV (FT)	DL (KIP)	TL(KIP)	UBL (FT)	BL (FT)	NO. STRANDS	ELEV (FT)	DL (KIP)	TL(KIP)	UBL (FT)	BL (FT)	NO. STRANDS	ELEV (FT)	DL (KIP)	TL(KIP)	UBL (FT)	BL (FT)	NO. STRANDS
186	W18X76	44.33	10	55	106.01	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
187	W18X76	44.44	10	55	106.12	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
188	W18X76	44.57	10	55	106.25	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
189	W18X76	44.7	10	55	106.38	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
190	W18X76	44.82	10	55	106.5	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
191	W18X76	44.95	10	55	106.63	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
192	W18X76	45.08	10	56	106.76	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
193	W18X76	45.21	10	56	106.89	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
194	W18X76	45.33	10	56	107.01	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
195	W18X76	45.46	10	56	107.14	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
196	W18X76	45.59	10	56	107.27	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
197	W18X76	45.71	10	56	107.39	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
198	W18X76	45.84	10	56	107.52	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
199	W18X76	45.97	10	56	107.65	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
200	W18X76	46.1	10	57	107.78	99.18	207	311	18	31	7	79.63	240	360	15	36	8						
201	W18X76	46.2	10	57	107.88	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
202	W18X76	46.2	10	57	107.85	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
203	W18X76	46.2	10	57	107.88	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
204	W18X76	46.2	10	57	107.88	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
205	W18X76	46.2	10	57	107.88	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
206	W18X76	46.2	10	57	107.88	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
207	W18X76	46.2	10	57	107.88	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
208	W18X76	46.2	10	57	107.88	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
209	W18X76	46.2	10	57	107.88	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
210	W18X76	46.2	10	57	107.88	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
211	W18X76	46.17	10	57	107.85	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
212	W18X76	46.03	10	57	107.71	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
213	W18X76	45.88	10	56	107.56	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
214	W18X76	45.73	10	56	107.41	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
215	W18X76	45.58	10	56	107.26	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
216	W18X76	45.42	10	56	107.11	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
217	W18X76	45.32	10	56	107.03	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
218	W18X76	45.84	10	56	107.52	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
219	W18X76	46.33	10	57	108.01	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
220	W18X76	46.81	10	57	108.49	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
221	W18X76	47.29	10	58	108.97	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
222	W18X76	47.29	10	58	108.97	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
223	W18X76	47.29	10	58	108.97	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
224	W18X76	47.11	10	58	108.79	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
225	W18X76	46.28	10	57	107.96	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
226	W18X76	44.66	10	55	106.34	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
227	W18X76	42.65	10	53	104.33	99.18	207	276	18	31	6	79.63	240	320	15	36	7						
228	W18X55	40.22	10	51	101.9	94.18	145	193	16	22	5	78.18	175	233	15	26	5						
229	W18X55	39.49	10	50	101.17	94.32	145	193	16	22	5	78.18	175	233	15	26	5						
230	W18X55	39.01	10	50	100.69	94.18	145	218	16	22	5	78.18	175	263	15	26	6						
231	W18X55	38.6	10	49	100.28	93.45	145	193	15	22	5	78.18	175	233	15	26	5						
232	W18X55	37.24	10	48	99.88	92.98	145	193	15	22	5	78.18	175	233	15	26	5						
233	W18X55	36	10	46	99.49	92.73	145	193	15	22	5	78.18	175	233	15	26	5						
234	W18X46	34.76	10	45	99.11	90.66	132	176	15	20	4	78.18	131	175	15	20	4						
235	W18X46	33.5	10	44	98.7	90.66	132	176	15	20	4	78.18	131	175	15	20	4						
236	W18X46	32.24	10	43	98.28	90.66	132	176	15	20	4	78.18	131	175	15	20	4						
237	W18X46	30.91	10	41	97.8	90.66	132	176	15	20	4	78.18	131	175	15	20	4						
238	W18X60	29.42	10	40	97.17	87.97	142	189	15	21	5												
239	W18X60	28.01	10	39	96.61	87.97	142	189	15	21	5												
240	W18X60	26.63	10	37	96.08	87.97	142	189	15	21	5												
241	W18X60	25.42	10	36	95.72	87.97	142	189	15	21	5												
242	W18X46	24.23	10	35	95.38	87.37	103	137	15	16	3												
243	W18X46	23.05	10	34	95.05	87.05	103	137	15	16	3												
244	W18X46	21.94	10	32	94.79	86.78	103	137	15	16	3												
245	W18X46	20.85	10	31	94.56	86.56	103	137	15	16	3												
246	W18X46	19.76	10	30	94.32	88.31	103	137	15	16	3												
247	W18X46	18.67	10	29	94.08	88.08	103	137	15	16	3												
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249	W18X46	16.39	10	27	93.5	87.5	103	137	15	16	3												
250	W18X46	15.24	10	26	93.2	87.18	103	137	15	16	3												
251	W18X46	14.06	10	25	92.86	87.87	103	137	15	16	3												
252	W18X119	12.81	17	30	92.47																		
253	W18X119	11.57	17	29	92.08																		
254	W18X119	10.32	17	28	91.68																		
255	W18X119	9.07	17	27	91.28																		
256	W18X119	7.85	17	25	90.91																		
257	W18X119	6.7	17	24	90.61																		
258	W18X119	5.54	17	23	90.3																		
259	W18X46	4.39	10	15	90																		

FOUNDATION & MASS EXCAVATION

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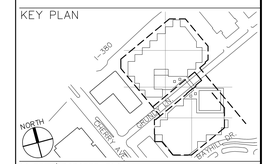
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818 5TH AVE. SUITE 100 SAN RAFAEL CALIFORNIA 94901
Website: pbandainc.com Phone: (415) 259 - 9375

CASE PACIFIC

NO.	DATE	ISSUES
0	09/04/20	PERMIT SUBMITTAL

KEY PLAN



SEAL/ SIGNATURE



SHEET TITLE

SHORING SCHEDULES
SOLDIER PILES AND TIEBACKS

PROJECT NO.
192300

SCALE:
AS INDICATED

DATE:
09/21/2020

CHECKED BY:
PB/BM

DRAWN BY:
ML

SHEET NO.

SH6.02

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Appendix 6

Comments Received on the Draft EIR

Appendix 6
Comments Received on the Draft EIR

This appendix includes a list of the agencies, organizations, and individuals who commented on the Draft Environmental Impact Report (Draft EIR) and the actual comment letters submitted on the Draft EIR. The comment letters, which include both letters and emails, have been numbered as shown in Table 1. Individual comments within each letter have been delineated and numbered. A response to each comment is provided in Appendix 7, *Responses to Comments*. Each individual response in Appendix 7 is numbered to correspond with the comment to which it responds.

Table 1. List of Commenters

Letter #	Commenter	Date Received
Public Agencies		
1	Bay Area Air Quality Management District	February 26, 2021
2	Caltrans (District 4)	March 1, 2021
3	San Francisco International Airport	March 1, 2021
4	San Francisco Public Utilities Commission	March 1, 2021
Organizations		
5	Sierra Club (Loma Prieta Chapter)	February 21, 2021
6	YouTube (Josh Portner)	February 17, 2021
7	YouTube (Josh Portner) – Part 2	March 1, 2021
8	YouTube (Josh Portner) – Part 3[1]	February 16, 2021
Individuals		
9	Alexander Melendrez	February 16, 2021
10	Dean J. Moser (Bayhill Office Partners, LLC)	February 23, 2021
11	Janice Rodondi	March 15, 2021
12	Draft EIR Public Hearing Transcript	March 1, 2021

[1] YouTube submitted comments on the draft Specific Plan on February 16, 2021. These comments included comments on the Draft EIR appendices, which have been extracted from the Specific Plan comment letter and included herein as Comment Letter 8.

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Letter 1

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

ALAMEDA COUNTY
John J. Bauters
(Secretary)
Pauline Russo Cutter
David Haubert
Nate Miley

CONTRA COSTA COUNTY
John Gioia
David Hudson
Karen Mitchoff
(Vice Chair)
Mark Ross

MARIN COUNTY
Katie Rice

NAPA COUNTY
Brad Wagenknecht

SAN FRANCISCO COUNTY
VACANT
Shamann Walton
Tyrone Jue
(SF Mayor's Appointee)

SAN MATEO COUNTY
David J. Canepa
Carole Groom
Davina Hurt

SANTA CLARA COUNTY
Margaret Abe-Koga
Cindy Chavez
(Chair)
Rich Constantine
Rob Rennie

SOLANO COUNTY
Erin Hannigan
Lori Wilson

SONOMA COUNTY
Teresa Barrett
Lynda Hopkins

Jack P. Broadbent
EXECUTIVE OFFICER/APCO

Connect with the Bay Area Air District:

February 26, 2021

Matt Neuebaumer, Associate Planner
City of San Bruno
Community & Economic Development Department
567 El Camino Real
San Bruno, CA 94066

RE: Bayhill Specific Plan Including the YouTube Phase 1 Development – Draft Environmental Impact Report

Dear Mr. Neuebaumer,

Bay Area Air Quality Management District (Air District) staff has reviewed the Draft Environmental Impact Report (DEIR) for the Bayhill Specific Plan (Plan) including the YouTube Phase 1 Development (Project). The Plan is a proposed land use, transportation, and capital improvements plan for a 92.2-acre site in the City of San Bruno. This Plan would allow for the development of 2.46 million net new square feet of office uses and establish a housing and mixed-use overlay zone that would allow for the development of up to 573 multi-family residential units. The Project would develop Phase 1 of YouTube's 15-year expansion plan, which includes the construction of two new office buildings comprising a total of 440,000 square feet and approximately 1,896 parking spaces. 1-1

Air District staff supports the City's efforts to focus on transit-oriented infill development. The Plan and Project site are located in a Priority Development Area as identified by Plan Bay Area 2040, which makes it an ideal location to focus growth and development given its proximity to both the San Bruno Caltrain Station and San Bruno BART Station. 1-2

Due to the Plan's significant generation of vehicle miles travelled (VMT) and associated air pollutant and greenhouse gas emissions, Air District staff strongly encourages the City to consider adopting the Residential Alternative. This Plan alternative would allow for the development of up to 1,499 new residential units and would reduce the office development to 1.8 million square feet. This was determined in the DEIR to be the environmentally superior alternative, as it would provide a more balanced jobs/housing ratio and would reduce VMT impacts. The Residential Alternative would also have less impact on air quality and simultaneously help achieve Plan Bay Area's 2040 housing goals. 1-3

Moreover, as remote work is likely to continue even as we recover from COVID restrictions and, as such, could result in overabundant office space becoming underutilized, staff recommends that the City consider expanding its residential 1-4

overlay zones, keeping in mind proximity to nearby freeways, to allow flexibility for developing or converting office space to residential units in the future. 1-4 (cont.)

Air District staff appreciates the opportunity to work with the City to address the air quality impacts anticipated to result from the Plan and Project. Although the DEIR identified design features and mitigation measures that would substantially lessen local and regional air quality emissions, buildout of the Plan is anticipated to result in significant air quality impacts. Because the timing and intensity of future development projects under the Plan are currently unknown (with the exception of the YouTube Phase 1 Development), the DEIR conservatively assumes that there could be reasonably foreseeable conditions where the Air District's air quality thresholds for ROG, NOx, PM_{10}, and $PM_{2.5}$ could be exceeded during construction and operations. The Air District recommends the following measures that can further reduce air pollution emissions and limit exposure to pollutants for all phases of development. 1-5

Reduce Construction-Related Emissions

The DEIR anticipates that the Project would result in significant and unavoidable construction-related air quality emissions. Air District staff appreciates the Project's efforts to address air quality and health impacts by incorporating construction best management practices, including fugitive dust control and requiring Tier 4 engines on equipment. Beyond the proposed mitigation measures, Air District staff recommends the Project incorporate zero-emissions off-road equipment whenever feasible. Staff also recommends establishing a hotline, posting signs around the site with the hotline number, and ensuring the number is given to all nearby residents, schools, and businesses to call and report visible dust problems so the City can promptly fix such problems. This would help reduce the detrimental health impacts from particulate matter to nearby residents during construction. 1-6

Reduce Operational Emissions

The DEIR also anticipates that the Plan would result in significant and unavoidable operational air quality emissions, which are primarily due to vehicle trips generated by the proposed land uses. Air District staff appreciates the Plan's efforts to reduce emissions by encouraging transit use, fostering bicycle and pedestrian infrastructure, and supporting sustainable land use patterns through mixed-use design and increased density. However, these policies are framed as voluntary measures. The Air District has found that mandatory measures are usually much more effective at achieving the expected emissions reductions than voluntary measures. Air District staff recommends that the policies include stronger language that affirms the City's intent to implement these measures. For example, Policy 4-5: Encourage First-Last Mile Shuttle Service should be strengthened by stating that the Plan will require implementation of first-last mile shuttle service and other mobility options including e-bikes and e-scooters to connect riders from the nearby Caltrain and BART stations. 1-7

In addition, the Plan proposes up to 11 new subterranean parking garages, and the Project would include approximately 1,896 parking spaces. Because the Plan and Project are near two major 1-8

fixed rail transit stations and numerous bus routes, Air District staff recommends that the City decrease the amount of parking spaces and implement best practice parking strategies to discourage single occupancy vehicle travel, such as parking cash-out, reduced parking requirements, shared parking, paid parking, and car-share parking. Moreover, the Plan does not specify strategies to encourage electric vehicle use or construct electric vehicle charging infrastructure. Given the recent Executive Order N-79-20 to phase out gasoline cars and mandate 100 percent sales of new passenger vehicles to be zero-emission by 2035, as well as 100 percent of medium- and heavy-duty vehicles by 2045, it is critical that the Plan and Project accommodate the electric vehicle charging infrastructure necessary to reduce emissions from the transportation sector and accelerate zero-emission technology. To align with this new Executive Order and to be able to support increased use of electric vehicles, Air District staff recommends incorporating electric vehicle charging stations for at least 15 percent of the parking spaces and EV ready spaces for at least 50 percent of parking spaces.

1-8 (cont.)

1-9

Air District staff also recommends incorporating all feasible policies identified in the Specific Plan as well as the following measures to further reduce operational impacts:

1-10

- Install fully protected bicycle lanes to and from San Bruno Caltrain and BART stations and other nearby activity centers;
- Exceed the City's current bike parking ratio;
- Install an adequate number of showers and locker room facilities to further encourage tenants to use bicycling as a safe and reliable transportation mode;
- Install all-electric appliances; and
- Eliminate the use of natural gas, a high global warming potential greenhouse gas.

Revise Offset Mitigation Language

1-11

Even with the design features and on-site mitigation measures, the DEIR anticipates that buildout of the Plan could result in significant and unavoidable air quality impact during both construction and operations. Because the timing and intensity of future development projects under the Plan are currently unknown (with the exception of the YouTube Phase 1 Development), Mitigation Measures AQ-6 and AQ-7 would require any future project estimated to result in the exceedance of any air quality threshold to mitigate its impacts by purchasing offsets.

Please be aware that the Air District does not currently have a fee program for offsetting emissions. These are occasionally conducted by the Air District's support foundation, the Bay Area Clean Air Foundation, on a case-by-case basis based on available projects. We recommend that references to BAAQMD on page 3.2-29 ["… coordinate with BAAQMD to determine the mitigation fees … to pay on a pro rata basis to BAAQMD …"] and page 3.2-32 ["… BAAQMD would determine the mitigation fees for each development project's applicant to pay on a pro rata basis to BAAQMD …"] be replaced with "an independent third-party approved by the City, such as the Bay Area Clean Air Foundation." This will clarify that Project applicants may seek additional options if the Bay Area Clean Air Foundation has no available projects at the time. In addition, when considering offset emission purchases for air quality and GHGs, staff

1-12

1-13

recommends using a preferential hierarchy that first benefits the community, the City, or the Bay Area region, in that order. 1-13 (Cont.)

Public Outreach on Health Risk Assessments 1-14

Staff supports the Plan's requirement of having future projects, located within 1,000 feet of sensitive receptors, perform health risk assessments. Staff recommends that the City communicate its findings to the public for full disclosure prior to approval of the projects.

Ensure Compliance with Air District Regulations and Permitting Requirements 1-15

Air District staff advises the City to comply with the following:

- **Trackout Requirement.** The Project requires compliance with Air District Regulation 6, Rule 6: Prohibition of Trackout for construction sites where the total land area covered by construction activities and/or disturbed surfaces at the site are one acre or larger. Because the Project site is 92.2 acres, the DEIR should discuss Regulation 6, Rule 6 as it applies to the Project. To review the regulation, please visit https://www.baaqmd.gov/rules-and-compliance/rules/regulation-6-rule-6-prohibition-of-trackout and consult with staff from the Air District's Compliance and Enforcement Division at (415) 749-4795 or compliance@baaqmd.gov.
- **Authority to Construct/Permit to Operate.** The Air District is responsible for the issuance of air quality permits for stationary equipment in the Bay Area and the management of the resulting air emissions. Because the Project includes two emergency generators, the Project applicant will need to apply for an Air District Authority to Construct/Permit to Operate. If you have any questions regarding the Air District's permits, please contact Barry Young, Senior Advanced Projects Advisor, at byoung@baaqmd.gov or (415) 940-9641 to discuss permit requirements. 1-16

Air District staff is available to assist the City in addressing these comments. If you have any questions or would like to discuss Air District recommendations further, please contact Josephine Fong, Environmental Planner, at (415) 749-8637 or jfong@baaqmd.gov, or Areana Flores, Environmental Planner, at (415) 749-4616, or aflores@baaqmd.gov.

Sincerely,

Greg Nudd
Deputy Air Pollution Control Officer

cc: BAAQMD Director David J. Canepa
BAAQMD Director Carole Groom
BAAQMD Director Davina Hurt

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY GAVIN NEWSOM, Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 4
OFFICE OF TRANSIT AND COMMUNITY PLANNING
P.O. BOX 23660, MS-10D
OAKLAND, CA 94623-0660
PHONE (510) 286-5528
TTY 711
www.dot.ca.gov

Making Conservation a California Way of Life.

March 1, 2021

SCH #: 2017112045
GTS #: 04-SM-2017-00347
GTS ID: 8680
Co/Rt/Pm: SM/380/5.16

Matt Neuebaumer, Associate Planner
City of San Bruno
567 El Camino Real
San Bruno, CA 94066

Re: Bayhill Specific Plan and Phase 1 Development- YouTube Draft Environmental Impact Report (DEIR)

Dear Matt Neuebaumer:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the Bayhill Specific Plan and Phase 1 Development Project (Project). We are committed to ensuring that impacts to the State's multimodal transportation system and to our natural environment are identified and mitigated to support a safe, sustainable, integrated and efficient transportation system. The following comments are based on our review of the January 2021 DEIR. 2-1

Project Understanding
The Specific Plan is a proposed land use, transportation, and capital improvements plan that outlines a cohesive, long-term, community-driven vision for the Project site. The Specific Plan would allow for the development of up to 2.46 million net new square feet of office uses on the Project site. The Specific Plan would also establish housing and mixed-use overlay zones on a total of 20.5 acres in the southern portion of the Project site that would allow for the development of up to 573 multi-family residential units.

Travel Demand Analysis and Mitigation Strategies 2-2
With the enactment of Senate Bill (SB) 743, Caltrans is focused on maximizing efficient development patterns, innovative travel demand reduction strategies, and multimodal improvements. For more information on how Caltrans assesses

Transportation Impact Studies, please review Caltrans' Transportation Impact Study Guide. 2-2 (Cont.)

The Project's Vehicle Miles Traveled (VMT) analysis and significance determination presented in the DEIR are undertaken in a manner consistent with the Office of Planning and Research's (OPR) Technical Advisory. Per the DEIR, this Project is found to have significant and unavoidable VMT impacts. However, Caltrans acknowledges the current Transportation Demand Management (TDM) measures in place with the Phase I tenant (YouTube) and commends the commitment, year over year, to comply with the Project VMT threshold. 2-3

Caltrans acknowledges the Lead Agency's role in overseeing the TDM programs set forth for future tenants and supports the allocation of impact fees toward multimodal and regional transit improvements with the goal of fully mitigating cumulative impacts to regional transportation. Caltrans also strongly supports measures to increase sustainable mode shares, thereby reducing VMT. 2-4

Multimodal Safety and Planning

Caltrans recommends replacing all standard basic crosswalk markings on El Camino Real (ECR) from San Bruno Avenue to Sneath Lane with one of the higher visibility crosswalk patterns per Caltrans Standard Plan A24F (https://dot.ca.gov/programs/design/ccs-standard-plans-and-standard-specifications). 2-5

The City of San Bruno's Walk 'N Bike Plan calls for intersection improvements along ECR, including adding corner bulb-outs and pedestrian refuge islands which can reduce crossing distance for pedestrians and improve pedestrian visibility at intersections. Caltrans recommends that the intersection improvements on ECR within the Project study area be implemented prior to, or included in, the Project. 2-6

As well, Caltrans encourages the allocation of fair share contributions towards the Walk 'N Bike Plan's recommendations for striping and signage improvements to enhance bicycle access and safety at I-380/I-280/San Bruno Avenue West. Infrastructure connectivity improvements such as ramp and curb repairs in and around the Project area may also encourage mode shift and promote safety amongst all users. 2-7

Right of Way (ROW) Encroachment

The Project applicant will need to reach out to Caltrans' Office of Encroachment Permits (Permits) and Division of ROW as this Project will require permits for both surface and airspace encroachments, per Caltrans and FHWA requirements. The applicant will need to obtain a ROW Use Agreement and pay a fair market rate for the use of Caltrans' Airspace to install tiebacks, as diagrammed in Appendix 5. When plans are submitted to Caltrans for review, the ROW line should be clearly delineated on all diagrams. Please clarify the property lines after page 3 of Appendix 5, as it is not clearly marked where the tiebacks fall within Caltrans' ROW. 2-8

Additionally, as part of the encroachment permit submittal process, the applicant will be asked by Permits to submit a completed encroachment permit application package, digital set of plans clearly delineating the State ROW, digital copy of signed, dated and stamped (include stamp expiration date) traffic control plans, this comment letter, your response to the comment letter, and where applicable, the following items: new or amended Maintenance Agreement (MA), approved Design Standard Decision Document (DSDD), approved encroachment exception request, and/or airspace lease agreement. Your application package may be emailed to D4Permits@dot.ca.gov. 2-9

To download the permit application and to obtain more information on all required documentation, visit https://dot.ca.gov/programs/traffic-operations/ep/applications.

If any Caltrans facilities are impacted by the Project, those facilities must meet American Disabilities Act (ADA) Standards after Project completion. 2-10

Lead Agency

As the Lead Agency, the City of San Bruno is responsible for all Project mitigation, including any needed improvements to the State Transportation Network (STN). The Project's fair share contribution, financing, scheduling, implementation responsibilities should be fully addressed for all proposed mitigation measures. 2-11

Thank you again for including Caltrans in the environmental review process. Should you have any questions regarding this letter, please contact Laurel Sears at laurel.sears@dot.ca.gov. Additionally, for future notifications and requests for review of new projects, please contact LDIGR-D4@dot.ca.gov. 2-11 (cont.)

Sincerely,



MARK LEONG
District Branch Chief
Local Development - Intergovernmental Review

c: State Clearinghouse

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Letter 3

San Francisco International Airport

March 1, 2021

Matt Neuebaumer
Associate Planner
City of San Bruno
Community & Economic Development Department
567 El Camino Real
San Bruno, CA 94066

TRANSMITTED VIA EMAIL
MNeuebaumer@sanbruno.ca.gov

Subject: ***Comment letter to the Draft Environmental Impact Report for the Bayhill Specific Plan, including YouTube Phase 1 Development – City of San Bruno***

Dear Mr. Neuebaumer:

San Francisco International Airport (SFO or the Airport) appreciates the opportunity to comment on the Draft Environmental Impact Report (DEIR) for the Bayhill Specific Plan Area and YouTube Phase I development (the project) in San Bruno (the City). We are happy to coordinate with the City in considering and evaluating potential land use compatibility issues with the Airport for the project. 3-1

The Airport previously provided the City with comment letters, dated December 7, 2017 and August 14, 2019, regarding environmental review of the project under the California Environmental Quality Act. In those letters, the Airport did not identify any inconsistencies between the project and the Comprehensive Airport Land Use Compatibility Plan for the Environs of SFO (ALUCP). 3-2

On January 14, 2021, the City released its DEIR for the project. The Airport understands that the Specific Plan area currently contains 1.8 million square feet of development, which the project would increase to accommodate a further 2.44 million square feet of development, in addition to 573 new residential units. Height limits for all development would remain at a maximum of three stories and 50 feet throughout the Specific Plan area. 3-3

The Airport would like to amend its prior comments to state that the northeastern portions of Parcels 15 and 16 are within the 65 decibel (dB) Community Noise Equivalent Level (CNEL) contour for SFO (see Figure 1). The Airport understands Parcels 15 and 16 are within the Bayhill Regional Office (BRO) zone and would allow for hotels and ancillary uses, including childcare facilities. Because Parcels 15 and 16 are within the 65 dB CNEL contour, any development of these parcels would be subject to the provisions of ALUCP Policy NP-3 and Table IV-1, which, among other things, limit the types of development allowable and require sound insulation and the grant of an avigation easement for certain types of development. The Bayhill Specific Plan and YouTube Phase I development should include and apply these requirements. 3-4

The Airport also highlights that throughout the project site, any overnight uses could experience noise disturbances from aircraft departures. Any proposed residential or other sensitive uses should therefore meet the interior noise requirements of the California Building Code and San Bruno General Plan. 3-5

AIRPORT COMMISSION CITY AND COUNTY OF SAN FRANCISCO

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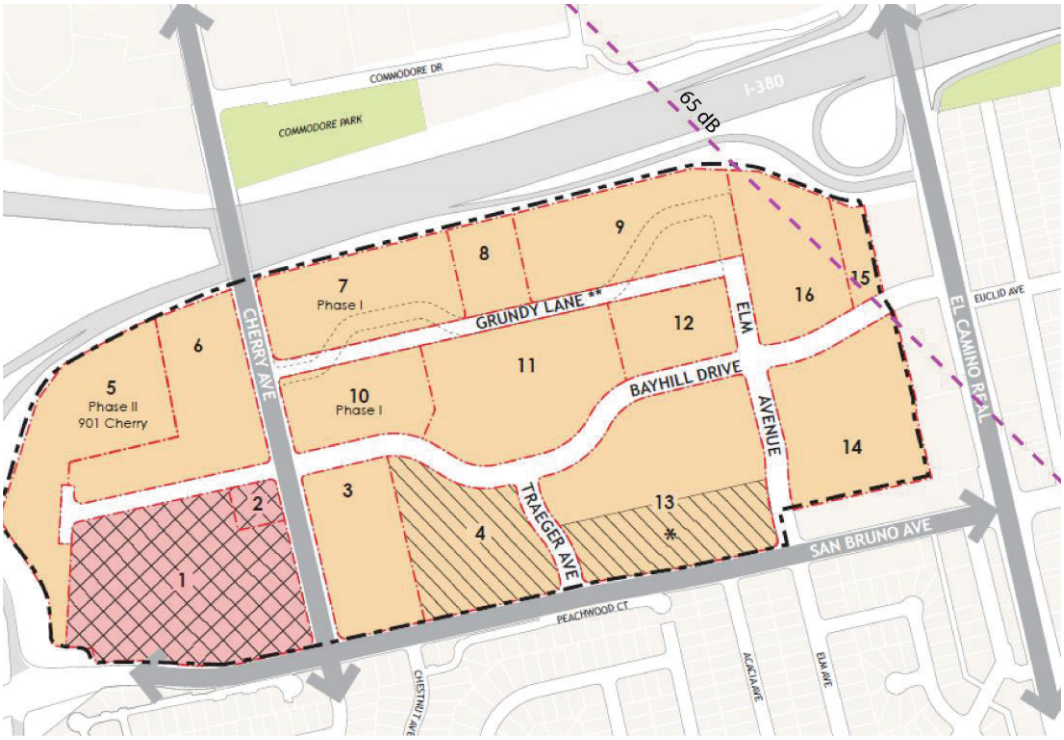


Figure 1: Project Area and SFO 65 dB CNEL contour

3-6

Finally, the Airport was not notified about the issuance of the DEIR, even though the Airport had commented on the Notice of Preparation and Revised Notice of Preparation of an EIR. We would appreciate if the City could double check SFO is on the distribution list for all notices regarding development and land use projects, including general plan, specific plan, and zoning updates, within the City.

3-7

The Airport appreciates your consideration of these comments. Please do not hesitate to contact me at (650) 821-9464 or at nupur.sinha@flysfo.com should there be any questions related to this project.

Sincerely,

DocuSigned by:
Nupur Sinha
7D552AE6A4CE495...

Nupur Sinha
Acting Planning Director
Planning and Environmental Affairs

cc: Sandy Wong, C/CAG
Audrey Park, SFO, Acting Environmental Affairs Manager

Letter 4

San Francisco Water Power Sewer
Operator of the Hetch Hetchy Regional Water System

525 Golden Gate Avenue, 13th Floor
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March 1, 2020

Attn: Matt Neuebaumer, Associate Planner
City of San Bruno Community & Economic Development Department
567 El Camino Real, San Bruno, CA 94066

Sent Via Email to: MNeuebaumer@sanbruno.ca.gov

Re: Draft Environmental Impact Report for the Bayhill Specific Plan, Including the YouTube Phase I Development (SCH # 2017112045), City of San Bruno

Dear Mr. Neuebaumer:

4-1

Thank you for the opportunity to provide comments on the above-referenced Draft Environmental Impact Report for the Bayhill Specific Plan (DEIR). The City and County of San Francisco, through its San Francisco Public Utilities Commission (SFPUC), is submitting comments to the City of San Bruno so that the SFPUC's right-of-way (ROW) property interests and infrastructure, as well as potential impacts to groundwater resources, are properly described and analyzed in the DEIR.

We greatly appreciate your efforts to incorporate the SFPUC's previous comments on the Revised Notice of Preparation of a Draft Environmental Impact Report for the San Bruno Bayhill Specific Plan and the YouTube Phase I Office Development (dated 7/26/2019) into the DEIR. We also appreciate the Project Sponsor's presentation of preliminary conceptual plans at the SFPUC's 11/20/2019 Project Review Meeting.

Our comments focus on three general areas: Land use and parking (i.e. development of underground parking garages) and groundwater resources and water demand.

Land Use and Parking

The City and County of San Francisco owns (or holds easements for) a water transmission pipeline right-of-way (ROW) managed by the SFPUC that is part of a regional water system serving 2.7 million customers. In some locations, the SFPUC ROW is located within a public right-of-way.

4-2

London N. Breed
Mayor

Sophie Maxwell
President

Anson Moran
Vice President

Tim Paulson
Commissioner

Ed Harrington
Commissioner

Newsha Ajami
Commissioner

Michael Carlin
Acting
General Manager

Under DEIR Sections 2.3.4 (Other Land Use Plans and Regulations) and 3.6 (Land Use Planning), the DEIR correctly describes the locations of two SFPUC ROW easements within the project site and the SFPUC policies that apply to its ROW. The DEIR also describes the SFPUC's vetting process for the proposed use of its ROW (Project Review). 4-2 (Cont.)

In Section 2.6.2.6 (Transportation, Circulation, and Parking), the DEIR describes the development of up to 11 new underground parking garages with depths ranging from 29 feet to 58 feet below ground surface. Phase I of the proposed project (analyzed at the project level in the DEIR) would affect the SFPUC ROW for the Sunset Supply Line and Crystal Springs Pipeline No. 2 with the realignment of Grundy Avenue at Elm Avenue. Future phases of the proposed project (analyzed at the program level in the DEIR) would include underground parking garages on either side of this section of the SFPUC ROW. 4-3

As described by the project sponsor at the 11/20/2019 Project Review meeting, the two underground garages on either side of the SFPUC ROW would be connected by an underground pedestrian tunnel under the SFPUC ROW, and a pedestrian bridge over the SFPUC ROW. The Project Review Committee concurred that further Project Review is necessary once the project sponsor submits plans showing the construction method for protecting SFPUC water transmission pipelines during construction of all proposed project elements within the SFPUC ROW easement and public ROW. In addition, more information is needed regarding how the proposed overhead crossing would allow passage and operation of a crane. A summary of the 11/20/2019 Project Review meeting is attached for your reference. 4-4

In the cumulative analysis, the DEIR describes a proposed office development on a vacant hillside lot on the west side of the project site (adjacent to 901 Cherry Avenue). This project has been approved by the City of San Bruno and is included in the overall development of the project site. Because the SFPUC's San Andreas Pipeline Nos. 2 and 3 extend across this hillside parcel, further review by the SFPUC's Project Review Committee will be necessary as plans are developed by the project sponsor. 4-5

As stated in the DEIR, the project sponsor will continue to work with the SFPUC through its Project Review process to develop plans that are consistent with SFPUC plans and policies. 4-6

Groundwater Resources and Water Demand

SFPUC Water Resources staff have concerns regarding inaccurate descriptions of SFPUC's Regional Groundwater Storage and Recovery Project (RGSR) set forth in the DEIR sections 3.5 Hydrology and Water Quality and 3.11 Utilities and Service Systems. It appears that there is a variance between the development project water supply assessment and the DEIR text with respect to the operation and design of the RGSR project. 4-7

I recommend that the City of San Bruno and the DEIR consultants work with our Water Resources staff to resolve this issue. Please contact Nicholas Johnson, Water Operations Analyst, at NJohnson@sfwater.org or Christopher Lyles, Regulatory Specialist, at clyles@sfwater.org for more information.

Thank you again for this opportunity to comment on the proposed project and its DEIR. If you have any questions or need further information, please contact Joanne Wilson, Senior Planner, at jwilson@sfwater.org. The project sponsor is encouraged to submit updated plans and a project description at various design phases for elements of the proposed project that affect the SFPUC ROW to projectreview@sfwater.org.

4-8

Sincerely,

Steven R. Ritchie

Steven R. Ritchie
Assistant General Manager, Water

Attachment: 11/20/2019 Project Review Meeting Summary

C: SFPUC: Tim Ramirez, Rosanna Russell, Paula Kehoe, Angela Cheung, Ellen Levin, Annie Li, Ellen Natesan, Casey Rando, Joanne Wilson, Christopher Wong, Stacie Feng, Emily Read, Obi Nzewi, Christopher Lyles

San Francisco Office of the City Attorney: Richard Handel

City of San Bruno: Mark Reinhardt, Water System and Conservation Manager

Hetch Hetchy
Regional Water System
Services of the San Francisco Public Utilities Commission
Natural Resources and Lands Management Division

Date: **December 27, 2019**

To: **Project Review Committee:**
Natural Resources and Lands Management Division (NRLMD): Jessica Appel, Carin Apperson, Dave Baker, Anna Fedman, Neal Fujita, Jane Herman, Mia Ingolia, Clayton Koopmann, Jonathan Mendoza, Ellen Natesan, Jonathan Perrin, Emily Read, Brian Sak, Scott Simono, Casey Sondgeroth, Daniel Stewart, Eric Sutera, Kathleen Swanson, Joanne Wilson, Yin Lan Zhang

Water Supply and Treatment Division (WSTD): Annie Li, Colm Conefrey, Stacie Feng, Jim Heppert, Tracy Leung, Colby Lum, Tony Mazzola

Real Estate Services (RES): Tony Bardo, Nicki Bartak, Dina Brasil, Tony Durkee, Bruz Meade, Heather Rodgers, Rosanna Russell, Christopher Wong

Water Quality Bureau (WQB): Suzie Auyeung and Jackie Cho

Bureau of Environmental Management (BEM): Brett Becker, Lindsay Revelli, Matthew Weinand

City Attorney's Office: Shari Geller Diamant, Richard Handel, Catherine Malina

Cc: **SFPUC:** Jim Avant, Jim Barkenhus, Kevin Bolter, Bree Candiloro, Kelley Capone, Manuel Casanova, Kyndra Cox, Debbie Craven-Green, Robin Dakin, Andrew DeGraca, Jane Dhaliwal, Erick Digre, Rick Duffey, Daniel Ficker, Ed Forner, James Forsell, John Fournet, Mae Frantz, Karen Frye, Susan Hou, Alan Johanson, Jowin Jung, Kevin Kasenchak, Patrick Kerrisk, Krysten Laine, Samuel Larano, Sarah Lenz, Jeremy Lukins, Greg Lyman, John Lynch, Scott MacPherson, Miko Nadel, Chris Nelson, Gloria Ng, Tim Ramirez, Ken Salmon, Carla Schultheis, Bles Simon, Damon Spigelman, Kimberly Stern Liddell, Irina Torrey, Rizal Villareal, Derek Wong, Tina Wuslich

San Francisco City Planning (Environmental Planning): Chris Kern (as-needed)

From: **Joanne Wilson / Senior Land and Resources Planner**
jwilson@sfwater.org | (650) 652-3205

Subject: **November 20, 2019 Project Review Committee Meeting**
10:00 a.m. – 1:00 p.m.
1657 Rollins Road, Burlingame, CA 94010 - Medbery (Large) Conference Room

Participants: Dave Baker, Jane Herman, Ellen Natesan, Emily Read, Scott Simono, Joanne Wilson (SFPUC-NRLMD); Bruz Meade, Christopher Wong (SFPUC-RES); Stacie Feng, Tracy Leung (SFPUC-WSTD Land Engineering); David Blackwater; Mitch Lee, Michelle McDermott, Ashley Stanley, Matt Weber (Youtube Representatives); Joanna Kwok, Hae Wen Ritchie (City of San Bruno); Erica Schlemer, Robert Villasenor (PG&E); James Wilson (ACRT); Lynette Curthoys (Foghorn Solutions Inc); and Madeline Green (Blue Rock Services Inc).

Project Review Committee Meeting Schedule for 2019 / 2020

October 2, 2019	January 15, 2020	April 1, 2020	July 1, 2020	October 7, 2020
October 16, 2019	January 29, 2020	April 15, 2020	July 15, 2020	October 21, 2020
November 6, 2019	February 5, 2020	May 6, 2020	August 5, 2020	November 4, 2020
November 20, 2019	February 19, 2020	May 20, 2020	August 19, 2020	November 18, 2020
December 4, 2019	March 4, 2020	June 3, 2020	September 2, 2020	December 2, 2020
December 18, 2019	March 18, 2020	June 17, 2020	September 16, 2020	December 16, 2020

NOTE: *Due to limited resources, the SFPUC must prioritize projects critical to our core mission of providing high quality utility services to our customers. We appreciate your patience in our response to your project application.*

4-9
Cont.

1) Case No.	Project	Applicant/Project Manager
19.11-RW59.00	San Bruno Bayhill Specific Plan/Youtube Development - Bayhill Drive and Elm Avenue, San Bruno	Matthew Webber, Senior Development Manager, Ellis Partners (on behalf of Google/YouTube)

The proposal is to construct an underground pedestrian connection under two SFPUC water transmission pipelines (Sunset Supply Line and Crystal Springs Pipeline No. 2) located in the public right of way (ROW) on Elm Avenue between Bayhill Drive and San Bruno Avenue to connect two new underground parking structures to be constructed on either side of the public ROW. In addition, the proposal is to construct a pedestrian bridge or above-grade crossing over the same section of public ROW. In addition to the Elm Avenue public ROW, the SFPUC water transmission pipelines extend through two, side-by-side, 40-foot wide SFPUC ROW easements located north of Bayhill Drive. Other improvements on the SFPUC ROW include the relocation of a fire hydrant, minor grading and paving, a vacation of a portion of Elm Avenue, a storm drain that would cross the ROW perpendicularly approximately 5 feet north of the existing storm drain crossing on Elm Avenue, and a planter strip with trees.

In addition to the SFPUC ROW easement and the public ROW that includes the SFPUC's water transmission pipelines under Elm Avenue, there is a narrow public utility easement (PUE) parallel, but outside of, the SFPUC ROW easement and public easement. These 5- to 15-foot wide PUEs are located on either side of the 80-foot wide SFPUC ROW easements and public ROW.

These proposed structures are part of YouTube Phase 1 Project of the San Bruno Bayhill Specific Plan, which proposes: 1) The construction of an off-street multi-modal transportation hub on an access way located between Grundy Lane and Bayhill Drive, on the west side of the parcel containing 950 Elm Street; 2) The realignment and straightening of Grundy Lane from Cherry Avenue to Elm Avenue; and 3) the abandonment of the northern portion of Elm Avenue located directly to the north of the realigned Grundy Lane.

SFPUC Real Estate Services' research yielded two easement deeds conveying land rights to the SFPUC (one issued by the U.S. Navy on 6/30/59 and the other recorded on 12/10/55). Copies will be provided to the project sponsor.

The Committee also discuss the proposed planter strip with trees. SFPUC policy generally prohibits trees on the SFPUC ROW, but staff noted that small trees in containers could be considered. In ground root barriers are ineffective over time and tree roots can damage the protective coating of water transmission pipelines that protects them from corrosion. In no case are trees allowed directly over water transmission pipelines because of load considerations and access issues. At a future Project Review meeting, the project sponsor will present a landscape plan.

Regarding the proposed overhead pedestrian crossing, SFPUC staff were concerned that such a structure would inhibit SFPUC access, particularly for pipeline replacement or additions which require aerial clearance for a crane. The SFPUC would need to review a proposal for an overhead crossing that allows the passage and operation of a crane.

The Committee concurred that further Project Review is necessary once the project sponsor submits plans showing the construction method for protecting SFPUC water transmission pipelines during construction of all proposed project elements within the SFPUC ROW easement and public ROW. In addition, more information is needed regarding how the proposed overhead crossing would allow passage and operation of a crane. Since the project sponsor has submitted a request for a potholing consent letter, it would also be helpful if this data were available at a future Project Review meeting.

The project is scheduled to commence in next year (2020) and would take approximately 20 to 24 months to complete the first phase. The proposed project is divided into several phases that would be implemented over the next 20 years as part of the San Bruno Bayhill Specific Plan. A draft environmental impact report (DEIR) is being prepared for the San Bruno Bayhill Specific Plan pursuant to the California Environmental Quality Act (CEQA). The SFPUC provided comments on the revised Notice of Preparation (NOP) of a DEIR on August 23, 2019.

4-9 Cont.

Follow-up Requirements:

Real Estate Services

1) SFPUC Real Estate Services will provide copies of the two easement deeds to the project sponsor (contact Christopher Wong, Principal Administrative Analyst, at cjwong@sfwater.org or (415) 487-5211.

Water Supply and Treatment Division - Land Engineering

2) The project sponsor will obtain a consent letter from SFPUC-WSTD Land Engineering to perform potholing on the SFPUC pipelines at the project site (for more information, contact Tracy Leung, Associate Engineer, at tleung@sfwater.org or (650) 871-3031). [Update: Project sponsor has initiated a request for a consent letter for potholing.]

3) For more information regarding the SFPUC's engineering requirements, the project sponsor may contact Stacie Feng, Associate Engineer, at sfeng@sfwater.org or (650) 871-2037; or Tracy Leung, Associate Engineer at tleung@sfwater.org or (650) 871-3031.

Natural Resources and Lands Management Division

4) Further Project Review is required. The project sponsor will submit conceptual design, including the tunnel diameter and the construction method for protecting SFPUC water transmission pipelines during construction of all proposed project elements within the SFPUC ROW easement and public ROW. In addition, the project sponsor will provide more information regarding how the proposed overhead crossing would allow passage and operation of a crane. Since the project sponsor has submitted a request for a potholing consent letter, it would also be helpful if this data were available at a future Project Review meeting. The project sponsor will also provide more landscaping details showing compliance with the SFPUC's ROW vegetation policy. Contact Joanne Wilson, Senior Land and Resources Planner, at jwilson@sfwater.org or (650) 652-3205.

5) For more information regarding the SFPUC's ROW vegetation management policy, the project sponsor may contact Emily Read, ROW Manager, at eread@sfwater.org or (650) 652-3204.

2) Case No.	Project	Applicant/Project Manager
19.11-AL61.00	PG&E Vegetation Management - Tesla-Newark 230kV Transmission Line NERC 2019 - Calaveras Road, Sunol (9 trees and 34 brush units)	Robert Villasenor, Land Planner, Pacific Gas and Electric Company (PG&E)

The proposal is to remove 9 trees and 34 brush units on the Alameda Watershed near Calaveras Road and the quarry ponds, distributed over approximately 1.4 linear miles. This transmission line vegetation management work is required to maintain safe and reliable electric service and mandated clearance to comply with federal and state regulatory requirements for public safety and fire prevention. Affected species include bay, valley oak, coast live oak, elderberry, and sycamore. The work consists of removing trees and branches that could come into contact with power lines and to clear the brush at the base of the towers ("cage clearing").

No ground disturbance is required to complete the work. Vehicles will remain on existing roads and crews will access trees either on foot or by lift truck operated from the existing roads. Equipment may include pick-up trucks, bucket trucks, and tow chippers.

The Committee discussed vegetation debris and SFPUC requirements. When SFPUC requirements allow PG&E to lop and scatter vegetation debris, it will not be scattered in grasslands and will be left within the footprint of the tree to minimize disturbance. Stumps will be treated with an herbicide in compliance with City and County of San Francisco's Integrated Pest Management (IPM) Ordinance (Environment Code Chapter 3). SFPUC staff stated that PG&E must also adhere to SFPUC criteria for vehicle and equipment decontamination, fire prevention, weather conditions, and quarry safety training (where applicable).

4-9 Cont.

The PG&E representative stated that all work would take place within existing PG&E easements.

The PG&E representative also stated that the proposed work and all work locations are covered by PG&E's Bay Area Operations and Maintenance Habitat Conservation Plan (BAHCP). The BAHCP provides PG&E with federal take authorization for specific covered species for all gas and electric operations and maintenance activities in the nine-county San Francisco Bay Area during the 30-year permit term.

The project is scheduled to commence as soon as possible and be completed by December 31, 2019 as required by the North American Electric Reliability Corporation (NERC), or as soon as ground conditions are sufficiently dry to perform the work as determined by SFPUC staff. PG&E staff explained that a list of NERC compliance projects, including vegetation management, is submitted to NERC annually at the beginning of the year.

Project Work Locations:

Note: In the descriptions below, "service road" may be paved, unpaved, rocked or un-rocked, or vegetated.

Vegetation Points (VP) 10, 9, 8 & 2:

Removal activity includes four mature Valley Oak trees with 31- and 33-inch diameter at breast height (DBH) at VP 9 and VP 10; 42-inch DBH at VP 8; and 44-inch DBH at VP 2. The service road is located off Calaveras Road. Crews will access work sites by foot, approximately 150 feet away from the service road. SFPUC prefers extensive trimming of isolated oaks rather than removals because the trees provide valuable shade for cattle. Dave Baker, Alameda Watershed Forester, requested a field visit to confirm whether some portion of the trees could remain and still achieve compliance with the transmission line clearance requirements. There has been no biological survey and the extent of Viola (*Viola pedunculata)*, the larval food plant for the federal endangered callippe silverspot butterfly (*Speyeria callippe callippe*), is unknown. To protect populations of Viola, PG&E will remove limbs and small debris off-site. Remaining bole and large vegetative debris will be placed within the footprint of the tree.

VPs 1 & 7:

Removal activity includes two multi-stemmed trees with a total DBH of 40 inches for the Bay tree at VP 1 and a total 52 inches for the Sycamore tree at VP 7. For multi-stemmed units, SFPUC staff noted that they would like to see individual stem measurements in the future. Service road is located off Calaveras Road. Debris will be hauled off site.

VPs 3, 4, & 11:

Removal activity includes three trees: A multi-stem Coast Live Oak at VP 3 with a total DBH of 56 inches, a multi-stem Coast Live Oak at VP 4 with a total DBH of 30 inches, and a Valley Oak at VP 11 with a 13-inch DBH. Service road is located off Calaveras Road. Debris will be hauled off site. VPs are located within a weedy area and crews should closely follow weed-control protocols including decontamination of equipment before and after performing work at these sites.

VPs 5 & 6:

PG&E will remove approximately 20 elderberry bushes under the towers. For VP 5, SFPUC staff suggested accessing the site directly from the substation perimeter road if possible to minimize the distance required for foot travel. Service road is located off Calaveras Road. Debris will be hauled off site.

VP 12:

PG&E will remove approximately 14 elderberry bushes under the tower. Service road is located off Calaveras Road through the existing quarry, which will require coordination and training as specified below. Debris will be hauled off site.

4-9 Cont.

Follow-up Requirements:

Real Estate Services

1) The project sponsor will work with SFPUC Real Estate Services to obtain a Work Authorization Letter for the proposed project on SFPUC property (for more information, contact Hugh "Bruz" Meade, SFPUC Real Estate Services Consultant, at HAMeade@sfwater.org .

2) The project sponsor will contact SFPUC Real Estate Services to coordinate access through the quarry, and if requested by the SFPUC lessee, arrange for quarry safety training to PG&E crews or contractors for VP 12. Please contact Anthony (Tony) Bardo, Assistant Real Estate Services Director, at ABardo@sfwater.org or (415) 554-1522.

Natural Resources and Lands Management Division

3) The project sponsor and its contractors will each obtain an approved SFPUC-NRLMD Access Permit (and keys, if needed) 30-days prior to entering the SFPUC property to perform work (contact Gloria Ng, NRLMD Secretary, at gng@sfwater.org or (650) 652-3209).

4) Prior to commencing work, the PG&E project manager and/or contractor will arrange a site meeting with the Alameda Watershed Forester to review VPs 10, 9, 8, and 2 to determine whether some portion of the trees may remain. Please contact Dave Baker, Alameda Watershed Forester, at DBaker@sfwater.org or (209) 989-2509. [Update: On 11/26/19, the Alameda Watershed Forester met with James Wilson and David Carruth (PG&E) regarding trimming rather than removing mature oak trees. Trees VP 2, VP 8, VP 9, and VP 10 will all be trimmed rather than removed. Debris generated from trees VP 2 and 8 will be lopped and scattered since they are located on a steep hillside, more than 100 feet from an existing road. Debris less than 16 inches in diameter generated from trees VP 9 and 10 will be removed from the site. Any material exceeding 16 inches shall be bucked into segments less than 8 feet in length.]

5) Access to work locations and method of access: Proposed work will be limited to periods of dry conditions to protect habitat for special status species and to avoid damage to SFPUC property unless otherwise approved by the Watershed Forester or Alameda Watershed Manager and then only with the following conditions:

   a) Vehicle access (including truck and UTV/ATV) will be restricted to all-weather (i.e. all-season, rocked or paved) roads for access, staging or parking during wet weather conditions with saturated soils due to increased California tiger salamander (*Ambystoma californiense*) or CTS activity. Access to work sites off-road (including vegetated or unpaved roads or jeep trails) will be allowed only on-foot.

   b) PG&E will implement avoidance and minimization measures (AMMs) to protect CTS and use extra caution when working at sites with CTS habitat/known occurrences (VPs 2, 5, 6, 8, 9, 10, and 12).

   c) Strict adherence to the maximum speed limit of 15 miles per hour is required.

   For more information, please contact Dave Baker, Alameda Watershed Forester, at DBaker@sfwater.org or (209) 989-2509; Neil Fujita, Alameda Watershed Manager, at nfujita@sfwater.org or (925) 862-5516; and Scott Simono, Biologist, at ssimono@sfwater.org or (415) 934-5778.

6) If work is delayed until 2020 because of weather, SFPUC requires PG&E to perform a pre-construction biological survey during the appropriate season to identify special status plants and the host plant for the Callippe silverspot butterfly, in areas of suitable habitat or other special status species within the proposed work sites and access routes. For more information, contact Scott Simono, Biologist, at ssimono@sfwater.org or (415) 934-5778. [Update: The SFPUC Biologist, Scott Simono, provided the following information: The pre-construction biological survey should include *Viola pedunculate* (Johnny jump-up) unless the analysis PG&E Biological Constraints Report (BCR) for the proposed project indicates other work sites with special status species such as VP 12 which is near a population of *Centromadia parryi* ssp. *Congdonii* (Congdon's tarplant).]

7) If the biological pre-activity survey indicates the presence of special status species, then It is the responsibility of the project sponsor to arrange for a qualified biological monitor on site during the proposed project and activities on SFPUC property. The biological monitor will be present on site for the duration of project activities. Each morning before the start of work, a biological monitor will inspect the project work locations to verify that no special status species are present within designated work areas. The biological monitor will have the authority to stop any action that may result in take of special status species or unanticipated impacts on their habitats. The project sponsor will cover any holes or voids, or provide escape ramps, to prevent special status species from becoming trapped (for more information, contact Scott Simono, Biologist, at ssimono@sfwater.org or (415) 934-5778. [Update: The SFPUC Biologist, Scott Simono, provided the following information: The biological pre-activity survey should be a general pre-construction biological survey for all relevant species identified in the PG&E BCR. Depending on the season, the biological monitor should check for nesting birds and other wildlife (including during debris removal to ensure that wildlife have not taken up residence). Depending on the location, there may be other species the biological monitor should look for and should refer to the PG&E BCR.] 4-9 Cont.

8) The project sponsor or biologist will hold special status species environmental tailboard trainings for employees and contractors performing construction on SFPUC property. All personnel visiting the job site or performing work on or through SFPUC property will attend an environmental tailboard for the project. No work or access onto SFPUC property (including parking or driving) will be performed by individuals who have not received this training. The training shall include a description of the special status species that have the potential to be impacted by the project; and any SFPUC requirements for the project (for more information, contact Scott Simono, Biologist, at ssimono@sfwater.org or (415) 934-5778).

9) The project sponsor and its contractors will limit travel speeds on unpaved roads to 15 miles per hour (mph).

10) Before entering SFPUC property:

    a. All equipment, tools, clothing, and personal protective equipment or PPE (including boots and shoes) shall be thoroughly cleaned of all visible dirt and plant material prior to working on SFPUC property. All equipment, tools, and PPE (including boots and shoes) should be decontaminated with a ≥70% Ethyl or isopropyl alcohol by thoroughly wetting the surface and allowing to air dry before entering SFPUC watershed property.

    b. Vehicles and Large Equipment – Before entering SFPUC Watersheds, the exterior and interior of all vehicles and large equipment (including tires, tracks, and undercarriage) must be cleaned and washed such that all debris, organic matter, and soil is removed. In some instances (as designated by NRLMD staff), cleaning and washing must be followed by sanitizing to eliminate pathogens.

    c. Vehicles, equipment, tools and PPE (including boots and shoes) must be inspected by SFPUC NRLMD staff prior to commencing work on SFPUC property. Inspections are performed between 8:00 a.m. and 12:00 noon, and must be scheduled as soon as possible before the start of work. Contact Neal Fujita, Alameda Watershed Manager, at nfujita@sfwater.org or (925) 862-5516.

    d. After completing work and before moving on to the next site, PG&E crews and contractors will repeat step “a” above to decontaminate equipment, tools, clothing and PPE.

11) The project sponsor will process vegetation debris based on the following conditions below (for more information, please contact Neil Fujita, Alameda Watershed Manager, at nfujita@sfwater.org or (925) 862-5516:

    a. If vegetation debris is less than 16-inches in diameter and located within 100-feet of a service road, then the debris may be chipped and hauled away and disposed of properly and legally. With review and approval by an SFPUC NRLMD Forester, Arborist or Land Manager assigned to the area (prior to vegetation management operations), vegetation debris may be chipped and spread in approved locations. Spread chips shall not exceed a depth of 6-inches and shall not be left piled against tree boles. Chipped vegetation cannot be disposed of on grasslands; or

    b. All vegetation debris (less than 16-inches) not chipped will be hauled away and disposed of properly and legally; or

c. In areas greater than 100-feet from service roads or where removal would be unreasonably difficult, vegetation debris will be lopped and scattered on SFPUC property at locations reviewed and approved by an SFPUC NRLMD Forester, Arborist or Land Manager assigned to the area (prior to vegetation management operations). Lopped vegetation debris shall not exceed a height of 18-inches above the ground. Debris in excess of 16-inches in diameter shall be cut into lengths of 8 feet or less.

d. No vegetation debris shall be left on SFPUC property within 100-feet of facility structures, or within 200-feet of structures maintained for human occupancy or daily use.

4-9 Cont.

e. Debris potentially infected by fungal pathogens or insect pests will be processed per the above specifications and hauled away and disposed of properly and legally; or left on SFPUC property to decompose at locations reviewed and approved by an SFPUC NRLMD Forester, Arborist or Land Manager assigned to the area (prior to vegetation management operations).

f. Cleared or pruned vegetation and woody debris (including chips) must be disposed of in a manner to ensure that debris does not enter surface waters or watercourses. All cleared vegetation and woody debris (including chips) must be removed from surface waters or watercourses and placed or secured above the high-water line where debris cannot reenter watercourses.

12) Any application of pesticides on property owned by the City and County of San Francisco (including SFPUC property) must comply with the requirements of the City and County of San Francisco's Integrated Pest Management (IPM) Ordinance (Environment Code Chapter 3). The following link is to a checklist that summarizes the requirements of the IPM Ordinance and Policies:

https://sfenvironment.org/sites/default/files/fliers/files/sfe_th_ipm_compliance_checklist_090817.pdf

Also, the City and County of San Francisco publishes its annual Reduced-Risk Pesticide List (RRPL):

https://sfenvironment.org/sites/default/files/fliers/files/sfe-th-2017-reduced-risk-pesticide-list.pdf

You will notice that this document includes the following statement: *This list is only one component of San Francisco's IPM program. Pesticides should be the last resort, when all other tactics have failed. The RRPL represents the outer boundaries of acceptable IPM tactics in S.F.* Exemptions are required for any pesticides (i.e., herbicides, insecticides, fungicides, molluscicides, etc.) used on City property for products that are either are: not listed on the RRPL; or on the RRPL but used differently than described in the RRPL's Pesticide Limitations column.

In addition, the project sponsor will ensure that all pesticide applications comply with the Stipulated Injunction and Order to protect federally threatened California red-legged frog (Rana daytonii). For more information, please see the California Department of Pesticide Regulation website at: http://www.cdpr.ca.gov/docs/endspec/rl_frog/

For more information, please see the San Francisco Department of the Environment website at: http://www.sfenvironment.org/article/city-staff/pest-management.

13) Depending on when the project/work occurs in the Alameda Watershed, the project sponsor will maintain the following fire prevention and extinguishing equipment at the work site:

a. If work occurs from December 1st through May 31st, then the project sponsor will have at least one 300-gallon water buffalo fully filled with water; a minimum of one-inch diameter and 200-foot long water hose; shovels and two fully charged 30 lbs. fire extinguisher on the project site always for fire safety (for more information, please contact Neal Fujita, Alameda Watershed Manager, at NFujita@sfwater.org or (925) 862-5516; and Dave Baker, Alameda Watershed Forester, at DBaker@sfwater.org or (209) 989-2509). The water buffalo will be moved periodically so that it is located no more than 200 feet from any active project site (or as directed by the NRLMD forester).

b. If work occurs from June 1st through November 30th, then the project sponsor will have at least one 2,000-gallon water truck fully filled with water; a minimum of one-inch diameter and 200-foot long water hose; shovels and two fully charged 30 lbs. fire extinguisher on the project site always for fire safety (for more information, please contact Neal Fujita, Alameda Watershed Manager, at NFujita@sfwater.org or (925)

862-5516; and Dave Baker, Alameda Watershed Forester, at DBaker@sfwater.org or (209) 989-2509). The water buffalo will be moved periodically so that it is located no more than 200 feet from any active project site (or as directed by the NRLMD forester).

c. If works occurs during December 2019 or January 2020 or in wetted conditions then the project sponsor will have 5-gallon backpack style pump and round point shovel within 25 feet of work location (for more information, please contact Neal Fujita, Alameda Watershed Manager, at NFujita@sfwater.org or (925) 862-5516; and Dave Baker, Alameda Watershed Forester, at DBaker@sfwater.org or (209) 989-2509). 4-9 Cont.

14) For future tree inventory data, PG&E and its consultants will individually measure and tally all stems greater than 1-inch DBH that are to be treated (removed or pruned). Grouping of a collection of stems from a central location should not be tallied as a single tree. For more information please contact Dave Baker, Alameda Watershed Forester, at DBaker@sfwater.org or (209) 989-2509.

Pre-Construction Notification

15) The project sponsor and/or its contractor will notify the Alameda Watershed Manager at least one week prior to commencing the project on SFPUC property and/or pipelines. Please contact Neal Fujita, Alameda Watershed Manager, at nfujita@sfwater.org or (925) 862-5516

16) The project sponsor and/or its contractors will contact the SFPUC-NRLMD Watershed Manager and/or Forester 24 hours in advance of work to confirm that conditions are suitable for construction. In addition, the project sponsor and/or its contractor will submit fire prevention measures, particularly for any hot work (e.g. welding) to the SFPUC-NRLMD Watershed Manager and/or Forester for review and approval. During construction, the project sponsor and/or its contractor will contact the National Weather Service daily to confirm that local weather conditions are suitable for construction activity. The project sponsor and/or its contractor will cease all construction activities during red flag days (high fire hazard periods) or if directed to do so by the SFPUC-NRLMD Watershed Manager and/or Forester (please contact Neil Fujita, Alameda Watershed Manager, at nfujita@sfwater.org or (925) 862-5516).

17) The project sponsor and its contractors will notify SFPUC Millbrae Dispatch twice each day, at (650) 872-5900, when entering and leaving SFPUC property.

Post-Construction Notification

18) The project sponsor and/or its contractors will ensure that all construction debris is removed from SFPUC property and disposed of properly and legally. In addition, the project sponsor will restore the project site upon completing its work on SFPUC property and arrange for a post-construction/restoration site inspection by SFPUC staff. Please contact and Dave Baker, Alameda Watershed Forester, at DBaker@sfwater.org or (209) 989-2509.

3) Case No.	Project	Applicant/Project Manager
19.11-AL62.00	PG&E Vegetation Management - Los Esteros-Metcalf 230kV Transmission Line 2019 - Milpitas and Sunol (46 trees and 22 brush units)	Robert Villasenor, Land Planner, Pacific Gas and Electric Company (PG&E)

The proposal is to remove 44 trees and 22 brush units at 45 work areas on the Alameda Watershed south and east of Calaveras Reservoir and extending north approximately 9 linear miles of the PG&E 230kV electric transmission line to just south of the quarry ponds. This routine transmission vegetation management work is required to maintain safe and reliable electric service and mandated clearance to comply with federal and state regulatory requirements for public safety and fire prevention. Affected species include valley oak, blue oak, coast live oak, California bay, black oak, and blue oak as detailed in the spreadsheet provided with PG&E's project review application. In addition to the tree and brush removal, the work also includes topping two trees.

No ground disturbance is required to complete the work. Vehicles will remain on existing roads and crews will access trees either on foot or by lift truck operated from the existing roads. Equipment may include pick-up trucks, bucket trucks, and tow chippers.

The Committee discussed vegetation debris and SFPUC requirements. When SFPUC requirements allow PG&E to lop and scatter vegetation debris, it will not be scattered in grasslands and will be left within the footprint of the tree to minimize disturbance. Stumps will be treated with an herbicide in compliance with City and County of San Francisco's Integrated Pest Management (IPM) Ordinance (Environment Code Chapter 3). SFPUC staff stated that PG&E must also adhere to SFPUC criteria for vehicle and equipment decontamination, fire prevention, and weather conditions. 4-9 Cont.

The PG&E representative stated that all work would take place within existing PG&E easements.

The PG&E representative also stated that the proposed work and all work locations are covered by PG&E's Bay Area Operations and Maintenance Habitat Conservation Plan (BAHCP). The BAHCP provides PG&E with federal take authorization for specific covered species for all gas and electric operations and maintenance activities in the nine-county San Francisco Bay Area during the 30-year permit term.

The project is scheduled to commence as soon as possible and be completed by December 31, 2019 as required by the North American Electric Reliability Corporation (NERC), or as soon as ground conditions are sufficiently dry to perform the work as determined by SFPUC staff.

Project Work Locations:

Note: In the descriptions below, "service road" may be paved, unpaved, rocked or un-rocked, or vegetated.

Vegetation Points (VP) VP 1:
Removal activity includes one 15-inch DBH Valley Oak tree. Service road is located off Calaveras Road. Debris will be lopped and scattered in wooded areas, avoiding grasslands per SFPUC requirements.

VP 2:
Removal activity includes one 26-inch DBH Blue Oak tree. Service road is located off Calaveras Road. Access route crosses private property where PG&E has an easement (and right of access). Crews will be responsible for contacting the property owner. Debris will be lopped and scattered in wooded areas, avoiding grasslands per SFPUC requirements.

VPs 3, 4, 5, 6, 7, 8, & 9:
Treatment activity includes six trees (see table below).

Tree Species	Diameter at Breast Height (DBH)	Treatment (Prescription)
Coast Live Oak	37	Remove and Treat
Coast Live Oak	32	Top Direct
Coast Live Oak	13	Remove and Treat
Coast Live Oak	5	Remove and Treat
California Bay	33	Remove and Treat
Coast Live Oak	33	Remove and Treat
California Bay	6	Remove and Treat

VP 4 will be topped, not removed. The Committee recommended accessing the site via the service road located off Marsh Road, south of the VPs. Debris will be lopped and scattered in wooded areas avoiding grasslands per SFPUC requirements. SFPUC biologist Scott Simono noted that depending upon the time of year, some of the roads shown

for vehicle access may be vegetated and may have rodent burrows that could provide refuge for California tiger salamander (*Ambystoma californiense*) or CTS. A biological pre-activity survey of any service roads that have vegetation or burrows is required 0-3 weeks prior to work for CTS and burrows to confirm trucks will not collapse burrows.

4-9 Cont.

VP 10:
Removal activity includes ten units of brush. Service road is located off Calaveras Road. Debris will be hauled off-site. A biological pre-activity survey of any service roads that have vegetation or burrows is required 0-3 weeks prior to work for CTS.

VPs 11, 12, & 13:
Removal activity includes two Coast Live Oaks with 10- and 45-inch DBH and a Valley Oak with a 28-inch DBH. VP 12 (Coast Live Oak with 45-inch DBH) will be topped, not removed. VPs are located off Calaveras Road. Debris will be hauled off-site.

VP 14:
Removal activity includes one Valley Oak with a 14-inch DBH. The service road is located off Calaveras Road. Debris will be hauled off-site.

VPs 15 & 16:
Removal activity includes an 18-inch DBH Valley Oak and a 14-inch DBH Coast Live Oak. The service road is located off Calaveras Road. PG&E's proposed plan requires crews to hike into work areas from the road, however from the aerial it appears that closer access via existing roads may allow crews to get close enough to haul out the debris. PG&E will confirm whether an alternative access route is feasible, or whether crews may be limited by steep topography. Per SFPUC requirements, if crews can drive on existing service roads to within 100 feet of the tree, PG&E will haul debris off-site. Otherwise, debris will be lopped and scattered in wooded areas, avoiding grasslands, per SFPUC requirements.

VPs 17 & 18
Removal activity includes a 23-inch DBH Valley Oak and a 28-inch DBH California Bay. The service road is located off Calaveras Road, with crews hiking into work areas. Debris will be lopped and scattered in wooded area, avoiding grasslands, per SFPUC requirements. A biological pre-activity survey of any service roads that have vegetation or burrows is required 0-3 weeks prior to work for CTS and Alameda whipsnake.

VPs 31 & 32:
Removal activity includes 25-inch DBH Black Oak and a 30-inch DBH Coast Live Oak. The service road is located off Calaveras Road. Debris will be hauled off-site. A biological pre-activity survey of any service roads that have vegetation or burrows is required 0-3 weeks prior to work for CTS and Alameda whipsnake.

VPs 33, 34, & 35:
Removal activity includes three Coast Live Oaks with DBH of 24-, 20-, and 33-inches. The service road is located off Calaveras Road. Debris will be hauled off-site. A biological pre-activity survey of any service roads that have vegetation or burrows is required 0-3 weeks prior to work for CTS and Alameda whipsnake. In addition, these VPs cross the lease area for the Sunol-Ohlone Wilderness Trail. Notification prior to work will be required.

VPs 36, 37, 38 & 39:
Removal activity includes 4 Coast Live Oaks with a 3-inch DBH, 3 Coast Live Oaks with a 6-inch DBH, 1 Coast Live Oak with a 23-inch DBH, and 1 California Bay with a 23-inch DBH. The service road is located off Sheridan Road. Debris will be hauled off-site.

VPs 40 & 41:
Removal activity includes 7 Coast Live Oaks with a 6-inch DBH and 7 units of brush. The service road is located off Sheridan Road. There is a stock pond adjacent to the access route. Crews shall not exceed 15 MPH speed limit so

that they can see and avoid harming wildlife including western pond turtle (*Actinemys marmorata*) and CTS. Debris will be hauled off-site.

VPs 42 & 43:
Removal activity includes a Coast Live Oak with a 4-inch DBH and 5 units of brush. The service road is located off Sheridan Road. Debris will be hauled off-site.

VPs 44 & 45:
Removal activity includes a Coast Live Oak with a 15-inch DBH and a Blue Oak with a 13-inch DBH. The service road is located off Andrade Road. There is a stock pond adjacent to the access route. Crews shall not exceed 15 MPH speed limit so that they can see and avoid harming wildlife including western pond turtle (*Actinemys marmorata*) and CTS. Debris will be lopped and scattered in wooded areas per SFPUC requirements.

4-9 Cont.

Follow-up Requirements:

Real Estate Services

1) The project sponsor will work with SFPUC Real Estate Services to obtain a Work Authorization Letter for the proposed project on SFPUC property (for more information, contact Hugh "Bruz" Meade, SFPUC Real Estate Services Consultant, at HAMeade@sfwater.org .

2) The project sponsor will contact SFPUC Real Estate Services to coordinate work around the Ohlone Wilderness Trail with East Bay Regional Parks District. Please contact Neal Fujita, Alameda Watershed Manager, at nfujita@sfwater.org or (925) 862-5516.

Natural Resources and Lands Management Division

3) Regarding VP 15 and 16, PG&E will confirm via email whether an alternative access route is feasible, or whether crews may be limited by steep topography. Contact Joanne Wilson, Senior Land and Resources Planner, at jwilson@sfwater.org or (650) 652-3205, Scott Simono, Biologist, at ssimono@sfwater.org or (415) 934-5778, and Dave Baker, Alameda Watershed Forester, at DBaker@sfwater.org or (209) 989-2509. [Update: On 12/18/19, PG&E provided an updated map (KMZ) showing a feasible alternative access route along the ridge line.]

4) As indicated above for certain VPs, a biological pre-activity survey of any service roads that have vegetation or burrows is required 0-3 weeks prior to work for California tiger salamander (*Ambystoma californiense*) or CTS to confirm vehicles will not collapse burrows. In addition, a biological pre-activity survey of any service roads that have vegetation and suitable habitat is required 0-3 weeks prior to work for Alameda whipsnake (*Masticophis lateralis euryxanthus*) or AWS. For more information, contact Scott Simono, Biologist, at ssimono@sfwater.org or (415) 934-5778.

5) If work is delayed until 2020 because of weather, SFPUC requires PG&E to perform a pre-construction biological survey during the appropriate season to identify *Viola pedunculata* (Johnny jump-up), the host plant for the Callippe silverspot butterfly, in areas of suitable habitat or other special status species within the proposed work sites and access routes. For more information, contact Scott Simono, Biologist, at ssimono@sfwater.org or (415) 934-5778. [Update: The SFPUC Biologist, Scott Simono, provided the following information: In addition to *Viola pedunculate*, the pre-construction biological survey should include Diablo helianthella (*Helianthella castanea*), which has a high potential to occur within the project work sites. The pre-construction survey should also include the following potentially-occurring species: Santa Clara thornmint (*Acanthomintha lanceolata*), Chaparral Harebell (*Campanula exigua*), Congdon's tarplant (*Centromadia parryi* subsp. *Congdonii*), and Most beautiful jewelflower (*Streptanthus albidus* ssp. *Peramoenus*).]

6) If the biological pre-activity survey (or 2020 pre-construction biological survey if applicable) indicates the presence of special status species, then It is the responsibility of the project sponsor to arrange for a qualified

biological monitor on site during the proposed project and activities on SFPUC property. The biological monitor will be present on site for the duration of project activities. Each morning before the start of work, a biological monitor will inspect the project work locations to verify that no special status species are present within designated work areas. The biological monitor will have the authority to stop any action that may result in take of special status species or unanticipated impacts on their habitats. The project sponsor will cover any holes or voids, or provide escape ramps, to prevent special status species from becoming trapped (for more information, contact Scott Simono, Biologist, at ssimono@sfwater.org or (415) 934-5778. . [Update: The SFPUC Biologist, Scott Simono, provided the following information: The biological pre-activity survey should be a general pre-construction biological survey for all relevant species identified in the PG&E BCR including the species identified in the No. 5 above and No. 7 below. Depending on the season, the biological monitor should check for nesting birds and other wildlife (including during debris removal to ensure that wildlife have not taken up residence). Depending on the location, there may be other species the biological monitor should look for and should refer to the PG&E BCR.] 4-9 Cont.

7) The PG&E project manager will provide an electronic copy of the PG&E Biological Constraints Report (BCR) and other relevant watershed resource reports to the SFPUC Project Review coordinator and biologist (contact Joanne Wilson, Senior Land and Resources Planner, at jwilson@sfwater.org or (650) 652-3205 and Scott Simono, Biologist, at ssimono@sfwater.org or (415) 934-5778). [Update: PG&E submitted the BCR and SFPUC Biologist, Scott Simono, provided the following comments:
   a. Please refer to plant species listed above for rare plant survey targets. In the BCR some are not covered or dismissed as not potentially present. It should be easy enough to determine a species isn't present during an actual survey if, for instance, serpentine habitat is not encountered as per *Streptanthus albidus*.
   b. The BCR dismisses the potential for impacts to Callippe silverspot butterfly**: "**Work areas are not in open grassland habitat preferred by this species or its larval host plants". However, this is not totally accurate as the work relies on seldom used access routes that could easily support butterfly host plants.
   c. Townsend's big-eared bat: "Work areas lack large, mature trees with basal hollow cavities, manmade structures, and mines or caves suitable for Townsend's big-eared bat". At least one of the oaks is 45-inch DBH and another is 37-inch DBH. These trees should be examined for cavities.
   d. Burrowing owl: "Work areas are in and adjacent to wooded areas where this species is unlikely to occur". Again, access is through grassland on seldom used routes that could potentially support burrows. While low potential, attention should be paid.]
   e. Also, per the 12/3/19 email from Robert Villasenor "I wanted to capture here that during the project review meeting PG&E agreed to schedule a biological pre-work survey to check for special status species along the access routes/roads and although that is not outlined in the BCR we will still schedule those pre-surveys accordingly".

8) The project sponsor and its contractors will each obtain an approved SFPUC-NRLMD Access Permit (and keys, if needed) 30-days prior to entering the SFPUC property to perform work (contact Gloria Ng, NRLMD Secretary, at gng@sfwater.org or (650) 652-3209).

9) Access to work locations and method of access: Proposed work will be limited to periods of dry conditions to protect habitat for special status species and to avoid damage to SFPUC property unless otherwise approved by the Watershed Forester or Alameda Watershed Manager and then only with the following conditions:
   a) Vehicle access (including truck and UTV/ATV) will be restricted to all-weather (i.e. all-season, rocked or paved) roads for access, staging or parking during wet weather conditions with saturated soils due to increased California tiger salamander (*Ambystoma californiense*) or CTS activity. Access to work sites off-road (including vegetated or unpaved roads or jeep trails) will be allowed only on-foot.
   b) PG&E will implement avoidance and minimization measures (AMMs) to protect CTS and use extra caution when working at sites with CTS habitat/known occurrences (VPs 1, 2, 10-13, 15-18, and 31-45).
   c) Strict adherence to the maximum speed limit of 15 miles per hour is required.

For more information, please contact Dave Baker, Alameda Watershed Forester, at DBaker@sfwater.org or (209) 989-2509; Neil Fujita, Alameda Watershed Manager, at nfujita@sfwater.org or (925) 862-5516; and Scott Simono, Biologist, at ssimono@sfwater.org or (415) 934-5778.

10) Regarding pathogens, the PG&E contractor should work from the least contaminated sites to the most contaminated sites. Work must be performed during dry conditions in contaminated areas to prevent the spread of pathogens. In addition, tools and equipment must be decontaminated before moving from one area of the Watershed to the next (i.e. from one circuit to the next). Vegetation debris collected at one area of the Watershed must be off-hauled for proper and legal disposal before moving on to the next area of the Watershed. For more information, please contact Mia Ingolia, Biologist, at mingolia@sfwater.org or (415) 554-1872. 4-9 Cont.

11) PG&E will implement appropriate AMMs to protect Alameda whipsnake in suitable habitat areas. For more information, contact Scott Simono, Biologist, at ssimono@sfwater.org or (415) 934-5778.

12) The project sponsor or biologist will hold special status species environmental tailboard trainings for employees and contractors performing construction on SFPUC property. All personnel visiting the job site or performing work on or through SFPUC property will attend an environmental tailboard for the project. No work or access onto SFPUC property (including parking or driving) will be performed by individuals who have not received this training. The training shall include a description of the special status species that have the potential to be impacted by the project; and any SFPUC requirements for the project (for more information, contact Scott Simono, Biologist, at ssimono@sfwater.org or (415) 934-5778).

13) The project sponsor and its contractors will limit travel speeds on unpaved roads to 15 miles per hour (mph).

14) Before entering SFPUC property:

    a. All equipment, tools, clothing, and personal protective equipment or PPE (including boots and shoes) shall be thoroughly cleaned of all visible dirt and plant material prior to working on SFPUC property. All equipment, tools, and PPE (including boots and shoes) should be decontaminated with a ≥70% Ethyl or isopropyl alcohol by thoroughly wetting the surface and allowing to air dry before entering SFPUC watershed property.

    b. Vehicles and Large Equipment – Before entering SFPUC Watersheds, the exterior and interior of all vehicles and large equipment (including tires, tracks, and undercarriage) must be cleaned and washed such that all debris, organic matter, and soil is removed. In some instances (as designated by NRLMD staff), cleaning and washing must be followed by sanitizing to eliminate pathogens.

    c. Vehicles, equipment, tools and PPE (including boots and shoes) must be inspected by SFPUC NRLMD staff prior to commencing work on SFPUC property. Inspections are performed between 8:00 a.m. and 12:00 noon, and must be scheduled as soon as possible before the start of work. Contact Neal Fujita, Alameda Watershed Manager, at nfujita@sfwater.org or (925) 862-5516.

    d. After completing work and before moving on to the next site, PG&E crews and contractors will repeat step “a” above to decontaminate equipment, tools, clothing and PPE.

15) The project sponsor will process vegetation debris based on the following conditions below (for more information, please contact Neil Fujita, Alameda Watershed Manager, at nfujita@sfwater.org or (925) 862-5516:

    a. If vegetation debris is less than 16-inches in diameter and located within 100-feet of a service road, then the debris may be chipped and hauled away and disposed of properly and legally. With review and approval by an SFPUC NRLMD Forester, Arborist or Land Manager assigned to the area (prior to vegetation management operations), vegetation debris may be chipped and spread in approved locations. Spread chips shall not exceed a depth of 6-inches and shall not be left piled against tree boles. Chipped vegetation cannot be disposed of on grasslands; or

b. All vegetation debris (less than 16-inches) not chipped will be hauled away and disposed of properly and legally; or

c. In areas greater than 100-feet from service roads or where removal would be unreasonably difficult, vegetation debris will be lopped and scattered on SFPUC property at locations reviewed and approved by an SFPUC NRLMD Forester, Arborist or Land Manager assigned to the area (prior to vegetation management operations). Lopped vegetation debris shall not exceed a height of 18-inches above the ground. Debris in excess of 16-inches in diameter shall be cut into lengths of 8 feet or less.

4-9 Cont.

d. No vegetation debris shall be left on SFPUC property within 100-feet of facility structures, or within 200-feet of structures maintained for human occupancy or daily use.

e. Debris potentially infected by fungal pathogens or insect pests will be processed per the above specifications and hauled away and disposed of properly and legally; or left on SFPUC property to decompose at locations reviewed and approved by an SFPUC NRLMD Forester, Arborist or Land Manager assigned to the area (prior to vegetation management operations).

f. Cleared or pruned vegetation and woody debris (including chips) must be disposed of in a manner to ensure that debris does not enter surface waters or watercourses. All cleared vegetation and woody debris (including chips) must be removed from surface waters or watercourses and placed or secured above the high-water line where debris cannot reenter watercourses.

16) Any application of pesticides on property owned by the City and County of San Francisco (including SFPUC property) must comply with the requirements of the City and County of San Francisco's Integrated Pest Management (IPM) Ordinance (Environment Code Chapter 3). The following link is to a checklist that summarizes the requirements of the IPM Ordinance and Policies:

https://sfenvironment.org/sites/default/files/fliers/files/sfe_th_ipm_compliance_checklist_090817.pdf

Also, the City and County of San Francisco publishes its annual Reduced-Risk Pesticide List (RRPL):

https://sfenvironment.org/sites/default/files/fliers/files/sfe-th-2017-reduced-risk-pesticide-list.pdf

You will notice that this document includes the following statement: *This list is only one component of San Francisco's IPM program. Pesticides should be the last resort, when all other tactics have failed. The RRPL represents the outer boundaries of acceptable IPM tactics in S.F.* Exemptions are required for any pesticides (i.e., herbicides, insecticides, fungicides, molluscicides, etc.) used on City property for products that are either are: not listed on the RRPL; or on the RRPL but used differently than described in the RRPL's Pesticide Limitations column.

In addition, the project sponsor will ensure that all pesticide applications comply with the Stipulated Injunction and Order to protect federally threatened California red-legged frog (Rana daytonii). For more information, please see the California Department of Pesticide Regulation website at: http://www.cdpr.ca.gov/docs/endspec/rl_frog/

For more information, please see the San Francisco Department of the Environment website at: http://www.sfenvironment.org/article/city-staff/pest-management.

17) Depending on when the project/work occurs in the Alameda Watershed, the project sponsor will maintain the following fire prevention and extinguishing equipment at the work site:

a. If work occurs from December 1st through May 31st, then the project sponsor will have at least one 300-gallon water buffalo fully filled with water; a minimum of one-inch diameter and 200-foot long water hose;

shovels and two fully charged 30 lbs. fire extinguisher on the project site always for fire safety (for more information, please contact Neal Fujita, Alameda Watershed Manager, at NFujita@sfwater.org or (925) 862-5516; and Dave Baker, Alameda Watershed Forester, at DBaker@sfwater.org or (209) 989-2509). The water buffalo will be moved periodically so that it is located no more than 200 feet from any active project site (or as directed by the NRLMD forester).

b. If work occurs from June 1st through November 30th, then the project sponsor will have at least one 2,000-gallon water truck fully filled with water; a minimum of one-inch diameter and 200-foot long water hose; shovels and two fully charged 30 lbs. fire extinguisher on the project site always for fire safety (for more information, please contact Neal Fujita, Alameda Watershed Manager, at NFujita@sfwater.org or (925) 862-5516; and Dave Baker, Alameda Watershed Forester, at DBaker@sfwater.org or (209) 989-2509). The water buffalo will be moved periodically so that it is located no more than 200 feet from any active project site (or as directed by the NRLMD forester). 4-9 Cont.

c. If works occurs during December 2019 or January 2020 or in wetted conditions then the project sponsor will have 5-gallon backpack style pump and round point shovel within 25 feet of work location (for more information, please contact Neal Fujita, Alameda Watershed Manager, at NFujita@sfwater.org or (925) 862-5516; and Dave Baker, Alameda Watershed Forester, at DBaker@sfwater.org or (209) 989-2509).

18) For future tree inventory data, PG&E and its consultants will individually measure and tally all stems greater than 1-inch DBH that are to be treated (removed or pruned). Grouping of a collection of stems from a central location should not be tallied as a single tree. For more information please contact Dave Baker, Alameda Watershed Forester, at DBaker@sfwater.org or (209) 989-2509.

Pre-Construction Notification

19) The project sponsor and/or its contractor will notify the Alameda Watershed Manager at least one week prior to commencing the project on SFPUC property and/or pipelines. Please contact Neal Fujita, Alameda Watershed Manager, at nfujita@sfwater.org or (925) 862-5516

20) The project sponsor and/or its contractors will contact the SFPUC-NRLMD Watershed Manager and/or Forester 24 hours in advance of work to confirm that conditions are suitable for construction. In addition, the project sponsor and/or its contractor will submit fire prevention measures, particularly for any hot work (e.g. welding) to the SFPUC-NRLMD Watershed Manager and/or Forester for review and approval. During construction, the project sponsor and/or its contractor will contact the National Weather Service daily to confirm that local weather conditions are suitable for construction activity. The project sponsor and/or its contractor will cease all construction activities during red flag days (high fire hazard periods) or if directed to do so by the SFPUC-NRLMD Watershed Manager and/or Forester (please contact Neil Fujita, Alameda Watershed Manager, at nfujita@sfwater.org or (925) 862-5516).

21) The project sponsor and its contractors will notify SFPUC Millbrae Dispatch twice each day, at (650) 872-5900, when entering and leaving SFPUC property.

Post-Construction Notification

22) The project sponsor and/or its contractors will ensure that all construction debris is removed from SFPUC property and disposed of properly and legally. In addition, the project sponsor will restore the project site upon completing its work on SFPUC property and arrange for a post-construction/restoration site inspection by SFPUC staff. Please contact and Dave Baker, Alameda Watershed Forester, at DBaker@sfwater.org or (209) 989-2509.

Letter 5

SIERRA CLUB
LOMA PRIETA CHAPTER

San Mateo, Santa Clara, and San Benito Counties

February 21, 2020

San Bruno Planning Commission, City Council, and Staff

City of San Bruno

567 El Camino Real

San Bruno, CA 94066

via email: pwu@sanbruno.ca.gov, mthurman@sanbruno.ca.gov, thamilton@sanbruno.ca.gov, councilsb@sanbruno.ca.gov

Subject: Planning Commission meeting of February 16, 2020, Agenda Item #4A, Environmental Impacts of the Bayhill Specific Plan

5-1

The Sustainable Land Use Committee is the section of the local Sierra Club Chapter devoted to studying issues of land use and planning. As an organization devoted to reducing GHG emissions, overuse of water supplies, and other human impacts on the natural environment, we encourage development of dense, mixed-use development near transit centers.

5-2

Housing not sufficient: We have reviewed documents pertaining to the Bayhill Specific Plan, and while the alternative plans analyzed in the Draft EIR both contain significant improvements over the base design, we believe even the Residential Alternative remains insufficiently ambitious in planning for housing in this area. Community meetings indicated a desire to include housing as part of this Specific Plan. The Peninsula as a whole has been pushed to a state of crisis in regard to its jobs-housing balance. This has led to long commutes, congestion, and large amounts of space being paved over for parking (which on top of consuming space that could otherwise be left green or devoted to some actual productive use, also aggravates urban heat island effects).

5-3

Transit Oriented Development: The eastern section of the area designated in the Bayhill Specific Plan, presently zoned as “Community Office”, is ideally suited for this sort of Transit Oriented Development. It is immediately adjacent to El Camino Real, which is one of the few routes in San Mateo County that is truly

well-served by the SamTrans bus system. It is within a reasonable walking or biking distance of the BART and Caltrain stations, as well as retail and restaurants at Tanforan, and in Downtown San Bruno / San Mateo Avenue, and future retail in the bottom floor of the Mills Park development at the corner of El Camino and San Bruno Ave. The area is far enough inland to be at relatively low risk from sea level rise, as compared to other areas currently considering development such as South San Francisco's Genentech campus. And it is well-separated from other residential areas, minimizing impact on other citizens' current lifestyles.

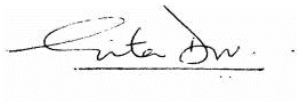
5-3 (Cont.)

Summary: While we understand that employers in this area may prefer a larger amount of office space, it is incumbent on every city to plan for the impacts of these offices on housing demand. In the absence of new housing development, workers at YouTube and other corporate entities will simply bid up the prices of existing housing stock and drive lower income San Bruno workers out of the city, to peripheral exurbs that sprawl further and into the Wildland Urban Interface. The state has recognized this problem through the RHNA / Housing Element process. **San Bruno is far behind on meeting its housing obligations here even for the current cycle, and in the next cycle will be responsible for *at least* twice as many units. We would urge you to consider getting ahead of this issue now, in a very appropriate location, and plan to include a Transit Oriented Development housing segment near El Camino Real.**

5-4

5-5

Respectfully submitted,





Gita Dev and Gladwyn d'Souza

Co-Chairs Sustainable Land Use Committee

Sierra Club Loma Prieta Chapter

Cc: James Eggers, Executive Director, Sierra Club Loma Prieta Chapter

Jovan D. Grogan, City Manager, City of San Bruno

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Letter 6

YouTube, LLC
901 Cherry Avenue
San Bruno, CA 94066
USA

Phone +1 650 253.0000
www.youtube.com

February 17, 2020

Pamela Wu
Community and Economic Development Director
City of San Bruno
567 El Camino Real
San Bruno, CA 94066

Re: Bayhill Specific Plan - Draft Environmental Impact Report Comments

Dear Mrs. Wu,

YouTube has been proud to call San Bruno home since 2006 and we acknowledge and appreciate our responsibility as corporate citizens in this community. We believe in the *"City with a Heart"* and for nearly five years have worked to support the City of San Bruno's Bayhill Specific Plan, which we hope will lead to a future where YouTube can continue to call San Bruno home. 6-1

Attached you will find YouTube's comments to the Bayhill Specific Plan Draft Environmental Impact Report (DEIR) issued on January 14, 2021. YouTube respectfully requests that the City of San Bruno review our comments and, where appropriate, incorporate them into the Final Environmental Impact Report (FEIR).

Thank you for all of your work to get the DEIR to this important milestone. Please contact us with any questions.

Sincerely,

DocuSigned by:
Josh Portner
6318CC018BA3438...

Josh Portner, Director Real Estate District Development

Enclosures:
- Draft Environmental Impact Report dated January 14, 2021 Comment Matrix

DEIR Page(s)	Comment/Question City Response	
	2.0 Project Description	
Table 2-5 (2-25 & 26)	• *Parcel 5 parcel size* – correct to 290,634 • *Parcel 7 potential net new dev* – other portions of BHSP note 248,000 even • *Total potential net new dev.* – column sums to 2,255,829; appears to be over by 179,918 sf. • *Total potential total dev.* – column sums to 3,887,028, which appears to be under by 126,846 sf • *FN f* - If BMU is referenced, shouldn't Parcels 1 & 2 be included? Also, basis for different ratios is not explained.	6-2
2-27	***Massing.*** Re: massing, DEIR states: "No more than 75 percent of the length of a building façade would be unbroken by a change in massing." This is using a different metric than the max 100' listed in the zoning ordinance adjacent to streets, as well as the 50% metric illustrated on p. 56 of the Bayhill Specific Plan.	6-3
2-30 & 31; 2-47	***Street & Roadway Improvements.*** Elm Avenue – "Shuttle loading zones would be located on either side of Elm Avenue just north of the Bayhill Drive intersection" – is this being confused with the multi modal hub, to the west of Elm? Generally, street sections show dedication of private property for public uses either (in fee or via easement) and sections are different than previously discussed. Would request opportunity for consultant teams to meet to ensure the final street section is optimized.	6-4
2-31 (¶ 1); Table 2-7; Figure 2-11; *3-8 (¶ 2); 3-8 (¶ 3); 3-10 (¶ 3); 3-11 (last ¶)*	***Measurement of Depth & Related Excavation Quantities.*** Depth measured from what point on surface on sloped site? Below Grade Surface (bgs) metric is not explained and unclear what analysis is using Figure 2-11 excavation depts vs. the NAV88 and excavation quantities provided by YT. YT provided information should govern. Suggest adding this footnote to Table 2-7 (p. 2-37): "Max depth is measured to finished floor of lowest parking garage level. In the event of a conflict between the NAV88 elevations and bgs calculations, the NAV88 elevations control."	6-5

DEIR Page(s)	Comment/Question City Response	
2-34 (last ¶)	Correct text: "However, should this development occur after ~~**February**~~**August 2021**, it would be regulated by the Specific Plan."	6-6
Table 2-7 (2-37)	Table 2-7; Garage No 1,3/Max Depth – Correct: "61" to "59". Typo on phase 1 Nav88 (which should be 59'); excavation quantities of YT parcels match YT's project description, and given sloped sites and City's unknown measurement location; the Nav88 depth should govern to avoid future confusion.	6-7
2-44 (¶ 3)	Correct text: "The Phase I Development (would require the removal of ~~**154**~~**150** trees, including **144**~~**135**~~ classified by the City as heritage trees)." (*See,* p. L-002 of Plans for Phase 1 submitted in response to City comments on the Cherry Plaza design.)	6-8
2-53 & *throughout DEIR*	***Sequence/Schedule.*** As there will no longer be BSDP permit, remove all references to it throughout DEIR.	6-9
	3.0 Environmental Impact Analysis	
3-6 (last ¶)	Correct text: "The Phase I Development would result in the removal of approximately **144**~~**135**~~ heritage trees, as well as street trees." Add: "In accordance with the City's Municipal Code requirements, new trees would be planted in a 1:1 ratio to compensate for the trees to be removed, and the Specific Plan calls for the use of large canopy trees as the predominant plant material."	6-10
3-9 (and BHSP Policies 6-27 through 6-30; Section 6.7)	Need to clarify definition and scope of AMP and process. We understand this to be a one-page fact sheet, together with training and enforcement of the same. Why was the very robust language of Policy 6-27 and related analysis included in the BHSP? This is a disturbed site, so it seems that the risk of an archaeological impact is very low.	6-11
3-12 (¶ 2)	***Asbestos.*** DEIR reflects that the buildings on the P1 site are "unlikely to contain ACM." The pre-demolition ACM surveys of the three Lakes buildings and there is ACM in the buildings. Asbestos and lead are commonly found in existing buildings and should be mitigated in accordance with all applicable regulations (e.g. BAAQMD, etc.) so this impact is LTS with mitigation.	6-12

DEIR Page(s)	Comment/Question City Response	
	3.1 Visual Resources	
3.1-17	Correct text: "The Phase I Development would require the removal of approximately ***144~~135~~*** heritage trees as well as a number of street trees."	6-13
3.1-19	The Phase I Development will not include any illuminated signage (remove from header)	6-14
	3.2 Air Quality	
3.2-10 (3rd full ¶)	Correct text: "San Francisco-Arkansas" to "Arkansas Street" (global change)	6-15
3.2-10 (Table 3.2-2)	Correct header to match dates in table: "Ambient Air Quality Data at the San Francisco-Arkansas Monitoring Station (***~~2015-2017~~2016-2018***)"	6-16
3.2-28 to 35 [AQ-2 Project-level impacts analysis]	***AQ-2 Standard and S&U Conclusion.*** *What is the standard that the Project is to be measured against* – net increase of Project compared to existing conditions or BAAQMD standards? *What are the anticipated fees/payments for not complying with BAAQMD standards?*	6-17
3.2-33 (first bullet of MM AQ-5)	***MM AQ-5: Require Fugitive Dust Best Management Practices.*** "All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) will be watered ***~~two times per day~~as needed***."	6-18
3.2-37	Math in table is incorrect, although the conclusions remain the same. Recalculate and revise table: ROG: Net increase = 25 (not 17) (threshold is 54) NOx: Net increase = 33 (not 4) (threshold is 54) CO: Net increase = 128 (not -4) (no threshold) PM 10: Net increase = 117 (not 125) (threshold is 82) PM 2.5: Net increase = 20 (not 21) (threshold is 54)	6-19

DEIR Page(s)	Comment/Question City Response	
	3.3 Energy Use	
3.3-17 (1st ¶)	Correct text: "These anticipated increases would be countered, in part, by ongoing increases in state and local requirements related to renewable energy ***and*** increased energy efficiency."	6-20
	3.4 Greenhouse Gases	
3.4-3 (last ¶) *and 3.10-5 (in Transp.)*	Removed outdated text regarding pre-2020 opt-in to VMT.	6-21
3.4-21 (2nd ¶)	Revise text, as this statement is true without mitigation: "As discussed in Section 3.10, Transportation, ~~**prior to mitigation,**~~ the Phase I Development would increase per service population VMT, relative to existing conditions in 2022 and would not meet the 14.3 percent VMT per service population reduction target and therefore, therefore, could conflict with the state's long-term emission reduction trajectory."	6-22
	3.5 Hydrology and Water Quality	
2-44 (¶ 2); 3.5-29, 3.11-25 and 3.5-29 [MM HWQ-2]; 3.5-24; 3.11-25; *Appendix 3.5-1, p. 4 (see below)*	***Pervious not current – net zero change in amount of impervious surface area on Phase 1 site; should mean MM HWQ-2 not required for Phase 1.*** DEIR reflects an increase from 76 to 77 percent when it should be a decrease from 75 percent to 70 percent. The two parcels containing Phase 1N and Phase 1S change from 75 percent existing impervious to 70 percent proposed impervious (using the final post LLA square footage as both the existing and proposed lot SF, which is what the City told us to do). The impervious percentage of pre- and post- Phase 1 in its entirety (including not just the YT buildings but also demolition of Lakes, straightening of Grundy, and resulting changes to the 1100 Grundy and 950 Elm parking lots) is net zero; which was required by the City. These percentages can be calculated based on lot & impervious SF values on the Phase 1 plans (both G-002 and EX-6 sheets, current sets dated Jan '20). Given that there is no change in overall imperviousness of P1, MM-HWQ-2 should not be needed for P1.	6-23
3.5-11 (¶ 2)	Conclusion that the groundwater elevation on the western side of the Project site is "approximately 110 ft msl" does not match the findings in the geotechnical report, or the EKI report.	6-24

DEIR Page(s)	Comment/Question City Response	
	3.6 Land Use and Planning	
3.6-17	According to Table 3.6-2, both Phase 1 and the Project require mitigation to be consistent with the General Plan. To be consistent we suggest revising the Project and P1 development conclusions: "less than significant ***with mitigation***~~. No mitigation measures are required~~."	6-25
	3.7 Noise	
3.7-53	Last sentence of last paragraph, revise to reflect: "***less than significant with mitigation***."	6-26
3.7-54	Last sentence of first paragraph, revise to reflect: "***less than significant with mitigation***."	
	3.8 Population and Housing	
	NO COMMENTS	
	3.9 Public Services and Recreation	
3.9-28	Correct text for document consistency: "Impact C-PS-1a. The Project, in combination with past, present, and reasonably foreseeable projects, would not result in significant cumulative impacts with respect to fire protection, police protection, school, park, or library services (Project: ***Less Than Significant***~~**Less Than Cumulatively Considerable**~~**)"**	6-27
	3.10 Transportation	
3.10-25	Correct text: "Although the ***Specific Plan***~~**Project description**~~ includes a TDM requirement, TDM programs are not permanent in the same way as built environment factors and land use diversity and instead are tied to tenants, who often turn over during the life of a project." The Project description states that TDM programs are "not a part of the Project" (p. 2-33), which still doesn't make sense to us since they are required by the Specific Plan and MM TRA 1 and 2.	6-28

DEIR Page(s)	Comment/Question City Response
3.10-29	Remove or revise: "Construction-related activities would typically occur Monday through Friday, with limited construction activities outside of daytime hours or on weekends." DEIR should acknowledge nighttime and weekend construction but still LTS impact. Such construction activity is not "limited" except for compliance with the City's regulations and our CMP. The SBMC includes hours limitations for "outside construction" exceeding certain noise levels in or within 500 feet of a residential zone. *See* SBMC 6.16.070 below. (P1 will be more than 500 feet from any residential zone.) There are no similar regulations for office or commercial zones. As for phases that may be within 500 feet of a residential zone (P3 and P5), as long as the SBMC 6.16.070 noise limitations are observed, night and weekend work is permitted. If they will be exceeded, a permit is required. **6.16.070 Construction of buildings and projects.** No person shall, within any residential zone, or within a radius of five hundred feet therefrom, operate equipment or perform any outside construction or repair work on any building, structure, or other project, or operate any pile driver, power shovel, pneumatic hammer, derrick, power hoist, or any other construction-type device which shall exceed, between the hours of **seven a.m. and ten p.m.,** a noise level of eighty-five decibels as measured at one hundred feet, or exceed between the hours of **ten p.m. and seven a.m.** a noise level of sixty decibels as measured at one hundred feet, unless such person shall have first obtained a permit therefor from the director of public works. No permit shall be required to perform emergency work.
	3.11 Utilities and Service Systems
3.11-20; *Appendices 3.11-2 & 3.11-3 (below re multimodal hub)*	***Table 3.11-5. Proposed Water, Wastewater, and Storm Drain Improvements.*** *Grundy & Elm* – The water line will connect through the multimodal hub from Grundy to Bayhill, not through Elm Avenue. *Grundy Lane* – Extending the SS pipe east past the multimodal hub was studied, but it was agreed that because of the downward slope of the road and required upward slope of the SS pipe (running east), we would end the SS at the multimodal hub.

6-29

6-30

DEIR Page(s)	Comment/Question City Response	
	4.0 Other CEQA Considerations	
4-2	Revise Impact C-AQ-2a conclusion for document consistency with other impacts: "Therefore, it is conservatively assumed that the cumulative health impacts from TAC emissions would be significant and unavoidable ~~**after mitigation**~~, and that the Project's contribution would be cumulatively considerable.	6-31
	5.0 Alternatives Analysis	
5-10	Revise 5.3.2.1: "The Residential Alternative would achieve ***most***~~**all**~~ of the Project objectives discussed above in Section 5.1.2." Revision suggested because this alternative would not "strengthen its role as the City's premier employment hub" or "recogniz[e] Bayhill's essential nature as a business park/employee center" or "accommodate the expansion needs of existing businesses."	6-32
DEIR APPENDICES		
	Appendix 3.5-1 – Hydrology & Water Quality Evaluation	
Multiple (Hyd. above & App. below)	***Pervious not current (see related comments under Hydrology section above).***	6-33
p. 2, FN 1	Correct: "YouTube Vesting Tentative Map and Phase 1 Entitlement Plans, dated October 2019" – *No longer accurate, see comment at 4.1.2 below.*	6-34
p. 4, § 4.1, ¶ 4	Correct: "Pre-project land use currently consists of a mix of buildings and surface parking lots (impervious surfaces) and areas of landscaping (pervious surface). It is estimated that the landscape areas are approximately <u>20% of the Planning Area and approximately 24% of the Phase I Development</u>." – *BKF calcs (which were included in Entitlements): 22% pre-project (including Grundy and Bayhill areas affected)*	6-35
p. 5, § 4.1.2	Correct: "The information provided for evaluating the Phase 1 Development pre- and post-development impervious areas consisted of a Vesting Tentative Map dated October 4, 2019, Preliminary Design Drawings dated October 4, 2019, 2019 and a memorandum dated August 29, 2019 from BKF titled "YouTube Phase 1 C.3 Narrative" along with the submitted "C.3 and	6-36

DEIR Page(s)	Comment/Question City Response	
	C.6 Development Review Checklist" forms. . . . The estimated percent impermeability is 76% pre-project based on a review of aerial maps of the areas of parking lots, roadways and rooftops compared to the total Phase 1 development. This compares to 77% post-project impervious surfaces as detailed on the Phase 1 documents, therefore the initial review shows a potential increase in surface runoff" – *Based on City feedback, plans and sheets were revised and resubmitted after these dates, so this analysis is no longer accurate.*	6-36 Cont.
p. 6, § 5.1	Correct: "For the Phase 1 Development, land use areas were taken from preliminary design information provided by the City including the C.3 Narrative and Checklist forms dated October 4, 2019 prepared by YouTube for the Phase 1 Development. Based on the compiled Checklist information, the pre-development condition consists of approximately 688,083 square feet of impervious area. Post-development condition (Phase 1 Development) shows an increase in impervious area with approximately 9,000 square feet of pervious paving above the parking structure, which is considered impervious, in addition to the 688,083 square feet of proposed impervious area indicated on the Checklist forms." – *Same comment as section 4.1.2 above. This does not match our final submittal. These are the old numbers, and the new numbers since reconcile this issue."*	6-37
p. 12, § 7.1.1	Correct: "The stormwater runoff calculations for pre-development peak flow and post-development peak flow <u>show an increase in post-development peak flows</u>." – *Same comment; they have been reduced in the current version.*	6-38
p. 16	Correct: Last 4 bullet points – *Same as previous comments.*	6-39
	Appendix 3.10-1 (Transportation Supporting Data); Attachment D to Transportation Appendix – LOS Calculations/BHSP Alternatives Analysis	
p. 6 of 15 (¶ 2)	Correct: "The Phase I Development includes construction of new office uses as well as demolition of existing office uses in the middle north section of the site bound by I-380, Cherry Avenue, and Bayhill Drive. Net new office land use is approximately ***440,000 sf*** ~~301,500 sf~~ under Phase I buildout." – *We note that this is likely at typo as the subsequent analysis appears to be calculated based on the correct 440ksf value.*	6-40

DEIR Page(s)	Comment/Question City Response	
p. 9 of 15 (last ¶)	Clarify text: "Note, that the intersection currently meets the peak hour signal warrant for a traffic signal." – *Since the peak hour signal is already warranted, why should the BHSP have a fair share payment?*	6-41
	Appendix 3.11-2 Water System Hydraulic Evaluation	
p. 2	Correct: "… (Phase I Development), which consists of adding ***440,000***~~301,476~~ square feet (sf) of net new office space to 8.15-acres." – *We note that this is likely at typo as the subsequent analysis appears to be calculated based on the correct 440ksf value.*	6-42
p. 2	Various figures show a water line in Elm where it is to be located in at intermodal station (same comment provided above re: DEIR p. 3.11-20)	6-43
p. 3, Figure 1 (Modeled Sewers Within & in Vicinity of BHSP Area)	Should the 8" lines be shown as 10" since later text suggests that is what was modeled?	6-44
	Appendix 3.11-3 Sanitary Sewer Impact Study	
p. 2	Various figures show a water line in Elm where it is to be located in at intermodal station (same comment provided above re: DEIR p. 3.11-20)	6-45
	Appendix 4 Equivalency Analysis	
p. 1	Correct for consistency: "This appendix contains the Equivalency Program analysis for the Bayhill Specific Plan. As described in Chapter 2, Project Description, <u>180,347</u> square feet of the new office development included in the EIR buildout projections (Tables 2-3 and 2-4) is not allocated to any particular parcel." – *Slightly different values elsewhere in DEIR.*	6-46

BAYHILL SPECIFIC PLAN DEIR COMMENTS – PART II

DEIR Page(s)	Comment/Question City Response/Discussion Notes	
	2.0 Project Description	
2-20 *& throughout DEIR*	Change Phase 1 completion date to 2025 throughout the DEIR (assuming this does not create significant work or impact the analysis of P1). This date was pushed back due to BHSP document timing.	7-1
	3.1 Visual Resources	
3.1-20	To clarify and avoid misunderstanding of the document, YouTube suggests that the City add a summary less than significant finding regarding all the topics covered by Impact AES-2 (similar to overall "Conclusion" for Impact AES-1).	7-2
	3.2 Air Quality	
3.2-14	To clarify and avoid misunderstanding of the document, YouTube suggests that the City revise the header of Table 3.2-3 to read: "***Existing*** Health Risks…"	7-3
	3.10 Transportation	
3.10-11	Pursuant to CEQA Guidelines Section 15064.3(b)(1), projects within a half mile of either an existing major transit stop or a high quality transit corridor stop are presumed to have a less than significant transportation impact. Future project phases 4 and 5 will be within this zone. As such, to clarify and ease future use of the document, YouTube suggests that the City note this presumption in a footnote to the VTM Significance Threshold discussion (3.10-20) as a consideration for future phases.	7-4
3.10-23 & 2-33 and 24 (Project Description)	As written, second sentence ("TDM programs are not permanent. . . .") does not accord with the Project Description, which provides that: "To ensure that all future tenants implement TDM strategies, the Specific Plan includes policies that require applicants of all new development to implement a TDM program or join a transportation management association (TMA) to reduce single occupancy travel to the Plan Area." (pp. 2-33 & 2-34). To clarify and avoid misunderstanding of the document, YouTube suggests that the City note that TDM programs will be implemented "to the extent possible" or "feasible" pursuant to the Specific Plan, which includes such programs as a goal/policy (rather than a mandate).	7-5

Appendix 4
Equivalency Analysis

Introduction to the Equivalency Program Analysis

8-1

slightly different from value elsewhere

This appendix contains the Equivalency Program analysis for the Bayhill Specific Plan. As described in Chapter 2, *Project Description,* 180,347 square feet of the new office development included in the EIR buildout projections (Tables 2-3 and 2-4) is not allocated to any particular parcel. This square footage may be dedicated to regional office use (and is assumed to be regional office use in this EIR analysis). However, to provide flexibility for the expansion of non-office land uses, the Specific Plan allows for the conversion of this unallocated office square footage to non- regional office uses such as hotel or retail commercial uses at the following ratios:

- 190 square feet of retail commercial use per 1,000 square feet of regional office use
- 640 square feet of hotel use per 1,000 square feet of regional office use[1]

By way of example, if all of the unallocated 180,347 square feet were dedicated to retail use, 34,265 square feet of retail use could be developed. If all the unallocated square feet were dedicated to hotel use, 115,422 square feet of hotel use could be developed. This appendix provides an analysis of the equivalency exchanges and demonstrates that the potential environmental impacts of the equivalency exchanges under the Equivalency Program would be within the scope of the analysis included in the EIR.

Analysis

Methodology

Commercial office, retail, and hotel activities present different demands on resources due to different expected populations and activities. This difference in resource demand rates can result in varied impacts to numerous resource areas. This appendix analyzes how the ratios of converted square footage under the Equivalency Program would affect resource demands and potential environmental impacts, comparing conditions under each version of the Equivalency Program (conversion to retail or hotel) to the conclusions reached in the EIR, inclusive of both the Project and the Phase I Development. Resource areas analyzed herein include Air Quality and Greenhouse Gases, Energy, Public Services, Population and Housing, Noise, Transportation, and Utilities. The analyses of potential environmental impacts to the resources areas listed above that would result from Project implementation outside of the Equivalency Program can be found in Chapters 3.2, 3.3, 3.4, 3.7, 3.8, 3.9, 3.10, and 3.11 of the EIR, respectively.

All development within the Project Site, including development that could be pursued as part of the Equivalency Program, would be subject to all applicable regulatory requirements, mitigation measures, and Specific Plan policies described in the EIR. Because it would be speculative to presume construction timeframes and equipment for currently unplanned development within the Project Site under the

[1] Impacts from hotel uses are sometimes evaluated in units of rooms rather than square footage. For these analyses, this Equivalency Analysis assumes a conversation rate of 595.13 square feet per hotel room, based on the ratio of square footage to rooms in the existing Marriot hotel on the Project Site.

8-2

of up to 573 multi-family residential units. There are two overlay districts in the Plan Area that would allow for housing development. Office uses would continue to be allowed in the housing overlay zone, and a mix of both use types could be developed as long as the maximum permitted density is not exceeded. To account for the variability resulting from the housing and mixed-use overlay zones, two different buildout scenarios have been developed for purposes of the analysis. The Maximum Office Scenario assumes that no residential construction occurs within the housing and mixed-use overlay zones. The Maximum Housing Scenario assumes that housing is constructed within the furthest range allowable under the Specific Plan, resulting in 573 multi-family residential units. In this scenario, the amount of office development is decreased on the land area within the housing overlay zone where housing is constructed. Additionally, the Specific Plan would also allow for an up to 50,000-sf civic use to be developed on a 2.1 acre parcel bordering San Bruno Avenue West. If the civic use were to be developed, the overall capacity of the Specific Plan area to accommodate office and housing uses would be reduced.

The Phase I Development includes construction of new office uses as well as demolition of existing office uses in the middle north section of the site bound by I-380, Cherry Avenue, and Bayhill Drive. Net new office land use is approximately 301,500 sf under Phase I buildout.

Should be 440ksf, although the analysis on subsequent pages may be calculated at the correct 440ksf value.

Table 3 describes the three land use scenarios.

Table 3: Land Use Scenario

Land Use Category	Phase I (net new)	Max Office Total[1]	Max Housing Total [2]
Office	301.5 ksf	3,881 ksf	3,501 ksf
Commercial/Retail	--	122 ksf	122 ksf
Civic Uses	--	50 ksf	50 ksf
Housing	--	--	489 dwelling units
Hotel	--	147 rooms	147 rooms

Notes:

1. For purposes of this assessment, the land use alternatives are shown with the Civic Uses; however, if civic uses are omitted, the maximum amount of office allowed under the Max Office scenario is 4,018 ksf.
2. For purposes of this assessment, the land use alternatives are shown with the Civic Uses; however, if civic uses are omitted, the maximum amount of housing allowed under the Max Housing scenario is 573 units.

8-3

The two proposed buildings are referred to as the "North Building" and the "South Building" and collectively as the "Phase 1 Buildings". Phase 1 contains a total of approximately 440,000 square feet of office space and three levels of subterranean parking.

The Phase 1 Development project also includes the following: construction of a new private multi-modal center at the 950 Elm Avenue parcel; the realignment of Grundy Lane and the vacation of the north end of Elm Avenue; infrastructure improvements throughout Grundy Lane and Bayhill Drive (between Cherry Avenue and Traeger Avenue); parking improvements at 1100 Grundy Lane and 950 Elm Avenue; and the demolition of the existing buildings located at 1150-1250 Bayhill Drive for temporary parking during Phase 1 construction (and future development of the Phase 2 buildings).

3.0 EXISTING AND PROPOSED DRAINAGE SYSTEM

3.1 EXISTING CONDITIONS

The Planning Area represents approximately 6.5% of the land area in "Watershed A", which is largely made up of fully developed land, and contributes less than 7% of the overall runoff within the Watershed A storm drain trunk system. Stormwater from the Planning Area and vicinity is collected through existing City storm drain networks that connect to a 72-inch main trunk line located on the eastern portion of the Planning Area as shown in Figure 4. This 72-inch main serves as the backbone to the City's 1,415-acre Watershed A pipe network as identified in the City of San Bruno Storm Drain Master Plan, discussed below in Section 3.2. Refer to Figure 5 for a map of the watershed areas studied in the Master Plan. The area west of Cherry Avenue drains to a pipeline in Cherry Avenue which flows to the north and connects to the 72-inch main trunk line. The area between Cherry Avenue and Elm Avenue drains into pipelines in Grundy Lane and Bayhill Drive which flow to the east and connects to the 72-inch main at Elm Avenue. The 72-inch main also collects flows from several pipes east of Elm Avenue and continues easterly and southerly until it exits the Planning Area near El Camino Real. The Phase 1 Development area is currently served by existing pipes ranging from 12-inch to 48-inch located in parking lots and along Grundy Lane and Bayhill Drive between Cherry Avenue and Elm Avenue. Topographic survey[1] prepared by BKF Engineers shows pipe collection systems that increase to 24 inches and 48 inches in Grundy Lane and Bayhill Drive, respectively, at their connections to the 72-inch main, however detailed pipe information (e.g. pipe size, slope, capacity, condition, etc.) are not available for all storm drain pipes within the Planning Area.

Pipeline capacity deficiencies in the 72-inch diameter trunk line that runs through the Planning Area were noted in the Master Plan. Additional downstream deficiencies, easterly of the Planning Area were also noted as part of this pipeline network for Watershed A. To date, no improvements have been constructed to address these deficiencies and funding has not been identified.

3.2 CITY OF SAN BRUNO STORM DRAIN MASTER PLAN

The City of San Bruno Storm Drain Master Plan, dated June 2014, was prepared specifically to address localized flooding throughout the City and to determine proposed improvements and construction costs for inclusion in a Stormwater Capital Improvement Plan (CIP). Figure 6 shows the proposed improvement projects from the Storm Drain Master Plan. Multiple options were identified in the Master Plan to address the capacity deficiencies in Watershed A described above. One proposed option identified in the Master Plan is to construct an enlarged detention basin (62.5 acre- feet of storage) located within the Crestmoor Canyon, located northwest and upstream

Same comment as in section 4.1.2 below.

[1] YouTube Vesting Tentative Map and Phase 1 Entitlement Plans, dated October 2019

8-4

pipe alignment as it generally follows the property line. In addition, the Master Plan recommends installing a parallel 72" diameter pipeline as part of the CIP improvements identified in the 2014 SDMP. Constructing a larger, single conveyance structure to carry the 25-year storm peak flows as an alternative to the two parallel 72-inch pipelines could be an option if timing, funding and agreements between the developer and the City are in place. An updated hydraulic study and design evaluation shall be conducted to analyze the performance and confirm the feasibility of the proposed storm drain improvements to address existing capacity deficiencies.

Other improvements will include stormwater management facilities for each development to meet local, state and federal requirements for water quality treatment as well as flood control. While the specific improvements for future development are not known at this time, they are anticipated to be similar to the "C.3" post-construction water quality treatment measures that are planned for the Phase 1 Development, such as bioretention areas, flow-through planters, green-roofs and pervious pavements that drain to native soil. Stormwater runoff would be captured in drainage facilities or infiltrated into native soil to recharge groundwater. All drainage facilities would be designed to meet City of San Bruno Standards and drain to the existing public storm drain system.

4.0 HYDROLOGY AND LAND USE

4.1 IMPERVIOUS AND PERVIOUS SURFACES

The permeability of the ground surface is a key factor in quantifying the amount of stormwater runoff that can be expected from a contributing area. The change in the permeability of the ground surface in land development has a direct impact to the quantity of runoff. An increase in impervious surfaces can increase runoff resulting in increased peak flows to the storm drain system. A reduction in impervious surfaces can decrease the peak flows generated by surface water as more water drains into the soil or landscaping. Therefore, a comparison of pre-development impervious areas and post-development impervious areas is used to determine the project's impact on the storm drainage system.

Impervious (impermeable) surfaces are mainly artificial structures—such as buildings and pavements (roads, sidewalks, driveways and parking lots), that are covered by impenetrable materials such as asphalt and concrete.

Pervious (permeable) surfaces are mainly grass or soil surfaces that allow runoff to percolate into the ground relatively easily. This includes permeable paving which is a type of paving for vehicle and pedestrian pathways that allows for infiltration into infinite soil below.

Pre-project land use currently consists of a mix of buildings and surface parking lots (impervious surfaces) and areas of landscaping (pervious surface). It is estimated that the landscape areas are approximately 20% of the Planning Area and approximately 24% of the Phase I Development.

The proposed YouTube expansion project within the Bayhill Specific Plan Area development proposes larger buildings with extensive subsurface parking structures which limits opportunities for stormwater reduction from infiltration through pervious surfaces. For the purposes of addressing site hydrology and the comparison of pre-and post-project drainage evaluation, all surfaces above the parking substructure are considered impervious. State Water Board has provided feedback to the City staff that pervious pavement over any underground structure (impervious facility) is considered impervious; however, the gravel layer, depending on the depth, can be considered storage.

BKF calcs (which were included in Entitlements): 22% pre-project (including Grundy and Bayhill areas affected

Kimley»Horn

4.1.1 Specific Plan Area Development

The percent impermeability comparison presented in this report is based on ground level surfaces only and provides a means to estimate the likely change in stormwater quantity without introducing other measures to limit runoff. The existing conditions were based on an aerial image.

8-5

Figure 8 shows the general outline of existing and proposed development landscape areas (e.g. planting, green roof, pervious pavement that drain to native soil, etc.) which were used to quantify and compare pervious and impervious areas and relative impact to stormwater runoff. The existing percent impermeability of the Planning Area was estimated at approximately 80%. Based on a review of the planned open space, and greenway landscaped areas it is estimated that the percent impermeability of the Planning Area after Specific Plan buildout would be approximately 85%. This increase in impervious area is primarily due to the potential development of the currently undeveloped parcel adjacent to Highway 280 at the western end of the Planning Area.

4.1.2 Phase 1 Development

The Phase 1 development proposes the construction of two new buildings in the location of existing surface parking lots. Subterranean parking structures will be constructed to replace the surface lots. The new parking structures are more expansive than the building footprint and restrict areas for stormwater infiltration. The information provided for evaluating the Phase 1 Development pre- and post-development impervious areas consisted of a Vesting Tentative Map dated October 4, 2019, Preliminary Design Drawings dated October 4, 2019, 2019 and a memorandum dated August 29, 2019 from BKF titled "YouTube Phase 1 C.3 Narrative" along with the submitted "C.3 and C.6 Development Review Checklist" forms. A C.3 Checklist enumerating the pre-and post-construction impervious and pervious areas was submitted for each parcel affected by the Phase 1 Development. The C.3 Narrative and Checklists were provided to the City as part of the YouTube Vesting Tentative Map and Phase 1 plan submittal. The information provided on the Checklists was reviewed for consistency with the pervious and impervious areas identified on the design drawings. The Narrative and compiled data from the C.3 Checklists which describe the change in impervious areas, show that there is no increase. However, the preliminary design plans show that a portion of the proposed pervious pavement area is above the parking structure and therefore this area cannot be considered pervious as infiltration to native soils is limited. The estimated percent impermeability is 76% pre-project based on a review of aerial maps of the areas of parking lots, roadways and rooftops compared to the total Phase 1 development. This compares to 77% post-project impervious surfaces as detailed on the Phase 1 documents, therefore the initial review shows a potential increase in surface runoff.

Based on City feedback, plans and sheets were revised and resubmitted after these dates, so this analysis is no longer accurate

5.0 STORMWATER RUNOFF CALCULATIONS

The evaluation of stormwater impacts is based on the change in impervious and pervious surfaces of the development. Calculations provided are for comparison of pre-development and post-development flows. The rational method was used to calculate the flow, Q, from Q=CiA. Where C is the drainage runoff coefficient, "i" is the intensity for the given design storm frequency and storm duration, and "A" is the drainage area.

5.1 PARAMETERS AND ASSUMPTIONS

The parameters used in the stormwater runoff calculations are summarized in the following tables and based on the assumptions as follows:

- Land Use and Impervious Areas: Based on the information available for the entire Specific Plan Area, primarily the allowable footprint of the subterranean parking structures, (Figure 3), which limits infiltration, and open space greenway plans (Figure 9), the impervious area increases from approximately 80% to 85%

8-6

percent of the total area. The project site percent imperviousness is closely related to the runoff coefficient "C" factor in the rational method calculation. The lower the "C" coefficient, the greater the site's infiltration capability. The high "C" factor areas such as rooftops and pavements have low infiltration and more surface runoff is generated. The runoff coefficients used in the calculations are in accordance with the City of San Bruno's Municipal Code for hydrology calculations and are based on the type of development. Parks and Open Areas have a "C" coefficient of 0.35 and Commercial and Paved Areas have a "C" of 0.95.

Same comment as section 4.1.2 above. This does not match our final submittal. These are the old numbers, and the new numbers since reconcile this issue.

For the Phase 1 Development, land use areas were taken from preliminary design information provided by the City including the C.3 Narrative and Checklist forms dated October 4, 2019 prepared by YouTube for the Phase 1 Development. Based on the compiled Checklist information, the pre-development condition consists of approximately 688,083 square feet of impervious area. Post-development condition (Phase 1 Development) shows an increase in impervious area with approximately 9,000 square feet of pervious paving above the parking structure, which is considered impervious, in addition to the 688,083 square feet of proposed impervious area indicated on the Checklist forms. As a result, additional pervious area shall be allocated into the project to maintain the pre-project impervious surfaces. The calculations presented below reflect the increase of impervious areas based on the review of the preliminary design information.

- Design Storm: The 25-year and 100-year storm events were selected for consistency with the City's municipal code requirements for hydrology evaluation. (Per municipal code section 12.44.090, the 25-year storm is used for pipe sizing for the street storm drain system. Pipes shall be designed with the hydraulic grade line six inches below the flow line of the curb to avoid damage from a 50-year storm and the 100-year design storm shall be contained in the street right of way.)

- Rainfall Intensity: The rainfall intensity was obtained from the NOAA Atlas 14 precipitation frequency estimates. See attached Figure 10. A "Duration" of 10 minutes is used to be consistent with the City of San Bruno's municipal code for storm drainage calculations.

- Drainage Patterns: The drainage patterns are generally maintained from the pre-development condition. The Planning Area slopes from west to east, toward the San Francisco Bay. Runoff is collected in a conventional storm drain system that conveys storm water to a 72" diameter trunk line on the eastern portion of the site near Elm Avenue.

5.2 CALCULATIONS – SPECIFIC PLAN AREA

Hydrologic calculations to compare flow rates in the pre-project and post-project Planning Area conditions were prepared based on the standard Rational Method which utilizes several variables to estimate peak runoff flow rates for various storm events:

$Q = C_w iA$
Q = Flow rate [cfs]
C_w = Weighted Rational Runoff Coefficient
i = Rainfall Intensity [in/hr]
A = Area [acres]

A weighted C was calculated for both pre and post conditions. The National Oceanic and Atmospheric Administration's (NOAA) Precipitation Frequency Data Server was used to determine rainfall intensity for both the 25 and 100-year storm events. Based on a time of concentration of 10 minutes, rainfall intensity values for the 25 and 100-year storm event were 2.43 inches/hour and 3.08 inches/hour respectively per Figure 10.

Roadway runoff from the realignment of Grundy Lane (Part 1 and 3) would be directed to bioretention areas located in the street planter strip for compliance with C.3 regulations. The reduced pavement area within the right of way in Grundy Lane (Part 2) replaces impervious pavement areas with a linear landscape strip with new trees located between the street curb and sidewalk. This new streetscape would reduce surface water flows and promote infiltration through the landscaping into the underlying soil.

8-7

6.2.2 Specific Plan Area

Subsequent phases of development will likely utilize similar LID treatment methods as used in Phase 1 and will be required to follow the guidelines of the GI Plan for public area improvements as well as meet current regulatory requirements, at the time of each development, for stormwater managment. In addition to the bioretention planters, green roofs and permeable pavement used in Phase 1, other potential LID measures for future phases of the development may include rainwater harvesting and re-use for non-potable water uses, including irrigation. Given the site constraints of the subterreanan parking structures, it is expected that an increased use of green roofs or detention facilities will be necessary. These treatment measures are required to be included in the preliminary design phases of specific development proposals as part of the site design approval.

6.3 HYDROMODIFICATION

The Bayhill Specific Plan area adds or replaces more than 1 acre of impervious area but is in an Exempt Area per the Hydromodification Control Areas Map from Appendix H of the SMCWPPP C.3 Stormwater Technical Guidance. See Figure 11. Because the Planning Area is not located within a Hydromodification applicability area, it is not subject to Hydromodification requirements, which are intended to minimize downstream erosion in receiving waters.

7.0 CONCLUSIONS AND RECOMMENDATIONS

As discussed above, existing capacity deficiencies have been identified in the 72-inch diameter trunk line that runs through the Planning Area as well as storm drain infrastructure further downstream. The City's Storm Drain Master Plan concludes that upsizing the existing 72-inch pipeline within the Planning Area will not completely address the storm drain capacity deficiencies that are outside the Planning Area. Therefore, any increase in discharge flows from the Planning Area, including the Phase I Site, would exceed the downstream system capacity. Furthermore, the sizes and capacities of the existing stormwater collection system in Bayhill Drive and Cherry Avenue are unknown and require further study as part of future development.

7.1 IMPACTS

7.1.1 Hydrology and Storm Drain Impacts – Phase 1

The stormwater runoff calculations for pre-development peak flow and post-development peak flow show an increase in post-development peak flows. The recommended mitigations will require that the Phase 1 Development be designed to maintain or reduce stormwater discharge into the existing storm drain infrastructure. The increase in peak flow is a consequence of an increase in impervious surface areas. If maintaining or decreasing the amount of impervious area is not possible, then any increase in ground level impervious areas, can be offset by further increasing the amount of vegetated green roof areas (as shown on Phase 1 buildings) or by implementing on-site detention to maintain or decrease peak flows from pre-development conditions. There can be no net increase to peak flows given the current capacity constraint of the existing storm system. The project applicant, YouTube, has stated that they plan to provide additional pervious areas in the final design documents or otherwise demonstrate in a drainage analysis study that the final design will not increase flows from pre-project levels.

Same comment as prior - they have been reduced in the current version.



Figure 3 Potential Subterranean Parking Areas ←let's discuss live

City of San Bruno Bayhill Specific Plan

Kimley»Horn

8-9

Ramp/Sneath Lane intersections. The Cherry Avenue/San Bruno Avenue intersection operates above the LOS standard under No Project and Plus Phase I conditions; however, worsens to LOS E with the addition of the Max Office scenario. To improve conditions, a potential improvement would include modifying the signal cycle length to accommodate the additional vehicular traffic. The I-280 Southbound Ramp/Sneath Lane intersection operates under the LOS D standard under existing conditions. The addition of the Phase I and Max Office Project would worsen conditions; however, optimizing signal timing plans would result in improved intersection operations that operate at the LOS D standard.

PM Peak Hour

As shown in **Table 6**, all intersections perform at the LOS standard under No Project and Plus Project conditions with exception to the following intersections:

- Cherry Avenue/San Bruno Avenue
- Traeger Avenue/San Bruno Avenue
- El Camino Real/San Bruno Avenue
- I-380 Westbound/El Camino Real

The Cherry Avenue/San Bruno Avenue, El Camino Real/San Bruno Avenue, and I-380 Westbound/El Camino Real intersections would operate at the LOS standard (LOS D) or better by modifying signal timings. The Traeger Avenue/San Bruno Avenue operates acceptable under No Project condition; however, the addition of the Phase I and Max Office Project would worsen the side street stop-controlled approach, such that the intersection would operate under the LOS D standard. To improve operations, the Traeger Avenue/San Bruno Avenue intersection should be signalized. Note, that the intersection currently meets the peak hour signal warrant for a traffic signal.

Since the peak hour signal is already warranted, why should the BHSP have a fair share payment?

8-10

These Drainage Report(s) shall contain the following:

- Verification of existing pipe network including pipe size, elevation, material and condition including determination of the size and capacity of all elements of the existing stormwater collection system in Bayhill Drive and Cherry Avenue.
- Hydrologic analysis of construction period conditions and implementation of all temporary facilities necessary during construction to avoid increases in peak flows.
- Hydrologic analysis of existing and proposed peak flows that accounts for all areas that will be disturbed by the new development.
- Hydraulic analysis for evaluating pipe capacity and sizing of new pipes. The capacity of existing pipes that are proposed for re-use and new pipes shall be sized in accordance with the City's methodology, as noted in the municipal code or otherwise approved by the City Engineer. New pipes in the public right of way, if required, shall be RCP and have a minimum size of 15 inches. Applicants shall implement all permanent facilities necessary to avoid increases in operational peak flows.

Mitigation Measure Hydro 1B – Dedicate Storm Drain easements for Public Infrastructure

All storm drain pipes and related structures constructed as part of the City of San Bruno's stormwater conveyance system shall be contained within an easement dedicated to the City of San Bruno if the storm drain improvements are located outside of the public right of way. Storm Drain easements shall have a minimum width in accordance with the following:

- Minimum clearance between Outside Diameter (O.D.) of pipe to easement line shall be five (5) feet.
- Minimum clearance between pipes (O.D. to O.D) shall be five (5) feet.
- Minimum clearance between outside of structure to easement line shall be four (4) feet.
- Easement width must meet above requirements but shall not be narrower than fifteen (15) feet.

Same as previous comment.

Should be 440ksf. It appears SF may be correct in calculation, however.

Also, various figures show a water line in Elm where it is to be located in at intermodal station.

8-11

(Phase I Development), which consists of adding 301,476 square feet (sf) of net new office space to 8.15-acres. The Phase I Development is expected to be completed by 2022. Attachment A includes the proposed utility plans for the Phase I Development, prepared by the developer's engineer, that were used for this evaluation.

Four buildout scenarios of varying housing and office densities were evaluated in the Bayhill Specific Plan Development Project Water Supply Assessment (Project WSA) to capture the highest demand future scenario that would be permitted under the proposed Bayhill Specific Plan. Full buildout of the proposed Project is assumed to occur by 2040. The buildout scenarios included the following:

- Maximum Office Scenario
- Maximum Housing Scenario (Project)
- Increased Height Alternative – Maximum Office Scenario
- Increased Height Alternative – Maximum Housing Scenario (Project Alternative)

The proposed land use plans for each scenario is provided in Attachment B for reference.[2] The Maximum Housing Scenario resulted in higher water demands than the Maximum Office Scenario and was selected for this hydraulic evaluation. However, the Increased Height Alternative – Maximum Housing Scenario resulted in the highest buildout water demand and was therefore evaluated as a possible project alternative for this hydraulic evaluation to determine if additional water system improvements may be needed. Attachment C presents the Project Alternative Buildout evaluation findings and conclusions.

The selected Project Buildout scenario includes 3,500,743 sf of office buildings, 121,846 sf of retail buildings, a 133-room hotel, and 573 dwelling units (du) of multi-family residential housing (these totals include existing buildings that would remain). Proposed utility plans for buildout of the Project have not been prepared, and existing pipelines were assumed to serve the Project Buildout scenario. However, City staff identified that a new 10-inch diameter pipeline will be installed in Elm Avenue to connect Grundy Lane to Bayhill Drive at buildout.

The Project is located in Pressure Zone 3/5 of the City's water system. It is assumed that the Project will be served primarily from SFPUC supply (from the Rollingwood - C3 and Bayhill - C4 Turnouts) and that the City's groundwater wells would be offline under the City's current operations as a participant in the Regional Groundwater Storage and Recovery project. The preliminary Phase I Development utility plans provided to West Yost propose to abandon the existing 8-inch pipeline in Elm Avenue (north of Bayhill Drive), abandon and replace the existing 8-inch pipeline in Grundy Lane, and abandon and replace a section of the existing 10-inch pipeline in Bayhill Drive. The proposed pipelines would tie into the existing water system at four connections: one connection to the existing 8-inch diameter water main at the intersection of Grundy Lane and Cherry Avenue; a second connection to the existing 8-inch diameter water main that runs between Bayhill Drive and Grundy Lane (at a point approximately 1,230 ft northeast of the first connection); a third connection to the existing 10-inch diameter pipeline in Bayhill Drive, approximately 150 feet from the

[2] Provided to West Yost by ICF on March 29, 2019.

Appendix 3.10-1
Transportation Supporting Data

To facilitate review of the Draft EIR, could you kindly provide the traffic analysis supporting documentation (including Synchro intersection analysis outputs) for all study intersections and scenarios analyzed in the EIR? (This would include cumulative 2040 traffic volumes with and without the proposed project.)

Also, could you kindly provide a project trips summary by study intersection?

How is this calculated - can the math be shown?

Table 6: VMT per Service Population

Scenario	Project Site Total VMT per Service Population			Project VMT Threshold	Project Added Total VMT per Service Population[1]	
	No Project[2]	Plus Project[3]	Plus Phase I Development		Project	Phase I Development
Existing Conditions	37.5	29.9	35.2	21.7	**27.8**	**31.8**
Cumulative Conditions	36.2	28.3	34.0	21.7	**26.1**	**30.7**

Notes:
Bold: Project VMT per Service Population exceeds the VMT per Service Population threshold
1. The Project Added Total VMT per Service Population is the change in VMT as a result of the Project over the change in Service Population.
2. The analysis assumes the existing land use program Under No Project conditions.
3. The Project is defined as the Max Office alternative.

Source: C/CAG-VTA Travel Model, 2019.

As shown, the Project would increase VMT, but decrease the VMT per service population compared to No Project conditions. However, the Project VMT per service population would still exceed the 21.7 VMT per service population threshold[1]. The Project would require a 22 percent and 17 percent reduction in VMT per service population to meet the threshold under Existing Plus Project and Cumulative Plus Project scenarios, respectively. And the Phase I Development would require a 32 percent and 29 percent reduction in VMT per service population to meet the threshold under Existing Plus Project and Cumulative Plus Project scenarios, respectively.

As described in the EIR, Mitigation Measure TRA-1 was proposed, which would require property owners of new developments within the Specific Plan to prepare and implement a TDM program that would achieve the 21.7 VMT per Capita threshold. The VMT per Capita threshold equates to no more than 43-percent of trips occurring by single occupancy vehicles (SOV). The 43-percent SOV target was calculated based on the reduction of the Project VMT and "target" VMT. The "target" VMT was calculated by multiplying the change in population by the 21.7 VMT per service population threshold. A summary of the calculations is included in **Table 7**.

[1] See section 3.10 of the EIR for a detailed narrative of the VMT methodology and significant threshold.

How is this calculated - can the math be shown?

Table 7: Cumulative Plus Project VMT and Mode Split Target

Total VMT	Target VMT	Delta (Total – Target)	Percent Reduction	SOV Mode Split	SOV Target Mode Split with Reduction
243,943	202,678	41,265	17%	53%	**43%**

Source: Fehr & Peers, 2019.

As shown in **Table 7**, the Project would require a VMT reduction 17 percent. The VMT reduction would correspond to the same SOV target reduction, resulting in a maximum SOV mode of 43 percent. The applicant or building owners can shift SOV users to other modes through implementation of a TDM program,– described in greater detail below.

Transportation Demand Management (TDM)

The Specific Plan provides a list of TDM programs and services, but developers and property managers may tailor their own list of measures to fit their unique workforce culture and schedule.

Project Scenario

In the near term, before buildout of the Transit Corridors Plan, it may be challenging to reliably achieve a SOV percentage of no more than 43 percent. Even with TDM implementation, a standard employer or property manager may struggle to consistently reduce the Project's effect on VMT per service population to a less-than-significant level. As such, the EIR notes that the TDM Program will strive for the VMT per Capita threshold but acknowledge reasonable limitations on TDM program success due to surrounding transportation and land use context in the near-term. Program expectations may be less stringent for an initial occupancy period but will become more stringent over time and will ultimately require each employer or property manager to meet the VMT per Capita threshold or associated drive-alone goal.

Based on guidance provided by the California Air Pollution Control Officers Association (CAPCOA), the maximum vehicle trip reduction for urban low-transit[2] areas such as the proposed Project is generally accepted to be 15-percent. Thus, it is expected that even with implementation of the

[2] Urban low transit areas refer to somewhat dense urban areas with good accessibility but lower levels of transit use compared to core and high transit areas like Downtown San Francisco.

8-15

comprehensive TDM program as described in the Specific Plan, the VMT reduction would not reduce by more than 15-percent. However, Fehr & Peers prepared a quantitative assessment of the TDM strategies proposed in the Specific Plan, included in Attachment C, using their TDM+ tool[3]. As shown, implementation of the program is expected to result in a VMT reduction ranging from 15 percent to 20 percent. As described in the EIR, the Project requires a reduction of 23 percent under current conditions; therefore, implementation of a TDM program would not result in a significant reduction that would meet the VMT per Capita threshold. However, under Cumulative conditions, the Project would require a reduction of 17 percent, which falls within the expected range of VMT reduction with implementation of a TDM program.

Is a 17% reduction, 22% reduction or 23% reduction required?

Therefore, it is unlikely that implementation of a TDM program would result in meeting the VMT per Capita threshold under Existing Plus Project conditions; however, would meet the threshold under Cumulative Plus Project conditions.

Phase I

Phase I Development is composed entirely of YouTube-owned parcels, and all- trip generation associated with Phase I Development would be YouTube generated. YouTube operates a robust TDM program today that, if continued is expected to meet or perform below the 21.7 VMT per service population threshold. A summary of the YouTube travel surveys is included in **Table 8.**

Table 8: YouTube Employee Mode Split

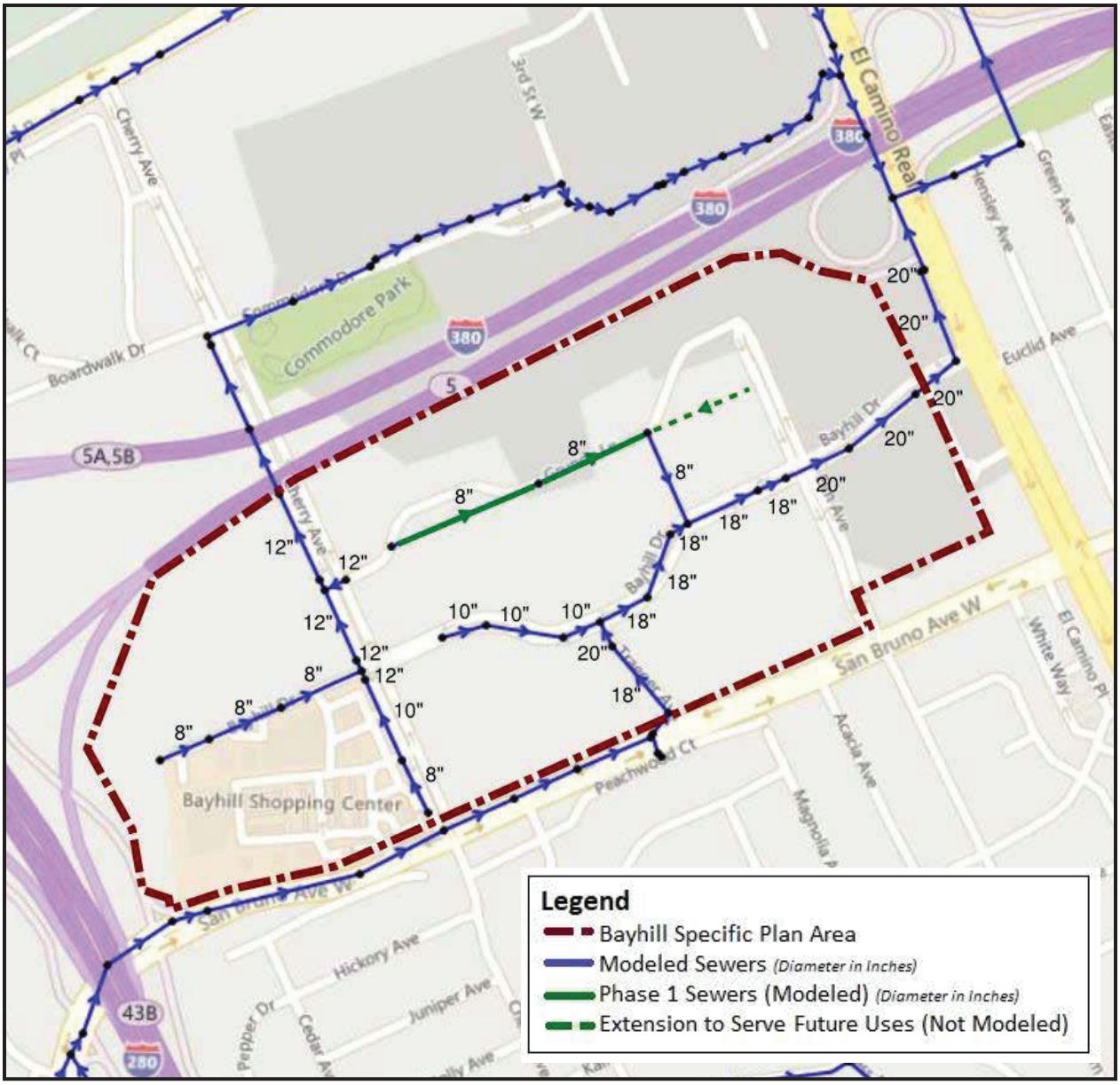
Mode	2017	2018
Drive Alone (SOVs)	42.4%	42.7%
Carpool, Vanpool, TNCs, Drop-off (2+ passengers)	4.1%	4.0%
G-Shuttle	40.3%	39.1%
Transit	5.0%	3.5%
Bike	1.6%	1.2%
Walk	1.9%	2.5%
Other (Work from home, different office, etc.)	4.7%	7.0%

Source: YouTube Employee Travel Survey Data

[3] TDM+ is based on CAPCOA VMT reduction strategy research in *Quantifying Greenhouse Gas Mitigation Measures* (2010).

Should the 8" lines be shown as 10" since later text suggests that is what was modeled?

Figure 1: Modeled Sewers Within and in Vicinity of Bayhill Specific Plan Area



Appendix 3.11-3
Sanitary Sewer Impact Study

Letter 9

From: Alexander Melendrez <alexander.melendrez.140@gmail.com>
Sent: Tuesday, February 16, 2021 6:22 PM
To: Pamela Wu <PWu@sanbruno.ca.gov>
Cc: Melissa Thurman <MThurman@sanbruno.ca.gov>; CouncilSB <councilsb@sanbruno.ca.gov>
Subject: Item 4 - EIR for Bayhill Specific Plan

Dear San Bruno Planning Commission,

My name is Alex Melendrez and I am a 27 year resident of San Bruno. I am speaking only for myself. Thank you for taking the time to hear my comments on the EIR for the Bayhill Specific Plan. I really wish I could make my comments short. 9-1

I appreciate the work the Planning Commission is doing in review of the Specific Plan and Youtube Phase 1 Development Plan. There is urgency to address our growing jobs-housing imbalance and planning for more housing in the Bayhill Specific Plan is the way to do it. It's an affordability issue, it's a climate change issue and equity issue. In a recent City Council meeting and Daily Journal article, the City Council expressed concern (that I admittedly disagreed with) about our upcoming RHNA allotment. Well THIS is the perfect opportunity to meet that allotment ahead of time!

To quote a recent SPUR panel "Zoning is a community adopted system". We should choose a zone for more people. We can allow for more affordable housing. It's a policy choice. Developers, even those with the best intentions, only build what is allowed. We are choosing to limit ourselves and expanding Bayhill's housing allotment is one of the most crucial first steps to addressing our housing needs. **It really does start right here at this moment.** While we have our future RHNA allotment (and the likelihood of us retaining the number), the pressing needs of the actual humans these numbers represent is the moral argument for why we need to allow for more homes for people. Our teachers, our unhoused populations, our low-income workers, our middle income workers and more. The inclusion of more housing overlay zones are great additions. This is the time, the moment with the urgency all in alignment. 9-2

In the manner you can tonight, please support the "Residential Alternative" to allow for near 1500 homes within the proposed Specific Plan. Additionally, please support more housing in the eastern section of the Specific Plan (close to El Camino in areas 14, 15 and 16 on the parcel map) IN ADDITION to existing planned Southern sites (San Bruno Avenue) for housing as well. In alignment with an environmental review, the eastern area is transit rich, close to amenities and ripe for incentives to build (both market-rate and affordable) homes**. We cannot afford to waste this opportunity to build a brighter future for San Bruno.** 9-3

Thank you for your service to the Planning Commission. I truly appreciate you volunteering your time to our community.

Alex Melendrez

--
Alexander Melendrez
Lead, Peninsula For Everyone
Alternate & State Party Delegate, San Mateo County Democratic Central Committee
Member, Peninsula Clean Energy's Citizen Advisory Committee

For work/housing related emails please email: amelendrez@hlcsmc.org

Former:
Commissioner, San Bruno Parks and Recreations, San Mateo County Commission on Aging
Board Member, Peninsula Young Democrats, Peninsula Democratic Coalition
Committee Co-Chair, San Mateo County Democratic Central Committee Endorsement Committee, Programs Committee

Letter 10

HCA PROPERTY MANAGEMENT, INC.

P.O. BOX 7, NOVATO, CA 94948
deanm@hcamgmt.com * 415-892-4795 x 217**

February 23, 2021

Re: BAYHILL PARTNERS
801-851 TRAEGER AVENUE
SAN BRUNO, CA

Members of the San Bruno City Council
Members of the San Bruno Planning Commission
Via email: Melissa Thurman <mthurman@sanbruno.ca.gov> City Clerk
Pamela Wu <PWu@sanbruno.ca.gov> Community and Economic Development Director

In furtherance of the discussion regarding the Specific Plan EIR workshop of February 16, 2021, I (as part owner) thought it might help to put my comments in writing.

The questions I had posed that evening were as follows:

1) If an owner in the Bayhill project area makes no use of any increase in either office or residential will that owner be subject to any increase in fees or taxes (ie: Mello Roos or Community Benefit fees)? 10-1
2) If Bayhill 1111 doesn't use any of it's 158 residential units can another parcel allowed residential improvements be allowed to use those units? 10-2
3) I think it is obvious but 801-851 Traeger can use **either** the 125,000 office **or** the 205 residential units -- correct? 10-3
4) In Table 5-4 where the height limit is increased to 5 stories the number of residential units would increase to 1,070; first, the reference is to sq.ft. and should be "du" dwelling units; second, which parcels are they allocated to? 10-4

It is interesting that there were many comments about the need for residential units. Thus, I would like to make some additional comments concerning the cost of such units. 10-5

First, it is important to take into consideration the fact that each area allowed residential will have to provide underground parking if the residential is in addition to the current office use since the residential units will be built on existing parking spaces. Not counting the cost of the land, it is estimated that each underground parking space has a cost of $40,000 and each residential unit requires per code 1.5 to 2 spaces. Some consideration would have to be given to park-sharing and a variance to achieve a 1.5 per unit requirement.

Second, our preliminary feasibility study indicates that 289 units is the economic breakeven. Thus, the 205 allocated in the EIR would not provide the necessary 10-6

economics. If it is not economic for 801-851 Traeger, 158 units will not work for 1111 Bayhill Drive either.

10-6
(Cont.)

Third, Just to give you an idea of the costs of a residential project of 289 units: 58 Jr 1-bed at 570 sq.ft., 101 1-bed at 750 sq.ft. and 130 2-bed at 1,050 sq ft. at an average cost of $540,547 per unit equals $156,205,000. Projected rents are from $2,800 to $3,800 based on these projections.

Obviously, these are very rough estimates and it is difficult to narrow these estimates without significant refinement of the parameters. Other than answers to the questions above and some consideration to additional units being allowed it is too early to anticipate what else might be required. It is pretty certain, however, that the number of units provided will not be economically viable.

Please forward this to all members of the City Council and the Planning Commission.

Respectfully submitted,

Dean J. Moser for
Bayhill Office Partners, LLC

Letter 11

-----Original Message-----
From: Janice Rodondi <janicerodondi@yahoo.com>
Sent: Monday, March 15, 2021 12:35 PM
To: Matthew Neuebaumer <MNeuebaumer@sanbruno.ca.gov>
Subject: Bay hill complex

Dear Mr. Neuebaumer,

I apologize for sending this after the March 1st, deadline. I hope you are open to answering my question. 11-1

My name is Janice Rodondi , my address is 782 Magnolia ave. and have been a resident of San Bruno for 45 years. I was here when the existing Bayhill couplex was constructed. And as alway with construction such as this there were issues to deal with. In my case and several other people in my immediate vicinity , we experienced several areas of damage to our homes, after constant pile driving for several weeks.

Bathroom tile and garage floors cracking. This was examined after the fact so no liability was issued.

My concern of course is where will the liability lie and who do I contact if something like this was to occur again. With what is anticipated to be a very long and extensive process, and many different companies involved, this would be rather confusing.

My hope is to NOT experience what happened last time, but our homes are older and open to damage. The impact on our neighborhoods will be constant for many years and will look forward to the this being accomplished with the least impact as possible.

Thank you for your time and I look forward to hearing back from you.

Regards,

Janice Rodondi
782 Magnolia ave.
SB,CA.

650 589 2333

March 1, 2021

Pamela Wu
Community and Economic Development Director
City of San Bruno
567 El Camino Real
San Bruno, CA 94066

VIA EMAIL: pwu@sanbruno.ca.gov

Re: Public Comments on Draft Environmental Impact Report (EIR) for the Bayhill Specific Plan including the YouTube Phase I Development 12-1

Dear Pamela Wu,

Below is a transcription of public comments received at the February 16, 2021 San Bruno Planning Commission hearing on the Bayhill Specific Plan Draft EIR.

Commenter 1: Dean Moser

Thank you, my name is Dean Moser. I'm the representative for 801-851 Traeger. I have a couple of questions. If an owner in the Bayhill project doesn't make any changes whatsoever to their property, are they subject to any fees or taxes such as the Mello-Roos or community benefit fees? That's number one. 12-2

Number two, if Bayhill 1111 doesn't use any of its 158 residential units, can another parcel use those units? 12-3

And then next item, if the height limit is increased due to an election, of course, or a vote, Table 5-4 where the height limit is increased to five stories, the number of residential units would increase to 1,070, first the references to square feet and should be to building units, and second which parcels are they allocated to? 12-4

I would like to make a comment too. We've done a feasibility study on residential homes, and the allocation of 205 homes doesn't make it economic. We had the economic break even at 305 homes, that's just a point of interest. 12-5

And I've gotta tell you, I think you guys have done a great job on the planning commission and the city council, this is a fantastic project and I look forward to it moving ahead. Thank you. 12-6

Commenter 2: Phuong Le

My name is Phuong Le and I'm a resident in San Bruno. I believe that the Bayhill project site is located at a very strategic location adjacent to Bayhill Shopping Center, within walking distance to Tanforan Mall, Caltrans, and BART. This site has the potential to address not only YouTube's office space need, but also San Bruno's housing crisis. I'm here to support the residential alternative, which allows up to 1,500 new residential units. This is almost half of the targeted RHNA numbers for next cycle. This residential alternative not only achieves all of the current project objectives, but also provides 12 percent more impervious areas. This means more green open space going back to the community, this means better. Even though there's less office area provided with this alternative, I believe this is justified. As you can see, what this pandemic has shown us is that we don't need that much office space. We're moving toward a new working style where it's mostly remote and we don't need that much space. This is more sustainable. We need to focus more on housing. Also, integrating more residential and open space at Bayhill would activate this area not only as a major business location during daytime, but also as a friendly and charming urban area that's full of activities for families at night. This is exactly the goal of San Bruno, as mentioned in the general plan and the specific plan. Therefore, I strongly urge you to support and approve the residential alternative, which increases up to 1,500 new residential units on the Bayhill project site. Thank you. 12-7

Commenter 3: Jules Brouillet

My names in Jules Brouillet. I live in the Rollingwood neighborhood here in San Bruno. I work here as a teacher. We very much need to house workers, both public servants, the growing number of YouTube employees, and the service workers and other people who work here in San Bruno. The housing shortage and high housing prices are keeping many of my colleagues far away. One of my colleagues at the local school district has to commute here from Brentwood, when she is not distance working. And that's a lot of traffic and air pollution happening to the city of San Bruno and the Bay Area. For both residents and out of town workers, about 7 out of 10 or more drive single occupancy vehicles coming in when they work. So, with that in mind, and the importance of reducing vehicle miles traveled in our environment, with sea level rise, air quality problems, climate change, forest fires, other threats, San Bruno needs to be a part of the solution to this climate crisis by also addressing the housing crisis. And it can do that through constructing housing here, at to not increasing the imbalance by just building more office space without building very much housing. 12-8

So with that in mind, I think the Bayhill specific plan is a choice spot for constructing housing because it is urbanized and it's an ideal place for high-density development that fits into the community character of that part of town. And we also have a RHNA allocation of 2,000 new units plus a backlog of 600 of the 1,100 from the old RHNA. So for all these reasons I think we should more strongly consider the residential plan of around 1,500 units to meet the housing needs of our community. It also only reduces the housing capacity in this draft report by 700,000 square feet to 1.7 million square feet, so it has almost as much office space as that. We could also consider the height density alternative if voters modify ordinance 1284, but in the meantime, I think we should most strongly consider the residential alternative here. I also encourage you to locate the housing towards the east side of the project, so that residents can access transit more easily, and that 12-9

convenience increases ridership and reduces driving. So thank you for considering the residential alternative, and take a bite out of the housing crisis and our RHNA goals. 12-9 (Cont.)

Commenter 4: Plymouth Ansbergs

This is Plymouth Ansbergs, I live in San Bruno, I've lived here almost 4 years now. I work for Google, I usually work at our campus down in Mountain View, but I do occasionally work out of YouTube's offices in San Bruno, which is convenient because it's part of the same company, so I have some familiarity with usage of that space. My experience with working there is that traffic is really not a problem, and this is an area that can absorb a lot more housing, especially if some of that housing is able to be used by employees who actually work, you know people who are able to live and work there. I know a couple of YouTube folks who live in the Shelter Creek apartments and are able to walk to work, and that's great, and I would just like to really encourage there to be more thought to increasing the amount of housing there. Thank you. 12-10

Commenter 5: Doug (last name not provided)

Thank you for your support on this matter. We are the owners of 801 Traeger and 851 Traeger, and I support everybody on the line tonight in regard to the residential housing. We are very, very, we are a strong proponent of the additional housing on our site. Obviously, there's going to be ways that you adjust the housing and the percentages and everything else. It sounds like a lot of the callers like Jules, and we have Alexandra presenting the East side of the project, but we're on the west side, and we're willing to support the housing needs of the community, and I just want to present that to all of you, that there is a need and a crisis out there for San Bruno, and we're in support of the higher density, the increase in the height limit, and from the initial 573 multi-family, to now 1,500, I think that's a good start. I think the community itself needs that, especially in the pandemic, where we're finding, as owners of offices and office buildings that yes people are staying at home, and yes people are looking for the additional residential sites where they can work close to their jobs. So I just want to present this to you, and we're very, very happy with what you're doing. We've been part of this project since 2017, and we've been following the group, and we support everything you're doing, so thank you very much. 12-11

Commenter 6: Robert Entsminger

My name is Robert Entsminger, I live at 712 Hensley Avenue and I'm not sure….(microphone cuts out)…income people who want to live here. It might work well for the people who work for YouTube, and by extension Google, but I don't think this housing is going to be particularly inexpensive, which is the main problem that people have with money here. 12-12

I do have one question additionally about it, and that is, since it's recently come up that they'd like to add an additional tax or fee on homeowners to help rebuild the stormwater system in San Bruno, 12-13

will this fee also apply to this development? And I think that's pretty much what I have to say tonight. Thank you for listening. 12-13 (Cont.)

Appendix 7

Responses to Comments

Appendix 7
Responses to Comments

Introduction

This appendix includes responses for each of the numbered comments identified in the comment letters in Appendix 6, *Comments Received on the Draft EIR*, of this Final EIR. Each response begins with a summary of the comment, responds to the comment, and then identifies if revisions to the Draft EIR were required.

In responding to comments, CEQA does not require a Lead Agency to conduct every test or perform all research, study, or experimentation recommended or demanded by commenters. Rather, a Lead Agency need only respond to significant environmental issues and does not need to provide all information requested by reviewers, as long as a good faith effort at full disclosure is made in the EIR (CEQA Guidelines secs. 15088, 15204).

Responses to Comment Letter 1 (Bay Area Air Quality Management District)

Response to Comment 1-1

The comment correctly summarizes the main features of the project.

Comment noted. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 1-2

The comment expresses support for the City's efforts to focus on transit-oriented infill development and notes that the Project Site is located in a Priority Development Area (PDA) as identified by Plan Bay Area 2040, with proximity to the San Bruno Caltrain Station and the San Bruno BART Station.

Comment noted. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 1-3

The comment encourages the City to adopt the Residential Alternative, stating that the increase in allowable new residential units and the reduction in office development square footage would provide a more balanced job/housing ratio and would reduce vehicle miles traveled (VMT) impacts, therefore resulting in a lesser impact on air quality while helping to achieve Plan Bay Area's 2040 housing goals.

The comment's summary of the potential VMT impacts associated with the Residential Alternative is consistent with the analysis in Chapter 5, *Analysis of Alternatives*, of the Draft EIR. As stated on Draft EIR pages 5-25 through 5-26, impacts on VMT under the Residential Alternative would be less than significant with mitigation under both Existing Plus Residential Alternative and Cumulative conditions. As such, the Residential Alternative would avoid the Project's significant impact on VMT. However, the analysis of air quality impacts under the Residential Alternative on Draft EIR pages 5-16 and 5-17 concluded that the Residential Alternative would result in greater cumulative and health risk impacts during construction and similar cumulative and health risk impacts during operation relative to the Project. Regarding construction emissions, the additional residential units allowed under the Residential Alternative are anticipated to increase construction activities and associated criteria air pollutant emissions compared to the Project. Regarding operational emissions, while the reduction in VMT would reduce mobile source emissions compared to the Project, emissions would still be expected to exceed BAAQMD's daily criteria pollutant emission thresholds. Because it cannot be concluded that offset programs (Mitigation Measure AQ-7) would be available in the future at the time and in the amount needed for any given future development, this alternative would not avoid the Project's significant and unavoidable criteria air pollutant emissions impact during operation, and impacts would be similar to those of the Project. The comment does not contain questions or concerns regarding the adequacy of this analysis.

The commenter's support for the Residential Alternative is noted and will be considered by the decision makers as part of the full record available in deciding on the merits of the project. Per Public Resources Code Sections 21002-21002.1 and 21004, the lead agency has the authority to

adopt a project alternative rather than the proposed project, particularly if the agency finds that the alternative will be less environmentally damaging than the project as proposed. Per CEQA Guidelines Section 15126.6, an alternative must be capable of feasibly attaining most of the basic project objectives.

Response to Comment 1-4

The comment recommends the City consider expanding its residential overlay zones to provide flexibility for developing or converting office space to residential use in the future. The comment notes that remote work is likely to continue even as COVID restrictions are lifted, which could result in underutilized and overabundant office space.

As described in Chapter 2, *Project Description*, of the Draft EIR, the Project would establish new housing and mixed-use overlay zones in a 20.5-acre portion of the Project Site. As stated in Section 2.5, *Project Objectives*, the Project aims to "[p]rovide a cohesive vision for future development within the Project Site, recognizing Bayhill's essential nature as a business park/employment center while allowing for residential development in appropriate locations, thereby helping to serve the city and region's housing needs." Therefore, in determining the placement of the residential overlay zone, the City balanced the need for residential development with the need to preserve Bayhill's essential nature as a business park/employment center. However, the City notes the commenter's concern about underutilized and overabundant office space as a result of remote working. The decision makers will consider this comment as part of the full record available in deciding on the merits of the project. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 1-5

The comment expresses appreciation for the City's work in addressing air quality impacts anticipated as a result of the Project. The comment notes that because the timing and intensity of development under future phases is unknown, there could be reasonably foreseeable conditions where air quality thresholds for reactive organic gasses (ROG), nitrogen oxides (NOx), particulate matter 10 microns smaller in diameter (PM_{10}), and particulate matter 2.5 microns smaller in diameter ($PM_{2.5}$) could be exceeded during construction and operations. The comment notes that the Draft EIR identified design features and mitigation measures that would substantially lessen local and regional air quality emissions, and suggests additional measures to reduce air pollution emissions and limit exposure to pollutants. The comment's summary of the Project's air quality impacts is consistent with the analysis presented in Section 3.2, *Air Quality*, of the Draft EIR. A response to each of the additional reduction measures proposed by the commenter is provided in the following responses.

Response to Comment 1-6

The comment correctly notes that the Draft EIR concludes that the Project would result in significant and unavoidable air quality impacts during construction (refer to Draft EIR Section 3.2, *Air Quality*). The comment expresses appreciation for the Project's efforts to address air quality and health impacts by incorporating best management practices, including fugitive dust control measures and requiring Tier 4 engines on equipment. The commenter recommends the Project incorporate zero-emission off-road equipment whenever feasible and establish a hotline where visible dust problems

can be reported to the City. The commenter recommends the hotline number be posted around the site and be given to all nearby residents, schools, and businesses.

In response to the comment, Policy 6-9 in the Specific Plan has been revised to encourage the use of zero-emissions equipment wherever feasible:

"6-9: Reduce construction-related emissions.* All applicants proposing development of projects within the Plan Area shall reduce construction related emissions by requiring contractors (as a contract condition) to implement the following requirements, unless an analysis conducted by a qualified consultant demonstrates that a particular measure is not required to meet air quality standards:

a. Use Tier 4 final engines for all off-road equipment greater than 50 horsepower (hp) and operating for more than 20 total hours over the entire duration of construction activities.*

b. Use diesel trucks with 2010 or later compliant model year engines during construction.(*)

c. Use renewable diesel during construction.(*)

d. Use low-VOC coatings during construction. (*)

e. Implement fugitive dust best management practices.*

f. Use portable electrical equipment where commercially available and practicable to complete construction. Construction contractors shall utilize electrical grid power instead of diesel generators when (1) grid power is available at the construction site; (2) construction of temporary power lines are not necessary in order to provide power to portions of the site distant from existing utility lines; (3) use of portable extension lines is practicable given construction safety and operational limitations; and (4) use of electrical grid power does not compromise construction schedules."

The comment also recommends posting a hotline number to report visible dust problems and ensuring that the number is given to all nearby residents, schools, and businesses. Mitigation Measure AQ-5: Require Fugitive Dust Best Management Practices, on page 3.2-33 of the Draft EIR includes the following language: "Post a publicly visible sign with the telephone number and the name of the person to contact at the lead agency regarding dust complaints. This person will respond and take corrective action within 48 hours. The phone number of the BAAQMD will also be visible to ensure compliance." This measure is based on BAAQMD's 2017 CEQA Guidelines.[1] The BAAQMD's CEQA Guidelines do not include additional measures to ensure that the number is given to all nearby residents, schools, and businesses, nor does the comment provide evidence to support that such a measure would further reduce the Project's construction air emissions. No revisions to the Draft EIR are required.

Response to Comment 1-7

The comment correctly notes that the Draft EIR concludes that the Project would result in significant and unavoidable air quality impacts during operation, and that the significant impacts are primarily due to vehicle trips that would be generated by the proposed land uses (refer to Draft EIR Section 3.2, *Air Quality*). The comment expresses appreciation for the Specific Plan's efforts to reduce

[1] Bay Area Air Quality Management District. 2017. California Environmental Quality Act Air Quality Guidelines. May. Available: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed: April 27, 2021.

emissions by encouraging transit use, fostering bicycle and pedestrian infrastructure, and supporting sustainable land use patterns through mixed-use design and increased density. The comment further recommends that the Specific Plan's voluntary transit policies be revised to include stronger language that affirms the City's intent to implement these measures. The commenter provides Policy 4-5, Encourage First-Last Mile Shuttle Service, as an example, where they recommend "encourage" be revised to "require."

The Specific Plan requires numerous multi-modal infrastructure improvements, including upgrades to all sidewalks and bicycle facilities within the Specific Plan area. The Specific Plan policies also require that development pays its fair share to add separated bicycle lanes on San Bruno Avenue West and pedestrian crossing enhancements at the two adjacent El Camino Real cross-streets (Policy 4-3). These crossings provide access to bus routes along El Camino Real and are the first/last leg of travel to the Caltrain and Bart stations. The Specific Plan also requires that the City and property owners work together to enhance transit stops within the Specific Plan area (Policy 4-6). The Specific Plan also requires that new land use applicants develop transportation demand management (TDM) programs and appoint TDM coordinators (Policies 4-9, 4-10, and 4-11). If property managers do not achieve their TDM goals, they are required to make mitigation payments as outlined in the Bayhill Monitoring and Mitigation Plan. These non-voluntary requirements are described on pages 2-28 through 2-34 in Chapter 2, *Project Description*, of the Draft EIR, and in Chapter 4, *Access and Connectivity*, of the Specific Plan (Appendix 2 of the Draft EIR).

Policy 4-5, Encourage First-Last Mile Shuttle Service, includes a requirement to prepare a first/last mile study for travel between the Specific Plan Area and Bay Area Rapid Transit (BART) and Caltrain stations. Funding for this study is included in the areawide impact fee, which affirms the City's intent to implement this measure. Once the study is complete, the City and Specific Plan area employers can decide whether shuttle service is the best approach to closing the gap between the Project Site and the regional rail stations. The Specific Plan would allow for a variety of different commercial uses, and what may be a feasible and effective first/last mile strategy for one employer may not be feasible or effective for another. For example, some employers may elect to provide e-bikes and e-scooters as part of their TDM programs. Therefore, the City's intent is to provide for an appropriate level of flexibility in Policy 4-5. No revisions to the Specific Plan or Draft EIR are required.

It should also be noted that YouTube and Walmart operate private, long-haul commuter shuttles to and from the Specific Plan Area. Walmart, in partnership with Commute.org, also provides a publicly accessible shuttle service connecting the Project Site to the BART and Caltrain stations. YouTube employees can use this shuttle service. Existing shuttle service at the time the EIR analysis commenced is described on page 66 of the Specific Plan and page 3.10-11 of the Draft EIR.

Response to Comment 1-8

The comment recommends the City decrease the amount of parking spaces and implement best practice parking strategies to discourage single-occupancy vehicle (SOV) travel, such as parking cash-out, reduced parking requirements, shared parking, paid parking, and car-share parking.

Per Specific Plan Policy 4-4, Provide Appropriate Parking Supply, the number of parking spaces are required to comply with all required regulations, including the San Bruno Municipal Code Chapter 12.100 (Off-Streeting Parking and Loading) and Parking Design Standards Resolution. The San Bruno Municipal Code includes several options that would potentially allow for a reduction of required parking spaces. Chapter 12.100.040(H)(2) allows for a phased development to reduce its

parking supply based on the results of a parking occupancy study, at the discretion of the community and economic development director or approving body. Additionally, Chapter 12.100.040(I) specifies that the number of required off-street parking spaces may be reduced by up to 30 percent for nonresidential land uses within a specific plan area. A 10 percent reduction in required parking spaces already has been applied to YouTube's proposed Phase I Development, consistent with this provision. Pursuant to Specific Plan Policy 4-4, parking studies are required to be prepared periodically and prior to each phase of development; the results will be used to re-evaluate parking supply. Parking discouragement strategies could be components of an individual project's TDM program pursuant to Specific Plan Policy 4-9.

As discussed on page 5-5 in Chapter 5, *Analysis of Alternatives*, of the Draft EIR, the City considered a Reduced Parking Alternative in developing alternatives to evaluate in the Draft EIR. Under the Reduced Parking Alternative, base parking standards would be reduced even further (up to 30 percent) from the parking reductions already allowed under the San Bruno Municipal Code (described above). However, in this case, a reduced parking supply would be expected to result in parking spillover into adjacent neighborhoods rather than reduced VMT. That is, reducing the Project's parking supply would most likely result in drivers parking along nearby residential streets rather than utilizing alternative modes of transportation instead of driving. This is a consequence of the vicinity's suburban setting and abundant supply of free, unrestricted parking immediately adjacent to the Project Site. Even with a robust TDM program such as the one required by Mitigation Measure TRA-1, it is likely that a 30 percent decrease in parking supply would still result in spillover parking with potential adverse effects on surrounding neighborhoods (including environmental effects, such as noise, and non-environmental effects, such as reduced parking supply). Mitigation Measure TRA-1 assumes a wide range of incentive programs and services and already assumes the maximum auto mode share reduction possible given the Project's suburban setting. Layering additional parking reductions onto the TDM reductions assumed in Mitigation Measure TRA-1 is not expected to result in additional mode shift or VMT reduction. Therefore, while reduced parking supply can be used as an ad hoc TDM strategy, in this case, a Reduced Parking Alternative likely would not result in reduced VMT. Therefore, the Reduced Parking Alternative was rejected from further consideration due to its inability to reduce or avoid the significant impacts of the Project. No revisions to the Specific Plan or Draft EIR are required.

Response to Comment 1-9

The comment cites Executive Order (EO) N-79-20 and recommends the City incorporate electric vehicle (EV) charging stations for at least 15 percent of the parking spaces and EV ready spaces for at least 50 percent of parking spaces included in the Project to align with this EO.

Executive orders are binding on state government agencies but are not legally binding on cities and counties or on private development. As such, there is no requirement that the Project comply with EO N-79-20. Nonetheless, individual projects under the Specific Plan would be required to comply with the requirements of the California Green Building Standards Code, which requires new construction to include a certain amount of "EV Capable" parking spaces.[2] These requirements in the current (2019) version of the California Green Building Standards Code generally range from 6 to 10 percent of total parking spaces, depending on the land use type. Currently there are no mandatory

[2] "EV Capable" includes installation of "raceway" (the enclosed conduit that forms the physical pathway for electrical wiring to protect it from damage) and adequate panel capacity to accommodate future installation of a dedicated branch circuit and charging station(s).

requirements for "EV Ready"[3] or "EV Installed"[4] spaces, although the provision of such spaces is encouraged. As stated on page 2-50 in Chapter 2, *Project Description*, of the Draft EIR, the Phase I Development would include parking spaces with EV charging stations (i.e., "EV Installed"). Page 2-50 has been revised to clarify the amount of Phase I Development parking spaces that would include EV charging stations:

"Consistent with the Specific Plan and the San Bruno Municipal Code, the Phase I Development would maintain a parking ratio at a minimum of 3 spaces per 1,000 square feet of development. At least 6 percent of the ~~The~~ Phase I Development's ~~would also include~~ parking spaces ~~with~~ would include EV charging stations ~~capabilities~~. On-street parking would also be located along the north side of Grundy Lane, except for portions intended for white curb loading zones."

Response to Comment 1-10

The commenter recommends the project:

- Install fully protected bicycle lanes to and from San Bruno Caltrain and BART stations and other nearby activity centers;
- Exceed the City's current bike parking ratio;
- Install an adequate number of showers and locker room facilities;
- Install all-electric appliances; and
- Eliminate the use of natural gas.

Responses to these specific recommendations are provided below in a parallel bullet list form (all-electric appliances and elimination of natural gas use are both covered under the final bullet).

- As described on pages 2-28 through 2-30 in Chapter 2, *Project Description*, of the Draft EIR, the Project proposes numerous improvements to the bicycle circulation system including new Class II striping bicycle lanes along portions of Cherry Avenue, Bayhill Drive, and San Bruno Avenue. In addition, the Project proposes to include a new Class III bicycle facility along portions of Cherry Avenue, Elm Avenue, and along all of Grundy Lane. The proposed bikeway network is designed to be consistent with the intent of the City's Walk 'n Bike Plan, providing direct and efficient access within and to the Project Site. The proposed facilities on Bayhill Drive/Euclid Avenue would connect to a Walk 'n Bike Plan-proposed facility that would then connect to both the Caltrain and BART stations. The comment does not provide evidence to support a determination that extending the proposed bicycle lanes to BART or Caltrain would reduce or avoid the Project's significant impact on VMT. Therefore, this revision to the Specific Plan and Draft EIR is not required. However, Policy 4-5 in the Specific Plan has been revised to the first/last mile study to study bicycle connections:

  "4-5: Encourage first-last mile shuttle service. Prepare a first/last mile study for travel between the Planning Area and BART and Caltrain Stations that includes a study of bicycle connections. Encourage TDM programs to support high-frequency, reliable, all-day shuttle

[3] "EV Ready" includes "EV Capable" plus installation of dedicated branch circuit(s) (electrical pre-wiring), circuit breakers, and other electrical components, including a receptacle (240-volt outlet) or blank cover needed to support future installation of one or more charging stations.

[4] "EV Installed" includes "EV Ready" plus installation of a minimum number of Level 2 electric vehicle supply equipment (EV chargers).

to BART and Caltrain stations and Downtown San Bruno; consider consolidating the two existing shuttle services, providing bidirectional service, and reducing headways."

- All development within the Bayhill Specific Plan, including the Phase I Development, would be subject to the bicycle parking standards established in San Bruno Municipal Code Chapter 12.100.050 (Bicycle Parking). Additional bicycle parking could be a component of an individual project's TDM program pursuant to Specific Plan Policy 4-9. The comment does not provide evidence to support a determination that providing bicycle parking in excess of San Bruno Municipal Code standards would reduce or avoid the Project's significant impact on VMT. Therefore, this revision to the Specific Plan and Draft EIR is not required. However, Policy 4-4 in the Specific Plan has been revised to encourage projects to provide bicycle parking in excess of City code standards:

  "4-4: Provide appropriate parking supply. Proposed off-street vehicle and bicycle parking and loading supply shall comply with San Bruno Municipal Code Chapter 12.100 (Off-Street Parking and Loading) and Parking Design Standards Resolution. Public parking and curbside loading surveys shall be prepared periodically and prior to each phase of development and the results used to re-evaluate parking supply and configuration. Projects are encouraged to provide bicycle parking in excess of the standards shown in Table 12.100-3 Required Bicycle Parking Spaces, of the San Bruno Municipal Code."

- Projects under the Specific Plan would be required to comply with Chapter 12.100.050(L) of the San Bruno Municipal Code, which requires nonresidential facilities that have a long-term bicycle parking requirement of thirty or more spaces to provide shower facilities for employees. Further, as stated on page 2-33 in Chapter 2, Project Description, of the Draft EIR, the largest employers at Bayhill, including YouTube and Walmart, have robust TDM programs that include showers for bicycle commuters. The Phase I Development would be subject to YouTube's existing TDM program. No revisions to the Specific Plan or Draft EIR are required.

- Specific Plan Policy 3-25 requires all new construction to include all-electric space and water heating. YouTube, the primary tenant in the Specific Plan Area, provides large commercial kitchens/cafeterias which require the use of natural gas for cooking. Therefore, it is not feasible for the City to require electric ranges for cooking, or to eliminate the use of natural gas altogether. The Specific Plan's approach for reducing natural gas usage is consistent with adopted building electrification ordinances throughout the Bay Area, many of which include exemptions for gas-powered cooking appliances and/or commercial kitchens (e.g., Brisbane, Burlingame, Menlo Park, East Palo Alto, Sunnyvale, and Los Altos). Furthermore, as discussed on pages 3.4-13 through 3.4-18 in Section 3.4, *Greenhouse Gases*, of the Draft EIR, the Project's significant and unavoidable greenhouse gas (GHG) impact is related to mobile-source emissions, not energy emissions. Impacts from energy emissions were determined to be less than significant because the Specific Plan includes policies and requirements that would ensure that future development would be consistent with the California Air Resources Board's (CARB) 2017 Scoping Plan's overall goal of reducing building energy emissions to meet the state's 2030 GHG reduction target. Therefore, requiring all-electric appliances and eliminating the use of natural gas would not reduce or avoid the Project's significant GHG impact. No revisions to the Specific Plan or Draft EIR are required. Please note that the reference to "Chapter 7, *Environmental Quality*, Policy 7-16," in Policy 3-25 of the draft Specific Plan was a typographical error, and has been corrected to refer to "Chapter 6, *Environmental Quality*, Policy 6-15."

Response to Comment 1-11

The comment correctly describes the impact analysis and mitigation measures in Section 3.2, *Air Quality*, of the Draft EIR.

Comment noted. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 1-12

The commenter recommends that specific references in the Draft EIR to BAAQMD as the party that would oversee the project's offset emissions pursuant to Mitigation Measure AQ-6 and Mitigation Measure AQ-7 be revised to "an independent third-party approved by the City, such as the Bay Area Clean Air Foundation." The comment requests these revisions because BAAQMD does not currently have a fee program for offsetting emissions.

The text on page 3.2-29 in Section 3.2, *Air Quality*, of the Draft EIR has been revised to reflect the requested change:

"Pursuant to **Mitigation Measure AQ-6**, applicants would be required to track all land use development construction activities occurring within the Project Site, assess and determine the estimated total emissions for all construction activities that would be concurrently ongoing (subject to City review and approval), and coordinate with an independent third-party approved by the City, such as the Bay Area Clean Air Foundation ~~BAAQMD to determine the mitigation fees for each development project's applicant to pay on a pro rata basis to BAAQMD~~ to offset their pollutant emissions as necessary such that BAAQMD's daily pollutant thresholds would not be exceeded."

The text on pages 3.2-31 and 3.2-32 in Section 3.2, *Air Quality*, of the Draft EIR has been revised to reflect the requested change:

"Through implementation of **Mitigation Measures AQ-7**, applicants would determine the estimated total emissions for operational activities and ~~BAAQMD would determine the mitigation fees for each development project's applicant to pay on a pro rata basis to BAAQMD~~ coordinate with an independent third-party approved by the City, such as the Bay Area Clean Air Foundation to offset their pollutant emissions as necessary such that BAAQMD's daily pollutant thresholds would not be exceeded. Offsetting emissions below BAAQMD's threshold levels would ensure future development under the Specific Plan would not contribute a significant level of air pollution such that regional air quality within the SFBAAB would be degraded."

Response to Comment 1-13

The commenter recommends that offset emission purchases for air quality and GHGs use a preferential hierarchy that first benefits the community, the City, or the Bay Area region, in that order. The comment is in reference to Mitigation Measures AQ-6 and AQ-7 in Section 3.2, *Air Quality*, of the Draft EIR, which require mitigation credits to be purchased to offset construction and operational air pollutant emissions (respectively) if thresholds are exceeded, and Mitigation Measure GHG-3 in Section 3.4, *Greenhouse Gases*, of the Draft EIR, which requires mitigation credits to be purchased to offset GHG emissions if thresholds are exceeded.

Mitigation Measure GHG-3 includes language to this effect (refer to page 3.4-26 of the Draft EIR): "Applicants shall identify GHG credits in geographies closest to San Mateo County first and only go to

larger geographies (i.e., California, United States, global) if adequate credits cannot be found in closer geographies, or the procurement of such credits would create an undue financial burden." This language is appropriate for GHG emissions, which are global impacts. Therefore, no revisions to Mitigation Measure GHG-3 are required.

The text of Mitigation Measure AQ-6 on page 3.2-34 in Section 3.2, *Air Quality*, of the Draft EIR has been revised to reflect the requested change:

"For proposed developments that are estimated to result in exceedances of thresholds, the applicants shall coordinate with a third-party or governmental entity to pay for criteria pollutant offsets for every year in which construction emissions are estimated to exceed the BAAQMD thresholds. If the estimate shows exceedances of multiple criteria pollutants above the BAAQMD thresholds, then offsets must be obtained to address each pollutant above the thresholds. Emission reduction projects and fees will be determined in consultation between the applicant and the third-party or governmental entity and will include offset provider administrative costs. Applicants shall identify credits within the San Francisco Bay Area Air Basin, and shall prioritize programs that benefit the Bayhill community, the City, or the Bay Area region, in that order. The agreement that specifies fees and timing of payment shall be provided to the City for review and signed by the applicant and the third-party or governmental entity. The emission reductions shall be secured prior to any year in which construction activity is estimated to result in an exceedance. The payment for the emissions can either be on an annual basis or done once upfront prior to construction."

The text of Mitigation Measure AQ-7 on pages 3.2-34 through 3.2.-35 in Section 3.2, *Air Quality*, of the Draft EIR has been revised to reflect the requested change:

"For proposed developments that are estimated to result in exceedances of thresholds during any year of the project's life, the applicants shall coordinate with a third-party or governmental entity to pay for criteria pollutant offsets for every year in which operational emissions are estimated to exceed the BAAQMD thresholds. If the estimate shows exceedances of multiple criteria pollutants above the BAAQMD thresholds, then offsets must be obtained to address each pollutant above the thresholds. Emission reduction projects and fees will be determined in consultation between the applicant and the third-party or governmental entity and will include offset provider administrative costs. Applicants shall identify credits within the San Francisco Bay Area Air Basin, and shall prioritize programs that benefit the Bayhill community, the City, or the Bay Area region, in that order. The agreement that specifies fees and timing of payment shall be provided to the City for review and signed by the applicant and the third-party or governmental entity. The emission reductions shall be secured prior to any year in which operational activity is estimated to result in an exceedance. The payment for the emissions can either be on an annual basis or done once upfront prior to operation."

Response to Comment 1-14

The comment recommends that as part of Mitigation Measure AQ-8, Require Future Projects Located within 1,000 Feet of Sensitive Receptors to Perform a Health Risk Assessment, the City communicate its findings to the public for full disclosure prior to approving a project for which a health risk assessment is required. Future health risk assessments prepared under Mitigation Measure AQ-8 would be made publicly available as part of the case files for the subject projects. No revisions to the Draft EIR are required.

Response to Comment 1-15

The commenter advises the City to comply with Air District Regulation 6, Rule 6.

The text on page 3.2-5 in Section 3.2, *Air Quality*, of the Draft EIR has been revised to clarify that the Project is subject to this requirement:

"In addition to air quality plans, BAAQMD also adopts rules and regulations to improve existing and future air quality. The Project may be subject to the following district rules.

- **Regulation 2, Rule 2 (New Source Review)**—This regulation contains requirements for Best Available Control Technology and emission offsets.
- **Regulation 2, Rule 5 (New Source Review of Toxic Air Contaminates)**—This regulation outlines guidance for evaluating TAC emissions and their potential health risks.
- **Regulation 6, Rule 1 (Particulate Matter)**—This regulation restricts emissions of particulate matter (PM) darker than No. 1 on the Ringlemann Chart to less than 3 minutes in any 1 hour.
- **Regulation 6, Rule 6 (Prohibition of Trackout)**—This regulation prohibits trackout for construction sites where the total land area covered by construction activities and/or disturbed surfaces at the site are one acre or larger."

Response to Comment 1-16

The commenter advises the City to comply with Air District's Authority to Construct/Permit to operate for stationary equipment.

The text on page 3.2-5 in Section 3.2, *Air Quality*, of the Draft EIR has been revised to clarify that the Project is subject to this requirement:

"In addition to BAAQMD rules and regulations, BAAQMD is also responsible for the issuance of air quality permits for stationary equipment in the Bay Area and the management of the resulting air emissions. The Project may require the following permit(s).

- **Apply for an Authority to Construct / Permit to Operate**—Air quality permits are required by law as a part of doing business in the Bay Area. As the Project includes two emergency generators, the Project applicant will need to apply for an Air District Authority to Construct/Permit to Operate."

Responses to Comment Letter 2 (Caltrans – District 4)

Response to Comment 2-1

The comment includes introductory remarks and correctly summarizes the Project.

Comment noted. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 2-2

The comment introduces Caltrans' approach to their review in light of Senate Bill 743.

Comment noted. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 2-3

The comment states that the Draft EIR's analysis of transportation impacts is consistent with the Office of Planning and Research's (OPR) Technical Advisory on evaluating VMT impacts. The comment also acknowledges the Draft EIR's conclusion regarding the Project's significant and unavoidable VMT impacts, and the existing TDM program implemented by YouTube.

Comment noted. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 2-4

The comment acknowledges the City's role in overseeing TDM programs and expresses supports for measures to increase sustainable mode shares.

Comment noted. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 2-5

The comment recommends replacing all standard basic crosswalk markings on El Camino Real from San Bruno Avenue to Sneath Lane with a higher visibility crosswalk pattern.

The Specific Plan calls for the replacement of all crossings at Bayhill Drive and El Camino Real (Specific Plan Figure A-28) and at San Bruno Avenue and El Camino Real (Specific Plan Figure A-30) with high-visibility crosswalks. The Specific Plan would also add corner bulb outs and pedestrian refuges on the El Camino Real legs at these intersections. The Specific Plan is not expected to generate much pedestrian traffic north of Bayhill Drive/Euclid Avenue on El Camino Real since Bayhill Drive is the northernmost pedestrian entrance to the Project Site. For this reason, the crosswalks north of Bayhill Drive/Euclid Avenue are not planned for enhancement under the Specific Plan, nor are such improvements required under CEQA. These crossing and pedestrian routes are required to be studied, however, as part of Specific Plan Policy 4-5, which includes a requirement to study bicycle and pedestrian connections between the Specific Plan area and BART and Caltrain stations. This study is suggested to begin after the Phase I Development is complete and travel patterns and desire lines can be studied in more detail. If pedestrian demand at those crossings exceeds expected demand, the City would re-evaluate high visibility crossings at those intersections along El Camino Real. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 2-6

The comment notes that the Walk 'n Bike Plan calls for intersection improvements along El Camino Real and recommends that these improvements be implemented by the Project within the Project study area. The area that is comprises the "Project study area" is unclear.

The Project Site does not include any El Camino Real intersections; however, given the expected increase in Project-related pedestrian volumes between Bayhill Drive and San Bruno Avenue, the Specific Plan calls for pedestrian improvements at these intersections. The Specific Plan requires

replacement of all crossings at Bayhill Drive and El Camino Real (Specific Plan Figure A-28) and at San Bruno Avenue and El Camino Real (Specific Figure A-30) with high-visibility crosswalks. The Specific Plan also requires corner bulb outs and pedestrian refuges on the El Camino Real legs at these intersections. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 2-7

The comment encourages fair share contributions towards Walk 'N Bike Plan recommendations for striping and signage bicycle improvements at I-380/I-280/San Bruno Avenue West. The comment also recommends curb ramp and other connectivity improvements around the Project area.

The Project includes connectivity improvements within the Project Site as well as along El Camino Real and San Bruno Avenue West. As recommended by the comment, the Project includes fair share contributions towards the buffered Class II bicycle facilities on San Bruno Avenue West. The Project includes an opportunity, pending further study, to extend the San Bruno Avenue bicycle lines west from Cherry Avenue to the I-280 ramps and overpass as proposed in the Walk 'N Bike Plan. San Bruno Avenue West does not intersect I-380.

Response to Comment 2-8

The comment notes that the Phase I Development will require encroachment permits for both surface and airspace to install tiebacks as diagrammed in Appendix 5 of the Draft EIR. The comment also requests that property lines be clarified after page 3 of Appendix 5, stating that it is not clearly marked where the tiebacks fall within Caltrans' right-of-way.

The comment is acknowledged and has been conveyed to the Phase I Development applicant. When the Phase I Development applicant submits revised plans to Caltrans for review, property lines and the location of all tiebacks within Caltrans' right-of-way will be clearly delineated.

In addition, the text on page 2-51 in Chapter 2, *Project Description*, of the Draft EIR has been revised to refer to the airspace lease agreement:

"Construction of the Phase I Development subterranean parking structure would require installation of a temporary shoring system to ensure soil stability during construction. The temporary shoring system would consist of soldier pile walls with tiebacks along the excavation perimeter. Approximately 140 tiebacks and appurtenances along the northern boundary of the Project Site would be located within State highway right-of-way (Interstate 380) and would require an encroachment permit and airspace use agreement from the California Department of Transportation (Caltrans) for tieback supports. The Phase I Development temporary shoring plan, and an exhibit showing encroachment into Caltrans' right-of-way, is provided in Appendix 5 of this Draft EIR."

The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis.

Response to Comment 2-9

The comment provides additional information on what is required as part of the encroachment permit application process.

The comment is acknowledged, and the information has been conveyed to the Phase I Development applicant. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 2-10

The comment notes that any Caltrans facilities impacted by the Project must meet American Disabilities Act (ADA) Standards.

The comment is acknowledged. The Project would comply with all applicable ADA standards. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 2-11

The comment notes that the City of San Bruno is responsible for all Project mitigation including fair share contribution, financing, scheduling, implementation for needed improvements to the State Transportation Network (STN).

The comment is acknowledged. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Responses to Comment Letter 3 (San Francisco International Airport)

Response to Comment 3-1

The commenter expresses appreciation for the opportunity to comment on the Draft EIR and coordinate with the City.

Comment noted. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 3-2

The commenter references past comment letters on the project, dated December 7, 2017 and August 14, 2019, and confirms that those letters did not identify any inconsistencies between the Project and the Comprehensive Airport Land Use Compatibility Plan for the Environs of San Francisco International Airport (SFO) (ALUCP).

Comment noted. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 3-3

The commenter correctly summarizes the main features of the Project.

Comment noted. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 3-4

The comment amends remarks in past comment letters to correctly state that the northeastern portion of the Bayhill Specific Plan Area is within the 65 decibel (dB) Community Noise Equivalent Level (CNEL) contour for SFO and that development within this contour would be subject to the provision of Comprehensive Airport Land Use Compatibility Plan for the Environs of SFO (ALUCP) Policy NP-3 and Table IV-1, which limit the types of allowable development and require sound insulation and the grant of an avigation easement for types of development. The comment requests that the Specific Plan and YouTube Phase I Development include and apply these requirements.

The comment is consistent with the analysis of the Project's noise impacts presented in Section 3.7, *Noise*, of the Draft EIR. Pages 3.7-10 through 3.7-12 of the Draft EIR, including Figure 3.7-1, Year 2020 Airport Noise Contours, describe the 2012 ALUCP 65 dB CNEL noise contour in relation to the Project Site, noting that the 65 dB CNEL noise contour crosses the northeast corner of the Project Site. Page 3.7-45 of the Draft EIR states that residential land uses would not be permitted in this portion of the Project Site, and that the types of uses that are permitted are consistent with the uses allowed under the ALUCP for the 65 dB CNEL noise contour. The Specific Plan, as revised, also includes policies to ensure compliance with the ALUCP. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 3-5

The commenter states that overnight uses could experience noise disturbance from aircraft departures and recommends that any proposed residential or other sensitive uses should meet the interior noise requirements of the California Building Code and San Bruno General Plan.

Section 3.6, *Land Use and Planning,* of the Draft EIR addresses the issue of noise disturbance to overnight uses. Page 3.6-14 of the Draft EIR states "Overnight uses such as hotels and residential uses could experience some noise disturbances from aircraft departure. However, these noise disturbances would be mitigated by interior noise requirements as stipulated by the 2019 California Building Code and San Bruno General Plan. In addition, Section 11010 of the California Business and Professions Code requires individuals offering subdivided property for sale or lease to disclose the presence of all existing and planned airports within 2 miles of the property or within an established AIA. Given the Project Site's proximity to SFO and location within an AIA, real estate disclosure notices are required in any notice of intention to offer the properties for sale within the Project Site." No revisions are required to the Draft EIR.

Response to Comment 3-6

The commenter includes a figure that correctly depicts the location of the 65 dB CNEL contour in relation to the Project Site. The 65 dB CNEL contour is also shown in Figure 3.7-1, Year 2020 Airport Noise Contours, in Section 3.7, *Noise*, of the Draft EIR.

Comment noted. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 3-7

The comment states that SFO was not notified of the issuance of the Draft EIR and requests the City confirm that SFO is included on the distribution list for all notices regarding development and land use projects, including general plan, specific plan, and zoning updates, within the City.

A Notice of Availability (NOA) for the Draft EIR was sent to the following addresses via United States Postal Service (USPS) certified mail on January 12, 2021:

San Francisco International Airport
Airport Land Use Commission
Attn: Suzy Kalkin
555 County Center, 5th Floor
Redwood City, CA 94063
USPS tracking number: 70202450000145152358

San Francisco International Airport - Bureau of Planning and Environmental Affairs
Attn: John Bergener
P.O. Box 8097
San Francisco, CA 94128
USPS tracking number: 70202450000145152754

The certified mail receipts confirm that each notice was delivered on January 14, 2021. The City will coordinate with SFO to ensure that contact information and delivery methods for future CEQA notices are correct. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Responses to Comment Letter 4 (San Francisco Public Utilities Commission)

Response to Comment 4-1

The comment expresses appreciation for the opportunity to comment on the Draft EIR and thanks the City for its efforts to incorporate previous San Francisco Public Utilities Commission (SFPUC) comments on the revised NOP, dated July, 26, 2019. The commenter also thanks the project sponsor for the presentation of the preliminary conceptual plans on November 20, 2019. The commenter introduces the subject areas they intend to comment on: land use and parking, groundwater resources, and water demand. Responses to individual comments on these subject areas are provided below.

Comment noted. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 4-2

The comment notes that the Draft EIR correctly describes the locations of two SFPUC right-of-way (ROW) easements within the Project Site and identifies applicable SFPUC policies. The comment also notes that the Draft EIR describes SFPUC's vetting process for the proposed use of its ROW.

Comment noted. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 4-3

The comment states that the Phase I Development would affect the SFPUC ROW for the Sunset Supply Line and the Crystal Springs Pipeline No. 2 with the realignment of Grundy Avenue and Elm Avenue. The comment states that the two underground garages on either side of the SFPUC ROW would be connected by an underground pedestrian tunnel and a pedestrian bridge and reiterates that further project review is necessary once the project sponsor submits plans showing the construction method for protecting the SFPUC water transmission pipelines during construction of all the proposed elements within the SFPUC ROW easement and public ROW.

Comment noted. The Phase I Development applicant and applicants of future projects affecting SFPUC ROW easements will be required to consult with SFPUC and obtain consistency determinations from SFPUC prior to construction and operation of the subject projects. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 4-4

The comment notes that more information is needed regarding the overhead crossing and how it would allow for the passage and operation of a crane. The commenter includes a summary of the November 20, 2019 Project Review meeting for reference.

The comment is acknowledged, has been conveyed to the Phase I Development applicant, and will be conveyed to applicants of future development projects. The requested information is needed for SFPUC's Project Review process and is not relevant to the Draft EIR's analysis of the Project's potential impacts on the environment. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 4-5

The comment states that the proposed office development on the vacant hillside lot adjacent to 901 Cherry Avenue is located near SFPUC's San Andreas Pipeline Nos. 2 and 3, and further project review by the SFPUC's Project Review Committee will be necessary as plans are developed.

The comment refers to a cumulative project described on page 2-34 of the Draft EIR. This project is not part of the proposed Project that is the subject of the Draft EIR analysis. It is a cumulative project identified for purposes of the Draft EIR's cumulative impact analysis (refer to Table 3.0-1 in Chapter 3, *Environmental Impact Analysis*, of the Draft EIR). The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 4-6

The comment states that the project sponsor will continue to work with the SFPUC through its Project Review process to develop plans consistent with SFPUC plans and policies.

Comment noted. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 4-7

The comment states that the Draft EIR's description of the Regional Groundwater Storage and Recovery Project (RGSR), as it appears in Section 3.5, *Hydrology and Water Quality* and Section 3.11, *Utilities and Services Systems*, is inaccurate. The commenter recommends that the City and EIR consultant meet with SFPUC staff to further discuss the matter. The comment states that the description of the RGSR in the Draft EIR is different than the description of the RGSR in the Project's Water Supply Assessment (WSA), which is included in Appendix 3.11-1 of the Draft EIR.

City staff, the EIR consultant, and the WSA consultant met with representatives from SFPUC via videoconference on March 25, 2021 to discuss this comment. Notes from the meeting are included in Appendix 8 of this Final EIR. At the meeting, SFPUC staff stated that text describing the RGSR in Section 3.5, *Hydrology and Water Quality,* and Section 3.11, *Utilities and Services Systems*, of the Draft EIR is inaccurate. SFPUC staff stated that text describing the RGSR in in the WSA (Draft EIR Appendix 3.11-1) is accurate. SFPUC staff requested that the City revise the Draft EIR's discussion of the RGSR to be consistent with the WSA's discussion of the RGSR in the Final EIR. The requested revisions to Section 3.5, *Hydrology and Water Quality,* and Section 3.11, *Utilities and Services Systems*, of the Draft EIR have been made and are shown in Chapter 4, *Revisions to the Draft EIR,* of this Final EIR. Due to the volume of revisions, they are not shown here in Chapter 3. The revisions to these sections do not affect the analysis or conclusions of the Draft EIR.

Response to Comment 4-8

The comment thanks the City for the opportunity to comment on the Draft EIR and provides additional contact information.

Comment noted. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 4-9

The comment is an attachment of the November 20, 2019 Project Review Meeting Summary.

Comment noted. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Responses to Comment Letter 5 (Sierra Club – Loma Prieta Chapter)

Response to Comment 5-1

The commenter provides a statement of introduction to the Sustainable Land Use Committee section of the Sierra Club (Loma Prieta Chapter) and expresses the committee's interest in issues related to GHG emissions, overuse of water supplies, and other impacts to the natural environment.

Comment noted. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 5-2

The commenter asserts that while the alternatives are an improvement over the proposed Bayhill Specific Plan, even the Residential Alterative is insufficiently ambitious to address the housing needs of the area. The commentor asserts that the Peninsula has been pushed to a state of housing crisis due to the jobs-housing imbalance, resulting in longer commutes, congestion, and further paving of space for parking, which aggravates the urban heat island effect.

Under CEQA Guidelines Section 15131, economic or social effects are not considered significant effects on the environment. Rather, these effects are considered in the context of their potential linkage or indirect connections between the project and physical environmental effects. While inherently a social issue, the Bay Area's regional housing shortage can also result in secondary effects on the environment, as noted in the comment. Section 3.8, *Population and Housing* of Draft EIR, pages 3.8-18 through 3.8-20, discusses the Project's impacts related to secondary environmental impacts from regional jobs-housing imbalance. The analysis acknowledges that current housing shortages relative to a mismatch between housing demand and housing supply are resulting in some Bay Area employees choosing to live in areas on the edge of or outside the Bay Area because of housing affordability issues. Meeting the Bay Area's cumulative housing demand in outlying areas can result in secondary environmental impacts similar to those associated with housing development in Bay Area cities but can also result in the conversion of agricultural land and open space, in addition to additional vehicle miles traveled, greenhouse gas emissions, and air pollution associated with long commutes into and out of the Bay Area and/or the need to construct additional transit or roadway improvements. The Project would contribute to this effect. However, it is difficult to identify the specific nature, extent, and significance of secondary physical impacts on the environment due to the Project because it would require a regional determination of the precise location of additional growth in the myriad locations across the Bay Area and beyond. CEQA requires significance determinations to be made on the basis of substantial evidence, not speculation. As such, although a conclusion can be made that the Project would result in unplanned population and housing growth outside the city of San Bruno, a significance determination concerning the specific secondary physical impacts on the environment due to unplanned growth outside of San Bruno is not possible.

With regard to the Project's urban heat island effects, as discussed in Chapter 2, *Project Description*, the proposed project incorporates landscape design elements which would reduce the heat-island effect by requiring low-reflectance paving.

The commenter's opinion that the Residential Alternative is "insufficiently ambitious" is noted. Under CEQA Guidelines Section 15126.6, an alternative must be capable of feasibly attaining most of the basic project objectives and avoiding or lessening the significant environmental effects of the project. The Residential Alternative would increase the amount of allowable housing units on the Project Site by approximately 162 percent compared to the Project (1,499 dwelling units compared to 573 dwelling units), necessitating a decrease in the amount of allowable office space. As discussed in Chapter 5, *Analysis of Alternatives*, in the Draft EIR, numerous Project objectives relate to recognizing and enhancing Bayhill's essential nature as a business park/employment center and its role as a premier employment hub in the City. The Residential Alternative provides a feasible amount of housing that would still allow the City to meet the fundamental objectives of the Project. While the comment expresses a general preference for more housing, it does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

See also Response to Comment 1-3.

Response to Comment 5-3

The commentor asserts that the eastern area of the Project Site, which is currently zoned as "Community Office," is well suited for Transit Oriented Development due to its proximity to public transit and nearby commercial uses. The commenter further notes that this area is at low risk from sea level rise and is well-separated from other residential areas.

The comment refers to Parcels 14, 15, and 16. These parcels are currently used for hotel, office, and parking uses, and portions of the parcels are within the 65 db CNEL airport noise contour. Therefore, these parcels are unlikely to provide opportunities for future housing development. The Housing Overlay Zone includes parcels 4 and 13 because of their distance from the airport noise contour and their proximity to other residential uses. As shown in Specific Plan Table 2-2, the Specific Plan would allow for a total of 336,245 square feet of net new development on these parcels. It should be noted that the comment's statement that these parcels are located immediately adjacent to El Camino Real is incorrect. Rather, they abut other parcels that are immediately adjacent to El Camino Real and are part of the City's Transit Corridors Plan (TCP); these other parcels are not part the Specific Plan area and are subject to the polices and land use controls established in the TCP.

Comment noted. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 5-4

The commentor states that is it the responsibility of every city to plan for the impact of increased office space on housing demand, and further asserts that the absence of new housing will drive up the cost of existing housing stock forcing lower income residents out of the city and into exurbs, driving sprawl.

See Response to Comment 5-2.

Response to Comment 5-5

The comment states that San Bruno is far behind on meeting its Regional Housing Need Allocation (RHNA) housing obligation for the current cycle and notes that in the next cycle the city will be responsible for twice as many units. The commenter urges the City to allow Transit Oriented Development housing near El Camino Real.

See Response to Comment 5-2 and Response to Comment 5-3.

Responses to Comment Letter 6 (YouTube (Josh Portner), Part 1)

Response to Comment 6-1

The commenter provides a statement of introduction, noting that they have been established in San Bruno since 2006, and expresses appreciation for their role as a corporate citizen of the community. The comment introduces the following comments on the Draft EIR, which are responded to below.

Comment noted. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 6-2

The comment requests corrections to Table 2-5, *Proposed Development Allocations by Parcel*, on pages 2-25 to 2-26 of the Draft EIR, which shows proposed development allocations by parcel.

The proposed development allocations by parcel shown in Table 2-5 of the Draft EIR have been refined since initiating preparation for the Draft EIR. The correct allocations are shown in Table 2-2, *Potential Development Allocation of the Bayhill Specific Plan*, of the Specific Plan, which is included as Appendix 2 of the Draft EIR. For ease of reference, the Draft EIR has been revised to eliminate Draft EIR Table 2-5 and instead refer to Specific Plan Table 2-2. The Draft EIR evaluates the impacts of the Project at a program level based on the total buildout of the Project. Therefore, the minor revisions to the development allocations by parcel would not change the conclusions of the Draft EIR analysis.

The text on page vi of the Draft EIR has been revised as follows:

~~"2-5 Proposed Development Allocations by Parcel ..... 2-25~~

2-5~~6~~ Buildings Proposed to be Demolished 2-36

2-6~~7~~ Cubic Yards of Excavated Soil by Phase 2-37

2-7~~8~~ Phase I Development Project Building Design Parameters 2-41

2-8~~9~~ Phase I Development Project Employee Generation ..... 2-50"

The text on page 2-25 of the Draft EIR has been revised as follows:

"**Development Intensity and Allocation**

The Specific Plan regulates density across the Project Site by allocating additional allowed square footage to the 16 individual parcels that comprise the Project Site, shown in Figure 2-9. The specific parcel allocations are shown ~~in Table 2-5~~ in Table 2-2, Potential Development Allocation of the Bayhill Specific Plan, in the Specific Plan included in Appendix 2 of this EIR."

~~Table 2-5. Proposed Development Allocations by Parcel~~

~~Parcel No.~~	~~Address(es)~~	~~Parcel Size (sf)[a]~~	~~Existing Development (sf)~~	~~Proposed Land Use District~~	~~Potential Net New Development (sf)~~	~~Potential Total Development (sf)~~	~~Potential Residential (Units)~~
~~1~~	~~851 Cherry Ave.~~	~~432,420~~	~~117,843~~	~~BNC[b] / BMU[c]~~	~~5,000~~	~~126,848~~	~~210~~
~~2~~	~~899 Cherry Ave.~~	~~26,396~~	~~4,003~~	~~BNC / BMU~~			
~~3~~	~~850 Cherry Ave.~~	~~145,708~~	~~270,980~~	~~BRO[d]~~	~~5,000~~	~~275,980~~	
~~4~~	~~801-851 Traeger Ave.~~	~~264,366~~	~~134,712~~	~~BRO / BR[e]~~	~~125,000[f]~~	~~259,712~~	~~205~~
~~5~~	~~APN[j] 020-012-160~~	~~290,545~~ 290,634	~~0~~	~~BRO~~	~~287,000~~	~~287,000[g]~~	
~~6~~	~~901 Cherry Ave.~~	~~240,277~~	~~195,000~~	~~BRO~~	~~5,000~~	~~200,000~~	
~~7[h]~~	~~1000 Cherry Ave.~~	~~213,626~~	~~94,465~~	~~BRO~~	~~248,800~~	~~342,465~~	
~~8~~	~~1250 Grundy Ln.~~	~~75,233~~	~~67,586~~	~~BRO~~	~~5,000~~	~~72,586~~	
~~9~~	~~1100 Grundy Ln.~~	~~271,353~~	~~101,123~~	~~BRO~~	~~328,877~~	~~430,000~~	
~~10[h]~~	~~900 Cherry Ave.~~	~~151,869~~	~~102,252~~	~~BRO~~	~~192,000~~	~~294,252~~	
~~11~~	~~1150-1250 Bayhill Dr.~~	~~283,070~~	~~138,524~~	~~BRO~~	~~301,476~~	~~440,000~~	

Parcel No.	Address(es)	Parcel Size (sf)[a]	Existing Development (sf)	Proposed Land Use District	Potential Net New Development (sf)	Potential Total Development (sf)	Potential Residential (Units)
12	950 Elm Ave.	117,852	106,099	BRO	52,568	158,667	
13[i]	1111 Bayhill Dr.	426,711	206,137	BRO / BR	363,863[f]	570,000	158
14	999-1001 Bayhill Dr.	263,835	140,969	BRO	290,735	431,704	
15	APN[j] 020-011-370	37,873	0	BRO	40,510	40,510	
16	1050 Bayhill Dr.	196,978	79,152	BRO	5,000	84,152	
Total		**3,438,112**	**1,758,845**	-	**2,435,747[k]**	**4,013,874**	**573**

[a] sf = square feet

[b] BNC = Bayhill Neighborhood Commercial

[c] BMU = Bayhill Mixed-Use Overlay

[d] BRO = Bayhill Regional Office

[e] BR = Bayhill Residential Overlay

[f] If residential uses are developed in the BMU or BR, office allocations would be reduced on these parcels by a ratio of 1,267 office sf per dwelling unit in Parcel 4 and 1,454 office sf per dwelling unit in Parcel 13.

[g] As stipulated by Policy 2-3 in the Specific Plan, if the Project is developed under the existing Development Agreement, the net new square footage allowed on Parcel 5 would be reduced from 287,000 square feet by the number of square feet developed under the Development Agreement.

[h] Part of Phase I Site.

[i] A civic use of up to 50,000 sf would be permitted on a 2.1-acre area in this parcel. If a civic use is developed, the corresponding area allocated to regional office use would be reduced at a ratio of 1:1.

[j] APN = assessor's parcel number

[k] Does not include unallocated square footage. EIR analysis is conservatively based on totals shown in Tables 2-3 and 2-4, which include unallocated square footage.

The text on page 3.1-10 of the Draft EIR has been revised as follows:

"As seen in Table 2-5 of the Specific Plan, in Under this scenario, the amount of office development is decreased on the land area within the housing overlay zone where housing is constructed."

The text on page 2-36 of the Draft EIR has been revised as follows:

"Table 2-56. Buildings Proposed to be Demolished."

The text on page 2-36 of the Draft EIR has been revised as follows:

"Demolition

It is anticipated that Project buildout would result in the demolition of seven existing buildings on the Project Site, comprising between 692,852–827,564 square feet of office space, depending on the development scenario. Table 2-56 lists the buildings that would be demolished under the Project. The three buildings located on the "Lakes" parcel (APN 020-015-030) would be demolished as part of the Phase I Development described below in Section 2.6.3.

Table 2-56. Buildings Proposed to be Demolished."

The text on page 2-36 of the Draft EIR has been revised as follows:

"An estimated total of 4,880,616 cubic yards of soil could be exported from the Project Site throughout the 20-year construction period, as shown in Table 2-~~6~~7."

The text on page 2-37 of the Draft EIR has been revised as follows:

"Table 2-~~6~~7. Cubic Yards of Excavated Soil by Phase."

The text on page 2-41 of the Draft EIR has been revised as follows:

"Table 2-~~7~~8 below details the design parameters for each of the Phase I Development buildings. Conceptual renderings of the Phase I Development are included in Figure 2-16.

Table 2-~~7~~8. Phase I Development Project Building Design Parameters."

The text on page 2-50 has been revised as follows:

"As shown in Table 2-~~8~~9, based on the average of 1 job per 250 square feet for office, the proposed project would generate up to 1,760 employees.

Table 2-~~8~~9. Phase I Development Project Employee Generation."

Response to Comment 6-3

The comment notes that page 2-27 of the Draft EIR states that, "no more than 75 percent of the length of a building façade would be unbroken by a change in massing," and asserts that this is a different standard than what is included in the proposed zoning ordinance and Specific Plan.

The comment correctly identifies a typographical error on page 2-27 in Chapter 2, *Project Description*, of the Draft EIR. The text on page 2-27 of the Draft EIR has been revised as follows:

"No more than ~~75~~ 50 percent of the length of a building façade would be unbroken by a change in massing."

Response to Comment 6-4

The comment asserts that the Draft EIR incorrectly describes the proposed Elm Avenue shuttle loading zones on pages 2-30, 2-31, and 2-47 in Chapter 2, *Project Description*. The comment also requests a meeting with City staff to further discuss street sections.

There are two existing shuttle loading zones located on either side of Elm Avenue, just north of Bayhill Drive: one loading zone is located on the west side of Elm Avenue adjacent to 950 Elm Avenue and the other loading zone is located on the east side of Elm Avenue adjacent to the Marriott Hotel. The loading zone on the west side of Elm would be maintained under the Project, as shown in Specific Plan Figure A-14 (Appendix 2 of the Draft EIR) and accurately described on page 2-30 of the

Draft EIR. The loading zone on the east side would be removed when the private multi-modal transportation hub is operational. Specific Plan Figure A-14 has been revised to show this.

The text on page 2-30 of Chapter 2, *Project Description*, of the Draft EIR has been revised as follows:

"**Elm Avenue**~~-~~. Elm Avenue, north of Bayhill Drive, would remain one lane in each direction and would terminate at Grundy Lane. A shuttle loading zone~~s~~ would be located on ~~either~~ the west side of Elm Avenue just north of the Bayhill Drive intersection. Elm Avenue, south of Bayhill Drive, would be reduced to one lane in each direction with left turn pockets at the San Bruno Avenue and Bayhill Drive intersections."

There is no description of shuttle loading zones on page 2-31 of the Draft EIR. Page 2-47 of the Draft EIR describes the proposed shuttle bus pullout and loading zones on Cherry Avenue.

The comments regarding street sections and property dedications are not questions or concerns regarding the adequacy of the Draft EIR analysis. These comments are noted. No revisions to the Draft EIR are required.

Response to Comment 6-5

The comment requests clarification regarding how the below grade surface (bgs) excavation depths shown in Table 2-7 and Figure 2-11 in Chapter 2, *Project Description*, of the Draft EIR were derived from the NAVD88[5] excavation depths provided by YouTube. The comment requests a footnote be added to Table 2-7 on page 2-37 of the Draft EIR.

YouTube provided excavation depths for Phases I-V in NAVD88 feet. The Draft EIR presents excavation depths in NAVD88 feet and in bgs feet, since bgs is generally a more understandable metric to the layperson. To calculate bgs excavation depths, the EIR geographic information system (GIS) specialist began by identifying the NAVD88 elevation of each phase site using United States Geological Survey (USGS) Digital Elevation Model (DEM) data and comparing each elevation to the proposed NAVD88 excavation elevation to determine the depth of digging. A polygon was created around each parking garage and DEM data were extracted for the areas within each polygon to identify the different elevations across the polygon. The GIS specialist used 1/3 Arc second (10 meter) pixel data, the best resolution data available for the area. The GIS specialist used zonal statistics to identify the average ground elevation across each polygon and subtracted the elevation of the maximum excavation to arrive at the bgs depth of excavation. Excavation depths and quantities for parking garages outside of Phases I-V (i.e., garages, 6, 10, and 11) were estimated for purposes of the EIR analysis based on the garage footprint and number of parking spaces anticipated to be included in each garage.

Table 2-7 on page 2-37 of the Draft EIR has been revised as follows:

"[c] Max depth is measured to finished floor of lowest parking garage level. In the event of a conflict between the NAV88 elevations and bgs calculations, the NAV88 elevations control."

[5] The North American Vertical Datum of 1988 (NAVD 88) is the vertical datum for orthometric heights established for vertical control surveying in the United States of America based upon the General Adjustment of the North American Datum of 1988.

Response to Comment 6-6

The comment notes that the February 2021 date on page 2-34 of the Draft EIR should be changed to August 2021.

The comment correctly identifies a typographical error on page 2-34 in Chapter 2, *Project Description*, of the Draft EIR. The text on page 2-34 has been revised as follows:

"However, should this development occur after ~~February~~ August 2021, it would be regulated by the Specific Plan. Accordingly, the Specific Plan incorporates this amount of development in its policy framework, and the development is also reflected in the buildout projections in this EIR (see Tables 2-3 and 2-4). YouTube has not submitted a phasing plan for this site if development occurs after ~~February~~ August 2021. Should development proceed prior to expiration of the Development Agreement in ~~February~~ August 2021, the regulations of the Specific Plan and mitigations included in this EIR would not apply and the maximum remaining permitted density on Parcel 5 would be reduced from 287,000 square feet by the number of square feet developed under the Development Agreement."

Response to Comment 6-7

The comment states that the NAVD88 excavation depth for Phase I shown in Table 2-7 on page 2-37 in Chapter 2, *Project Description*, of the Draft EIR should be revised from 61 feet to 59 feet.

Table 2-7 is consistent with the August 2019 *YouTube Campus Phase I, San Bruno, California, Preliminary Geotechnical Report* prepared for the Phase I Development by ENGEO Incorporated, which is included as Appendix 3.0-2 of the Draft EIR. Page 2 of the Phase I Preliminary Geotechnical Report states: "Currently, the Phase 1 basement depths are anticipated to be at an elevation of 61 feet (NAVD88), approximately 45 to 55 feet from top of Sub-level 03 slab (the lowest basement level) to top of ground-level slab." No revisions to the Draft EIR are required.

See also Response to Comment 6-5.

Response to Comment 6-8

The comment states that the number of proposed tree removals for the Phase I Development cited on page 2-44 in Chapter 2, *Project Description*, of the Draft EIR is incorrect and should be revised.

The number of proposed tree removals for the Phase I Development cited in the Draft EIR is consistent with Sheet L-000 of the January 2020 YouTube Vesting Tentative Map and Phase 1 Entitlement Plans, the most recent plans that have been deemed complete by the City. These plans show 154 proposed tree removals including 135 heritage trees. No revisions to the Draft EIR are required.

Response to Comment 6-9

The commenter notes that page 2-53 in Chapter 2, *Project Description*, of the Draft EIR should be revised to remove the reference to the Bayhill Specific Plan Development Permit as a discretionary approval required for the Phase I Development.

The comment is correct. The text on page 2-17 of the Draft EIR has been revised as follows:

"Future actions that would be reviewed in this context may include, but are not limited to, the following:

- Discretionary development plan approvals, such as tentative maps, conditional use permits, architectural review permits, ~~Bayhill Specific Plan Development Permits,~~ and other land use permits."

The text on page 2-53 of the Draft EIR has been revised as follows:

"The project applicant anticipates the following discretionary entitlements will be required from the City of San Bruno to implement the Phase I Development:

- Development Agreement
- Vesting Tentative Map, including related street vacations and dedications, and street and utility easements
- ~~Bayhill Specific Plan Development Permit (proposed new permit type created in the Specific Plan)"~~

Response to Comment 6-10

The comment states that the number of proposed tree removals for the Phase I Development cited on page 3-6 of the Draft EIR is incorrect and should be revised. The comment also requests additional language related to the tree replacement requirements be added.

See Response to Comment 6-8 regarding tree removals.

Specific Plan Policy 3-2 requires removed trees to be replaced at a 1:1 ratio, as noted on page 3.4-17 in Section 3.4, *Greenhouse Gases*, of the Draft EIR. In response to the comment, the text on page 3-6 of the Draft EIR has been revised as follows:

"The Phase I Development would result in the removal of approximately 135 heritage trees, as well as street trees. Additional heritage and street tree removals would occur with implementation of the Project. The Project, including the Phase I Development, would be required to comply with all applicable Municipal Code requirements related to the removal and replacement of heritage trees and street trees, including securing all necessary permits. <u>In accordance with Specific Plan Policy 3-2, new trees would be planted in a 1:1 ratio to compensate for the trees to be removed, and the Specific Plan calls for the use of large canopy trees as the predominant plant material.</u> Therefore, the Project would not conflict with local policies or ordinances protecting biological resources, such as trees. This impact would be ***less than significant*** for the Project and the Phase I Development."

Response to Comment 6-11

The comment requests clarification regarding the scope of and process involved in the Archaeological Monitoring Plan (AMP), which is included in Policy 6-27 of the Specific Plan and is referenced on page 3-9 of the Draft EIR. The commenter expresses the belief that the AMP should be a "one-page fact sheet" and questions the robustness of the policy language, asserting that the Project Site is disturbed and the risk for encountering an archaeological resource is "very low."

The Project's potential impacts to cultural resources, including archaeological resources, are evaluated on pages 3-7 through 3-9 of the Draft EIR. As discussed, while there are no known archaeological resources on the Project Site, the archaeological sensitivity of the Project Site is

considered high based on the historical presence of the San Bruno Creek, which used to flow through the Project Site. Furthermore, as discussed on page 3-8 of the Draft EIR, a cultural records search conducted for the Project yielded four archaeological resources within a 0.5-mile radius of the Project Site. As Project excavations are expected to reach a depth of 55 feet bgs, and the geotechnical investigation reported pre-engineered fill in only in the first 20 feet (and as shallow as 2-5 feet in places), excavation would extend into native soils, increasing the likelihood that a previously unknown resource could be encountered. Therefore, the Draft EIR's conclusion that the Project Site has an increased sensitivity for encountering archaeological resources is supported by substantial evidence, and the detailed performance standards stipulated in Policy 6-27 of the Specific Plan are appropriate. No revisions to the Specific Plan or Draft EIR are required.

An AMP is a standard tool designed to establish a defensible framework for how archaeological work would be implemented, and to expedite the process if cultural resources are encountered. The purpose of an AMP is to provide a framework to guide archaeological monitoring for a project, detail the procedures that would be followed if potential significant archaeological resources or human remains are encountered during project-related ground disturbance, and summarize the post-monitoring reporting requirements. There is no universal standard that guides the scope, contents, or length of an AMP. The City expects the AMP for the proposed project to describe monitoring areas, ground-disturbing activities, monitoring procedures, protocol for unanticipated discoveries, and reporting requirements.

Response to Comment 6-12

The comment asserts that page 3-12 of the Draft EIR incorrectly states that the buildings that would be demolished as part of the Phase I Development are unlikely to contain Asbestos Containing Material (ACM), and states that pre-demolition surveys of these buildings found ACM. The comment further asserts that asbestos and lead are commonly found in existing buildings and should be mitigated in accordance with all applicable regulations, making this impact less-than-significant with mitigation.

The pre-demolition surveys referenced in the comment have been added to the Draft EIR administrative record and the Draft EIR has been revised accordingly, as indicated below. Because the impact would be avoided through compliance with existing regulations and legal requirements, mitigation is not required, and the impact would be less than significant.

The text on page 3-12 of the Draft EIR has been revised as follows:

"Buildings and structures built prior to 1977 could potentially contain asbestos-containing materials (ACMs), and buildings and structures built prior to 1972 could potentially contain lead-based paint (LBP). ~~The buildings on the Phase I Site were constructed in 1978 and are unlikely to contain ACM or LBP.~~ The three buildings at 1150-1250 Bayhill Drive that would be demolished as part of the Phase I Development were constructed in 1976. According to the pre-demolition ACM surveys conducted for the buildings (FACS 2019a, 2019b, 2019c, 2019d, 2019e, 2019f), ACM and lead are known to be present. As shown in Table 2-2 in Chapter 2, Project Description, other buildings on the Project Site appear to have been constructed sometime after 1972, and as such could contain ACM but would be unlikely to contain LBP. If ACM or LBP are encountered during building demolition, suspect materials would be removed by a certified abatement contractor in accordance with applicable regulations, including Bay Area Air Quality Management District (BAAQMD) Regulation 11, Rule 2, Asbestos, Demolition, Renovation and Manufacturing. In addition, the San Bruno General

Plan Health and Safety Element includes Policies HS-28 and HS-29 regarding the siting of new uses in areas which contain ACM and LBP that would minimize the risk from upset and accident conditions involving these materials. For the above reasons, impacts associated with risk of upset from ACM and LBP would be less than significant under the Project and Phase I Development."

Response to Comment 6-13

The commenter states that the number of proposed heritage tree removals for the Phase I Development cited on page 3.1-17 the Draft EIR is incorrect and should be revised.

See Response to Comment 6-8.

Response to Comment 6-14

The commenter states that the Phase I Development would not include any illuminated signage and requests that the header on page 3.1-19 of the Draft EIR, which reads "Vehicle Headlights and Illuminated Signage," be revised to reflect that fact.

The City has not received a signage plan for the Phase I Development. In the absence of a signage plan, the City has exercised its discretion in evaluating the potential environmental impacts that could result from illuminated signage in the Draft EIR. Including this analysis in the Draft EIR does not obligate the Phase I Development applicant to construct illuminated signage. No revisions to the Draft EIR are required.

Response to Comment 6-15

The commenter requests that "San Francisco-Arkansas" be changed to "Arkansas Street" on page 3.2-10 and globally.

This text is referring to the ambient air quality monitoring station commonly referred to by the BAAQMD as the "San Francisco-Arkansas" station. It is not referring to Arkansas Street, as the commenter may have assumed. No revisions to the Draft EIR are required.

Response to Comment 6-16

The commenter requests revisions to Table 3.2-2 in Section 3.2, Air Quality, of the Draft EIR.

The comment correctly identifies a typographical error on page 3.2-10 of the Draft EIR. The text has been revised as follows:

"Table 3.2-2. Ambient Air Quality Data at the San Francisco-Arkansas Monitoring Station (~~2015-2017~~ 2016-2018)."

Response to Comment 6-17

The comment asks what standard the Project is measured against in the Draft EIR's evaluation of potential air quality impacts. The comment also inquires about anticipated fees/payments for exceeding BAAQMD standards.

BAAQMD establishes daily criteria pollutant emission thresholds that apply to both construction and operation impacts. These thresholds, which are shown in Table 3.2-5 on page 3.2-17 of the Draft EIR, are measured in terms of lbs/day (e.g., 54 lbs/day of NOx). Daily net emissions (i.e., daily emissions

from proposed uses – daily emissions from existing uses) are compared to the BAAQMD's daily emissions thresholds to determine impact significance. This methodology is described in Section 3.2.2.2, *Methodology and Approach*, in Section 3.2, *Air Quality*, of the Draft EIR.

The comment's question about fees is assumed to refer to Mitigation Measure AQ-6 and Mitigation Measure AQ-7 in Section 3.2, *Air Quality*, of the Draft EIR, which require the purchase of mitigation credits for construction and operational impacts that exceed BAAQMD's criteria pollutant emission thresholds. The cost of mitigation credits to offset criteria pollutant emissions is dependent on: 1) the types of pollutants being offset; 2) the quantity of pollutants being offset; and, 3) the offset program being used. Because the exact amounts and types of development that would occur under the Specific Plan are not known, an estimate of fees cannot be provided at this time.

No revisions to the Draft EIR are required.

Response to Comment 6-18

The commenter requests that Mitigation Measure AQ-5, Require Fugitive Dust Best Management Practices, in Section 3.2, *Air Quality*, of the Draft EIR be revised to require exposed surfaces to be watered "as needed" rather than two times per day.

Mitigation Measure AQ-5 is consistent with BAAQMD's "Basic Construction Mitigation Measures Recommended for ALL Proposed Projects" in its 2017 *CEQA Guidelines*, which state that "[a]ll exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day."[6] This is a standard construction best management practice for all projects in BAAQMD's jurisdiction. No revisions to the Draft EIR are required.

Response to Comment 6-19

The comment requests revisions to Table 3.2-9, Estimated Maximum Daily Unmitigated Operational Emissions for the Phase I Development (pounds/day), on page 3.2-37 of the Draft EIR.

The analysis in Section 3.2, *Air Quality*, and Section 3.4, *Greenhouse Gasses*, of the Draft EIR, evaluates Project impacts on air quality and greenhouse gas emission be comparing Project and Phase I Development emissions to existing baseline conditions. The requested revisions suggest that Project and Phase I Development impacts should be determined based on a comparison to future baseline conditions, rather than existing baseline conditions. While CEQA states that baseline conditions normally constitute existing conditions at the time of the NOP (CEQA Guidelines Section 15125), CEQA allows for the application of an adjusted baseline if there is substantial evidence to suggest that the use of an existing baseline would result in a misleading conclusion or an unrealistic depiction of project impacts. The City agrees with the comment, and has determined that there is substantial evidence to support the use of a future baseline in the Draft EIR's evaluation of operational air quality and GHG impacts for the following reasons:

1. The vehicle fleet mix in San Mateo County will be different by Phase I Development buildout in 2025 and Project buildout in 2040, as the percentage of truck traffic to all vehicle traffic changes. According to Caltrans' CT-EMFAC2017 emissions model (version 1.0.2.27401), in 2018, 5.4 percent of the San Mateo County fleet mix was made up of trucks, while the fleet mix will

[6] Bay Area Air Quality Management District, CEQA Guidelines, Table 8-2, p. 8-4. May 2017. Available online: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed April 30, 2021.

increase to 6.5 percent in 2025 and 7.7 percent in 2040. Trucks have different emission profiles and are generally more emission-intensive than passenger vehicles. Quantifying emissions under existing conditions could misrepresent vehicle emissions associated with the vehicle fleet that will be in place once the Project is fully operational.

2. On-road vehicle emission rates are anticipated to lessen in the future due to continuing engine advancements and more stringent air quality regulations. Analyzing existing conditions (2018) and quantifying emissions utilizing 2018 vehicle emissions rates instead of the reduced 2025 and 2030 vehicle emission rates could misrepresent the net impact of the Project and Phase I Development, and could also overestimate emissions reductions and potential air quality benefits achieved by the Project and Phase I Development (i.e., the Project/Phase I Development would appear to "take credit" for emission efficiencies that are actually attributable to more stringent regulations).

Accordingly, the analyses of operational air quality and GHG impacts in Section 3.2, *Air Quality*, and Section 3.4, *Greenhouse Gasses*, of the Draft EIR have been revised to provide a comparison of Project and Phase I Development impacts to future baseline conditions. Parallel revisions were also made to the alternatives analysis in Chapter 5, *Analysis of Alternatives*, in the Draft EIR. The revisions are shown in Chapter 4, *Revisions to the Draft EIR*, of this Final EIR. Due to the volume of revisions, they are not shown here in Chapter 3. While some of the Project and Phase I Development's net emissions would increase, no new significant impacts would occur that were not already identified in the Draft EIR. Therefore, the revisions do not constitute substantial new information pursuant to CEQA Guidelines Section 15088.5, and recirculation of the Draft EIR is not required.

Response to Comment 6-20

The commenter identifies a typographical error of page 3.3-17 of the Draft EIR.

The text on page 3.3-17 has been revised as follows:

"These anticipated increases would be countered, in part, by ongoing increases in state and local requirements related to renewable energy and increased energy efficiency."

Response to Comment 6-21

The comment requests revisions to pages 3.4-3 and 3.10-5 in the Draft EIR related to discussions of VMT.

The text on page 3.4-3 of the Draft EIR has been revised as follows:

"CEQA Requirements to Assess Vehicle Miles ~~Travelled~~ Traveled

As discussed in Section 3.10, *Transportation*, SB 743 (2013) requires revisions to the CEQA Guidelines that establish new impact analysis criteria for the assessment of a project's transportation impacts. The intent behind SB 743 and revising the CEQA Guidelines is to integrate and better balance the needs of congestion management, infill development, active transportation, and GHG emissions reduction. ~~The Office of Planning and Research (OPR) recommends that vehicle miles traveled (VMT) serve as the primary analysis metric, replacing the existing criteria of delay and level of service. In 2018, OPR released a technical advisory outlining potential VMT significance thresholds for different project types.~~ The new vehicle miles traveled (VMT) methodology is

required as of July 1, 2020~~, though it can be used earlier~~. The ~~City chose to base its~~ impact analysis for this EIR is based on VMT (see Section 3.10, Transportation)."

The text on page 3.10-5 of the Draft EIR has been revised as follows:

"This shift in transportation impact criteria is expected to better align transportation impact analysis and mitigation outcomes with the State's goals to reduce GHG emissions, encourage infill development, and improve public health through more active transportation. The new vehicle miles traveled (VMT) methodology is required as of July 1, 2020. ~~Specific to SB 743, Section 15064.3(c) of the revised CEQA Guidelines states that, "a lead agency may elect to be governed by the provisions of this section immediately. Beginning on July 1, 2020, the provisions of this section shall apply statewide." However, CEQA Statute Section 21099(b)(2) states that, "upon certification of the guidelines by the Secretary of the Natural Resources Agency pursuant to this section, automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion, shall not be considered a significant impact on the environment pursuant to this division, except in locations specifically identified in the Guidelines."~~

~~Although the Governor's Office of Planning and Research (OPR) provides recommendations for adopting new VMT analysis guidelines, lead agencies have the final say in designing their methodology. Lead agencies must select their preferred method of estimating and forecasting VMT, their preferred significance thresholds for baseline and cumulative conditions, and the mitigation strategies they consider feasible. Lead agencies must prove that their selected analysis methodology aligns with SB 743's goals to promote infill development, reduce GHGs, and reduce VMT~~."

Response to Comment 6-22

The comment requests a minor editorial change to the text on page 3.4-21 of the Draft EIR.

The text on page 3.4-21 has been revised as follows:

"As discussed in Section 3.10, *Transportation*, ~~prior to mitigation~~, the Phase I Development would increase per service population VMT, relative to existing conditions in 2022 and would not meet the 14.3 percent VMT per service population reduction target and therefore, could conflict with the state's long-term emission reduction trajectory.''

Response to Comment 6-23

The comment asserts that the Draft EIR's analysis of the Phase I Development incorrectly reflects an increase in impervious surface area on the Phase I Site from 75 to 77 percent, and that the analysis should instead be based on a decrease in impervious surface area from 75 percent to 70 percent. The comment further asserts that because there would be no increase in impervious surface area on the Phase I Site, Mitigation Measure HWQ-2 should not be required for the Phase I Development.

The analysis of the Phase I Development's impacts to hydrology and water quality in Section 3.5, *Hydrology and Water Quality*, of the Draft EIR is based on the March 2020 *Hydrology and Water Quality Evaluation for the Bayhill Specific Plan and the YouTube Phase 1 Office Development* (HWQE) prepared by Kimley-Horn, which is included in Appendix 3.5-1 of the Draft EIR. The HWQE analysis is based on the October 2019 YouTube Vesting Tentative Map and Phase 1 Entitlement Plans, the plans that were available at the time the HWQE was prepared. The October 2019 plans showed an increase in impervious surface area and a corresponding increase in post-project runoff volumes for the Phase I Development. Accordingly, the Draft EIR (Impact HWQ-1b, pages 3.5-23 through 3.5-24)

concluded that potential impacts to hydrology and water quality under the Phase I Development would be significant and mitigation is required. The Phase I Development applicant has since revised the Phase I Development site plans. The comment indicates that the revised site plans show a decrease in impervious area compared to existing conditions, which would result in decreased stormwater runoff volumes and a less-than-significant impact on surface water hydrology. Therefore, the Draft EIR analysis is conservative, and revisions are not required. The Phase I Development, as redesigned, still would be required to comply with Mitigation Measure HWQ-2 even with a decrease in impervious area, to demonstrate that there would be no increase in operational peak flows and to verify downstream pipe capacity.

Response to Comment 6-24

The comment asserts that the Draft EIR's statement regarding the groundwater elevation on the western side of the Project Site being "approximately 110 ft msl" does not match the findings in the geotechnical report or the EKI report.

The comment is incorrect. Page 7 of EKI's March 13, 2020 *Revised Groundwater Assessment in Support of Bayhill Specific Plan Environmental Impact Report,* included in Appendix 3.5-2 of the Draft EIR, states: "[T]he groundwater elevation is the greatest on the western side of the Specific Plan Area (~110 ft msl) and gradually gets shallower on the eastern side of the Bayhill Specific Plan Site (~8 ft msl) as seen in Figure 2. The inferred groundwater elevation was based on the most recent existing data from the 2018 *ENGEO Preliminary Geotechnical Report for Environmental Impact Report Review* and wells at four Geotracker Sites (T0608100660, T0608100126, T0608100147, and T0608100537)." No revisions to the Draft EIR required.

Response to Comment 6-25

The comment identifies a typographical error on page 3.6-17 of the Draft EIR.

The text on page 3.6-17 has been revised as follows:

"Table 3.6-2 shows some inconsistencies with the General Plan. However, these inconsistencies are either not associated with any negative environmental impact under CEQA or would be resolved with appropriate mitigation measures. The Project would thus be consistent with the majority of applicable goals, policies, and actions, resulting in ***an impact that is less than significant with mitigation*** ~~a ***less-than-significant impact***~~. ~~No mitigation measures are required.~~

Phase I Development

The Phase I Development was found to be consistent with the Land Use and Urban Design, Economic Development, Open Space and Recreation, Health and Safety, Public Facilities and Services, and Housing Elements of the General Plan. Using the same rationale for the consistency analysis of the Project, the Phase I Development's compatibility with the Transportation Element is classified as inconsistent with LOS policies set forth in the General Plan. However, while the City includes this question of vehicle delay and the General Plan's LOS policies in the Project in its planning considerations, vehicle delay is not considered to be an environmental impact under CEQA (see Section 3.10, *Transportation*, for further discussion). The Phase I Development's compatibility with the Environmental Resources and Conservation Element was found to be consistent with mitigation.

Given that the Project is consistent with the San Bruno General Plan's applicable goals, policies, and actions (with the exception regarding LOS policy discussed above), Phase I Development impacts

due to conflicts with the General Plan would be ***less than significant with mitigation.*** ~~No mitigation measures are required.~~"

Response to Comment 6-26

The comment requests two textural changes to Section 3.7, *Noise,* in the Draft EIR. The comment requests that the last sentence of page 3.7-53 be revised to read "less than significant with mitigation." The comment also requests that the first sentence of the first paragraph on page 3.7-54 be revised to read "less than significant with mitigation."

On page 3.7-53 of the Draft EIR, the word "significant" was mistakenly bolded and italicized, the format used throughout the Draft EIR for the final impact conclusion of each impact analysis. The final impact conclusion for the analysis of the Phase I Development's construction-related noise impacts is actually on page 3.7-54, which states that the "impact would be considered ***less than significant with mitigation***."

The text on page 3.7-53 of the Draft EIR has been revised as follows:

"Since the Phase I Development's contribution could be up to 2 dB based on the direct impact analysis presented previously, the Phase I Development's contribution to this potential cumulative impact would be cumulatively considerable. This impact would be considered ~~***significant***~~ significant, and mitigation is required."

The first paragraph on page 3.7-54 of the Draft EIR describes the impact prior to mitigation, which is significant. The final impact conclusion is stated further down the page, in the first full paragraph after mitigation measure NOI-4, which states the "impact would be considered ***less than significant with mitigation.***"

To clarify the discussion, the text on page 3.7-54 of the Draft EIR has been revised by inserting and deleting text as follows:

"With implementation of the mitigation measures below, Phase I Development impacts would be reduced to less-than-significant levels, and the contribution of Phase I Development construction to the potential cumulative impact would not be cumulatively considerable. This impact would be considered ***less than significant with mitigation***.

Mitigation Measures

Mitigation Measure NOI-1, described previously, would reduce construction noise impacts from construction of the Phase I Development during nighttime hours to less-than-significant levels by ensuring that noise at a distance of 100 feet during nighttime hours would be below 60 dBA L_{eq}, unless a permit is first obtained from the director of the City Public Works Department or his/her designee).

Implementation of **Mitigation Measure NOI-4** would reduce the potential cumulative impact related to construction-related haul truck noise for the Phase I Development to a less-than-significant level.

Mitigation Measure NOI-4: Coordination of Phase I Development Haul Truck Routes with 901 Cherry Avenue (only required for Phase I Development).

Prior to the issuance of a grading permit, the City shall determine whether hauling activities associated with the Phase I Development could occur simultaneously with hauling activities associated with the 901 Cherry Avenue development. If it is determined that hauling activities for both projects could occur simultaneously, the applicant shall consult with the City to coordinate the appropriate haul route(s) so that both projects are not conducting hauling activities at the same time and along the same route. The final haul route shall be subject to City approval.

~~With implementation of these mitigation measures, Phase I Development impacts would be reduced to less-than-significant levels, and the contribution of Phase I Development construction to the potential cumulative impact would be not cumulatively considerable. This impact would be considered ***less than significant with mitigation.***~~"

Response to Comment 6-27

The comment requests the cumulative impact conclusion for public services on page 3.9-28 in Section 3.9, *Public Services and Recreation*, of the Draft EIR be revised from "less than cumulatively considerable" to "less than significant."

As discussed in the analysis of cumulative impacts on public services on Draft EIR pages 3.9-28 through 3.9-29, the Project, in combination with other past, present, and reasonably forseeable projects, would increase the cumulative demand for fire protection, police protection, school, park, and library services, and a significant cumulative impact would occur. The analysis determines that the Project's contribution to the significant cumulative impact would be less than cumulatively considerable with the payment of development impact fees (DIF). Therefore, the Draft EIR text is correct, and no revisions are necessary.

Response to Comment 6-28

The comment requests a minor editorial change to the text in Section 3.10, *Transportation*, on page 3.10-25 of the Draft EIR. The comment also expresses confusion regarding TDM requirements, noting that the EIR Project Description states that TDM programs are "not a part of the Project" even though TDM programs are required by the Specific Plan and EIR Mitigation Measures.

The text on page 3.10-25 of the Draft EIR has been revised as follows:

"Although the Specific Plan ~~Project description~~ includes a TDM requirement, tenant-specific TDM strategies ~~TDM programs~~ are not permanent in the same way as built environment factors and land use diversity and ~~instead are tied to tenants, who often~~ their effectiveness can vary as tenants turn over during the life of a project."

YouTube's TDM program is included as a component of the Phase I Development project description, as described on pages 2-50 and 2-51 in Chapter 2, *Project Description*, of the Draft EIR. However, no single TDM program can be incorporated into the EIR Project Description for the entire Project since TDM programs are tenant-specific, and Specific Plan tenants would change over time. Therefore, Mitigation Measure TRA-1 in Section 3.10, *Transportation*, of the Draft EIR requires other Specific Plan tenants to implement TDM programs and establishes performance standards for those programs. Mitigation Measure TRA-1 is not applicable to the Phase I Development. The Specific Plan expands upon and memorializes the TDM requirement established in Mitigation Measure TRA-1. No further revisions to the Draft EIR are required.

Response to Comment 6-29

The comment requests text revisions to page 3.10-29 of the Draft EIR to clarify that construction of the Project would occur in accordance with Section 6.16.070 of the San Bruno Municipal Code, which allows for nighttime construction if a permit from the Director of Public Works is obtained.

The text on page 3.10-29 of the Draft EIR has been revised as follows:

"Potential construction impacts were assessed qualitatively, based upon preliminary construction information for the Project. Construction-related activities ~~would typically occur Monday through Friday, with limited construction activities outside of daytime hours or on weekends~~ would be subject to Section 6.16.070 of the San Bruno Municipal Code, subject to time of day and other restrictions pursuant to Mitigation Measure NOI-1 and project-specific conditions the City might require. Construction staging would typically occur within individual sites and outside of the public right-of-way."

This revision does not change the Draft EIR's conclusion that Project construction-related transportation impacts would be less than significant because the analysis is based on a threshold of whether the Project would result in inadequate access during construction. It is also noted that potential noise impacts associated with nighttime construction are evaluated in Section 3.7, *Noise*, of the Draft EIR on pages 3.7-23 through 3.7-24 (Project) and pages 3.7-34 through 3.7-36 (Phase I Development).

Response to Comment 6-30

The comment asserts that Table 3.11-5, *Proposed Water, Wastewater, and Storm Drain Improvements*, on page 3.11-20 of the Draft EIR (as well as Appendices 3.11-2 and 3.11-3) incorrectly describe the water line connection at Grundy Lane and Elm Avenue, and states that the water line will connect through the multimodal hub from Grundy Lane to Bayhill Drive (not Elm Avenue). The comment asserts that extending the sanitary sewer pipe east, past the multimodal hub, was studied but rejected due to the downward slope of the road and the upward slope required by the sanitary sewer pipe running east.

Figure 3.11-1 in Section 3.11, *Utilities and Service Systems*, of the Draft EIR has been revised to adjust the location of the existing water main in Elm Avenue, which was incorrectly shown. The revised figure is included in Chapter 4 of this Final EIR.

The City has the authority to determine the types and locations of public infrastructure improvements for all projects in the City's jurisdiction. The water line along Elm Avenue between Grundy Lane and Bayhill Drive is needed and should be within the public utility easement, not within the SFPUC easement. Dead ends in water systems reduce fire flow and lead to the deterioration of water quality. The comment regarding the sanitary sewer pipe on Grundy Lane relates to design-level specifics, and is not a question or concern regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 6-31

The commenter requests a minor editorial change to the text on page 4-2 in Chapter 4, *Other CEQA Considerations*, of the Draft EIR.

The text on page 4-2 of the Draft EIR has been revised as follows:

"Therefore, it is conservatively assumed that the cumulative health impacts from TAC emissions would be ***significant and unavoidable*** ~~after mitigation~~, and that the Project's contribution would be cumulatively considerable."

Response to Comment 6-32

The comment requests the text on page 5-10 in Chapter 5, *Analysis of Alternatives*, of the Draft EIR be revised to state that the Residential Alternative would achieve most, rather than all, of the Project objectives. The commenter asserts this change is justified because the Residential Alternative would not "strengthen its role as the City's premier employment hub" or "recogniz[e] Bayhill's essential nature as a business park/employee center" or "accommodate the expansion needs of existing businesses."

The Residential Alternative would allow for the construction of 1,773,636 square feet of net new office uses; therefore, as the discussion on page 5-10 of the Draft EIR explains, the Residential Alternative would still achieve the above stated goals, but to a lesser extent than the Project. No revisions to the Draft EIR are required.

Response to Comment 6-33

The comment asserts that the pervious surface calculations in Appendix 3.5-1, *Hydrology and Water Quality Evaluation*, are not current.

See Response to Comment 6-23.

Response to Comment 6-34

The comment asserts that the YouTube Vesting Tentative Map and Phase 1 Entitlement Plans dated October 2019, which evaluated in Appendix 3.5-1, *Hydrology and Water Quality Evaluation,* of the Draft EIR, are no longer accurate.

See Response to Comment 6-23.

Response to Comment 6-35

The comment requests changes to the *Hydrology and Water Quality Evaluation for the Bayhill Specific Plan and the YouTube Phase 1 Office Development* included in Appendix 3.5-1, *Hydrology and Water Quality Evaluation,* of the Draft EIR. The requested changes relate to the percentage of pervious surface area in the Project Site and Phase I Development Site.

See Response to Comment 6-23.

Response to Comment 6-36

The comment notes that the plan sheets were revised and resubmitted after the *Hydrology and Water Quality Evaluation for the Bayhill Specific Plan and the YouTube Phase 1 Office Development* (Appendix 3.5-1 of the Draft EIR) was prepared, and therefore the analysis is no longer accurate.

See Response to Comment 6-23.

Response to Comment 6-37

The comment is similar to the immediately preceding comments.

See Response to Comment 6-23.

Response to Comment 6-38

The comment is similar to the immediately preceding comments.

See Response to Comment 6-23.

Response to Comment 6-39

The comment is similar to the immediately preceding comments.

See Response to Comment 6-23.

Response to Comment 6-40

The comment describes an alleged error on page 6 of *Attachment D to Transportation Appendix – LOS Calculations/BHSP Alternatives Analysis* in Appendix 3.10-1, *Transportation Supporting Data*, of the Draft EIR. The comment states that the net new office development associated with the Phase I Development should be 440,000 square feet, not 301,500 square feet as cited in the text.

The comment appears to confuse net new development with total development. As shown in Tables 2-3 and 2-4 in Chapter 2, *Project Description*, of the Draft EIR, the Phase I Development would demolish 138,524 square feet of existing offices use and construct 440,000 square feet of new office use. Therefore, the Phase I Development would result in 301,476 net new square feet of office use (rounded to approximately 301,500 square feet in the text referenced in the comment). No revisions to the Draft EIR or appendices are required.

Response to Comment 6-41

The comment contains a question on a traffic signal improvement required under the Specific Plan to address vehicular level of service (LOS) impacts.

Pursuant to CEQA Guidelines Section 15064.3, LOS impacts are not impacts on the environment. The improvement referenced in the comment has been identified for planning purposes, along with other vehicle delay-related improvements shown in Table 4-3 of the Specific Plan. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 6-42

The comment requests a change to page 2 of Appendix 3.11-2, *Water System Hydraulic Evaluation*, of the Draft EIR, replacing the 301,476 square feet of offices space with 400,000 square feet of office space.

As described in Response to Comment 6-40, the comment appears to confuse net new development with total development. The net new office square footage cited in the text is correct. However, to clarify that the demolished office uses are located outside the 8.15-acre Phase I Site, the text on page

2 of Appendix 3.11-2, *Water System Hydraulic Evaluation*, of the Draft EIR has been revised as follows:

"The first phase of the Project is YouTube's campus expansion plan (Phase I Development), which consists of adding 301,476 square feet (sf) of net new office space to the Project Site by building 440,000 square feet of new space while demolishing 138,524 square feet of office space on an adjacent property that will be the site of future phase development ~~8.15 acres~~."

Response to Comment 6-43

The comment asserts that various figures included in Appendix 3.11-2, *Water System Hydraulic Evaluation*, of the Draft EIR incorrectly show a water line in Elm Avenue.

See Response to Comment 6-30.

Response to Comment 6-44

The comment asks if the 8-inch lines appearing on Figure 1 of Appendix 3.11-3, *Sanitary Sewer Impact Study*, of the Draft EIR should be shown as 10-inch lines since the text suggests that 10-inch lines were modeled.

The model is based on the nominal diameter of the pipe, which is less than 10 inches. The 10-inch high-density polyethylene (HDPE) pipe is recommended to satisfy a minimum inner diameter of 8 inches. No revisions to Drat EIR Appendix 3.11-3 are necessary.

Response to Comment 6-45

The comment asserts that various figures included in Appendix 3.11-3, Sanitary Sewer Impact Study, of the Draft EIR, incorrectly show a water line in Elm Avenue, whereas it should be located at the intermodal station.

See Response to Comment 6-30.

Response to Comment 6-46

The comment states that the amount of unallocated square footage evaluated in Appendix 4, *Equivalency Analysis,* of the Draft EIR – 180,347 square feet – is slightly different than the amount of unallocated square footage cited elsewhere in the Draft EIR.

At the time the Equivalency Analysis was prepared, the Specific Plan included a total of 180,347 square feet of unallocated regional office space. Subsequent to the preparation of the Equivalency Analysis, the unallocated square footage in the Specific Plan was adjusted to 180,718 square feet, a difference of 371 square feet (equal to a square measuring 19 by 19 feet). This nominal difference would not change the conclusions of the Equivalency Analysis, which demonstrates that the potential environmental impacts of the equivalency exchanges under the Equivalency Program would be within the scope of the analysis included in the Draft EIR. While no revisions to the analysis in Appendix 4, *Equivalency Analysis,* of the Draft EIR are required, a footnote has been added to page 1 of Appendix 4 to clarify this difference.

The text on page 1 of Appendix 4, *Equivalency Analysis*, of the Draft EIR has been revised as follows:

"This appendix provides an analysis of the equivalency exchanges and demonstrates that the potential environmental impacts of the equivalency exchanges under the Equivalency Program would be within the scope of the analysis included in the EIR.[2]

[2] Subsequent to the preparation of this analysis, the unallocated square footage in the Specific Plan was adjusted from 180,347 square feet to 180,718 square feet, a difference of 371 square feet (equal to a square measuring 19 by 19 feet). This nominal difference would not change the conclusions of this analysis."

Responses to Comment Letter 7 (YouTube [Josh Portner], Part 2)

Response to Comment 7-1

The comment requests that the Phase I Development completion date be changed from 2022 to 2025 throughout the Draft EIR, noting that the Phase I Development schedule has been extended since preparation of the Draft EIR.

Revisions have been made throughout the Draft EIR to update the Phase I Development buildout year to 2025, as shown in Chapter 4, *Revisions to the Draft EIR,* of this Final EIR. The quantitative analyses affected by this change are the analyses in Section 3.2, *Air Quality*, Section 3.3, *Energy Use*, and Section 3.4, *Greenhouse Gases*, which are modeled based on 2022 emission factors. In each case, the analysis presented in the Draft EIR is more conservative since equipment and vehicle emission factors decline as a function of time due to increasingly stringent air emission standards, and since energy efficiency standards will become increasingly stringent over time. Therefore, the revisions do not constitute substantial new information requiring recirculation under CEQA Guidelines Section 15088.5.

Response to Comment 7-2

The comment requests that a summary of the less-than-significant finding all the topics covered by Impact AES-2 be added to page 3.1-20 in Section 3.1, *Visual Resources,* of the Draft EIR.

The text on page 3.1-20 of the Draft EIR has been revised as follows:

"Therefore, impacts related to vehicle headlights and illuminated signage would be ***less than significant***. No mitigation measures are required.

Conclusion

Project

As described above, the Project would not generate excessive light levels from interior and exterior lighting, vehicle headlights, or illuminated signage. Project buildings would not generate excessive glare. Therefore, light and glare impacts associated with the Project would be ***less than significant***. No mitigation measures are required.

Phase I Development

As described above, the Phase I Development would not generate excessive light levels from interior and exterior lighting, vehicle headlights, or illuminated signage. Phase I Development buildings would not generate excessive glare. Therefore, light and glare impacts associated with the Phase I Development would be ***less than significant***. No mitigation measures are required."

Response to Comment 7-3

The comment requests that the title of Table 3.2-14 in Section 3.2, Air Quality, of the Draft EIR be revised to reflect that the table refers to existing health risks.

The text on page 3.2-14 of the Draft EIR has been revised as follows:

"Table 3.2-3. Existing Health Risks within 1,000 feet of the Project Site."

Response to Comment 7-4

The comment requests that a footnote be added to page 3.10-11 in Section 3.10, *Transportation*, of the Draft EIR. The requested footnote includes text from CEQA Guidelines Section 15064.3(b)(1), which provides for a presumption of less-than-significant VMT impacts for projects within a half mile of either an existing major transit stop or a high-quality transit corridor stop. The comment notes that projects in Phase IV and Phase V would meet these criteria.

The City could choose to screen future phases from quantitative VMT analysis based on distance to the BART and/or Caltrain station. The El Camino SamTrans routes are not frequent enough to meet the definition of "high-quality" transit per Section 21155 of the Public Resources Code. Without more information on how the City would measure distance, it is too speculative to say which phases or parcels would be eligible under this criterion.

Further, the City notes that the use of the VMT screening criteria provided in CEQA Guidelines Section 15064.3(b)(1) is not mandatory, but is at the discretion of the lead agency. A project's proximity to high-quality transit is one of many considerations in assessing potential VMT impacts. The City does not have adopted VMT guidelines and could choose to apply different screening criteria in the future.

See Response to Comment 6-21 for further discussion of Draft EIR revisions made in response to this comment.

Response to Comment 7-5

The comment asserts that the second sentence on page 3.10-23 in Section 3.10, *Transportation*, of the Draft EIR is inconsistent with the description of the TDM requirements in Chapter 2, *Project Description*.

See also Response to Comment 6-28.

Responses to Comment Letter 8 (YouTube [Josh Portner], Part 3)

On February 16, 2021, the commenter submitted a comment letter entitled "Draft Bayhill Specific Plan Comments." Although the letter was submitted as comments on the Specific Plan, it included several comments on the Draft EIR appendices. The comments on the Draft EIR appendices have been extracted into a separate document and are included herein as Comment Letter 8.

Response to Comment 8-1

The comment states that the amount of unallocated square footage evaluated in Appendix 4, *Equivalency Analysis,* of the Draft EIR – 180,347 square feet – is slightly different than the amount of unallocated square footage cited elsewhere in the Draft EIR.

See Response to Comment 6-46.

Response to Comment 8-2

The comment points to an alleged error on page 6 of *Attachment D to Transportation Appendix – LOS Calculations/BHSP Alternatives Analysis* in Appendix 3.10-1, *Transportation Supporting Data*, of the Draft EIR. The comment states that the net new office development associated with the Phase I Development should be 440,000 square feet, not 301,500 square feet as cited in the text.

See Response to Comment 6-40.

Response to Comment 8-3

The comment infers that the YouTube Vesting Tentative Map and Phase 1 Entitlement Plans dated October 2019, which evaluated in Appendix 3.5-1, *Hydrology and Water Quality Evaluation,* of the Draft EIR, are no longer accurate.

See Response to Comment 6-23.

Response to Comment 8-4

The comment asserts that the percentages of pervious and impervious surface cited on page 4 of Appendix 3.5-1, *Hydrology and Water Quality Evaluation,* of the Draft EIR, are incorrect.

See Response to Comment 6-23.

Response to Comment 8-5

The comment is similar to the immediately preceding comments.

See Response to Comment 6-23.

Response to Comment 8-6

The comment is similar to the immediately preceding comments.

See Response to Comment 6-23.

Response to Comment 8-7

The comment is similar to the immediately preceding comments.

See Response to Comment 6-23.

Response to Comment 8-8

The comment requests a discussion regarding Figure 3 in Appendix 3.5-1, *Hydrology and Water Quality Evaluation,* of the Draft EIR.

It is assumed that the comment refers to similar comments made by the commenter regarding the estimated depths of the proposed parking garages. See Response to Comment 6-5.

Response to Comment 8-9

The comment contains a question on a traffic signal improvement required under the Specific Plan to address vehicular LOS impacts.

See Response to Comment 6-41.

Response to Comment 8-10

The comment states "same as previous comment," referring to easement width requirements cited in Mitigation Measure Hydro 1B – Dedicate Storm Drain easements for Public Infrastructure, included in Appendix 3.5-1, *Hydrology and Water Quality Evaluation,* of the Draft EIR.

Based on the commenter's same comments on the Specific Plan, General Plan amendment, and zone change, the comment is understood to refer to funding requirements for upsizing easements, which is not a comment or question on the Draft EIR analysis. It is noted that the text cited in Appendix 3.5-1 is not included in an EIR mitigation measure. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 8-11

The comment states that the net new office development associated with the Phase I Development should be 440,000 square feet, not 301,476 square feet as cited in the text. The comment also states that the location of the proposed water line in Elm Avenue is incorrect.

See Response to Comment 6-42 regarding net new office square footage and Response to Comment 6-30 regarding the Elm Avenue water line.

Response to Comment 8-12

The comment requests that all traffic analysis supporting documentation (including Synchro intersection analysis outputs and cumulative 2040 traffic volumes with and without the proposed project) for all study intersections and scenarios analyzed in the Draft EIR be provided. The comment also requests a trips summary by intersection.

All of the requested materials have been provided to the commenter and are included in the Project's administrative record. The requested materials consist of spreadsheets and data files that are not suitable for inclusion in the EIR appendices; however, all files can be reviewed at the Community and Economic Development Department upon request. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 8-13

The comment refers to page 8 of the Appendix 3.10-1, *Transportation Supporting Data*, of the Draft EIR and asks how certain values were calculated.

The requested calculations have been provided to the commenter and are included in the Project's administrative record. The requested materials consist of spreadsheets and data files that are not suitable for inclusion in the EIR appendices; however, all files can be reviewed at the Community and Economic Development Department upon request. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 8-14

The comment refers to page 8 of the Appendix 3.10-1, *Transportation Supporting Data*, of the Draft EIR and asks how certain values were calculated.

The requested calculations have been provided to the commenter and are included in the Project's administrative record. The requested materials consist of spreadsheets and data files that are not suitable for inclusion in the EIR appendices; however, all files can be reviewed at the Community and Economic Development Department upon request. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 8-15

The comment requests clarification of the required VMT reduction percentage on page 10 of Appendix 3.10-1, *Transportation Supporting Data*, of the Draft EIR.

The comment correctly identifies a typographical error on page 10 of Appendix 3.10-1, *Transportation Supporting Data*, of the Draft EIR. The text has been revised as follows:

"As described in the EIR, the Project requires a reduction of ~~23 percent~~ 22 percent under current conditions; therefore, implementation of a TDM program would not result in a significant reduction that would meet the VMT per Capita threshold."

Response to Comment 8-16

The comment asks if the 8-inch lines appearing on Figure 1 of Appendix 3.11-3, *Sanitary Sewer Impact Study*, of the Draft EIR should be shown as 10-inch lines since the text suggests that 10-inch lines were modeled.

See Response to Comment 6-44.

Responses to Comment Letter 9 (Alexander Melendrez)

Response to Comment 9-1

The comment provides an introduction and thanks the City for the opportunity to comment on the Draft EIR. The comment stresses that urgency is required in addressing the jobs-housing imbalance and asserts that the Bayhill Specific Plan provides an opportunity to address it. The comment asserts

that the jobs-housing imbalance is an affordability, climate change, and equity issue and suggests that the Project is an opportunity to meet the City's RHNA allotment.

See Response to Comment 5-2.

Response to Comment 9-2

The comment expresses support for the Project's proposed housing overlay zone.

Comment noted. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 9-3

The comment correctly summarizes and expresses support for the Residential Alternative evaluated in Chapter 5, *Analysis of Alternatives*, in the Draft EIR. The comment also expresses support for extending the proposed housing overlay zone into Parcels 14, 15, and 16, as the area is transit rich, close to amenities, and available for incentives to build market rate and affordable housing.

See Response to Comment 1-3, Response to Comment 5-2, and Response to Comment 5-3.

Responses to Comment Letter 10 (Dean J. Moser – Bayhill Office Partners, LLC)

Response to Comment 10-1

The comment asks if a property owner would be subject to any fees or taxes such as Mello-Roos or Community Benefit Fees if the property owner makes no increased use of their property.

Property owners within the Specific Plan area who do not redevelop their property would not be subject to development impact fees or community benefit contributions. There are a variety of other City fees that may apply, depending on property owner activities and/or future City actions (e.g., fees for service, inspections for minor improvements, etc.); however, these fees are not directly related to approval of the Specific Plan. There may also be existing or future fees or taxes that are not under the City's jurisdiction that may apply (e.g., those under jurisdiction of the County or State); however, these non-City fees or taxes are not directly related to approval of the Specific Plan. With regard to a Mello-Roos Community Facilities District (CFD), this mechanism requires approval by two-thirds of registered voters located in the district (or a two-thirds property owner vote based on acreage). The Specific Plan references a Mello-Roos CFD as one potential funding mechanism but does not recommend or authorize its approval. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 10-2

The comment asks if the 158 residential units allocated to the parcel containing 1111 Bayhill Drive can be used by another parcel.

The residential units permitted on a particular parcel are not transferable to another parcel because the Specific Plan does not have a policy for transfer of residential development (e.g., another parcel-

specific equivalency ratio would need to be determined). The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 10-3

The commenter asks for confirmation that the parcel containing 801 – 851 Traeger Avenue can use either the 125,000 square feet of office space or the 205 residential units allocated to that parcel.

All office uses on the parcel would need to be removed for the development of the full 205 dwelling units. The property owner at 801-851 Traeger Avenue could build a combination of residential units and office. The 125, 000 square feet of office would be reduced by 1,267 square feet for each unit of residential use constructed, per Policy 2.8 and Table 2-3 in the Specific Plan. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 10-4

The commenter asks to which parcels the 1,070 dwelling units available under the Increased Height Alternative Maximum Housing Scenario would be allocated. The commenter also identifies a typographical error in Table 5-4 on page 5-13 the Draft EIR in the "Residential (DU)" column.

As stated on page 5-11 in Chapter 5, *Analysis of Alternatives*, in the Draft EIR, the 1,070 dwelling units under the Increased Height Alternative Maximum Housing Scenario would be located within the housing and mixed-use overlay zones, similar to the Project. The housing units are not allocated to particular parcels. The Increased Height Alternative is evaluated in the EIR as an alternative to the Project, pursuant to the requirements of CEQA. CEQA establishes that an alternative does not need to be discussed at the same level of detail as a project; rather, an alternative should be described with sufficient information to allow a fact-based comparison of the alternative with the project (CEQA Guidelines Section 15126.6). Because impacts are evaluated at a program level, specifying the parcel-level allocation of housing units under the Increased Height Alternative is not required to provide an adequate alternatives evaluation under CEQA. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR's alternatives analysis.

The text on page 5-13 in Chapter 5, *Analysis of Alternatives*, has been revised to remove a superscript letter typo attached to the number of dwelling units in Table 5-4. The text has been revised as follows:

"1,070[a]"

Response to Comment 10-5

The commenter asks if each area which is allowed residential development will have to provide underground parking since construction will occur on existing parking spaces. The commenter further asserts that each underground parking space has a cost of $40,000 and each residential unit requires 1.5 to 2 spaces.

As discussed on page 3.6-8 in Section 3.6, *Land Use and Planning*, of the Draft EIR, City Ordinance No. 1284 places height restrictions and limitations on above-ground parking structures. No above-ground parking structures are permitted as part of the Project. Therefore, potential future residential development would need to provide surface level/underground parking. The

commenter's estimated per-unit cost for the construction of underground parking is noted. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 10-6

The commenter asserts that the 205 units allocated to Parcel 4 in the Specific Plan would not be economically feasible, nor would 158 units be feasible for Parcel 13. The comment provides estimates for the cost of a 289-unit residential project.

Comment noted. The commenter offers an opinion related to the cost of future housing development. The cost of any individual development project varies based on current market conditions, financing mechanisms, and other factors. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Responses to Comment Letter 11 (Janice Rodondi)

Response to Comment 11-1

The comment describes previous construction on the project site, and notes that damage to the commenter's home and other homes in the area was experienced due to the use of pile drivers. The comment also requests information about who to contact should damage-related effects occur at the commenter's home during Project construction.

The City acknowledges the commenter's concerns. While unknown, the type of pile driving used during construction of the existing on-site uses may have included impact pile driving, which is the most vibration intensive equipment used for construction projects. Impact pile driving can result in vibration levels of approximately 0.3 peak particle velocity (PPV) inches per second (in/sec) at distances of approximately 70 to 75 feet. As described on page 3.7-44 in Section 3.7, *Noise*, of the Draft EIR, the Project, including the Phase I Development, does not propose the use of impact pile driving; rather, all piles would be installed via auger drill. An auger drill can result in vibration levels of 0.3 PPV in/sec at distances of approximately 11 to 12 feet, and is much less impactful to adjacent properties than an impact pile driver.

Section 3.7, *Noise*, of the Draft EIR, includes an analysis of the potential for building damage to occur as a result of vibration generated by Project construction. See Impact NOI-2a and Impact NOI-2b on pages 3.7-43 through 3.7-45 of the Draft EIR. The analysis is based on Caltrans' vibration criteria for human annoyance and building damage. Based on the human annoyance criteria, vibration levels at the nearest residential use to the Project Site, located approximately 80 feet from Project construction areas, would be below the "distinctly perceptible" level. Based on Caltrans' criteria for building damage, vibration levels would not cause building damage at distances greater than 8 feet from the equipment. Therefore, the Draft EIR analysis concludes that impacts from construction-related vibration would be less than significant. The commenter's residence is located approximately 150 feet from the southern boundary of the San Bruno Avenue right-of-way. Based on the results of the Draft EIR's construction vibration analysis, vibration effects would not be felt at the commenter's residence.

However, should concerns arise during construction, affected neighbors should contact the City. Mitigation Measure AQ-5 in Section 3.2, *Air Quality*, of the Draft EIR, requires that a publicly visible

sign be posted with the telephone number and name of the person to contact for construction-related complaints.

The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Responses to Comment Letter 12 (February 16, 2021 San Bruno Planning Commission Draft EIR Hearing Transcript)

Response to Comment 12-1

The comment provides an introductory statement, indicating that the following comments represent a transcription of public comments received at the February 16, 2021 San Bruno Planning Commission hearing on the Bayhill Specific Plan Draft EIR.

Comment noted. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 12-2

The commenter is a property owner within the Bayhill Specific Plan area and asks if a property owner would be subject to fees or taxes (Mello-Roos or Community Benefit Fees) if no changes are made to the property.

The same commenter provided a similar comment in Comment Letter 10. See Response to Comment 10-1.

Response to Comment 12-3

The commenter asks if the 158 residential units allocated to the parcel containing 1111 Bayhill can be used by another parcel.

The same commenter provided a similar comment in Comment Letter 10. See Response to Comment 10-2.

Response to Comment 12-4

The commenter asks to which parcels the additional units available under the Increased Height Alternative Maximum Housing Scenario are allocated.

The same commenter provided a similar comment in Comment Letter 10. See Response to Comment 10-4.

Response to Comment 12-5

The commenter asserts that a recent feasibility study on the construction of residential units puts the number of units at 305 (rather than 205) as the point at which it becomes economically feasible.

The same commenter provided a similar comment in Comment Letter 10. See Response to Comment 10-6.

Response to Comment 12-6

The commenter expresses appreciation for the work of the Planning Commission and the City Council.

Comment noted. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 12-7

The commenter provides a statement of support for the Residential Alternative, asserting that this alternative would provide for half of the targeted RHNA allocated units for the next cycle, and noting that it would provide for less impervious surface. The commenter expresses an opinion that with the increase in remote working, less office space will be needed in the future and emphasizes the benefits of having the area function as a family-friendly area at night.

Comment noted. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

See also Response to Comment 1-3 and Response to Comment 5-2.

Response to Comment 12-8

The commenter provides background information related to the difficulties caused by the housing shortage and high housing prices in San Bruno. The commenter expresses concern regarding the amount of single-occupancy vehicle trips this shortage generates, and relates it to the climate crisis, sea level rise, air quality problems, and forest fires. The commenter asserts that building more office space without building housing will increase the jobs-housing imbalance and urges the construction of more housing.

Comment noted. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

See also Response to Comment 1-3 and Response to Comment 5-2.

Response to Comment 12-9

The commenter expresses support for the Residential Alternative in order to increase housing at the project site and satisfy a larger portion of the RHNA allocation. The commenter notes that the alternative would construct almost as much office space and the proposed project. The commenter also supports increasing housing on the eastern side of the Project Site where it would be closer to transit uses.

Comment noted. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

See also Response to Comment 1-3 and Response to Comment 5-2.

Response to Comment 12-10

The commenter expresses an opinion that the traffic is not a particular problem in the area and expresses support for increasing the amount of housing, particularly for YouTube employees.

Comment noted. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

See also Response to Comment 1-3 and Response to Comment 5-2.

Response to Comment 12-11

The commenter is a property owner within the San Bruno Specific Plan area and offers support for the project as well as support for additional housing. The commenter stresses the need for additional housing in the area and expresses for an increased height limit, increased density, and for up to 1,500 units of housing at the Project Site.

Comment noted. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

See also Response to Comment 1-3 and Response to Comment 5-2.

Response to Comment 12-12

The commenter expresses concern about the cost of the potential housing constructed.

Comment noted. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Response to Comment 12-13

The commenter asks if the recently proposed additional tax or fee on homeowners to pay for the stormwater system improvements will be applied to properties within the Bayhill Specific Plan area.

The City's proposed storm drainage and flood protection fee is a Citywide fee proposed under a separate resolution (Resolution No. 2021-04). It will be applied to all property owners in the City, including properties within the Bayhill Specific Plan area. The comment does not contain questions or concerns regarding the adequacy of the Draft EIR analysis. No revisions to the Draft EIR are required.

Appendix 8

SFPUC Meeting Minutes Bayhill Specific Plan Draft EIR

Meeting Minutes

Meeting Type:
Video Conference

Project:	Bayhill Specific Plan
Date:	March 25, 2021
Time:	12:00 p.m. – 12:30 p.m.
Meeting Attendees:	Matthew Neuebaumer, City of San Bruno Hae Won Ritchie, City of San Bruno Christopher Lyles, SFPUC Nicholas M. Johnson, SFPUC Heidi Mekkelson, ICF Amy Kwong, West Yost & Associates Polly Boissevain, West Yost & Associates
Subject:	**SFPUC Comments on Bayhill Specific Plan Draft EIR**

Purpose of meeting is to discuss SFPUC's comments on Bayhill Specific Plan Draft EIR. Specifically, SFPUC's March 1, 2021 comment letter states: "I recommend that the City of San Bruno and the DEIR consultants work with our Water Resources staff to resolve this issue. Please contact Nicholas Johnson, Water Operations Analyst, at NJohnson@sfwater.org or Christopher Lyles, Regulatory Specialist, at clyles@sfwater.org for more information."

SFPUC staff state that discussions of the Regional Groundwater Storage and Recovery Project (RGSRP) in Draft EIR Sections 3.5 and 3.11 are inaccurate, but discussion of RGSRP in project's Water Supply Assessment (WSA) in Draft EIR Appendix 3.11-1 is accurate.

SFPUC staff are concerned that text describing RGSRP in Draft EIR misrepresents the RGSRP. SFPUC staff state that RGSRP is not a part of the overall water supply; rather, it is a back-up source. SFPUC staff state that the RGSRP is a local project and that the Draft EIR should focus on the regional water supply.

City and ICF staff ask if SFPUC staff have specific recommended revisions. SFPUC state that they do not have specific recommended revisions. Rather, as a general comment, all references to the RGSRP in the Draft EIR should be corrected to refer to the WSA's discussion of the RGSRP, which is accurate.

City and ICF staff agree to make the requested corrections to the Draft EIR in the Final EIR.