Final

Initial Study/Mitigated Negative Declaration

for the

Carmel Woods and Pescadero Road Sewer Main Rehabilitation Project

Prepared for:

Carmel Area Wastewater District
3945 Rio Road
Carmel, CA 93923

Prepared by:

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July 2026

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Project Summary

1. **Project Title**: Carmel Woods and Pescadero Road Sewer Main Rehabilitation Project (Project or Proposed Project)

2. **Lead Agency:** Carmel Area Wastewater District (CAWD or District)

3. **Contact:** Patrick Treanor, P.E., District Engineer
   3945 Rio Road, Carmel, CA 93922
   (831) 257-0436

4. **Prepared By:** Denise Duffy and Associates, Inc (DD&A)

5. **Date Prepared:** July 2026

6. **Project Location:** The Proposed Project consists of two components located along Pescadero Road and Carmel Woods. The Pescadero Road site is located along Pescadero Road, Lincoln Street, 2nd Avenue, and Monte Verde Street, and also includes work on the existing sewer line behind residential properties within the Del Monte Forest. The Carmel Woods site is located along Camino Del Monte, San Juan Road, San Marcos Road, San Lucas Road, Portola Avenue, San Luis Road, South San Luis Road, San Pedro Lane, San Mateo Avenue, Carpenter Street, and along State Route (SR) 1 in the Carmel Woods residential area, directly northeast of the Pescadero Road area. Both components of the Proposed Project are located entirely within the Coastal Zone. The majority of the Proposed Project is located in unincorporated Monterey County, California, with a small portion of the Pescadero Road site crossing over into the municipal boundaries of the City of Carmel-by-the-Sea (City).

7. **Name of Property Owner/Project Proponent:** Carmel Area Wastewater District

8. **Assessor's Parcel Number(s):** Please refer to **Table 1**.

9. **Project Area of Disturbance:** The Pescadero Road Project component includes trenching and ground disturbance of approximately 2,800 square feet (sf) (0.06 acres), and grading of 1,600 cubic yards (cy) of cut and 1,600 cy of fill. The Carmel Woods Project component includes trenching and ground disturbance of approximately 8,000 sf (0.18 acres), and grading of 1,800 cy of cut and 1,800 cy of fill. The total area of trenching and ground disturbance is 10,800 sf (0.24 acres), and the total area of grading is 3,400 cy of cut and 3,400 cy of fill.

10. **Project Description:** The Proposed Project, as described above, is located on two sites in a residential area located primarily within unincorporated Monterey County land, with a small portion of the Project occurring within the northern limits of the City. The Pescadero Road component of the Proposed Project would consist of constructing a new sewer main in Pescadero Road and abandoning a portion of the existing sewer main in the hillside located behind nearby residential connections. The Carmel Woods component of the Project consists of the replacement and/or rehabilitation of approximately 14,850 LF of existing deteriorated 6-inch diameter vitrified clay pipe (VCP) gravity sewer main with new polyvinyl chloride (PVC) or high-density polyethylene (HDPE) sewer mains or installation of a lining system. The majority of the sewer mains would be replaced and/or

rehabilitated along the existing alignments where feasible. However, several sewer segments would be realigned to improve ease of maintenance.

Replacing and rehabilitating the damaged sewer mains at the Pescadero Road and Carmel Woods sites is necessary to continue to provide reliable service to the District's customers and minimize the potential for sewer spills in the future. CAWD considers the repair of infrastructure for the Pescadero Road component to be critical due to its proximity to Pescadero Creek and associated riparian corridor. The rehabilitated sewer main would continue to be used to convey wastewater for District customers located along Pescadero Road, whose service laterals directly connect to the sewer main to be replaced, while the majority of existing flows to this sewer main would be redirected to the new sewer main.

11. **Local Coastal Plan Designations:** Medium Density Residential, Forest Open Space

12. **Zoning Districts**: MDR-CZ (Medium Density Residential (Coastal Zone)), RC-CZ (Resource Conservation (Coastal Zone))

Chapter 1. Introduction and Project Description

1.1 INTRODUCTION

This Initial Study has been prepared to evaluate the potential environmental effects associated with the Carmel Area Wastewater District's (CAWD's or District's) Carmel Woods and Pescadero Road Sewer Main Rehabilitation Project (Project or Proposed Project), located within the Coastal Zone in unincorporated Monterey County, California. This document has been prepared in accordance with the California Environmental Quality Act (CEQA), Public Resources Code §21000 et. seq., and the State CEQA Guidelines, California Code of Regulations (CCR) §15000 et. seq.

An Initial Study is an informational document prepared by a Lead Agency to determine if a project may have a significant effect on the environment (CEQA Guidelines §15063, subd. (a)). If there is substantial evidence that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) must be prepared, in accordance with CEQA Guidelines §15064(a). However, if the Lead Agency determines that revisions in the project plans or proposals made by or agreed to by the applicant to mitigate the potentially significant effects to a less-than-significant level, a Mitigated Negative Declaration (IS/MND) may be prepared instead of an EIR (CEQA Guidelines §15070, subd. (b)). Per CEQA Guidelines for an IS/MND, a Lead Agency prepares a written statement describing the reasons a proposed project would not have a significant effect on the environment and, therefore, why an EIR need not be prepared. This IS/MND conforms to the content requirements under CEQA Guidelines §15071.

CAWD is acting as the Lead Agency pursuant to CEQA Guidelines §15050(a). As the Lead Agency, CAWD has prepared this Final IS/MND pursuant to CEQA Guidelines §15063 and §15070 as the project does have some significant impacts on the environment that can be mitigated to less-than-significant with identified measures. The Draft IS/MND was circulated for agency and public review during a 30-day public review period pursuant to CEQA Guidelines §15073, which began on June 3, 2026, and ended on July 6, 2026. During this public review period, the IS/MND was available to local, state, and federal agencies and to interested organizations and individuals for review. As of July 6, 2026, CAWD received no public comments on the Draft IS/MND.

The Final IS/MND, Draft IS/MND, and all documents referenced herein are available for review at the CAWD office located at 3945 Rio Road, Carmel, CA 93922. Following the conclusion of the public review period, CAWD will consider the adoption of the Final IS/MND for the Proposed Project at a regularly scheduled public hearing. Upon adoption of the Final IS/MND, CAWD may proceed with approval actions for the Proposed Project. If CAWD approves the Project, they will file a Notice of Determination (NOD), which will be available for public inspection and posted in 24 hours of receipt at the Monterey County Clerk's Office for 30 days. The filing of the NOD starts a 30-day statute of limitations on court challenges to the approval under CEQA (CEQA Guidelines Section 15075(g)).

CAWD prepared the following section consistent with the requirements of CEQA Guidelines Section 15124 to the extent that it applies to the Proposed Project. The following section provides a discussion of key background details related to the Proposed Project, including project components, site and area characteristics, and applicable regulatory requirements.

1.2 PROJECT LOCATION AND SURROUNDING USES

The Proposed Project, as described below, is located on two sites in a residential area within the northern limits of the City of Carmel-by-the-Sea (City) and unincorporated Monterey County (**Figure 1**). Regional access to both Project areas is provided from State Route 1 (SR 1). Local access to the Project sites is provided by Camino Del Monte, Carpenter Street, Pescadero Road, and Monte Verde Street (**Figure 2**). The Proposed Project is located primarily in unincorporated Monterey County between the City and Del Monte Forest, which is located in the Coastal Zone. The 1982 Monterey County General Plan, instead of the 2010 Monterey County General Plan, regulates activities within the Coastal Zone in Monterey County. In addition, the Carmel Area Land Use Plan (LUP) provides regulations and polices relevant to the Proposed Project site. The City's General Plan policies may also apply to the portion of the Proposed Project that occurs within City limits, and likewise, the Del Monte Forest Area Plan's policies may apply to the portion of the Proposed Project located along the existing Pescadero sewer alignment.

The Project sites are surrounded primarily by residential, public/quasi-public, educational, and open space uses. The Project sites consist of open space and public rights-of-way.

The Proposed Project is zoned as MDR-CZ (Medium Density Residential (Coastal Zone)) and RC-CZ (Resource Conservation (Coastal Zone)). General Plan designations include Public-Right-of-Way, Residential – Medium Density (Carmel Area LUP), and Open Space – Forest (Del Monte Forest LUP). Surrounding land uses include:

- North: Open Space – Forest (Del Monte LUP)
- South: Single Family Residential (City's General Plan/Coastal LUP)
- East: Residential – Medium Density, Public/Quasi-Public
- West: Open Space – Forest (Del Monte LUP)

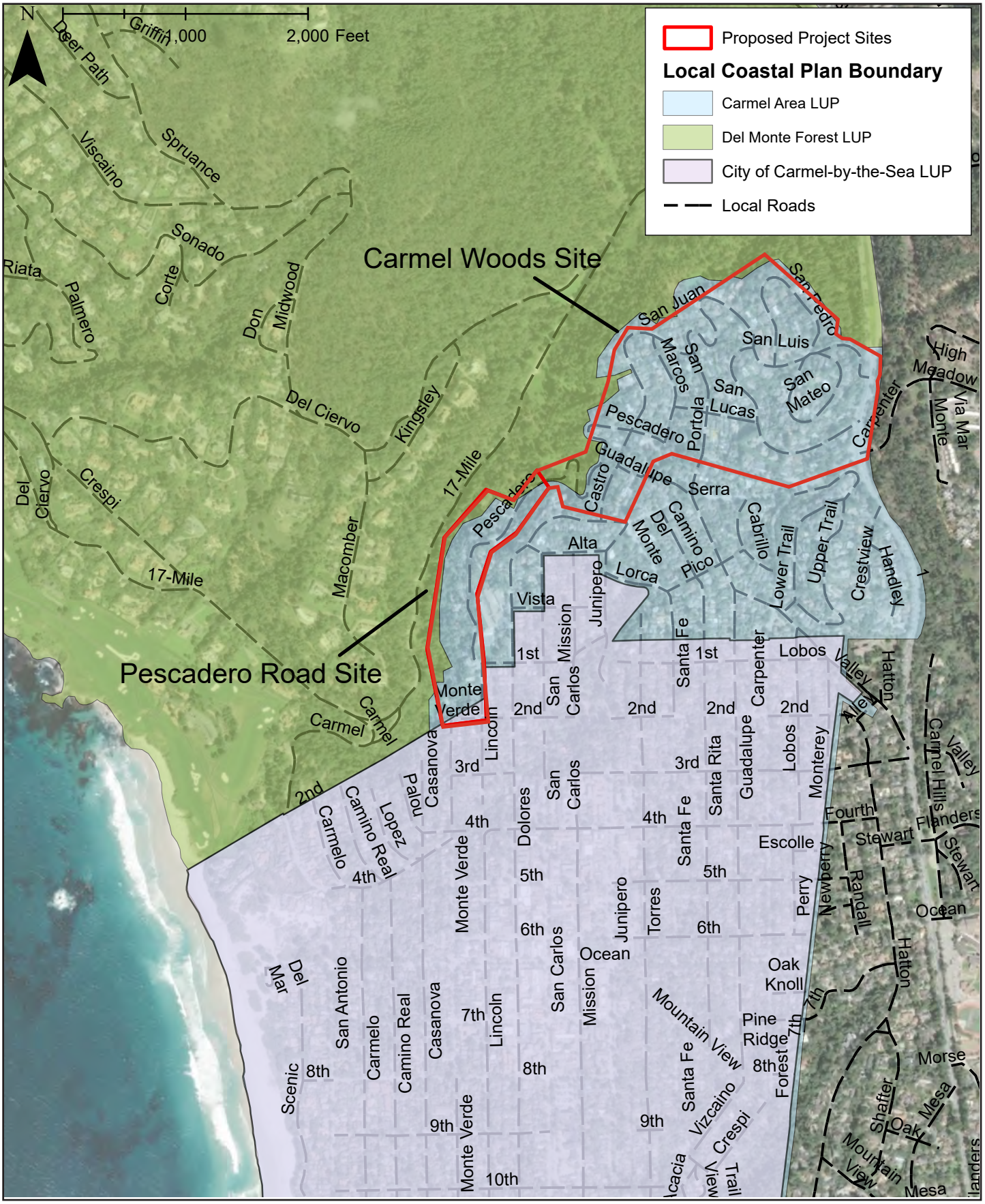
Location information specific to each of the Project components is provided below.

<u>Pescadero Road</u>

The first area (Pescadero Road) is located along Pescadero Road, Lincoln Street, 2nd Avenue, and Monte Verde Street on the Assessor's Parcel Numbers (APNs) outlined below and the public rights-of-way (ROWs) (**Figure 2**). The following list identifies the APNs where work would occur for the Project:

- 008-161-014-000
- 009-112-013-000
- 009-122-012-000

Title:	Date	3/16/2026	Monterey | San Jose	Figure
Regional Map	Scale	N/A	Denise Duffy and Associates, Inc.	1
	Project	2021.74	Environmental Consultants Resource Planners	
			947 Cass Street, Suite 5 Monterey, CA 93940 (831) 373-4341	



Title:

Project Location Map

Date	4/9/2026
Scale	N/A
Project	2021.74

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Environmental Consultants Resource Planners
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Monterey, CA 93940
(831) 373-4341

Figure 2

Carmel Woods

The second area (Carmel Woods) is located along Camino Del Monte, San Juan Road, San Marcos Road, San Lucas Road, Portola Avenue, San Luis Road, South San Luis Road, San Pedro Lane, San Mateo Avenue, Carpenter Street, and along Highway 1 in the Carmel Woods residential area, directly northwest of the Pescadero Road area, between Highway 1 and 17 Mile Drive, bounded by Camino Del Monte in the south (**Figure 2**). This site would be located on the following APNs as identified in **Table 1** and the public ROWs.

Table 1
Carmel Woods Area Project APNs

Project APNs	Project APNs	Project APNs
009-033-005-000	009-021-002-000	009-033-008-000
009-031-014-000	009-031-016-000	009-024-010-000
009-021-015-000	009-012-020-000	009-012-002-000
009-012-003-000	009-012-004-000	009-012-005-000
009-012-006-000	009-023-009-000	009-023-002-000
009-023-003-000	009-023-004-000	009-041-054-000
009-041-056-000	009-041-060-000	009-041-045-000
009-051-021-000	009-051-020-000	009-051-022-000
009-022-003-000	009-022-002-000	009-012-012-000
009-012-013-000	009-012-014-000	009-012-015-000
009-012-016-000	009-013-008-000	009-013-006-000
009-013-002-000	009-091-001-000	009-091-019-000
009-091-020-000		

1.3 PROJECT BACKGROUND

CAWD is a publicly-owned wastewater district that provides wastewater collection and treatment services to the City and surrounding portions of unincorporated Monterey County. CAWD is an independent political entity governed by its own five-member Board of Directors who are elected for terms of four years each. CAWD's total service area is comprised of approximately 5.5 square miles with a permanent population of approximately 11,000 people. CAWD also provides wastewater treatment and disposal for 4,500 people in Del Monte Forest as provided for by contract agreement with Pebble Beach Community Services District. Background information for each of the Project components is provided below.

Pescadero Road

The sanitary sewer collection system in the Pescadero Road Project component is substantially built out under existing conditions. The District is seeking to replace a damaged section of sewer main located in and parallel to Pescadero Road on the northwest side of the City (primarily outside the City limits) to continue to provide reliable service to the District's customers and minimize the potential for future sewer spills. The existing sewer main on the forested hillside of Pescadero Canyon has been damaged by tree falls and is in poor condition. Localized high points and other condition issues have caused several sewer spills, and maintenance crews have had difficulty accessing the sewer main for maintenance. Frequent maintenance is required due to its poor condition. The sewer infrastructure was installed

approximately 80 years ago, and the pipeline was constructed of six-inch vitrified clay pipe (VCP). Record drawings of the existing sewer main are not available.

The sewer main crosses several properties along the existing alignment to be replaced, including private residential properties and property owned by the Del Monte Forest Conservancy, designated as the "Pescadero Canyon Property." The ground surface in this area is steeply sloped from the east to the west, unstable, and currently inhabited by various plant and animal species, including Monterey pines and coast live oaks. The existing sewer main runs upslope from, and parallel to, Pescadero Creek and associated riparian corridor. The sewer main conveys wastewater from approximately 275 parcels, primarily residential, within the District's service area to the District's regional wastewater collection infrastructure and ultimately to the District's Wastewater Treatment Plant (WWTP). Of these parcels, 19 are located along Pescadero Road and have service laterals directly connected to the sewer main to be replaced. Five manholes and approximately 1,600 linear feet (LF) of sewer main lie within the Pescadero Canyon Property. The section of sewer main to be replaced begins at District manhole N601, located within the roadway near 24652 Pescadero Road. From this point, it extends from Pescadero Road to the west, inside of the property line at 24652 Pescadero Road (APN 009-112-013) to manhole N602, then turns south in the Pescadero Canyon Property (APN 008-161-014); the segment to be replaced terminates on a private property north of Toyon Heights (APN 009-122-012) at manhole N609 (**Figure 3**).

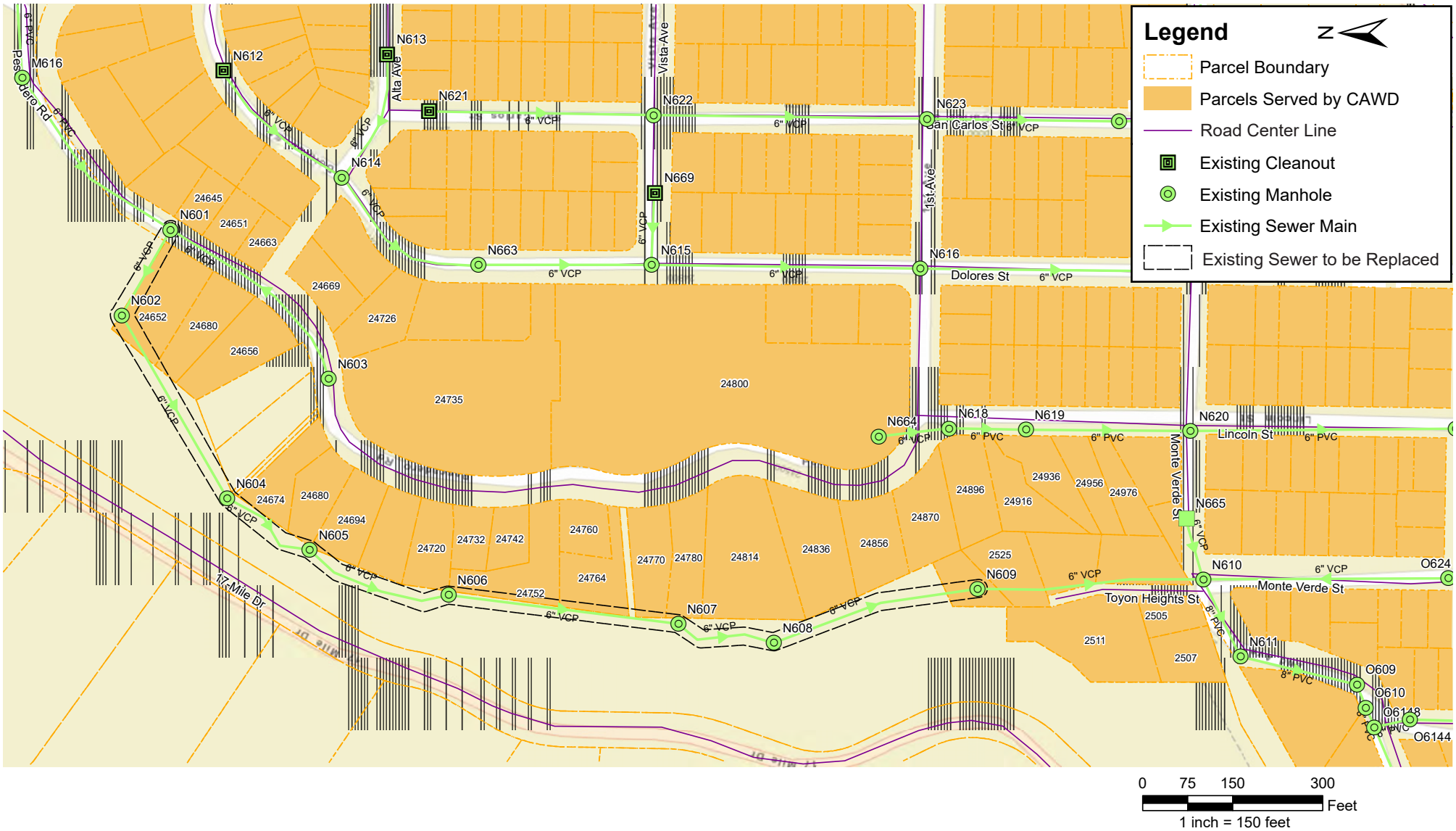
Carmel Woods

The sanitary sewer collection system in the Carmel Woods Project component is substantially built out under existing conditions. The District assessed the condition of the existing gravity sewer mains and manholes within the Carmel Woods Project component and identified various replacement and rehabilitation measures. Damaged VCP mains are recommended to be replaced with new polyvinyl chloride (PVC) or high-density polyethylene (HDPE) pipes in accordance with CAWD standards. The District proposes to install an internal lining system for existing sewer mains with minimal defects. The District would either replace all manholes determined to be in poor condition with new pre-cast concrete manholes or rehabilitate existing manholes with a lining system. In addition, the District would perform various minor repairs for all existing manholes found to be in good condition without substantial defects to extend the life of the manholes.

1.4 PROJECT COMPONENTS

Existing System and Flow Design

The sanitary sewer collection system in each of the Project components is substantially built out and only a handful of parcels within each of the Project sites are vacant. For this reason, future flows under Project conditions are not projected to significantly increase compared to existing flows. With proactive system management, peak sewer flow rates may decrease in the future as the District eliminates cross connections between storm drains and the sanitary sewer and completes other upgrades to reduce inflow and infiltration. Based on the historical and projected flow rates, a design flow rate of 400 gallons per minute (GPM) was assumed for the Pescadero Project component. A majority of the Carmel Woods area flows into the Pescadero Road sewer main; therefore, the design flow rate is 400 GPM or less in this Project area.



Source: MNS, March 2026

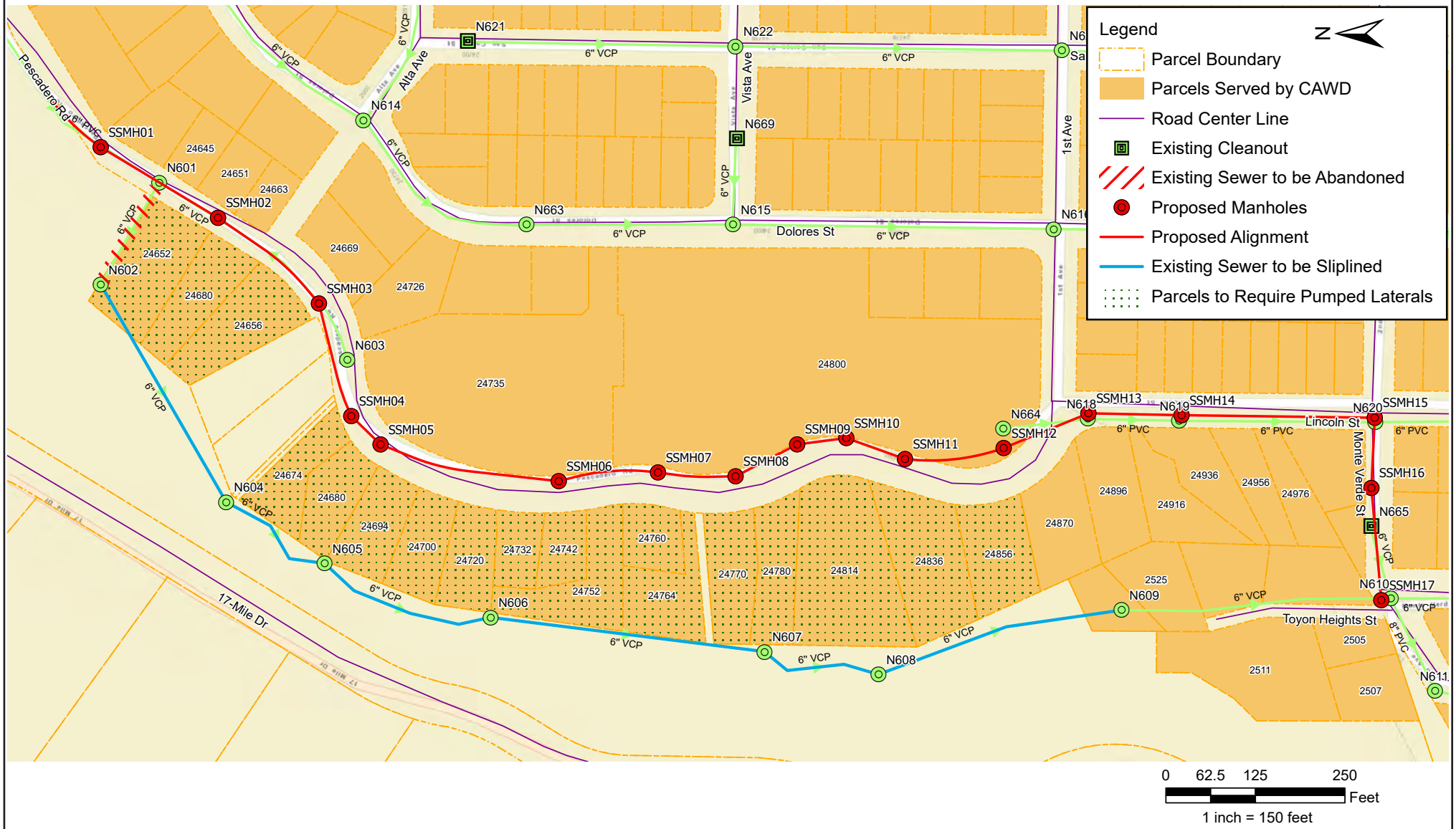
Title:	Date	3/16/2026	Monterey | San Jose	Figure
Existing Alignment Plan	Scale	N/A	Denise Duffy and Associates, Inc.	3
	Project	2021.74	Environmental Consultants Resource Planners	
			947 Cass Street, Suite 5 Monterey, CA 93940 (831) 373-4341	

Pescadero Road

The Pescadero Road Project component would consist of constructing a new sewer main in the Pescadero Road site and abandoning a portion of the existing sewer main in the hillside (**Figure 4**). The proposed alignment would reconfigure existing upstream manhole N601 and connect a new gravity sewer to existing downstream manhole N610 with new 10-inch PVC gravity sewer; refer to the Draft 60 percent project design plans in **Appendix A**. The existing sewer segment between manhole N601 and cleanout N603 would be demolished and removed. Flow direction along this segment would be reversed with installation of the new gravity sewer. Existing manholes and sewer between manhole N618 and N620 would be demolished, removed, and reconstructed in place. The new sewer would be installed with HDPE using pipe bursting in the existing horizontal and vertical alignment. Between manhole N620 and N610, the proposed alignment would travel through the cul-de-sac on 2nd Avenue and continue to manhole N610 at the intersection of Monte Verde Street and 2nd Avenue. The new sewer would be constructed using open trench construction from existing manhole N616 to existing manhole N618. From manhole N618 to approximately eight LF before manhole N620, the new sewer would be installed with HDPE using pipe bursting in the existing horizontal and vertical alignment. From the new manhole at the intersection of Lincoln Street and 2nd Avenue, new PVC sewer main would be installed to the existing cleanout to the west end of 2nd Avenue by open trench construction. From the existing cleanout, where a new manhole is planned, to manhole N610, the new sewer would be installed with HDPE using pipe bursting in the existing horizontal and vertical alignment. In total, approximately 2,325 LF of new 10-inch sewer main and 13 manholes would be constructed.

Trench excavation depths are anticipated to range between six and 22 feet below grade. Pipeline trenches would be backfilled with crushed rock and/or Class II aggregate base and paved, except in unimproved areas. Manholes would be constructed of precast concrete or poured in place per District standards. The Project would reconfigure existing manhole N601 several feet upstream to a slightly higher elevation to minimize the manhole depth and reduce excavation costs in the area immediately downstream of this manhole where the gravity sewer main could reach depths of 22 feet below grade. In addition to the sewer improvements in the Pescadero area, the Project would address drainage issues on the eastern, up-slope side of Pescadero Road by re-establishing the drainage ditch through grading.

A portion of the existing sewer between N601 and N602 at the Pescadero Road site would be abandoned in place. Sewer mains would be filled with ”one-sack” slurry or cellular concrete. This work would be completed using hand and power tools carried on foot from Pescadero Road. Hoses and cords from Pescadero Road would be required to convey concrete and power equipment, which would be laid on grade to accomplish this work. Provisions would be set in place to prevent any slurry or other materials from spilling from the sewer main and manholes to the surrounding areas. No wheeled or tracked equipment would be allowed outside the public right-of-way.



0 62.5 125 250 Feet

1 inch = 150 feet

Source: MNS, March 2026

Title:

Proposed Pescadero Road Site Plan

Date	3/16/2026
Scale	N/A
Project	2021.74

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Figure

4

Carmel Woods

The Carmel Woods Project component consists of the replacement or rehabilitation of approximately 14,850 LF of existing deteriorated six-inch diameter VCP gravity sewer main with new PVC or HDPE sewer mains or installation of a lining system. The majority of the sewer mains would be replaced or rehabilitated along the existing alignments, where feasible. However, several segments would be realigned to improve ease of maintenance. **Figure 5** shows the Carmel Woods Project component and recommended rehabilitation and replacement measures. The gravity sewer main would be replaced using pipe-bursting construction for replacement where feasible or rehabilitated using a cured-in-place pipe (CIPP) or fold-and form liner system to minimize open trench construction. Slip lining would also be used to convert some sewer main segments into sewer laterals (between four and six inches in diameter). Manholes in poor condition would either be replaced with new pre-cast concrete manholes or rehabilitated, per District preference, in accordance with CAWD standards. The Project includes various minor repairs for existing manholes determined to be without substantial defects to extend their working lives. In total, the Carmel Woods component of the Project would replace approximately 2,425 LF of new eight-inch sewer main, 8,875 LF of new six-inch sewer main, 550 LF of new four-inch sewer lateral connections, and 12 manholes. Approximately 2,300 LF of the existing sewer main lining would be rehabilitated through CIPP and fold-and-form methods.

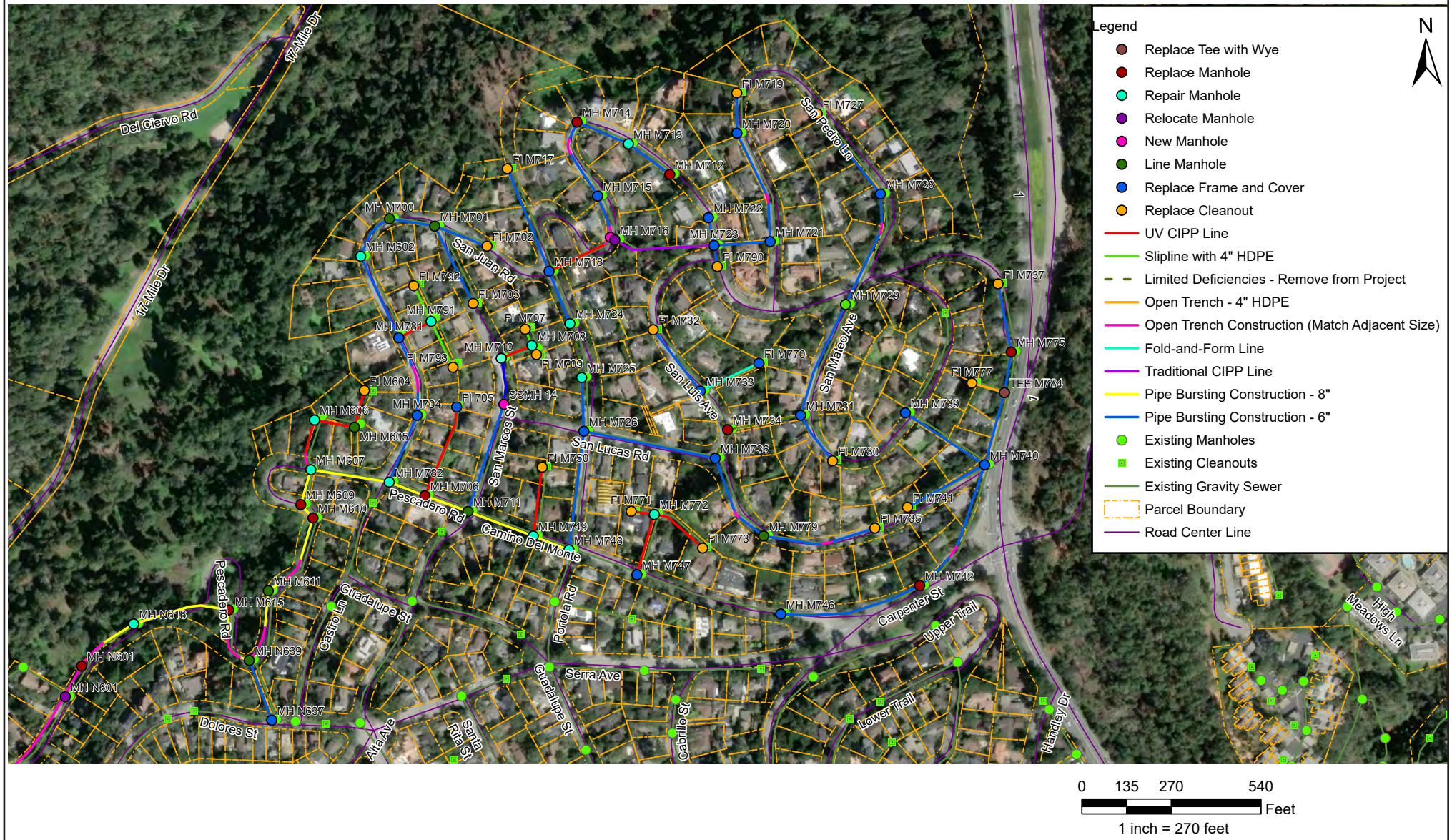
1.5 PROJECT CONSTRUCTION

Site Preparation

Site preparation for the Project would involve implementation of Stormwater Best Management Practices (BMPs) (i.e. erosion control, runoff and sediment control plans, etc.), pre-closed-circuit television (CCTV), marking and potholing existing utilities, setting up signage and traffic control, laying out trenches, sawcutting pavement for trenches, and preparing the materials to be installed.

The ground surface in the Pescadero Road area is steeply sloped, unstable, and consists primarily of existing residential uses. Construction of this Project component is anticipated to be by a combination of open trench, trenchless, and standard construction methods. This component of the Proposed Project includes trenching and ground disturbance of approximately 2,800 square feet (sf) (0.06 acres), and grading of 1,600 cubic yards (cy) of cut and 1,600 cy of fill.

The ground surface in the Carmel Woods area includes flat and sloped areas and consists primarily of existing residential uses. Construction of this Project component is anticipated to be a combination of open trench, trenchless, and standard construction methods. This component of the Proposed Project includes trenching and ground disturbance of approximately 8,000 sf (0.18 acres), and grading of 1,800 cy of cut and 1,800 cy of fill. Overall, grading for both Project components would be balanced, resulting in zero net cut or fill.



Source: MNS, May 2026

Title:

Proposed Carmel Woods Site Plan

Date	5/14/2026
Scale	N/A
Project	2021.74

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Figure

5

Site preparation activities would be phased with the movement of construction. Each area would be prepared before construction begins. These activities are anticipated to be completed within approximately 16 months.

Sewer Installation

The Project includes the use of trenchless installation methods, specifically pipe bursting, for installation of the majority of sewer main segments. Use of trenchless sewer installation was determined to reduce the costs and risks associated with excavating deep trenches. Open trench excavations would still be necessary for several segments of the project to repair sags in the pipe or in locations where trenchless methods are not feasible.

A portion of the alignment on Lincoln Street and a segment from Monte Verde to 2nd Avenue within the Pescadero Road Project component is in the same horizontal and vertical alignment as the existing main. Trenchless installation, specifically pipe bursting, can be used in these two segments.

Pipe bursting would be used in the Carmel Woods area to replace the sewer mains within public rights-of-way, except for one segment that would require some open trenching due to realignment or difficulty using pipe bursting (**Figure 5**). Some segments replaced by pipe bursting would require short segments of open trenching to replace fittings in the existing main line with long sweep fittings or other pipe materials.

The Project sites would be restored to existing conditions following construction. Pipeline trenches would be backfilled with crushed rock and/or Class II aggregate base and paved, except in unimproved areas. Any existing improved areas, including pavement and private improvements, disturbed during construction would be restored to pre-Project conditions, or better.

Bypass Pumping

Bypass pumping would be required during construction to convey wastewater around the work area. Bypass pumping may be required overnight for work that cannot be completed in a single workday. These pumps are typically powered by a gas-powered generator or direct gas-powered drive. They typically output 66 decibels at a distance of 10 feet and 63 decibels at a distance of 20 feet. In addition, isolated short term bypass pumps would be located on individual laterals as needed. Gravity bypasses may also be used.

Geotechnical Engineering

Trenches in some areas would exceed 20 feet in depth. Due to the deep trench excavations anticipated along the alignments and other potential engineering issues, a Geotechnical Investigation was completed to provide recommendations for design at the Pescadero Road site; refer to **Appendix E** (Pacific Crest Engineering, Inc., 2022). A shoring plan prepared, stamped, and signed by a licensed civil engineer would be required from the contractor prior to the start of excavation.

Easements

The proposed alignment for the Pescadero Road Project component rests entirely within the public ROWs along Pescadero Road, Lincoln Street, and Monte Verde Street, and, therefore, no permanent

access easements would be necessary for the installation or future work on the sewer. An existing easement for CAWD pipelines is located on the Pescadero Canyon Property (APN 008-161-014-000). However, during the abandonment of the existing sewer infrastructure, a temporary construction easement or access agreement would be required for the property at 24652 Pescadero Road (APN 009-112-013-000). The District may consider modifying easements along the existing sewer alignment for long-term access to remaining portions of the existing sewer main.

The proposed rehabilitation and replacement activities in the Carmel Woods Project site would occur within the public rights-of-way and existing easements and no new permanent access easements would be necessary for the installation or future work on the sewer.

Schedule

Construction is expected to begin in Fall 2026. Construction activities would include mobilization and site preparation, pipeline construction, and site restoration. Construction is expected to occur over 16 months and the anticipated schedule of these construction activities is as follows:

1. Mobilization and site preparation: This construction phase would last approximately two months.
2. Pipeline construction: This construction phase would last approximately 12 months.
3. Site restoration: This construction phase would last approximately two months.

The construction contractor would determine the precise sequencing of the construction phases above.

Equipment and Personnel

In support of these activities and for the assumptions for this document, the types of equipment that may be used during construction are anticipated to include:

- Excavator
- Backhoe
- Dump Truck
- Delivery Truck
- Water Truck
- Pipe fusing equipment
- Winch/Pulling Unit and Cable with Bursting Head
- CIPP Lining equipment
- Concrete truck
- Asphalt Paver

A maximum of eight construction personnel may be present with an estimated eight trips per day for workers and equipment over the course of 16 months.

Solid waste generated during construction and demolition activities would be disposed of at the nearest regulated landfill, which is the Monterey Peninsula Landfill and Materials Recovery Facility located north of the City of Marina and operated by ReGen Monterey.

Construction Equipment and Materials Staging and Storage

A designated staging area located at the District's WWTP would be used during construction as the primary location for storage and refueling of construction materials, equipment, and vehicles. No grading would be required within this staging area.

Additional staging and storage of materials and equipment would occur within each of the Project sites within public ROWs and outside of environmentally sensitive areas. No grading or permanent impacts would occur within these staging areas.

Construction Circulation and Access

Construction activities would be within the public ROW and easements, with access to the Project sites provided via existing paved roadways. Abandonment of existing sewer infrastructure is expected to be completed using hand and power tools carried on foot to the existing sewer at the Pescadero Road site. Therefore, no wheeled or tracked equipment would require access outside of the public ROW for this portion of the work. Access to the existing sewer for abandonment would be achieved through existing or temporary easements if required.

During construction in the Pescadero Road area, portions of Pescadero Road, Lincoln Street, and Monte Verde Streets in the vicinity of the work would be subject to intermittent closures to vehicle and pedestrian through traffic during working hours. Full roadway closures would be minimized to the extent feasible; however, temporary full roadway closures within the active open trench area may be required during certain phases of construction. Resident access located within the Project area would be maintained at all times. In addition, any road closures as a result of the Project would be conducted in accordance with the requirements of an encroachment permit issued by the County of Monterey (for work in unincorporated Monterey County) and/or the City (for work within the City limits).

Detours and road closures in the Carmel Woods area would be temporary and would vary as construction occurs. Road closures would be segmented as work is being completed and residents would be informed in advance when their residence would be impacted in order to make proper arrangements during working hours. Traffic would be routed around the work area through 1st Avenue, Dolores Street, and Castro Lane. At the end of each working day, all excavations would be plated, and the roadway would be reopened to traffic.

During construction at the Carmel Woods Project site, various impacts to vehicle and pedestrian access would occur, including lane closures and complete road closures. Detour plans would be developed to maintain access for local traffic. At the end of each working day, all excavations would be plated, and the roadway would be reopened to traffic.

Tree Removal

Two Monterey pine trees are proposed to be removed at the Pescadero Road Project site. The trees are located within the Proposed Project construction area (see **Appendix A**, Sheets C-2 and C-3) and would be removed to facilitate access for construction activities. No additional tree removal is proposed as part of the Project. Any required tree replacement or mitigation would be implemented in accordance with local ordinances, as applicable (see **Section 4.3** of this document for further discussion).

1.6 PROJECT OPERATION

Once completed, the Project sites would be accessed by Pescadero Road, Dolores Street, Monte Verde Street, or Camino Del Monte. Because of the overall improvements to the systems, the Project is anticipated to generate fewer trips for operations and maintenance once operational compared to CAWD's existing maintenance schedule.

1.7 PROJECT OBJECTIVES

Replacing and rehabilitating the damaged sewer mains at the Pescadero Road and Carmel Woods sites is necessary to continue to provide reliable service to the District's customers and minimize the potential for sewer spills in the future. CAWD considers the repair of infrastructure for the Pescadero Road component to be critical due to its proximity to Pescadero Creek and associated riparian corridor. The replaced sewer main would continue to be used to convey wastewater for District customers located along Pescadero Road whose service laterals directly connect to the sewer main to be replaced.

The primary Project goal is to replace the damaged sewer main to continue providing reliable service and minimize the potential for sewer spills. To best meet the primary goal, the Project's key objectives are:

- Design and construct the project in accordance with current District standards.
- Increase the reliability of the respective branches of the District's sanitary sewer system.
- Reduce the potential for sewer spills.
- Reduce maintenance requirements.

1.8 OTHER PUBLIC AGENCIES WHOSE APPROVAL IS REQUIRED

County of Monterey

- Encroachment Permit
- Coastal Development Permit (exemption)

City of Carmel-by-the-Sea

- Encroachment Permit
- Coastal Development Permit (exemption)

California Department of Transportation (Caltrans)

- Encroachment Permit

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Chapter 2. Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by the Proposed Project, involving at least one (1) impact that is a "potentially significant impact," as discussed in the Initial Study analysis on the following pages.

☐ Aesthetics	☐ Agricultural and Forestry Resources	☐ Air Quality
☒ Biological Resources	☒ Cultural Resources	☐ Energy
☐ Geology/Soils	☐ Greenhouse Gas Emissions	☐ Hazards/Hazardous Materials
☐ Hydrology/Water Quality	☐ Land Use/Planning	☐ Mineral Resources
☒ Noise	☐ Population/Housing	☐ Public Services
☐ Recreation	☐ Transportation	☒ Tribal Cultural Resources
☐ Utilities/Service Systems	☐ Wildfire	☒ Mandatory Findings of Significance

Environmental Factors Not Affected

The following environmental resources were considered as part of the scoping and environmental analysis conducted for the Proposed Project. The potential for adverse impacts to these resources as a result of the Proposed Project was not identified. Consequently, there is no further discussion regarding these resources in this document.

Agricultural Resources: The California Department of Conservation (DOC) identifies and designates important farmland throughout the State as part of the Farmland Mapping and Monitoring Program (FMMP). Farmland is classified as follows:

- **Prime Farmland.** Farmland with the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. These are Class I and Class II soils.
- **Farmland of Statewide Importance.** Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- **Unique Farmland.** Farmland of lesser quality soils used to produce the state's leading agricultural crops. This land is usually irrigated but may include non-irrigated orchards or vineyards as found in some climactic zones in California.
- **Grazing Land.** Government Code §65570(b)(3) defines Grazing Land as: "...land on which the existing vegetation, whether grown naturally or through management, is suitable for grazing or browsing of livestock." The minimum mapping unit for Grazing Land is 40 acres. Grazing Land does not include land previously designated as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance, and heavily brushed, timbered, excessively steep, or rocky lands which restrict the access and movement of livestock.

- **Urban and Built-Up Land.** Land occupied by structures with a building density of at least one (1) unit to 1.5 acres, or approximately six (6) structures to a 10-acre parcel. This land is used for residential, industrial, commercial, construction, institutional, public administration, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.
- **Other Land.** Land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas, not suitable for livestock grazing; confined livestock, poultry, or aquaculture facilities; strip mines, borrow pits; and water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded by urban development and greater than 40 acres is mapped as Other Land.

California Public Resources Code §4526 and the California Board of Forestry and Fire Protection define "Timberland" as land not owned by the federal government nor designated as experimental forest land, which is capable of and available for growing any commercial tree species.

The majority of the Proposed Project is located in unincorporated Monterey County between the City and Del Monte Forest, with small areas of the Project crossing into City limits and the boundaries of Del Monte Forest. The entirety of Proposed Project site is classified as “Urban and Built-Up Land,” and the surrounding land uses include:

- North: Open Space – Forest (Del Monte LUP)
- South: Single Family Residential (City’s General Plan/Coastal LUP)
- East: Residential – Medium Density, Public/Quasi-Public
- West: Open Space – Forest (Del Monte LUP)

No commercial agriculture or forestry land is located within or surrounding the Project site (DOC, 2026). The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, is the State’s primary program aimed at conserving private land for agricultural use. The Proposed Project is not on or adjacent to any Williamson Act contracted lands (DOC, 2026). The Proposed Project is located near residential areas where no agricultural activities occur. The FMMP designates the Carmel Woods component as “Urban and Built-Up Land,” while the Pescadero Road component is mostly “Urban and Built-Up Land,” with a small area designated as “Other Land” (DOC, 2026). In addition, the Del Monte Forest Area LUP designates both Project areas as “Forest Open Space” (Monterey County, 2012). The Project site is not governed by a contract under the Williamson Act (Monterey County, 2025). CEQA requires the evaluation of forest and timber resources where they are present. The Proposed Project site is surrounded by forest land as defined in Public Resources Code (PRC) Section 12220(g) due to the presence of 10-percent or greater of native tree coverage. The Project site does not include any land designated as timberland as defined by Public Resources Code Section 4526 or timberland zoned Timberland Production as defined by Government Code Section 51104(g).

The Proposed Project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, to non-agricultural use. No agricultural uses occur on the Proposed Project site and none of these parcels where the Proposed Project would occur are governed under a Williamson Act Contract. The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. There would be no other development or construction that would cause changes in the existing environment. The Project would not impact forest land (as defined in Public Resources Code section 12220(g)) as the Project does not include the removal of any native tree species. In addition, the Project site does not contain land

designated as timberland (as defined by Public Resources Code section 4526) or timberland production (as defined by Government Code section 51104(g)), nor is there any land designated as timberland or timberland production in the vicinity of the Proposed Project site. Therefore, no loss of forest land or conversion of forest land to non-forest use would occur as part of the Project. The Project does not include any new land uses that would involve changes to the existing environment or that could result in the conversion of farmland to non-agricultural use or forest land to non-forest use. For these reasons, the Proposed Project would have no impact on agriculture and forestry resources. Therefore, no further discussion is necessary.

Land Use and Planning: The Proposed Project is located in unincorporated Monterey County between the City and Del Monte Forest, which is located in the Coastal Zone. The 1982 Monterey County General Plan, instead of the 2010 Monterey County General Plan, regulates activities within the Coastal Zone in Monterey County. In addition, the Carmel Area LUP provides regulations and polices relevant to the Proposed Project site. The City's General Plan policies may also apply to the portion of the Proposed Project that occurs within City limits, and likewise the Del Monte Forest Area Plan's policies may apply to the portion of the Proposed Project located along the existing Pescadero sewer alignment. The local coastal land use designations for the Project site include Medium Density Residential and Forest Open Space. For specific APNs within the Proposed Project sites, see **Section 1.2, Project Location and Surrounding Uses**. General Plan zoning designations for the Project site include Medium Density Residential (Coastal Zone) (MDR(CZ)), and Resource Conservation (RC(CZ)) (Monterey County, 2026).

The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. While residential uses are located to the south and west of the Project site, work would be confined to the Project parcels and would not create a barrier that would divide an established community The Proposed Project would not conflict with policies, goals, and objectives of the 1982 Monterey County General Plan, the Carmel Area LUP, the Del Monte Forest Area LUP, and the City's General Plan. For these reasons, the Proposed Project would have no impact on land use and planning. Therefore, no further discussion is necessary.

Mineral Resources: The Surface Mining and Reclamation Act (SMARA) of 1975 and the California Geological Survey (CGS) define and map regional significant mineral resources. The CGS delineates Mineral Resource Zones (MRZs) based on their mineral resource potential. The Proposed Project is located in MRZ-3, which the CGS defined as an area containing known or inferred construction aggregate resources of undetermined mineral resource significance. The Proposed Project is located in unincorporated Monterey County between the City and Del Monte Forest and is not located in an area reserved or analyzed for future mineral extraction (CGS, 2021). For this reason, the Proposed Project would have no impact on mineral resources. Therefore, no further discussion of mineral resources is necessary.

Population and Housing: The Proposed Project is located within unincorporated Monterey County. The population of unincorporated Monterey County is approximately 105,096 people inhabiting 40,771 residential units within unincorporated areas based on the California Department of Finance's average of 2.54 persons per residential unit (Department of Finance, 2025). The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites, and does not involve new residential or commercial development that could result in a population increase.

The Proposed Project improvements are intended to replace and rehabilitate the damaged sewer mains at the Pescadero Road and Carmel Woods sites in order to maintain reliable service to the District's customers and minimize the potential for sewer spills in the future, and the Proposed Project does not include any treatment capacity upgrades or extension of wastewater infrastructure into areas that have previously not been part of the District's service area that would indirectly result in population growth. Furthermore, the Proposed Project would not displace existing people or housing. For these reasons, the Proposed Project would have no impact on population and housing. Therefore, no further discussion of population and housing is necessary.

Recreation: There are several parks in the region, including Garland Ranch Regional Park and Cachagua Community Park operated by Monterey Peninsula Regional Parks District (MPRPD), and Carmel State Beach operated by the California Department of Parks and Recreation. Forest Hill Park, also operated by the City, is located about 0.2 miles south of the Pescadero Road Project site and 0.5 miles south of the Carmel Woods Project site. The Mission Trail Nature Preserve, located in and operated by the City, is located approximately 1.5 miles south of the Project site. The Proposed Project is not located on any California Department of Parks and Recreation (State Parks) property (Monterey County, 2026).

The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. The Proposed Project would not include new development that could introduce new residents to the area that would place additional demand on existing park facilities or require the expansion of existing park facilities or construction of new park facilities. The Proposed Project does not include new recreational facilities or require the construction or expansion of existing recreational facilities that would have an adverse impact on the environment. Therefore, no further discussion of recreational facilities is necessary.

Chapter 3. Determination

On the basis of this initial evaluation:

☐ I find that the Proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the Proposed Project could have a significant effect on the environment there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the Proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the Proposed Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the Proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the Proposed Project, nothing further is required.

Signature Jeff Bandy

Date 7/30/2026

Jeff Bandy, Ph.D., P.E., Principal Engineer

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Chapter 4. Environmental Setting and Impacts

The following chapter assesses the environmental impacts associated with the Proposed Project and identifies mitigation measures to reduce potentially significant impacts to less-than-significant, as appropriate.

Evaluation of Environmental Impacts

1. A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A “No Impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the Project falls outside a fault rupture zone). A “No Impact” answer should be explained where it is based on project-specific factors as well as general standards (e.g., the Project will not expose sensitive receptors to pollutants, based on project-specific screening analysis).
2. All answers must consider the whole action involved, including offsite as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less-than-significant with mitigation, or less-than-significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
4. "Negative Declaration: Less-Than-Significant with Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less-Than-Significant Impact." The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less-than-significant level.
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration (Section 15063(c)(3)(D)). In this case, a brief discussion should identify the following:
    a) Earlier Analysis Used. Identify and state where they are available for review.
    b) Impacts Adequately Addressed. Identify which effects from the above checklist were in the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
    c) Mitigation Measures. For effects that are "Less-than-Significant with Mitigation Measures Incorporated," describe the mitigation measures, which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the Project.
6. Lead agencies are encouraged to incorporate information sources for potential impacts (e.g., general plans, zoning ordinances) into the checklist references. Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7. Supporting Information Sources: A source list should be attached, and other sources used, or individuals contacted should be cited in the discussion.

8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9. The explanation of each issue should identify:

    a) The significance criteria or threshold, if any, used to evaluate each question; and
    b) The mitigation measure identified, if any, to reduce the impact to less-than-significance.

4.1 Aesthetics

Environmental Setting

The Proposed Project is located in the Coastal Zone, primarily within unincorporated Monterey County. The City is located to the south of the Project site, and Del Monte Forest is located to the northwest. A small portion of the Pescadero Sewer Project component is located within the City's limits. The overall Project site is located in a residential area east of 17 Mile Drive. Portions of the Pescadero Road Project site and the Carmel Woods Project site are located in a "Sensitive" visual area, according to the County's GIS Web Viewer (Monterey County, 2026). The Carmel Woods Project site also borders a "Highly Sensitive" visual area that follows SR 1 northbound. SR 1 is designated as a State Scenic Highway by the California Department of Transportation (Caltrans, 2026); however, the Proposed Project would not involve work within or affect views of or from SR 1. Once the Proposed Project is complete, all Project components would be located at or below ground level.

Regulatory Framework

State

***California Scenic Highways Program*:** The Legislature created the California State Scenic Highway program in 1963. This program's purpose is to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways. The program includes a list of highways that are either designated or eligible for designation as a scenic highway. The state laws governing the Scenic Highway Program are found in the Streets and Highways Code, Sections 260 through 263. A highway may be designated scenic depending upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view. In Monterey County, the closest officially designated State Scenic Highway is the portion of SR 1 located immediately east of the Proposed Project (Caltrans, 2026). SR 1 is approximately 0.15 miles from the Carmel Woods Project site and approximately 0.6 miles from the Pescadero Road Project site.

Local

***1982 Monterey County General Plan*:** The 1982 Monterey County General Plan includes goals and policies related to the preservation of visual integrity. The following goal from the 1982 Monterey County General Plan may apply to the Proposed Project:

Goal 1: To retain the character and natural beauty of Monterey County by the preservation, conservation, and maintenance of open space within constitutional constraints.

***Carmel Area LUP*:** The Carmel Area LUP includes goals and policies related to the preservation of visual integrity. The following policies from the Carmel Area LUP may apply to the Proposed Project:

2.2.3.1: The design and siting of structures, whether residential, commercial, agricultural, or public, and the access roads thereto, shall not detract from the natural beauty of the scenic shoreline and the undeveloped ridgelines and slopes in the public viewshed.

2.2.3.6: Structures shall be subordinate to and blended into the environment, using appropriate materials that that effect. Where necessary, modification of plans shall be required for siting, structural design, color, texture, building materials, access, and screening.

5.3.2.4: Existing visual access from scenic viewing corridors (e.g., Highway 1, Scenic Road, Spindrift Road, Yankee Point Drive) and from major public viewpoints, and future opportunities for visual access from the frontal ridges east of Highway 1 should be permanently protected as an important component of shoreline access and public recreational use.

City's General Plan: The City's General Plan includes goals and policies related to the preservation of visual integrity. The following policy from the City's General Plan may apply to the Proposed Project:

P5-95: Recognize the City's narrow street paving, roadside vegetation and overarching canopy as important elements contributing to the streetscape, pedestrian circulation, traffic calming, community aesthetics and environmental enhancement. Identify character defining features of roadways and retain and enhance these features when planning and implementing street improvements, repairs and reconstructions. (LUP)

Del Monte Forest Area LUP: The Del Monte Forest Area LUP includes policies related to scenic and visual resources. The following policies from the Del Monte Forest Area LUP may apply to the Proposed Project:

47. Views from designated public access areas and vista points, from Highway 68 and 17-Mile Drive corridors, and of ridgelines as seen from the public viewing areas identified on Figure 3, shall be protected as resources of public importance, and development that could adversely impact such views shall only be allowed where it protects, preserves, and if feasible enhances, such scenic resources. Conservation and scenic easements shall be required as one means of protecting such views in perpetuity.

50. Utility lines shall be placed underground, typically within road access footprints, except where 1) such undergrounding would result in removal of native trees and 2) it can be shown that the lines can be hidden from public view using different siting and design approaches (e.g., placing lines behind existing vegetation or structures, etc.).

53. Design and siting of structures in public views of scenic areas should not detract from scenic values of the forest, stream courses, ridgelines, or shoreline. Structures, including fences, shall be subordinate to and blended into the environment, including by using appropriate materials that will achieve that effect. Where necessary, modifications shall be required for siting, structural design, shape, lighting, color, texture, building materials, access, and screening to protect such public views.

Would the project:	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	■	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings in a state scenic highway?	☐	☐	■	☐

Would the project:	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
c) In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	■	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	■	☐

Impact Discussion

a. Would the project have a substantial adverse effect on a scenic vista?

Portions of the Pescadero Road and Carmel Woods Project sites are both located within parcels designated by the County of Monterey as being visually sensitive (Monterey County, 2026). Additionally, the Carmel Woods Project site also borders a "Highly Sensitive" visual area that follows SR 1. The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. Construction of the Proposed Project would result in temporary visual impacts; however, construction equipment visible from views of a scenic vista would be removed following completion of the Proposed Project. Once completed, the Proposed Project components would be located underground and would not be visible from adjacent land uses. Therefore, the Proposed Project would have a less-than-significant impact related to views on or from scenic vistas.

b. Would the project substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings in a state scenic highway?

The Carmel Woods component of the Proposed Project is located immediately west of SR 1, while the Pescadero Road component is located approximately 2,800 feet west of SR 1 (Google, 2026), which is designated as a State Scenic Highway (Caltrans, 2026). The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. Construction of the Proposed Project would result in temporary visual impacts from a scenic highway; however, construction equipment visible from views of the adjacent scenic highway would be removed following completion of the Proposed Project. In addition, construction of the Proposed Project would not damage any scenic resources. Once completed, the Proposed Project components would be located underground and would not be visible from the adjacent scenic highway. Therefore, the Project would have a less-than-significant impact related to substantially damaging scenic resources visible from a designated state scenic highway.

c. Would the project, in nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced

from publicly accessible vantage points). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

The Proposed Project is located in a residential area, which is considered an urbanized area (Monterey County, 2026). The portion of the Proposed Project located in unincorporated Monterey County is zoned as Medium Density Residential (Coastal Zone) (MDR-CZ) and Resource Conservation (Coastal Zone) (RC-CZ). The Project is a conditional allowable use (subject to a Coastal Development Permit) for the MDR-CZ zoning type pursuant to 20.12.050[D] and 20.36.050[B] of the MCC. The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. Project construction would not conflict with zoning or other designations since it involves the improvement of a utility within a residential area. Construction of the Proposed Project may result in temporary impacts to the visual character on the site due to the presence of construction equipment and ongoing pipeline installation; however, construction would not conflict with applicable zoning or other regulations governing scenic quality. Therefore, the Proposed Project represents a less-than-significant impact with regard to conflicts with applicable zoning and other regulations governing scenic quality.

d. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. The Proposed Project may introduce temporary glare from construction equipment during daytime construction, which could temporarily affect daytime views of the area. Construction equipment would be stored at designated laydown areas that would be sited, in part, to avoid substantial glare from surrounding viewpoints. Furthermore, all construction equipment would be removed from the Project sites following completion of construction, and no permanent new sources of glare would be installed as part of the Project. No nighttime construction is proposed, and therefore, the Proposed Project would not be a source of nighttime lighting. Once operational, the Proposed Project would be located underground and would not be a significant source of light or glare. For these reasons, the Proposed Project would have a less-than-significant impact regarding light and glare.

4.2 Air Quality

Environmental Setting

The Proposed Project is in the North Central Coast Air Basin (NCCAB), which encompasses Santa Cruz, San Benito, and Monterey counties. The NCCAB is under the jurisdiction of the Monterey Bay Air Resources District (MBARD). MBARD is responsible for producing an Air Quality Management Plan (AQMP) that reports air quality and regulates stationary air pollution sources throughout the NCCAB. MBARD is also responsible for measuring the concentration of pollutants and comparing those concentrations against the Ambient Air Quality Standards (AAQS). AAQS establish levels of air quality maintenance required to protect the public from the adverse effects of air pollution and are established for “criteria air pollutants,” which include ozone, carbon monoxide, particulate matter less than 10 microns in diameter, particulate matter less than 2.5 microns in diameter, nitrogen dioxide, sulfur dioxide, and lead. MBARD is responsible for monitoring criteria pollutants to determine whether they are in attainment or not in attainment with the AQMP. **Table 2** illustrates the attainment status for criteria pollutants in the NCCAB.

Table 2
Attainment Status for the NCCAB

Pollutants	State Designation	Federal Designation
Ozone (O_3)	Attainment	Attainment
Inhalable Particulates (PM_{10})	Nonattainment	Attainment
Fine Particulates ($PM_{2.5}$)	Attainment	Attainment
Carbon Monoxide (CO)	Monterey Co. – Attainment	Attainment
Carbon Monoxide (CO)	San Benito Co. – Unclassified	Attainment
Carbon Monoxide (CO)	Santa Cruz Co. – Unclassified	Attainment
Nitrogen Dioxide (NO_2)	Attainment	Attainment
Sulfur Dioxide (SO_2)	Attainment	Attainment
Lead	Attainment	Attainment

Source: Monterey Bay Air Resources District, 2017. 2012 – 2015 Air Quality Management Plan

MBARD has set air quality thresholds of significance for the evaluation of projects. **Table 3** illustrates the thresholds of significance used to determine if a project would have a significant air quality effect during implementation. In addition to these thresholds, MBARD has also determined a significant short-term construction generated impact would occur if more than 2.2 acres of major grading or excavation, or 8.1 acres of minimal earthmoving per day was to occur (MBARD, 2008).

Table 3
Thresholds of Significance for Project Emissions

Pollutant	Threshold of Significance (lb./day)
Nitrogen Oxides (NO_x)	173
Reactive Organic Gases (ROG)	137
Respirable Particular Matter (PM_{10})	82
Fine Particulate Matter ($PM_{2.5}$)	55
Carbon Monoxide (CO)	550

Source: MBARD, 2016.

The California Air Resources Board (CARB) defines a sensitive receptor as children, elderly, asthmatic, and others who are at elevated risk of negative health outcomes due to exposure to air pollution (CARB, 2023). Pursuant to California Health and Safety Code Sec. 42705.5, examples of a sensitive receptor include hospitals, schools, and daycare centers. MBARD similarly defines sensitive receptors and requires any explanation of sensitive receptors to draw a relationship to the Proposed Project site and potential air quality impacts (MBARD, 2008). Sensitive receptors are more susceptible to the effects of air pollution than the general population. Land uses that are considered sensitive receptors include residences, schools, and health care facilities. Sensitive receptors in the vicinity of the Proposed Project area consist primarily of residences.

Air quality modeling was conducted by AMBIENT (**Appendix B**) for total mitigated and unmitigated projected emissions of criteria air pollutants for construction work completed during 2026 and 2027. For the purposes of this analysis, unmitigated emissions were used in the impact analysis below to prevent a conservative analysis of construction air quality emissions.

Common sources of odors and odor complaints include wastewater treatment plants, transfer stations, coffee roasters, painting/coating operations, and landfills. Due to potential odor concerns from the sewer main construction, V&A Consulting Engineers completed a Sewer Odor Evaluation for the

Pescadero Road Project component (V&A Consulting Engineers, 2024). A copy of the Sewer Odor Evaluation is provided as **Appendix C** to this document. (V&A Consulting Engineers, 2024)

Climate and Topography

Climatological conditions, an area's topography, and the quantity and type of pollutants released commonly determine ambient air quality. The NCCAB covers an area of 5,159 square miles along the Central Coast. The northwest sector of the NCCAB is dominated by the Santa Cruz Mountains. The Diablo Range marks the northeastern boundary of the basin. The Santa Clara Valley extends into the northeastern tip of the basin. Further south, the Santa Clara Valley becomes the San Benito Valley, which runs northwest-southeast, with the Gabilan Range as its western boundary. To the west of the Gabilan Range is the Salinas Valley, which extends from Salinas at the northwest end to south of King City. The coastal Santa Lucia Range defines the western side of the valley.

Climate, or the average weather condition, affects air quality in several ways. Wind patterns can remove or add air pollutants emitted by either stationary or mobile sources. Inversion, a condition where warm air traps cooler air underneath it, can hold pollutants near the ground by limiting upward mixing (dilution). Communities with cold climates may burn wood or other fuels for residential heating, whereas areas with hot climates may have higher emissions or some pollutants from automobiles. Topography also plays a part, and valleys often trap emissions by limiting lateral dispersal.

Regulatory Framework

Federal

***U.S. Environmental Protection Agency (EPA)*:** At the federal level, the U.S. EPA implements national air quality programs. The Federal Clean Air Act (FCAA), signed in 1970, provides air quality mandates used by the U.S. EPA. Congress amended the FCAA in 1977 and again in 1990.

***Federal Clean Air Act*:** The FCAA required the U.S. EPA to establish National Ambient Air Quality Standards (NAAQS) and set deadlines for their attainment. Two (2) types of NAAQS exist: primary standards, which protect public health, and secondary standards, which protect public welfare from non-health-related adverse effects, such as visibility restrictions. The FCAA allows states to adopt additional or more health-protective standards.

Pursuant to California Clean Air Act (CCAA) and CCAA amendments, a region must participate in the State Implementation Plan if the state designates it as a maintenance region. The most recent Federal Plan prepared by MBARD to maintain the 1-hour ozone NAAQS is the 2007 Federal Maintenance Plan for Maintaining the National Ozone Standard in the Monterey Bay Region and adopted rules and regulations.

State

***California Air Resources Board*:** CARB is the agency responsible for coordinating and overseeing state and local air pollution control programs in California and implementing the CCAA of 1988. Other CARB duties include monitoring air quality (in conjunction with air monitoring networks maintained by air pollution control districts and air quality management districts, establishing California Ambient Air

Quality Standards (CAAQS), which in many cases are more stringent than the NAAQS, and setting emissions standards for new motor vehicles.[1]

***California Clean Air Act*:** The CCAA requires all air districts in the state to endeavor to achieve and maintain CAAQS for Ozone, CO, SO_2, and NO_2 by the earliest practical date. The CCAA specifies that districts focus particular attention on reducing emissions from transportation and area-wide emission sources, and the Act provides districts with authority to regulate indirect sources of emissions. Each district plan is required to either: 1) achieve a five (5) percent annual reduction, averaged over consecutive three (3)-year periods, in district-wide emissions of each nonattainment pollutant or its precursors; or 2) provide for the implementation of all feasible measures to reduce emissions. Any planning effort for air quality attainment would thus need to consider both state and federal planning requirements.

Local

***Monterey Bay Air Resources District*:** MBARD is the agency primarily responsible for ensuring that NAAQS and CAAQS are not exceeded and that air quality conditions are maintained in the NCCAB. Responsibilities of the MBARD include, but are not limited to, preparing plans for the attainment of ambient air quality standards, adopting, and enforcing rules and regulations concerning sources of air pollution, issuing permits for stationary sources of air pollution, inspecting stationary sources of air pollution, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, and implementing programs and regulations required by the FCAA and the CCAA. To achieve NAAQS and CAAQS and maintain air quality, the MBARD has most recently completed the 2012-2015 AQMP for achieving the state ozone standards and the 2007 Federal Maintenance Plan for maintaining federal ozone standards (MBARD, 2017).

***1982 Monterey County General Plan*:** None of the policies provided by the 1982 Monterey County General Plan related to air quality are applicable to portions of the Proposed Project.

***Carmel Area LUP*:** The Carmel Area LUP includes goals and policies related to the regulation of air quality. None of the air quality-related goals from the Carmel Area LUP may apply to the Proposed Project.

City's General Plan: The City's General Plan includes goals and policies related to the regulation of air quality. The following policies from the City's General Plan may apply to the Proposed Project:

G7-3: To reduce release of airborne pollutants and contribution to greenhouse gases.

O7-3: Promote planning and programs that result in the reduction of airborne pollutants.

P7-9: Coordinate air quality planning efforts with local, regional, and State agencies, and evaluate the air quality impacts of proposed plans and development projects.

Del Monte Forest Area LUP: The Del Monte Forest Area LUP does not include policies related to air quality resources.

[1] The emission standards established for motor vehicles differ depending on various factors including the model year, and the type of vehicle, fuel, and engine used.

Would the project:	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	■	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	■	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	■	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	■	☐

Impact Discussion

a. Would the project conflict with or obstruct implementation of the applicable air quality plan?

CEQA Guidelines Section 15125(b) requires that a project be evaluated for consistency with applicable regional plans, including the AQMP. The most recent AQMP update was approved in March 2017. This plan addresses attainment of the State ozone standards and federal air quality standards. The AQMP accommodates growth by projecting growth in emissions based on population forecasts prepared by the Association of Monterey Bay Area Governments (AMBAG). Consistency determinations are issued for commercial, industrial, residential, and infrastructure-related projects that have the potential to induce population growth. A project is considered to be inconsistent with the AQMP if it has not been accommodated in the forecast projections considered in the AQMP.

The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. No significant overall changes to the overall operation of CAWD's wastewater collection system are included under the Project. The Proposed Project is an alteration to an existing facility and would not facilitate additional development or growth that could exceed AMBAG population forecasts or result in growth that was unaccounted for in population forecast contained in MBARD's AQMP. The majority of the parcels in the area surrounding the Project site are currently developed. Therefore, the Proposed Project would not result in indirect population increases through expanding CAWD's wastewater service area and would not conflict with and/or otherwise obstruct implementation of the AQMP. For these reasons, the Project would have a less-than-significant impact with regard to conflicting with or otherwise obstructing implementation of the AQMP.

b. Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

The MBARD 2016 CEQA Air Quality Guidelines contain standards of significance for evaluating potential air quality effects of projects subject to the requirements of CEQA. According to MBARD, a project

would violate an air quality standard and/or contribute to an existing or projected violation if it would emit (from all sources, including exhaust and fugitive dust) more than:

- 137 pounds per day of oxides of nitrogen (NO_x),
- 137 pounds per day of reactive organic gases (ROG),
- 82 pounds per day of respirable particulate matter (PM_{10}),
- 55 pounds per day of fine particulate matter ($PM_{2.5}$), and
- 550 pounds per day carbon monoxide (CO).

AMBIENT performed detailed air quality modeling for the Proposed Project based on information provided by CAWD and their engineering consultant. The Air Quality & Greenhouse Gas modeling results are provided as **Appendix B** and the results of the modeling are discussed below. **Table 4** shows the projected emissions of criteria air pollutants from construction of the Proposed Project compared to the established MBARD thresholds.

Table 4
Construction Emissions of Criteria Air Pollutants (lbs./day)

Category/Condition	**ROG**	**NO_x**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Maximum Daily Emissions:	1.0	8.03	11.72	0.02	0.77	0.52
MBARD Significance Threshold:	137	137	550	150	82	55
Exceeds Threshold/Significant Impact?	No	No	No	No	No	No

Source: **Appendix B**

Construction of the Proposed Project would result in temporary emissions of criteria air quality pollutants. However, as shown in **Table 4**, construction emissions of criteria air quality pollutants would be below each of the respective MBARD thresholds for each pollutant. As a result, the Proposed Project would have a less-than-significant impact from the release of air quality pollutants during construction of the Proposed Project.

Operational emissions of the Proposed Project were not analyzed in detail as the Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. The Proposed Project does not propose new above ground structures requiring daily operation, and the operational activities associated with the Proposed Project would be identical to existing conditions at the Project site. Furthermore, the maintenance schedule for the replacement sewer is anticipated to be less frequent than under existing conditions. As a result, the Proposed Project would have no impact from the release of air quality pollutants during operation.

c. Would the project expose sensitive receptors to substantial pollutant concentrations?

A “sensitive receptor” is generally defined as: any residence including private homes, condominiums, apartments, or living quarters; education resources such as preschools and kindergarten through grade twelve (k-12) schools; daycare centers; and health care facilities such as hospitals or retirement and nursing homes. Sensitive receptors near the Project components include residences directly adjacent to the roadways where construction would occur, as well as the parcels identified by the APNs in **Table 1**. The closest school is the Stevenson Lower and Middle School, which is located adjacent to the Pescadero Road site and 0.5 miles from the Carmel Woods site. The next closest school is Carmel High School, which is one (1) mile away from the Proposed Project sites. The Community Hospital of the

Monterey Peninsula is located approximately 0.6 miles from the Carmel Woods site and one (1) mile from the Pescadero Road site. There are no day care centers within or adjacent to the Project site. The Proposed Project would result in limited earth disturbance associated with utility line installation, as well as any segments of utility lines to be removed. The Proposed Project includes approximately 6,800 sf (0.16 acres) of grading and 10,800 sf (0.25 acres) of total soil disturbance, which could generate pollutant concentrations. However, given that the projected air quality emissions from Project construction would be below their respective MBARD thresholds, as well as the distance from the nearest sensitive receptors and the linear nature of the Proposed Project, impacts to these receptors would be less-than-significant. In addition, the Proposed Project would comply with MBARD Rule 402,[2] which would minimize potential nuisance impacts to occupants of nearby land uses. The Proposed Project would have a less-than-significant impact with respect to exposing sensitive receptors to substantial pollutant concentrations.

d. Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Odors could be generated during Project implementation. Both components of the Proposed Project may require the use of gasoline or diesel-powered equipment during construction that would emit exhaust fumes, including vehicle trips to and from the Project site. However, construction-generated emissions would occur intermittently throughout the workday and would dissipate rapidly within increasing distance from the source. In addition, work tasks would be located along the proposed utility alignment and would not be concentrated in single locations for extended periods of time. As a result, short-term construction activities would not expose a substantial number of people to frequent odorous emissions.

V&A Consulting Engineers completed a Sewer Odor Evaluation for the Pescadero Road site (**Appendix C**). Their analysis concluded that there were non-detectible or negligible concentrations of hydrogen sulfide within the collection system on Pescadero Road. All samples for other potentially odorous compounds were also non-detectible. Since the replaced Pescadero Road sewer main would begin and terminate at the same starting and ending elevations as the current sewer, and there would be no changes to the flow sources or configuration, no significant changes in wastewater characteristics, pressure conditions, or current odor conditions are expected from the Project. The Project does not include any significant overall changes to CAWD's wastewater collection system that could result in new permanent sources of objectionable odor or other emissions. In addition, the Proposed Project would be located underground once operational and would not generate new or increased odors or other emissions.

The replacement sewer lines for the Carmel Woods Project site do not include any significant overall changes to CAWD's wastewater collection system (i.e. changes in location closer to sensitive odor receptors) that could result in new permanent sources of objectionable odor or other emissions. In addition, the Proposed Project would be located underground once operational and would not generate new or increased odors or other emissions. Therefore, the Proposed Project would have a less-than-significant impact related to the generation of odors and other emissions.

[2] MBARD Rule 402 "Nuisance" states, "A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. The provisions of this rule shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals."

4.3 Biological Resources

Denise Duffy & Associates, Inc. (DD&A) was contracted by MNS Engineers, Inc. to prepare a Biological Resources Report for the Proposed Project (February 2026). The Biological Resources Report is included as **Appendix D** of this document.

Terminology

Special-Status Species

Special-status species are those plants and animals that have been formally listed or proposed for listing as endangered or threatened or are candidates for such listing under ESA or CESA. Listed species are afforded legal protection under the ESA and CESA. Species that meet the definition of rare or endangered under the CEQA Guidelines Section 15380 are also considered special-status species. Animals on the CDFW's list of "species of special concern" (most of which are species whose breeding populations in California may face extirpation if current population trends continue) meet this definition and are typically provided management consideration through the CEQA process, although they are not legally protected under the ESA or CESA. CDFW also includes some animal species that are not assigned any of the other status designations in the CNDDB "Special Animals" list; however, these species have no legal or protection status and are not analyzed in this document.

Plants listed as rare under the California Native Plant Protection Act (CNPPA) or included in CNPS California Rare Plant Ranks (CRPR; formerly known as CNPS Lists) 1A, 1B, 2A, and 2B are also treated as special-status species as they meet the definitions of Sections 2062 and 2067 of the CESA and in accordance with CEQA Guidelines Section 15380.2 In general, the CDFW requires that plant species on CRPR 1A (plants presumed extirpated in California and either rare or extinct elsewhere), CRPR 1B (plants rare, threatened, or endangered in California and elsewhere), CRPR 2A (plants presumed extirpated in California, but more common elsewhere); and CRPR 2B (plants rare, threatened, or endangered in California, but more common elsewhere) of the CNPS Inventory of Rare and Endangered Vascular Plants of California (CNPS, 2026) be fully considered during the preparation of environmental documents relating to CEQA. CNPS CRPR 4 species (plants of limited distribution) may, but generally do not, meet the definitions of Sections 2062 and 2067 of CESA, and are not typically considered in environmental documents relating to CEQA. While other species (i.e., CRPR 3 or 4 species) are sometimes found in database searches or within the literature, these do not meet the definitions of Section 2062 and 2067 of CESA and are not analyzed in this document.

Raptors (e.g., eagles, hawks, and owls) and their nests are protected under California Fish and Game Code Section 3503.5. Section 3503.5 states that it is "unlawful to take, possess, or destroy the nest or eggs of any such bird except otherwise provided by this code or any regulation adopted pursuant thereto." In addition, protected species under Fish and Game Code Section 3511 (birds), Section 4700 (mammals), Section 5515 (fish), and Section 5050 (reptiles and amphibians) are also considered special-status animal species. Species with no formal special-status designation but thought by experts to be rare or in serious decline may also be considered special-status animal species in some cases, depending on project-specific analysis and relevant, localized conservation needs or precedence.

Sensitive Habitats

Sensitive habitats include riparian corridors, wetlands, habitats for legally protected species, areas of high biological diversity, areas supporting rare or special-status wildlife habitat, and unusual or regionally restricted vegetation types. Vegetation types considered sensitive include those listed on CDFW's California Natural Communities List (i.e., those habitats that are rare or endangered within the borders of California) (CDFW, 2025), those that are occupied by species listed under the ESA or are critical habitat in accordance with the ESA, and those that are defined as Environmentally Sensitive Habitat Areas (ESHA) under the California Coastal Act. Specific habitats may also be identified as sensitive in city or county general plans or ordinances. Sensitive habitats are regulated under federal regulations (such as the Clean Water Act and Executive Order 11990 – Protection of Wetlands), state regulations (such as CEQA and the CDFW Streambed Alteration Program), or local ordinances or policies (such as city or county tree ordinances and general plan policies).

Environmental Setting

Survey Methodology

DD&A conducted biological surveys of the Project site on January 28 and February 11, 2016. Survey methods included walking the project site using aerial maps to identify general habitat types and potential sensitive habitats, assessing the potential presence of wetlands and other waters, conducting a focused survey for special-status plants or habitat for special-status plants, and conducting a reconnaissance-level habitat survey to identify any suitable special-status wildlife species occurring within the site. Additional surveys were conducted on June 27, 2022, by Josh Harwayne and DD&A Associate Environmental Scientist Liz Camilo, and March 4, 2026, by Assistant Environmental Scientist Jordan Smith, to confirm or update the results of 2016 surveys. Data collected during the surveys was used to assess the environmental conditions of the project site and its surroundings, evaluate environmental constraints within the Project site and the local vicinity, and provide a basis for recommendations to minimize and avoid impacts to biological resources.

Habitat Types

Descriptions of each of the habitat types identified by DD&A within the Project site are provided below.

Developed: The Project site is mostly developed with paved roads. A small section of developed habitat within the Project site is landscaped. However, generally no vegetation is present within developed areas, and they are considered to have little to no biological value. Approximately 1.5 acres of developed areas occur within the Pescadero portion of the Project site. The majority of the Carmel Woods portion of the Proposed Project is located within developed roadways and landscaped residential lots totaling approximately 6.5 acres of developed habitat.

- *A Manual of California Vegetation classification:* None
- *California Natural Communities List:* Not listed

Degraded Monterey Pine Forest: The degraded Monterey pine forest consists of a moderate- to closed-canopy natural community dominated by Monterey pine, but also supports coast live oak and poison oak (*Toxicodendron diversilobum*). Within the Project site, degraded Monterey pine forest occurs throughout interspersed with the residential area. In addition to poison oak, the dominant species in the

understory are horticultural species that likely escaped from adjacent properties and non-native grasses and forbs, including rattlesnake grass (*Briza maxima*), cape ivy (*Delairea odorata*), panic veldtgrass (*Ehrharta erecta*), Bermuda buttercup (*Oxalis per-caprae*), hedgenettle (*Stachys sp.*). Approximately 0.8 acres of degraded Monterey pine forest is present within the Pescadero Road portion of the Project site, and approximately 0.12 acres of degraded Monterey pine forest is located within the Carmel Woods portion. Two Monterey pine trees would be removed from a developed area to facilitate site access.

Due to relatively short life span of closed-cone pines, dead trees and trunks are characteristic of Monterey pine forests. These attract a wide variety of common wildlife, including mule deer (*Odocoileus hemionus*), raccoon (*Procyon lotor*), red-tailed hawk (*Buteo jamaicensis*), scrub jay (*Aphelocoma californica*), chestnut-backed chickadee (*Poecile rufescens*), and American robin (*Turdus migratorius*).

- *A Manual of California Vegetation classification:* Monterey pine forest *(Pinus radiata – Quercus agrifolia/Toxicodendron diversilobum* association)
- *California Natural Communities List:* Sensitive

Special-Status Species

Published occurrence data within the Project site and surrounding quadrangles were evaluated to compile a table of special-status species known to occur in the vicinity of the Project site. Each of these species was evaluated for their likelihood to occur within and immediately adjacent to the Project site. The special-status species that are known to occur within the Project site or that were determined to have a moderate or high potential to occur within the site are discussed below. All other species are assumed unlikely to occur or have a low potential to occur based on the species-specific reasons presented in the Biological Resources Report (**Appendix D**), are therefore unlikely to be impacted by the Project, and are not discussed further. Each of these species was evaluated for their likelihood to occur within and immediately adjacent to the site, as described below.

Monterey Pine: Monterey pine is a CNPS List 1B species in the Pinaceae family. This evergreen tree occurs in closed-cone coniferous forests at elevations from 25 to 185 meters. Only four native stands of this species exist in the world. One stand is found on Guadalupe Island off Baja California. The other three stands are all within California at Ano Nuevo, Cambria, and the Monterey Peninsula. Monterey pines are introduced in many areas, including in New Zealand, where it is used as a plantation crop. Only one-half of the species' historical extent remains undeveloped on the Monterey Peninsula. Monterey pines are threatened by development, genetic contamination, pine pitch canker disease, and forest fragmentation, especially in the Del Monte Forest on the Monterey Peninsula. Monterey pine individuals are present within the Project site, which is located in one of the few remaining native stands of this species.

Monterey Dusky-Footed Woodrat (MDFW): The Monterey dusky-footed woodrat (*Neotoma macrotis luciana*) is a CDFW species of special concern. This is a subspecies of the dusky-footed woodrat (*Neotoma macrotis*), which is common to oak woodlands and other forest types throughout California. Dusky-footed woodrats are frequently found in forest habitats with moderate canopy cover and a moderate to dense understory, including riparian forests; however, they may also be found in chaparral communities. Relatively large nests are constructed of grass, leaves, sticks, and feathers and are built in protected spots, such as rocky outcrops or dense brambles of blackberry and/or poison oak. Typical food sources for this species include leaves, flowers, nuts, berries, and truffles. Dusky-footed woodrats may be a significant food source for small- to medium-sized predators. Populations of this species may be

limited by the availability of nest material. Within suitable habitat, nests are often found in close proximity to each other.

Suitable habitat for MDFW is present within and adjacent to both Project sites in the degraded Monterey pine forest habitat. The CNDDB does not report any occurrences of this species within the quadrangles reviewed; however, this species is known to occur throughout the region wherever suitable habitat occurs. Therefore, this species has a moderate potential to occur within the Proposed Project sites.

Raptors and Other Protected Avian Species: Raptors, their nests, and other nesting birds are protected under California Fish and Game Code and Migratory Bird Treaty Act. In addition, some avian species are protected as special-status species (see Appendix C of **Appendix D**). While the life histories of these species vary, overlapping nesting and foraging similarities allow for their concurrent discussion. Most raptors are breeding residents throughout most of the wooded portions of the state. Stands of live oak, riparian deciduous, or other forest habitats, as well as open grasslands, are used most frequently for nesting. Breeding occurs February through September, with peak activity May through July. Prey for these species include small birds, small mammals, and some reptiles and amphibians. Many raptor species hunt in open woodland and habitat edges.

Various species of raptors, including the white-tailed kite (*Elanus leucurus*), red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), American kestrel (*Falco sparverius*), great horned owl (*Bubo virginianus*), and turkey vulture (*Cathartes aura*), have a potential to nest within the large trees present within and adjacent to both Project sites.

Sensitive Habitats

Sensitive habitats include riparian corridors, wetlands, habitats for legally protected species, areas of high biological diversity, areas supporting rare or special-status wildlife habitat, and unusual or regionally restricted vegetation types. Vegetation types considered sensitive include those listed on CDFW's California Natural Communities List (i.e., those habitats that are rare or endangered within the borders of California) (CDFW, 2025), those that are occupied by species listed under the ESA or are critical habitat in accordance with the ESA, and those that are defined as Environmentally Sensitive Habitat Areas (ESHA) under the California Coastal Act. Specific habitats may also be identified as sensitive in city or county general plans or ordinances. Sensitive habitats are regulated under federal regulations (such as the Clean Water Act and Executive Order 11990 – Protection of Wetlands), state regulations (such as CEQA and the CDFW Streambed Alteration Program), or local ordinances or policies (such as city or county tree ordinances and general plan policies). Sensitive habitat types within the Project site are discussed below.

Potential Wetlands of the U.S. and/or State: Areas supporting hydrophytic vegetation and which may be considered wetlands of the U.S. and/or state were identified within and adjacent to the Pescadero Road Project site during biological surveys in 2016 and 2022. Specifically, potential wetlands were identified within Pescadero Canyon adjacent to and just north of Manhole N607. Another potential wetland was identified within a roadside drainage ditch that was constructed by the County, which directly borders Pescadero Road on its eastern, up-slope side near the Stevenson Lower and Middle School. This drainage ditch does not perform as designed due to lack of maintenance, and the Proposed Project includes grading of this ditch to its original design to reestablish effective roadway drainage following completion of the Proposed Project. Impacts to these resources may be subject to the

jurisdiction of the ACOE and/or the RWQCB under Sections 404 and/or 401 of the CWA. In addition, the wetlands within and adjacent to the Project site may also be considered ESHA and, therefore, may be subject to the City's jurisdiction under the City's General Plan/LUP. Potential wetlands were not observed within the boundaries of the Del Monte Forest LUP.

Protected Trees: The Monterey pine forest vegetation alliance occurring within the Project site is considered sensitive under CDFW's California Natural Communities List (CDFW, 2025). Within the City's General Plan/LUP and Monterey County Carmel Area and Del Monte Forest LUPs, Monterey pine forest is considered ESHA under the CCA. The LUPs prohibit development within this habitat unless the development is coastal dependent and would not have a significant effect on the resource.

Large native trees, including Monterey pine and coast live oak, occur within the Project sites. For trees whose canopies fall over the road rights-of-way, tree trimming may be required to facilitate construction activities. Two Monterey pine trees would be removed at the Pescadero Road Project component to facilitate construction access (see **Appendix A,** Sheets C-2 and C-3). No additional tree removal is proposed as part of the Project. Any required tree replacement or mitigation would be implemented consistent with local ordinances, as applicable.

Regulatory Environment

Federal

***Federal Endangered Species Act*:** Provisions of the ESA of 1973 (16 USC 1532 et seq., as amended) protect federally listed threatened or endangered species and their habitats from unlawful take. Listed species include those for which proposed and final rules are published in the Federal Register. The ESA is administered by the U.S. Fish and Wildlife Service (Service) or National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS). In general, NMFS is responsible for the protection of ESA-listed marine species and anadromous fish, whereas other listed species are under Service's jurisdiction.

Section 9 of ESA prohibits the take of any fish or wildlife species listed under ESA as endangered or threatened. Take, as defined by ESA, is "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." The ESA defines harm as "any act that kills or injures the fish or wildlife…including significant habitat modification or degradation that significantly impairs essential behavioral patterns of fish or wildlife." Additionally, Section 9 prohibits removing, digging up, and maliciously damaging or destroying federally listed plants on sites under federal jurisdiction. Section 9 does not prohibit the take of federally listed plants on sites not under federal jurisdiction. If there is the potential for incidental take of a federally listed fish or wildlife species, take of listed species can be authorized through either the Section 7 consultation process for federal actions or a Section 10 incidental take permit process for non-federal actions. Federal agency actions include activities on federal land, conducted by a federal agency, funded by a federal agency, or authorized by a federal agency (including issuance of federal permits).

***Migratory Bird Act*.** The Migratory Bird Treaty Act (MBTA) of 1918 prohibits killing, possessing, or trading migratory birds except in accordance with regulation prescribed by the Secretary of the Interior. Most actions that result in permanent or temporary possession of a protected species constitute violations of the MBTA. The Service is responsible for overseeing compliance with the MBTA and implements Conventions (treaties) between the United States and four countries—Canada, Mexico,

Japan, and Russia—for the protection of migratory birds. The Service maintains a list of migratory bird species that are protected under the MBTA.

***Clean Water Act*.** The U.S. Army Corps of Engineers (USACE) and U.S. EPA regulate discharge of dredged and fill material into waters of the U.S. under Section 404 of the Clean Water Act (CWA). Waters of the U.S. are defined broadly as waters susceptible to use in commerce (including waters subject to tides, interstate waters, and interstate wetlands) and other waters (such as interstate lakes, rivers, streams, mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds) (33 Code of Federal Regulations [CFR] 328.3). Potential wetland areas are identified as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soils conditions."

Under Section 401 of the CWA, any applicant receiving a Section 404 permit from the USACE must also obtain a Section 401 Water Quality Certification from the Regional Water Quality Control Board (RWQCB). A Section 401 Water Quality Certification is issued when a project is demonstrated to comply with state water quality standards and other aquatic resource protection requirements.

State

***California Endangered Species Act*:** The CESA was enacted in 1984. The CCR (Title 14, §670.5) lists animal species considered endangered or threatened by the State. Section 2090 of CESA requires State agencies to comply with endangered species protection and recovery and to promote conservation of these species. Section 2080 of the Fish and Game Code prohibits "take" of any species the commission determines to be an endangered species or a threatened species. Section 86 of the Fish and Game Code defines "take" as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Section 2081 of the Fish and Game Code concerns Incidental Take Permits from the CDFW, which may be obtained to authorize "take" of any State listed species.

***California Native Plant Protection Act*:** The CNPPA of 1977 directed CDFW to conduct the legislature's intent to "preserve, protect and enhance rare and Endangered plants in the State." The CNPPA prohibits importing rare and Endangered plants into California, taking rare and Endangered plants, and selling rare and Endangered plants. The CESA and CNPPA authorized the Fish and Game Commission to designate endangered, threatened, and rare species and to regulate the taking of these species (Section 2050-2098, Fish and Game Code). Plants listed as rare under the CNPPA are not protected under CESA; however, these plants may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research.

***California Fish and Game Code*:** Section 3503 of the Fish and Game Code states that it is "unlawful to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Section 3503.5 prohibits the killing, possession, or destruction of any birds in the orders Falconiformes or Strigiformes (birds-of-prey). Section 3511 prohibits the take or possession of fully protected birds. Section 3513 prohibits the take or possession of any migratory nongame birds designated under the federal MBTA. Section 3800 prohibits the take of nongame birds.

The classification of Fully Protected was the state's initial effort in the 1960s to identify and provide additional protection to those animals that were rare or faced extinction. Lists were created for fish

(Section 5515), mammals (Section 4700), amphibians and reptiles (Section 5050), and birds (Section 3511). Most Fully Protected species have also been listed as threatened or endangered species under the more recent endangered species laws and regulations. Fully Protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.

The CDFW also maintains a list of wildlife "species of special concern." Although these species have no legal status, the CDFW recommends considering these species during analysis of Project impacts to protect declining populations and avoid the need to list them as endangered in the future.

***Porter-Cologne Water Quality Control Act*:** The Porter-Cologne Water Quality Control Act of 1969 (Porter-Cologne) is California's statutory authority for the protection of water quality and applies to surface waters, wetlands, and groundwater, and to both point and nonpoint sources. Under the Porter-Cologne, the State Water Resources Control Board (State Board) has the ultimate authority over State water rights and water quality policy. However, Porter-Cologne also establishes nine RWQCBs to oversee water quality on a day-to-day basis at the local/regional level. The API is located within Region 3 – Central Coast RWQCB. Porter-Cologne incorporates many provisions of the federal CWA, such as delegation to the State Board and RWQCBs of the National Pollutant Discharge Elimination System (NPDES) permitting program.

Under Porter-Cologne, the state must adopt water quality policies, plans, and objectives that protect the state's waters for the use and enjoyment of the people. Regional authority for planning, permitting, and enforcement is delegate to the nine RWQCBs. The regional boards are required to formulate and adopt water quality control plans for all areas in the region and establish water quality objectives in the plans. The Porter-Cologne sets forth the obligations of the State Board and RWQCBs to adopt and periodically update water quality control plans (basin plans). The act also requires waste dischargers to notify the RWQCBs of such activities through filing of Reports of Waste Discharge (RWD) and authorizes the State Board and RWQCBs to issue and enforce waste discharge requirements (WDRs), NPDES permits, Section 401 water quality certifications, or other approvals. The RWQCBs also have authority to issue waivers to RWD requirements and WDRs for broad categories of "low threat" discharge activities that have minimal potential for adverse water quality effects, when implemented according to prescribed terms and conditions.

The term "Waters of the State" is defined by Porter-Cologne as "any surface water or groundwater, including saline waters, within the boundaries of the state." The RWQCB protects all waters in its regulatory scope but has special responsibility for wetlands, riparian areas, and headwaters, including isolated wetlands, and waters that may not be regulated by the ACOE under Section 404 of the CWA. Waters of the State are regulated by the RWQCB under the State Water Quality Certification Program, which regulates discharges of fill and dredged material under Section 401 of the CWA and the Porter-Cologne.

***California Coastal Act*:** The California Coastal Commission (CCC) was established by voter initiative in 1972 (Proposition 20) and later made permanent by the California State Legislature through adoption of the CCA of 1976. The CCC, in partnership with coastal cities and counties, plans and regulates the use of land and water in the coastal zone. California's coastal zone generally extends 1,000 yards inland from the mean high tide line. In significant coastal estuarine habitat and recreational areas, it extends inland to the first major ridgeline or five miles from the mean high tide line, whichever is less. In developed urban areas, the boundary is generally less than 1,000 yards. Development activities, which are broadly

defined by the CCA to include (among others) construction of buildings, divisions of land, and activities that change the intensity of use of land or public access to coastal waters, generally require a Coastal Development Permit (CDP) from either the CCC or the local government if a Local Coastal Program (LCP) has been certified. After certification of a LCP, coastal development permit authority is delegated to the appropriate local government, but the CCC retains original permit jurisdiction over certain specified lands (such as tidelands and public trust lands). The Commission also has appellate authority over development approved by local governments in specified geographic areas as well as certain other developments. A CDP is required in addition to any other permit required from resource agencies, unless the project is exempt.

The CCC or the local government may designate areas of rare or unique biological value, such as wetland and riparian habitat and habitats for special-status species, as ESHA. Section 30107.5 of the CCA defines an "environmentally sensitive area" as any area in which plant or animal life or their habitat are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments. Development is restricted within the coastal zone and prohibited within designated ESHA, unless the development is coastal dependent and does not have a significant effect on the resources. Section 30240 of the CCA states that "environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas." This section also states that "development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas and shall be compatible with the continuance of those habitat and recreation areas."

The Proposed Project is located primarily in unincorporated Monterey County between the City and Del Monte Forest. A small portion of the Pescadero Road site is located within the City. The entirety of the Project site is located within the coastal zone. The Project site falls within the boundaries of three certified LCPs: the City's LUP, Carmel Area LUP, and the Del Monte Forest Area LUP.

However, according to Title 20, Zoning Ordinance for the County of Monterey, Chapter 20.70.120(G), Exemptions from Coastal Development Permits, the Proposed Project would be considered exempt from County coastal permit requirements. As stated in the ordinance: The installation, testing, and placement in service or the replacement of any necessary utility connection between an existing service facility and any development provided that the County may, where necessary, require reasonable conditions to mitigate any adverse impacts on coastal resources, including scenic resources (see the CCC's September 5, 1978 "Repair, Maintenance and Utility Hook-Up Exclusions from Permit Requirements" document for further detail on which public utility projects are exempt). Under this guidance from the CCC, for excluded activities related to transmission, distribution, and communication facilities, a coastal permit is not required to install, test, place in service, maintain, replace, modify, or relocate underground facilities provided that the work is limited to public road or railroad rights-of-way or public utility easements and provided that there is no removal of major vegetation and the site is restored as close as reasonably possible to its original condition.

A portion of the Proposed Project site is located within the City's General Plan, which serves as the certified LCP for that area. This area does not contain any ESHA as defined by the General Plan. Under Title 17 Chapter 52, Permit Procedures, the Proposed Project would be considered exempt from the City's coastal permit requirements. The installation, testing, and placement in service or the replacement of any necessary utility connection between an existing service facility and any development which has been granted a valid coastal development permit; provided; however, that the

City may, where necessary, require reasonable conditions to mitigate any adverse impacts on coastal resources, including scenic resources.

Local

***1982 Monterey County General Plan*:** The following goals, objectives, and policies of the 1982 Monterey County General Plan could apply to the Proposed Project:

Goal 7: To preserve the diversity and conserve the extent of the County's native vegetation.

Policy 7.1.1: Development shall be carefully planned in, or adjacent to, areas containing limited or threatened plant communities, and shall provide for the conservation and maintenance of the plant communities.

Policy 7.1.2: The County shall encourage the protection of limited or threatened plant communities through dedications of permanent conservation easements and other appropriate means.

Policy 7.2.1: Landowners and developers shall be encouraged to preserve the integrity of existing terrain and natural vegetation in visually sensitive areas such as hillsides and ridges.

Goal 9: To conserve the abundance and diversity of the County's wildlife.

Policy 9.2.1: Land use practices which could result in siltation and pollution of inland and marine waters shall be carefully managed in order to assure a clean and productive habitat.

Objective 10.1: Promote protection of the native plant and animal communities of the Pacific Ocean along the coast of Monterey County.

Goal 11: To conserve natural habitats for native plant and animal species and to promote preservation of rare and endangered plant and animal species.

Objective 11.2: Maintain and regularly update information regarding areas of particular environmental sensitivity or concern, and coordinate these efforts with the appropriate resource agencies.

***Carmel Area LUP*:** The Carmel Area LUP includes goals and policies related to the preservation of biological resources. The following policies from the Carmel Area LUP may apply to the Proposed Project:

GP 2.2-7: Structures shall be located and designed to minimize tree removal and grading for the building site and access road. Where earth movement would result in extensive slope disturbance or scarring visible from public viewing points and corridors, such activity will not be allowed. Extensive landform alteration shall not be permitted.

2.3.3.1: Development, including vegetation removal, excavation, grading, filling, and the construction of roads and structures, shall be avoided in critical and sensitive habitat areas, riparian corridors, wetlands, sites of known rare and endangered species of plants and animals, rookeries and major roosting and haul-out sites, and other wildlife breeding or nursery areas identified as critical. Resource-dependent uses, including nature education and research, hunting, fishing, and aquaculture, shall be allowed within environmentally sensitive habitats and only if such uses will not cause significant disruption of habitat values. Only small-scale development necessary to support the

resource-dependent uses may be located in sensitive habitat areas if they can not feasibly be located elsewhere.

Wetlands are defined as lands which may be covered periodically or permanently with shallow water and include saltwater marshes, fresh water marshes, open or closed brackish water marshes, swamps, mudflats and fens.

2.3.3.2: Land uses adjacent to locations of environmentally sensitive habitats shall be compatible with the long-term maintenance of the resource. New land uses shall be considered compatible only where they incorporate all site planning and design features needed to prevent habitat impacts and where they do not establish a precedent for continued land development which, on a cumulative basis, could degrade the resource.

2.3.3.5: Where private or public development is proposed in documented or expected locations of environmentally sensitive habitats - particularly those habitats identified in General Policy No. I - field surveys by qualified individuals or agency shall be required to determine precise locations of the habitat and to recommend mitigating measures to ensure its protection. This policy applies to the entire segment except the internal portions of Carmel Woods, Hatton Fields, Carmel Point (Night heron site excluded), Odello, Carmel Meadows, and Carmel Riviera. If any habitats are found on the site or within 100 feet from the site, the required survey shall document how the proposed development complies with all the applicable habitat policies.

2.3.3.6: The County shall require deed restrictions or dedications of permanent conservation easements in environmentally sensitive habitat areas where development is proposed on parcels containing such habitats. Where development has already occurred in areas supporting sensitive habitat, property owners should be encouraged to voluntarily establish conservation easements or deed restrictions.

2.3.3.7: Where development is permitted in or adjacent to environmentally sensitive habitat areas, the County, through the development review process, shall restrict the removal of indigenous vegetation and land disturbance (grading, excavation, paving, etc.) to that needed for the structural improvements themselves.

2.3.3.8: The County shall require the use of appropriate native species in proposed landscaping.

2.3.4.1: Riparian plant communities shall be protected by establishing setbacks consisting of a 150-foot open space buffer zone on each side of the bank of perennial streams and 50 feet on each side of the bank of intermittent streams, or the extent of riparian vegetation, whichever is greater. No new development, including structural flood control projects, shall be allowed within the riparian corridor. However, improvements to existing dikes and levees shall be allowed if riparian vegetation damage can be minimized and at least an equivalent amount and quality of replacement vegetation is planted. In addition, exceptions may be made for carefully sited recreational trails. The setback requirement may be modified if it can be demonstrated that a narrower corridor is sufficient to protect existing riparian vegetation. Riparian vegetation is an association of plant species which typically grows adjacent to freshwater courses and needs or tolerates a higher level of soil moisture than dryer upland vegetation.

2.3.4.2: The County shall assist the maintenance and protection of the Carmel River lagoon and marsh by encouraging the retention of sufficient instream flows and controlling erosion and sedimentation from surrounding and upstream areas.

4.4.3.A.1: Only the minimum level of facilities essential to the support of recreational, educational, or scientific use of Resource Conservation areas shall be permitted. Facilities shall be sited so as to avoid adverse impacts to environmentally sensitive habitats and wildlife.

4.4.3.B.2: Development that would threaten rare and endangered plant and animal species in the Resource Conservation areas shall not be allowed.

City's General Plan: The City's General Plan includes goals and policies related to the preservation of biological resources. The following goals from the City's General Plan may apply to the Proposed Project:

G5-3: Protect, conserve and enhance the unique natural beauty and irreplaceable natural resources of Carmel and its Sphere of Influence, including its biological resources, water resources, and scenic routes and corridors. (LUP)

G5-4: Preserve and enhance the City's legacy of an urbanized forest of predominantly Monterey pine, coast live oak and Monterey Cypress. (LUP)

G5-12: Identify, protect and manage Environmentally Sensitive Habitat Areas (ESHAs) to ensure their long-term integrity and the biological productivity of these habitats. (LUP)

P5-103: Identify and protect environmentally sensitive habitat areas against any significant disruption of habitat values. Only uses dependent upon those resources shall be allowed. For private lots of record within ESHA, establish a transfer of development rights program using credits of water, floor area, density or some other development parameter to relocate development to less sensitive areas. (LUP)

P5-104: Preserve and protect wetlands. (LUP)

P5-161: Avoid disturbance or degradation of resources when maintenance vehicles and equipment enter sensitive habitat areas. (LUP)

P5-182: Continue to ensure that development, whether commercial or residential, does not diminish the village character by excessively blocking important public views, private views or disturbing natural topography, significant trees, or native growth. (LUP)

P5-183: Promote the placement of utilities underground where feasible and with minimum detriment to the root system of trees. (LUP)

P5-209: New development shall be sited and designed on the most suitable portion of the site while ensuring protection and preservation of natural and sensitive site resources by providing for the following:

- Protecting areas that provide important water quality benefits, areas necessary to maintain riparian and aquatic biota and/or that are susceptible to erosion and sediment loss;
- Analyzing the natural resources and hazardous constraints of planning areas and individual development site to determine locations most suitable for development;

- Promoting clustering of development on the most suitable portions of a site taking into account geologic constraints, sensitive resources, and natural drainage features;
- Preserving and protecting riparian corridors, wetlands, and buffer zones;
- Minimizing disturbance of natural areas, including significant trees, native vegetation, and root structures;
- Using natural drainage as a design element, maximizing the preservation of natural contours and native vegetation;
- Limiting land disturbance activities such as clearing and grading, limiting cut and fill to reduce erosion and sediment loss, and avoiding steep slopes, unstable areas, and erosive soils. (LUP)

***Del Monte Forest Area LUP*:** The Del Monte Forest Area LUP includes goals and policies related to the preservation of biological resources. The following policies from the Del Monte Forest Area LUP may apply to the Proposed Project:

8: Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values. Within environmentally sensitive habitat areas, new land uses shall be limited to those that are dependent on the resources therein. Land uses and development adjacent to environmentally sensitive habitat areas shall be compatible with long-term maintenance of the habitat area, and such land use and development shall be sited and designed to prevent impacts that would significantly degrade the habitat areas.

11: Contiguous areas of land in open space uses shall be maintained wherever possible to protect environmentally sensitive habitat areas and associated wildlife values. To this end, development of parcels immediately adjacent to environmentally sensitive habitat areas shall be planned to keep development intensity immediately adjacent to the sensitive habitats as low as possible, consistent with other planning criteria (e.g., drainage design, roadway design, and public safety).

14: Near environmentally sensitive habitat areas, native vegetation removal and land disturbance (grading, excavation, paving, etc.) shall be restricted to the minimum amount necessary to accommodate reasonable development. Development shall be sited and designed to prevent impacts that would significantly degrade those nearby areas, and shall be compatible with the continuance of those habitat areas.

16: Prior to approval of development on existing legal lots of record, a biological report shall be prepared by a qualified biologist for the purpose of determining the presence of rare, endangered, and/or sensitive native plant and animal species and habitats and developing appropriate siting and design standards.

Monterey County Code (MCC): Title 20 of the MCC regulates land uses within the Coastal Zone of unincorporated Monterey County. The Proposed Project occurs on parcels zoned as MDR-CZ and RC-CZ. Chapter 20.12 of Title 20 regulates land uses in the MDR-CZ zoning district. Section 20.12.030 of Title 20 states that a Coastal Development Permit is required for any project within MDR-CZ involving development within one hundred (100) feet of mapped or field identified environmentally sensitive habitats. Section 20.36.030 likewise requires a Coastal Development Permit for any project within RC-CZ

involving development within one hundred (100) feet of mapped or field identified environmentally sensitive habitats. However, as discussed above, according to Title 20, Zoning Ordinance for the County of Monterey, Chapter 20.70.120(G), Exemptions from Coastal Development Permits, the Proposed Project would be considered exempt from County coastal permit requirements as it is a relocation of existing utilities within existing roadways and easements.

City Municipal Code*:* Chapter 17.48.050 of the City's Municipal Code requires a permit for trees on private property for any alteration that would remove roots greater than two inches in diameter, and any tree on public property where pruning or root removal is proposed. Permit application requirements include the number, size, and species of tree roots to be removed. Section 17.48.110 also requires protection of trees during construction, including protection of tree roots from drying out during excavation, and any trimming cuts are required to conform to arboricultural standards.

Would the project:	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	■	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	■	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	■	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	■
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	■	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	■

Impact Discussion

a. Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. The Project area is considered to be sensitive for candidate, sensitive, and special-status species, including but not limited to, Monterey Pine, MDFW, and various raptors and other protected avian species. Vegetation removal and ground-disturbing activities, including trench excavation and backfilling, would be required in some areas for the installation of the new sewer mains and manholes. These activities are primarily limited to developed roadways and residential properties within both Proposed Project sites. However, ground-disturbing activities may be required within the degraded Monterey pine forest habitat, which provides suitable habitat for MDFW. If present, construction activities may result in direct mortality and/or loss of habitat for these species, which would represent a potentially significant impact. However, impacts to this species would be reduced to a less-than-significant level with incorporation of **Mitigation Measure BIO-1** identified below.

Construction noise has the potential to result in potentially significant impacts to nesting birds in adjacent trees and vegetation as a result of nest abandonment and failure, which can result in injury, harm, or mortality. However, noise reduction measures will be implemented during construction activities in accordance with **Mitigation Measure NOI-1** identified in **Section 4.10, Noise**. Therefore, with implementation of **Mitigation Measure NOI-1**, construction noise would be reduced to below 85 dBA Leq, which is below levels anticipated to result in injury, harm, or mortality to nesting birds. However, the Proposed Project would require the removal of two Monterey pine trees (see **Appendix A**, sheets C-2 and C-3) and trimming of other trees, which provide suitable habitat for nesting birds and, therefore, the removal and trimming of trees may result in potentially significant impacts to nesting birds, if present. Implementation of **Mitigation Measure BIO-1** and **Mitigation Measure BIO-2** would reduce potentially significant impacts to any species identified as a candidate, sensitive, or special-status species to a less-than-significant level.

> **Mitigation Measure BIO-1**: The following best management practices shall be implemented during all identified phases of construction (i.e., pre-, during, and post-) to reduce impacts to sensitive biological resources:
>
> - CAWD shall retain a qualified biologist to conduct an Employee Education Program for the construction crew prior to any construction activities (staging and mobilization) to aid workers in recognizing special-status species and sensitive habitats that may occur in the construction area. The qualified biologist shall meet with the construction crew at the onset of construction at the Project site to educate the construction crew on the following: 1) the appropriate access route(s) in and out of the construction area and review project boundaries; 2) the special-status species and sensitive habitats that may be present; 3) the specific mitigation measures that will be incorporated into the construction effort; 4) the general provisions and protections afforded by the Service and CDFW; and 6) the proper procedures if a special-status species is encountered within the project site. A fact sheet conveying this information shall be provided to all

personnel involved with construction. The qualified biologist shall perform additional trainings for any employees that are added to the construction crew after the onset of construction, prior to these employees being authorized to engage in construction activities. All employees shall sign a form provided by the qualified biologist indicating that they have attended the training and understand the information presented. The form shall be submitted to CAWD by the qualified biologist to document compliance.

- Protective fencing shall be placed prior to and during construction to keep construction equipment and personnel from impacting vegetation outside of work limits.
- Trees and vegetation not planned for removal or trimming shall be protected prior to and during construction to the maximum extent possible through the use of exclusionary fencing, such as hay bales for herbaceous and shrubby vegetation, and protective wood barriers for trees.
- Grading, excavating, and other activities that involve substantial soil disturbance shall be planned and implemented in consultation with a qualified hydrologist, engineer, or erosion control specialist, and shall utilize standard erosion control techniques to minimize erosion and sedimentation to native vegetation adjacent to the Project site (pre-, during, and post-construction).
- Following construction, disturbed areas shall be restored to pre-Project contours by the construction contractor to the maximum extent possible and revegetated using locally-occurring native species and native erosion control seed mix, per the recommendations of a qualified biologist.
- To protect against spills and fluids leaking from equipment, CAWD shall require that the construction contractor maintains an on-site spill plan and on-site spill containment measures that can be easily accessed.
- No firearms shall be allowed on the Project site at any time.
- All food-related and other trash will be disposed of in closed containers and removed from the Project area at least once a week during the construction period, or more often if trash is attracting avian or mammalian predators. Construction personnel shall not feed or otherwise attract wildlife to the area.

Mitigation Measure BIO-2: Tree removal and trimming activities that may affect nesting raptors and other protected avian species can be timed to avoid the avian nesting season (February 1 through September 15). Specifically, tree removal and trimming activities can be scheduled between September 16 and January 31. If this is not possible, pre-construction surveys for protected avian species shall be conducted by a qualified biologist within 15 days prior to the commencement of construction activities in all trees planned for removal or trimming. If nesting birds are identified during pre-construction surveys, an appropriate buffer shall be imposed within which no construction activities or disturbance will take place (generally 300 feet in all directions). A qualified biologist shall be on-site during work re-initiation in the vicinity of the nest offset to ensure that the buffer is adequate and that the nest is not stressed and/or abandoned. No work shall proceed in the vicinity of an active nest until such time as all young are fledged, as determined by the qualified biologist, or until after September 1 (when young are assumed fledged).

b. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

The Proposed Project is primarily limited to existing paved roadways. However, sensitive habitats, including degraded Monterey pine forest and potential wetland areas, are known to occur within and adjacent to the Proposed Project sites. Degraded Monterey pine forest is located within both Proposed Project sites. The Proposed Project would require the removal of two Monterey pine trees (see **Appendix A**, Sheets C-2 and C-3) and trimming of other trees, which provide suitable habitat for nesting birds and, therefore, the removal and trimming of trees may result in potentially significant impacts to nesting birds, if present. No additional tree removal is proposed as part of the Proposed Project. Removal of these trees is anticipated to require a tree removal permit from the County. Adherence to the conditions of the tree removal permit, as well as implementation of **Mitigation Measures BIO-1**, **BIO-3**, and **BIO-4**, would reduce potentially significant impacts to Monterey pine forest habitat to a less-than-significant level. Potential wetland areas are located within the Pescadero Road Project site. However, no vehicles or heavy equipment would enter these areas. Construction equipment in these areas would be restricted to hoses and hand tools, which would be carried into the canyon by foot. Another potential wetland is located directly adjacent to Pescadero Road near Stevenson School where drainage ditch maintenance is planned. Project plans include a 10-foot-wide buffer between the grading limits for the ditch maintenance and the potential wetland to avoid impacts to this potentially sensitive habitat. Therefore, maintenance of the drainage ditch along Pescadero Road would not result in any direct impacts to sensitive habitat.

While no Project activities would directly impact these sensitive resources, indirect impacts could occur if construction equipment, staging activities, or personnel inadvertently encroach into adjacent sensitive habitat areas. Implementation of **Mitigation Measures BIO-1**, **BIO-3**, and **BIO-4** would reduce potentially significant impacts to sensitive habitats to a less-than-significant level.

> **Mitigation Measure BIO-3:** Disturbance of Monterey pine forest and other sensitive habitats (such as wetlands and riparian corridors), including the removal of native trees within these habitats, shall be avoided to the maximum extent possible. Prior to commencement of construction, high visibility fencing and/or flagging shall be installed, with the assistance of a qualified biologist, to indicate the limits of work and the boundaries of sensitive habitat areas to be avoided.
>
> a) The limits of work shall be designated to avoid impacts to the surrounding Monterey pine forest and other sensitive habitats to the maximum extent possible and to maximize native tree and shrub retention.
> b) No work-related activity including equipment staging, vehicular access, grading and/or vegetation removal shall be allowed outside the designated limits of work.
>
> **Mitigation Measure BIO-4:** Tree pruning shall be minimal but, when necessary, shall be performed in accordance with American National Safety Institute (ANSI) A300 Pruning Standards. Pruning may include the larger canopied trees that are obstructing access to the Project site. Should the health and vigor of any tree decline, it shall be treated as appropriately recommended by a certified arborist or qualified forester. In general, trees shall be assessed then pruned only for safety (e.g., broken and cracked limbs shall be removed in high-traffic

areas of concern). No more than 25 percent of the overall tree crown shall be pruned in one season.

Where alternative routes are not available, any subsurface construction related activities for the Project shall avoid cutting major roots with a diameter of greater than or equal to two inches, unless necessary. All construction within the root zone shall conform to the following construction practices:

a) Hand trenching at point or line of grade cuts closest to the trunk to expose major roots two inches or more in diameter.
b) In cases where rock or unusually dense soil prevents hand trenching, mechanical trenching may be permitted provided that work inside the dripline is closely supervised to prevent tearing or other damage to major roots (greater than or equal to two inches).
c) Exposed major roots shall be cut with a saw to form a smooth surface and avoid tearing or jagged edges.
d) Absorbent tarp or heavy cloth fabric shall be placed over grade cuts where roots are exposed and secured with stakes and two to four inches of compost or wood chips spread over the tarp to prevent moisture loss. Care shall be taken that moisture levels beneath tarped areas remain comparable to surrounding areas until backfilling occurs. Some watering of these areas may be necessary to maintain moisture levels, and such measures shall remain in effect through all phases of construction, including all delays and other periods of inactivity.

c. Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

The Proposed Project is located in unincorporated Monterey County between the City and Del Monte Forest. The Proposed Project is located adjacent to two potential wetland areas, as discussed above, which could be under the jurisdiction of the ACOE. While no Project activities would directly impact these wetlands, indirect impacts could occur if construction equipment, staging activities, or personnel inadvertently encroach into adjacent sensitive habitat areas. Implementation of **Mitigation Measure BIO-1** and **Mitigation Measure BIO-3** would reduce potentially significant impacts to wetlands to a less-than-significant level.

d. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

The Proposed Project is located in unincorporated Monterey County between the City and Del Monte Forest. The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. The Proposed Project sites are not located within any wildlife corridors and do not provide opportunities for local movement due to the Project's location in a developed, urban area. Therefore, the Proposed Project would result in no impact regarding potential interference with wildlife movement.

e. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Development, including tree removal, within the site is regulated by the City's General Plan and LUP, the County's Carmel Area LUP, Del Monte Forest Area LUP, the County's General Plan, and City and County Municipal Codes. The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. Proposed Project construction would occur primarily within paved and previously developed areas. The Proposed Project has been designed to avoid impacts to the extent feasible; however, constraints associated with surrounding residential development and the location of the existing failing sewer infrastructure make complete avoidance of tree removal or trimming unlikely. The removal of two Monterey pine trees would be required to facilitate access to the new sewer main within the degraded Monterey pine forest habitat. Removal of these trees is anticipated to require a tree removal permit from the County. Adherence to the conditions of the tree removal permit would be required, and, therefore, the Proposed Project would not conflict with any local policies or ordinances protecting biological resources. The Proposed Project would have a less-than-significant impact with regard to conflicting with local policies or ordinances protecting biological resources.

f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The Proposed Project is not located within an area included in an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. No impact would occur.

4.4 Cultural Resources

Albion Environmental, Inc. (Albion) prepared a Phase I Cultural Resource Inventory and AB 52 Consultation for the Project sites in March 2026.[3] The Phase I Cultural Resource Inventory includes the results of background research and field reconnaissance of the Proposed Project area. Background research consisted of a records search from the California Historical Resources Information System (CHRIS), the Northwest Information Center at Sonoma State University (NWIC), and a Sacred Land Files (SLF) search, followed by a pedestrian archaeological field survey of the Project area. CAWD separately conducted Native American outreach to facilitate Tribal consultation under Assembly Bill (AB) 52 (see **Section 4.13, Tribal Cultural Resources** for additional details on tribal consultation). The field reconnaissance consisted of a pedestrian survey of the Project area between January 19 and 21, 2026, which investigated the Project area for cultural and Tribal Cultural Resources (TCRs).

Environmental Setting

The Proposed Project is located in unincorporated Monterey County between the City and Del Monte Forest. A search of records at the NWIC indicated that 28 previous cultural resource studies have been conducted within the Project area and that 157 previous cultural resource studies have been conducted within a 0.25-mile radius of the Project area. According to the record search, there is one (1) previously identified cultural resource within the Project area, and 17 cultural resources within a 0.25-mile radius

[3] Due to the potentially confidential nature of items in this report, this study is not included in the IS/MND. Qualified personnel may request a copy of this report from CAWD.

of the Project area. The archival research illustrates that historic-era land use within the Project Area dates to the 1940s and 1950s. Albion's SLF search indicated that Sacred Land Files were known to be located within the Project area. However, Albion's pedestrian survey of the Proposed Project area yielded negative results and did not identify any cultural resources, precolonial or historic resources, or anthropogenic soils. It is important to note that Albion stated that given the presence of known precolonial archaeological sites within 0.25 miles, and the poor visibility of the ground surface during our pedestrian survey, it is possible that precolonial archaeological resources may be present within the Proposed Project area (Albion, 2026).

Regulatory Environment

State

California Environmental Quality Act: CEQA requires regulatory compliance for projects involving historic resources throughout the State. Under CEQA, public agencies must consider the effects of their actions on historic resources (Public Resources Code, Section 21084.1). The CEQA Guidelines define a significant resource as any resource listed in or determined to be eligible for listing in the California Register of Historical Resources (California Register) [see Public Resources Code, Section 21084.1 and CEQA Guidelines Section 15064.5 (a) and (b)].

California Public Resources Code: Several sections of the California PRC protect cultural resources located on public land. Under PRC Section 5097.5, no person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface, any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site (including fossilized footprints), inscriptions made by human agency, rock art, or any other archaeological, paleontological, or historical feature situated on public lands, except with the express permission of the public agency that has jurisdiction over the lands. Violation of this section is a misdemeanor.

PRC Section 5097.98 states that if Native American human remains are identified within a project area, the landowner must work with the Native American Most Likely Descendant as identified by the Native American Heritage Commission (NAHC) to develop a plan for the treatment or disposition of the human remains and any items associated with Native American burials with appropriate dignity. These procedures are also addressed in Section 15064.5 of the State CEQA Guidelines. California Health and Safety Code Section 7050.5 prohibits disinterring, disturbing, or removing human remains from a location other than a dedicated cemetery. Section 30244 of the PRC requires reasonable mitigation for impacts on paleontological and archaeological resources that occur because of development on public lands.

California Health and Safety Code: California Health and Safety Code Section 7050.5 regulates the treatment of human remains. In the event of discovery or recognition of any human remains 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 remains until the coroner of the county in which the human remains are discovered has determined that the remains are not subject to his or her authority. If the coroner recognizes the human remains to be those of a Native American or has reason to believe that they are those of a Native American, he or she shall contact the NAHC by telephone within 24 hours.

Local

***1982 Monterey County General Plan*:** The following goals and policies of the 1982 Monterey County General Plan could be applicable to the Proposed Project.

Goal 12: To encourage the conservation and identification of the County's archaeological resources.

Policy 12.1.3: All proposed development, including land divisions, within high sensitivity zones shall require an archaeological field inspection prior to project approval.

Policy 12.1.6: Where development could adversely affect archaeological resources, reasonable mitigation procedures shall be required prior to project approval.

***Carmel Area LUP*:** The Carmel Area LUP includes goals and policies related to the preservation of cultural resources. The following goals from the Carmel Area LUP may apply to the Proposed Project:

2.8.3.5: Archaeological surveys shall be required for all new subdivisions and for all other development within close proximity of known sites. Such surveys shall be performed by qualified individuals.

2.8.4.5: No development proposals in archaeologically sensitive areas shall be categorically exempt from environmental review.

2.8.4.6: When other site planning constraints do not permit avoidance of construction on archaeological or other types of cultural sites, adequate preservation measures shall be required. Mitigation shall be designed in accord with guidelines of the State Office of Historic Preservation and the State of California Native American Heritage Commission.

City's General Plan: The City's General Plan includes goals and policies related to the preservation of cultural resources. The following goals from the City's General Plan may apply to the Proposed Project:

O1-18: Identify and protect archaeological resources within Carmel. (LUP)

P1-110: All available measures, including redesign and obtaining archaeological easements, shall be pursued to avoid development on sensitive archaeological sites. Site preservation shall be preferred over excavation of the resource. (LUP)

P1-111: If archaeological resources are discovered during construction, work shall cease immediately and the resource shall be preserved or the impact mitigated according to these policies. This policy shall apply Citywide. (LUP)

P1-112: Require monitoring and either safe retrieval, collection and archiving or preservation in-situ of all identified archaeological resources. Conduct all testing, monitoring and mitigation of impacts in accordance with the recommendations of a Registered Professional Archaeologist and consistent with the requirements in the State CEQA Guidelines section 15064.5. (LUP)

P1-113: Transmit all archaeological resource reports and attachments to the Northwest Information Center as designated by the State Office of Historic Preservation. (LUP)

***Del Monte Forest Area LUP*:** The Del Monte Forest Area LUP includes goals and policies related to the preservation of cultural resources. The following goals from the Del Monte Forest Area LUP may apply to the Proposed Project:

57: The timely identification and evaluation of archaeological, historical, and paleontological resources, and coordination with applicable Native American representatives, is encouraged, so that these resources are given full consideration during the conceptual design phase of land use planning for project development.

58: Whenever development is proposed, it shall be determined whether the affected property has received an archaeological survey. If not, such a survey shall be conducted to determine if archaeological resources exist. The survey should describe the sensitivity of the site and make appropriate recommendations concerning needed protection of the resource. If the development activity is subject to environmental review, this policy may be satisfied in conjunction with environmental review.

59: Where significant archaeological resources are identified, all available measures including dedication of open space conservation or scenic easements and purchase of development rights shall be considered to avoid development on significant archaeological sites.

60: When developments are permitted on parcels where archaeological or other cultural resource sites are located, project design shall be required which avoids or mitigates impacts to such sites. Where the site has religious significance, emphasis should be placed on preserving the entire site; likewise, where the site is of known regional significance, consideration shall be given to nominating the site to the National Register and preserving it.

61: When sufficient planning flexibility does not permit avoiding construction on archaeological or other types of cultural sites, adequate preservation and mitigation measures shall be required. Preservation and mitigation measures shall be designed by a qualified archaeologist in accordance with current accepted guidelines.

Monterey County Code: Title 20 of the MCC regulates land uses within the Coastal Zone of unincorporated Monterey County. The Proposed Project occurs on parcels zoned as MDR-CZ and Resource Conservation RC-CZ. Chapter 20.12 of Title 20 regulates land uses in the MDR-CZ zoning district. Section 20.12.030 of Title 20 states that a Coastal Development Permit is required for any project within MDR-CZ involving development within a parcel with positive findings from an archaeological report. Section 20.36.030 likewise requires a Coastal Development Permit for any project within RC-CZ involving development within a parcel with positive findings from an archaeological report. However, according to Title 20, Zoning Ordinance for the County of Monterey, Chapter 20.70.120(G), Exemptions from Coastal Development Permits, the Proposed Project would be considered exempt from County coastal permit requirements as it is a relocation of existing utilities within existing roadways and easements.

Would the project:	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☐	■
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	■	☐	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	■	☐	☐

Impact Discussion

a. Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

CEQA Guidelines Section 15064.5 defines a historical resource as one being listed in or determined to be eligible by the State Historical Resources Commission for listing in the California Register. PRC Section 21084.1 states that a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment. Albion identified one built environmental resource within the Project area, the Stevenson Lower and Middle School, which is a potentially historic school building complex built in 1952 (Albion, 2026). Although the boundaries of this historic-era resource slightly overlap the Project area, the Proposed Project would not directly or indirectly impact this resource. All construction work involving ground disturbance would be limited to the outlined roadways and would not result in any above ground features that could affect the potential historical significance of the site. Therefore, the Proposed Project would result in no impact related to a substantial adverse change in the significance of a historical resource.

b. Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Section 21083.2 of the PRC requires lead agencies to assess potential impacts to archaeological resources and determine whether a project may cause a substantial adverse change in the significance of an archaeological resource. Albion conducted a records search at the NWIC and completed a pedestrian survey of the Proposed Project area. The results of the pedestrian survey were negative for sensitive resources, although ground visibility was considered poor. According to the record search, there is one (1) previously identified cultural resource within the Project Area, the Stevenson Lower and Middle School, and 17 cultural resources within a 0.25-mile radius of the Project area. In addition, the SLF request to the NAHC was returned with positive results (Albion, 2026). As a result, given the presence of known precolonial archaeological sites within 0.25 miles and the poor visibility of the ground surface during the pedestrian survey, it is possible that precolonial archaeological resources may be present within the Project area. Implementation of **Mitigation Measure CUL-1**, **CUL-2**, and **CUL-3** would reduce potentially significant impacts to archaeological resources to a less-than-significant level.

> **Mitigation Measure CUL-1**: Prior to the start of ground disturbing activities, CAWD shall retain a qualified Archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for archaeology in either prehistoric or historic archaeology, to prepare a Cultural Resources Monitoring and Discovery Plan (CRMDP) in consultation with the Esselen Tribe of

Monterey County, the Ohlone Costanoan Esselen Nation, and the Costanoan Rumsen Carmel Tribe (see **Mitigation Measure TCR-2**). The CRMDP shall include requirements for pre-construction cultural resources sensitivity training, monitoring protocols, monitoring schedules, communication protocol and procedures in the event of a potential discovery, consultation requirements, and documentation requirements. The qualified Archaeologist shall also oversee an archaeological monitor who shall be present during initial ground disturbing activities associated with the Proposed Project. The archaeological monitoring program shall follow protocols outlined in the CRMDP, which shall contain an allowance that the qualified Archaeologist may reduce or discontinue monitoring as warranted if it is determined that the possibility of encountering intact archaeological deposits in the area is low, based on observations during initial ground disturbance, and in coordination with the Native American monitor(s) and CAWD. The reduction or elimination of Native American monitoring may be undertaken based on the stipulations outlined in **Mitigation Measure TCR-2**. The qualified Archaeologist shall prepare daily monitoring logs, along with a monitoring report at the conclusion of archaeological monitoring. The CRMDP shall be submitted to CAWD for review and approval, as well as to the Esselen Tribe of Monterey County, the Ohlone Costanoan Esselen Nation, and the Costanoan Rumsen Carmel Tribe, for review and comment before finalized. The requirements outlined in the final CRMDP shall be implemented during project construction.

Mitigation Measure CUL-2: Prior to the start of ground disturbing activities, CAWD shall retain a qualified Archaeologist, as well as tribal representatives (see **Mitigation Measure TCR-1**), to perform an Cultural Resources Sensitivity Training for construction personnel. Cultural resources sensitivity training shall be pre-recorded for presentation to all construction personnel. The training shall focus on how to identify archaeological resources that may be encountered during earthmoving activities, and the procedures to be followed in such an event. This pre-recorded training shall be provided for any new personnel joining the construction team. The Professional Archaeologist shall keep a record (i.e., sign-in sheet) of all personnel who attended the training and provide copies of the attendance records and presentation materials to CAWD for their records.

Mitigation Measure CUL-3: In the event that Precontact (e.g., hearths, stone tools, shell and faunal bone remains, etc.) or historic-era (e.g., bottles, foundations, refuse dumps/privies, etc.) archaeological resources are unearthed, ground-disturbing activities within a 100-ft radius of the discovery should be halted or diverted away from the find. An appropriate buffer area should be established by the qualified Archaeologist, in consultation with the Native American tribal representatives, around the find where construction activities should not be allowed to continue. Work should be allowed to continue outside of the buffer area. All archaeological resources unearthed by Project construction activities should be evaluated by a qualified Archaeologist. If a resource is determined by the qualified Archaeologist to constitute a “historical resource” pursuant to CEQA Guidelines Section 15064.5(a) or a “unique archaeological resource” pursuant to Public Resources Code Section 21083.2(g), the qualified Archaeologist, in consultation with Native American tribal representatives, should develop and implement a Cultural Resources Treatment Plan (CRTP) which would outline methods to be used to mitigate project impacts. The plan shall include avoidance of the resource or, if avoidance of the resource is infeasible, the plan shall outline the appropriate treatment of the resource in coordination with the Esselen Tribe of Monterey County, the Ohlone Costanoan Esselen Nation, and the Costanoan Rumsen Carmel Tribe.

c. Would the project disturb any human remains, including those interred outside of dedicated cemeteries?

No known human remains, including those interred outside of dedicated or formal cemeteries, are known to occur on the Proposed Project sites. Additionally, Native American Tribes were consulted during the preparation of the Phase I Cultural Resource Inventory (see **Section 4.13, Tribal Cultural Resources**). As described above, the results of an SLF for the Proposed Project sites were positive. As a result, the Project sites could potentially contain previously unknown Native American or other human remains. To minimize potentially significant impacts to a less-than-significant level, mitigation is necessary. Implementation of **Mitigation Measure CUL-4** would reduce potentially significant impacts to human remains to a less-than-significant level.

> **Mitigation Measure CUL-4*:*** Throughout the duration of ground disturbing activities, the treatment of human remains, and any associated or unassociated funerary objects discovered during any soil-disturbing activity within the Project site shall comply with applicable State laws. This shall include immediate notification of the Monterey County Sheriff's Office and CAWD.
>
> If human remains are encountered unexpectedly during implementation of the Proposed Project, State Health and Safety Code Section 7050.5 requires that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to PRC Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the NAHC. The NAHC shall then identify the person(s) through to be the Most Likely Descendent (MLD).
>
> The MLD may, with the permission of the land owner, or his or her authorized representative, inspect the site of the discovery of the Native American remains and may recommend to the owner or the person responsible for the excavation work means for treating or disposing, with appropriate dignity, the human remains and any associated grave goods. The MLD shall complete their inspection and make their recommendation within 48 hours of being granted access by the land owner to inspect the discovery. The recommendation may include the scientific removal and nondestructive analysis of human remains and items associated with Native American burials. Upon the discovery of the Native American remains, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred, as prescribed in this mitigation measure, with the MLD regarding their recommendations, if applicable, taking into account the possibility of multiple human remains. The landowner shall discuss and confer with the descendants all reasonable options regarding the descendants' preferences for treatment.
>
> Whenever the NAHC is unable to identify the MLD, or the MLD identified fails to make a recommendation, or the landowner or his or her authorized representatives rejects the recommendation of the descendants and the mediation provided for in Subdivision (k) of Section 5097.94, if invoked, fails to provide measures acceptable to the landowner, the landowner or his or her authorized representative shall inter the human remains and items associated with the Native American human remains with appropriate dignity on the property in a location not subject to further and future subsurface disturbance.

4.5 Energy

Environmental Setting

Pacific Gas and Electric Company (PG&E) provides electricity and natural gas throughout Monterey County, including the Proposed Project site. Beginning in 2018, all PG&E customers in Monterey, San Benito, and Santa Cruz Counties were automatically enrolled in Central Coast Community Energy (3CE). 3CE is a community choice energy agency that has committed to providing its customers with 100 percent carbon-free energy by the year 2030 (3CE, 2026). Community choice energy agencies allow local governments to procure power on behalf of their residents, businesses, and municipal accounts from an alternative supplier while still receiving transmission and distribution service from their existing utility provider (in this case, PG&E). This is typically an attractive option for communities that want more local control over their electricity sources, more clean energy than their default utility offers, and/or lower electricity prices. Per Public Utilities Code Section 366.2, customers have the right to opt out of the community choice energy program and continue to receive service from the incumbent utility (i.e., PG&E).

Regulatory Environment

Local

1982 Monterey County General Plan: There are no policies or goals from the 1982 Monterey County General Plan related to energy use that would be applicable to the Proposed Project.

***Carmel Area LUP*:** The Carmel Area LUP includes goals and policies related to the regulation of energy consumption. None of the energy-related goals from the Carmel Area LUP may apply to the Proposed Project.

City's General Plan: The City's General Plan includes goals and policies related to the regulation of energy consumption. The following goal from the City's General Plan may apply to the Proposed Project:

O7-5: Minimize contributions to Greenhouse Gases.

Del Monte Forest Area LUP: There are no policies or goals from the Del Monte Forest Area LUP related to energy use that would be applicable to the Proposed Project.

Would the project:	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	■	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	■	☐

Impact Discussion

a. Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

The Proposed Project would require energy for the installation of new pipelines, as well as any segments of existing utility lines to be removed (rather than abandoned in place), and the transport of material for construction and waste generated by construction activities. In addition, energy would be consumed due to vehicle trips to and from the Project site during construction. Petroleum-based fuels such as diesel fuel and gasoline would be the primary sources of energy for vehicle trips and other activities. The Proposed Project would not result in inefficient, wasteful, or unnecessary consumption of energy because: 1) the Project schedule is designed to be efficient to avoid excess monetary costs, and 2) energy demand associated with construction activities would be temporary in nature. As a result, the Proposed Project would have a less-than-significant impact related to wasteful, inefficient, or unnecessary consumption of energy resources.

b. Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

See *Response a.* above. Implementation of the Proposed Project would be subject to existing state energy standards and would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. The Proposed Project would have a less-than-significant impact related to energy usage and efficiency.

4.6 Geology and Soils

Environmental Setting

Pacific Crest Engineering Inc. prepared a Geotechnical Investigation (**Appendix E**) for the Pescadero Road Project site in March 2022. The findings of the Geotechnical Investigation are used to inform the discussion of the geological characteristics of the Pescadero Road Project site, while the Carmel Woods Project site findings are based on publicly available geological information such as the Monterey County Geologic Hazards Map, Monterey County GIS, and EQ Zapp (DOC, 2026).

The Pescadero Road Project site is not located in an Alquist-Priolo Act zone and is not mapped within a fault hazard zone. The Pescadero Road Project site is located within a seismically active area. The nearest active fault to the Pescadero Road area is the Monterey Bay-Tularcitos fault zone, located approximately 0.5 miles from the Pescadero Road area (**Appendix E**). Because of this, the potential for ground surface fault rupture to occur at the site is considered low. The Pescadero Road site has been deemed to have low landslide susceptibility, low liquefaction potential, a moderate to high erosion hazard rating (Monterey County, 2026), and is underlain by soils of low to high expansion potential.

The Carmel Woods Project site is not in an Alquist-Priolo Act zone and passes through the Monterey Bay-Tularcitos fault zone. The Carmel Woods Project site is also located within a seismically active area. The Carmel Woods Project site has been deemed to have moderate landslide susceptibility, low liquefaction susceptibility, and a moderate to high erosion hazard rating (Monterey County, 2026).

Regulatory Environment

State

***Alquist-Priolo Earthquake Fault Zoning Act*:** The Alquist-Priolo Earthquake Fault Zoning Act, passed in 1972, seeks to mitigate surface faulting's hazard to structures for human occupancy. In accordance with this act, the State Geologist established regulatory zones, called "earthquake fault zones," around the surface traces of active faults and published maps showing these zones. In these zones, buildings for human occupancy cannot be constructed across the surface traces of active faults. Because many active faults are complex and consist of more than one branch, each earthquake fault zone extends approximately 200 to 500 feet on either side of the mapped fault trace.

Title 14 of the CCR, Section 3601(e), defines buildings intended for human occupancy as those that would be inhabited for more than 2,000 hours per year. The Proposed Project does not include any habitable structures and none of the Project sites cross an Alquist-Priolo Earthquake Fault Zone. Therefore, these provisions of the Act do not apply to the Proposed Project.

Seismic Hazards Mapping Act: The purpose of the Seismic Hazards Mapping Act of 1990 (PRC Sections 2690–2699.6) is to reduce damage resulting from earthquakes. The Seismic Hazards Mapping Act addresses earthquake-related hazards, including strong ground shaking, liquefaction, and seismically induced landslides. The State is charged with identifying and mapping areas at risk of strong ground shaking, liquefaction, landslides, and other corollary hazards. Cities and counties are required to regulate development in mapped Seismic Hazard Zones. Under the Seismic Hazards Mapping Act, permit review is the primary mechanism for local regulation of development. Specifically, cities and counties are prohibited from issuing development permits for sites in Seismic Hazard Zones until appropriate site-specific geologic and/or geotechnical investigations have been conducted and measures to reduce potential damage have been incorporated into the development plans.

Local

***1982 Monterey County General Plan*:** The following goals, objectives, and policies from the 1982 Monterey County General Plan could be applicable to the Proposed Project.

Objective 3.1: Establish procedures for the prevention of soil erosion and the repairing of erosion damage in critical areas on both public and private lands.

Policy 3.1.1: Erosion control procedures shall be established and enforced for all private and public construction and grading projects.

Policy 3.1.3: In the absence of more detailed site specific studies, determinations of soil suitability for particular land uses shall be made according to the Soil Conservation Service's Soil Survey of Monterey County.

Goal 15: To minimize loss of life, injury, damage to property, and economic and social dislocations resulting from seismic and other geologic hazards.

***Carmel Area LUP*:** The Carmel Area LUP includes goals and policies related to the regulation of regional geology. The following policies from the Carmel Area LUP may apply to the Proposed Project:

2.4.4.C.4: The native vegetation cover, temporary vegetation, seeding, mulching, or other suitable stabilization methods shall be used to protect soils subject to erosion that have been disturbed during grading or development. All cut and fill slopes shall be stabilized as soon as possible with planting of native annual grasses and shrubs, appropriate non-native plants, or with approved landscaping practices.

2.4.4.C.5: Provisions shall be made to conduct, surface water to storm drains or suitable watercourses to prevent erosion. Onsite drainage devices shall be designed to accommodate increased run-off resulting from site modification. Where appropriate, on-site retention of stormwater should be required.

2.7.4.1: All development shall be sited and designed to conform to site topography and to minimize grading and other site preparation activities. Applications for grading and building permits and applications for subdivisions shall be reviewed for potential impacts to onsite and offsite development arising from geologic and seismic hazards and erosion. Mitigation measures shall be required as necessary.

City's General Plan: The City's General Plan includes goals and policies related to the regulation of regional geology. The following goals from the City's General Plan may apply to the Proposed Project:

G5-1: New development shall minimize risks to life and property, assure stability and structural integrity over the life of the development, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area. (LUP)

***Del Monte Forest Area LUP*:** There are no policies or goals from the Del Monte Forest Area LUP related to the regulation of regional geology that would be applicable to the Proposed Project.

Would the project:	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	☐	☐	■	☐
ii) Strong seismic ground shaking?	☐	☐	■	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	■	☐
iv) Landslides?	☐	☐	■	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	■	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	■	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	■	☐

Would the project:	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	■
f) Directly or indirectly destroy a paleontological resource or site or unique geologic feature?	☐	☐	☐	■

Impact Discussion

a. Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

a.i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?

Pacific Crest Engineering Inc. prepared a Geotechnical Investigation (**Appendix E**) for the Pescadero Road Project component. The Pescadero Road Project site is not located in an Alquist-Priolo Act zone and is not mapped within a fault hazard zone. The nearest active fault to the Pescadero Road Project site is the Monterey Bay-Tularcitos fault zone, located approximately 0.5 miles from the Pescadero Road Project site (**Appendix E**). The Carmel Woods Project site is not in an Alquist-Priolo Act zone. The Monterey Bay-Tularcitos fault zone passes through the Carmel Woods Project site (Monterey County, 2026). However, the Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites, and does not propose any new habitable structures that would result in risk of loss, injury, or death due to the proximity of a known earthquake fault. Therefore, the Proposed Project would have a less-than-significant impact related to rupture of a known earthquake fault.

a.ii) Strong seismic ground shaking?

The Proposed Project is located in a seismically active region. The nearest fault zone is the Monterey Bay-Tularcitos fault zone, which passes through the Carmel Woods Project site and which is located approximately 0.5 miles from the Pescadero Road Project site. As a result, the Proposed Project sites could be subject to seismically induced hazards from ground shaking during implementation of the Project. However, the Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites, and does not propose any new habitable structures that would result in an increased risk of loss, injury, or death due to strong seismic ground shaking compared to existing conditions. Therefore, the Project would have a less-than-significant impact related to strong seismic ground shaking.

a.iii) Seismic-related ground failure, including liquefaction?

Surface ground rupture occurs at sites that are traversed by or lie very near an active fault. The Monterey Bay-Tularcitos fault zone passes directly under the Carmel Woods Project site and is located

0.5 miles away from the Pescadero Road Project site. According to the Geotechnical Investigation, the potential for ground surface fault rupture to occur at the Pescadero Road Project site is considered low. However, there is potential for ground surface rupture at the Carmel Woods Project site. Parcels within the Project site are designated by the County as having low liquefaction potential. The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites and does not propose any new habitable structures that would result in an increased risk of loss, injury, or death due to seismic related ground failure, including liquefaction. For these reasons, the Proposed Project would have a less-than-significant impact regarding seismic-related ground failure.

a.iv) Landslides?

Landslides are common in Monterey County due to the combination of uplifting mountains, fractured and weak rocks, and periodic intense rainfall along the coast. The level of susceptibility of an area is dependent on the local geologic conditions. Both Project components are located in residential areas with moderately sloping terrain. The Pescadero Road Project site is considered to have low landslide susceptibility, while the Carmel Woods Project site is deemed to have moderate landslide susceptibility (Monterey County, 2026). The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites, and does not propose any new habitable structures that would result in an increased risk of loss, injury, or death due to landslides compared to existing conditions. Therefore, the Proposed Project would have a less-than-significant impact regarding landslides.

b. Would the project result in substantial soil erosion or the loss of topsoil?

The County's GIS database identifies the parcels comprising the Pescadero Road Project component and the Carmel Woods Project component as having a moderate to high erosion potential (Monterey County, 2026). The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. Ground disturbing activities associated with the Project could result in accelerated soil erosion and the loss of topsoil. However, the Project is limited to the proposed utility alignment as depicted in **Figures 4** and **5.** The Proposed Project would disturb approximately 10,800 sf of soil. All disturbed areas would be backfilled and/or paved following construction to restore the site to pre-Project conditions. In addition, the Proposed Project would implement standard BMPs during construction to reduce erosion and the loss of topsoil consistent with Section 16.08.340 of the County's Municipal Code. These BMPs are anticipated to include, but not be limited to, the following:

- Prepare and maintain all disturbed surfaces via re-planting as soon as practicable following soil disturbance.
- Conduct regular watering of planted areas to assure growth.
- Control dust emissions from disturbed surfaces by regularly watering disturbed surfaces.

As a result, the Proposed Project would have a less-than-significant impact related to causing substantial soil erosion and the loss of topsoil.

c. Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

The Pescadero Road Project component is identified as having low potential for landslides and low potential for liquefaction. The Carmel Woods Project component is identified as having moderate potential for landslides and low potential for liquefaction. The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. The Proposed Project does not include the construction of any new habitable structures that would require significant earthmoving that would increase the risk of landslide, lateral spreading, liquefaction, or collapse. As a result, the Proposed Project would have a less-than-significant impact related to being located on a geologic unit or soil that is unstable.

d. Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

Soils within the Pescadero Road Project site are considered to have high plasticity and low to high expansion potential (**Appendix E**). Detailed soil information was not available for the Carmel Woods Project component, so the U.S. Geological Service (USGS) soil mapper was used to determine regional soil characteristics for this Project component. Soils in the area of this Project component include Narlon loamy fine sand, 2-9 percent slopes (NcC), Santa Lucia channery clay loam, 30-50 percent slopes (SfF), Santa Lucia channery clay loan, 15-30 percent slopes (SfE), and Gazos slit loam, 30-50 percent slopes (GfF) (USGS, 2026). NcC soil has low plasticity and low expansion potential and SfF and SfE soil types have slight plasticity and low to moderate expansion potential. The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites, and does not propose any new habitable structures that would result in risks to life or property due to expansive soils. Overall, grading for both Project components would be balanced, resulting in zero net cut or fill. All imported fill used for backfill would consist of non-expansive materials. As a result, the Proposed Project would have a less-than-significant impact and would not create risks to life or property as a result of expansive soil.

e. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites, and does not include the use of septic tanks or alternative wastewater disposal system; therefore, no impact would occur.

f. Would the project directly or indirectly destroy a paleontological resource or site or unique geologic feature?

Significant paleontological resources are fossils or assemblages of fossils that are unique, unusual, rare, uncommon, and diagnostically or stratigraphically important, as well as those that add to an existing body of knowledge in specific areas, stratigraphically, taxonomically, or regionally. They include fossil remains of large to very small aquatic and terrestrial vertebrates, remains of plants and animals previously not represented in certain portions of the stratigraphy and assemblages of fossils that might aid stratigraphic correlations – particularly those offering data for the interpretation of tectonic events,

geomorphologic evolution, paleoclimatology, and the relationships of aquatic and terrestrial species. Most of the fossils found in Monterey County are of marine life forms and create a record of the region's geologic history of advancing and retreating sea levels. A review of nearly 700 known fossils localities in the County was conducted in 2001; 12 fossil sites were identified as having outstanding scientific value (Rosenberg, 2001). None of these sites are located within or adjacent to either of the Proposed Project sites. The Proposed Project would not directly or indirectly destroy a paleontological resource or site or a unique geologic feature, as none exist within the Proposed Project area. Therefore, no impact would occur.

4.7 Greenhouse Gas Emissions

Environmental Setting

Global temperatures are affected by naturally occurring and anthropogenic-generated atmospheric gases, such as water vapor, carbon dioxide, methane, and nitrous oxide. Greenhouse gases (GHGs) are gases that absorb and re-emit infrared radiation in the atmosphere. The gases that are widely seen as the principal contributors to human-induced climate change include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), fluorinated gases such as hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Water vapor is excluded from the list of GHGs because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

Emissions of GHGs from human activities, such as electricity production, motor vehicle use, and agriculture, are elevating the concentration of GHGs in the atmosphere. GHG emissions from anthropogenic sources are causing a trend of unnatural warming of the earth's climate, known as global warming or global climate change.

MBARD has not yet adopted a threshold for construction-related GHG emissions but recommends utilizing thresholds set by neighboring districts (e.g., Sacramento Metropolitan Air Quality Management District [SMAQMD]). The SMAQMD GHG threshold is defined in terms of carbon dioxide equivalent (CO_2e), a metric that accounts for emissions from various GHGs based on their global warming potential. According to SMAQMD, a Project would result in a significant GHG-related impact if it would emit more than 1,100 metric tons of CO_2e per year ($MTCO_2e$/year). Operation of a stationary source project would not have a significant GHG impact if the project emits less than 10,000 $MTCO_2e$/year. Climate change has a cumulative impact; a project contributes to this impact through its incremental contribution of GHG emissions combined with the cumulative increase of all other sources of GHGs. If annual emissions of GHGs exceed these threshold levels, the Proposed Project would result in a cumulatively considerable contribution of GHG emissions and must implement mitigation measures (MBARD, 2016).

Regulatory Environment

Federal

***Federal Regulation and the Clean Air Act - Executive Order 13514*:** Executive Order 13514 is focused on reducing GHGs internally in federal agency missions, programs, and operations. Additionally, the executive order directs federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

On April 2, 2007, in Massachusetts v. U.S. EPA, 549 U.S. 497 (2007), the Supreme Court found that GHGs are air pollutants covered by the FCAA and that the U.S. EPA has the authority to regulate GHGs. The Court held that the U.S. EPA Administrator must determine whether emissions of GHGs from new motor vehicles cause or contribute to air pollution that may be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision.

On December 7, 2009, the U.S. EPA Administrator signed two (2) distinct findings regarding GHGs under Section 202(a) of the Clean Air Act:

- Endangerment Finding: The Administrator found that the current and projected concentrations of the six (6) key well-mixed GHGs (CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6) in the atmosphere threaten the public health and welfare of current and future generations.
- Cause or Contribute Finding: The Administrator found the combined emissions of these well-mixed GHGs from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare.

Although these findings did not impose any requirements on industry or other entities, this action was a prerequisite to finalizing the U.S. EPA's *Proposed Greenhouse Gas Emission Standards for Light-Duty Vehicles* published on September 15, 2009. On May 7, 2010, the final *Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards* was published in the Federal Register.

U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever GHG regulations for heavy-duty engines and vehicles and additional light-duty vehicle GHG regulations. President Obama outlined these steps in a Presidential Memorandum on May 21, 2010.

The final combined U.S. EPA and NHTSA standards making up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide (CO_2) per mile (the equivalent to 35.5 miles per gallon if the automobile industry were to meet this CO_2 level solely through fuel economy improvements). Together, these standards will cut GHG emissions by an estimated 960 million metric tons (MMT) and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016). On August 28, 2012, U.S. EPA and NHTSA issued their joint rule to extend this national program of coordinated GHG and fuel economy standards to model years 2017 through 2025 passenger vehicles.

State

***Assembly Bill 32 – California Global Warming Solutions Act*:** AB 32, the Global Warming Solutions Act of 2006, codifies the State of California's GHG emissions target by directing CARB to reduce the state's global warming emissions to 1990 levels by 2020. Governor Schwarzenegger signed and passed into law AB 32 on September 27, 2006. Since that time, the CARB, the California Energy Commission (CEC), the California Public Utilities Commission (CPUC), and the Building Standards Commission (BSC) have all been developing regulations that will help meet the goals of AB 32 and Executive Order S-3-05.[4]

[4] Note that AB 197 was adopted in September 2016 to provide more legislative oversight of CARB.

A Scoping Plan for AB 32 was adopted by CARB in December 2008. It contains the State of California's main strategies to reduce GHGs from business as usual (BAU) emissions projected in 2020 back down to 1990 levels. BAU is the projected emissions in 2020, including increases in emissions caused by growth, without any GHG reduction measures. The Scoping Plan has a range of GHG reduction actions, including direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, and market-based mechanisms such as a cap-and-trade system. This plan required CARB and other state agencies to develop and adopt regulations and other initiatives to reduce GHGs by 2012.

As directed by AB 32, CARB has also approved a statewide GHG emissions limit. On December 6, 2007, CARB staff resolved an amount of 427 MMT of CO_2e as the total statewide GHG 1990 emissions level and 2020 emissions limit. The limit is a cumulative statewide limit, not a sector-or facility-specific limit. CARB updated the future 2020 BAU annual emissions forecast because of economic downturn, to 545 MMT of CO_2e. Two (2) GHG emissions reduction measures currently enacted that were not previously included in the 2008 Scoping Plan baseline inventory were included, further reducing the baseline inventory to 507 MMT of CO_2e. Thus, an estimated reduction of 80 MMT of CO_2e is necessary to reduce statewide emissions to meet the AB 32 target by 2020.

CARB prepared an updated Scoping Plan which was released in 2017. The 2017 Scoping Plan identifies ways for California to reach the statewide 2030 climate target and next steps for reaching the 2050 target goal.

***Senate Bill 1368*:** SB 1368 is the companion bill of AB 32 and was signed by Governor Schwarzenegger in September 2006. SB 1368 required the CPUC to establish a greenhouse gas emission performance standard. Therefore, on January 25, 2007, the CPUC adopted an interim GHG Emissions Performance Standard to help mitigate climate change. The Emissions Performance Standard is a facility-based emissions standard requiring all new long-term commitments for baseload generation to serve California consumers be with power plants that have emissions no greater than a combined cycle gas turbine plant. That level is established at 1,100 pounds of CO_2 per megawatt-hour. "New long-term commitment" refers to new plant investments (new construction), new or renewal contracts with a term of five (5) years or more, or major investments by the utility in its existing baseload power plants. Additionally, the CEC established a similar standard for local publicly owned utilities that cannot exceed the greenhouse gas emission rate from a baseload combined-cycle natural gas fired plant. On July 29, 2007, the Office of Administrative Law disapproved the CEC's proposed Greenhouse Gases Emission Performance Standard rulemaking action and subsequently, the CEC revised the proposed regulations. SB 1368 further requires that all electricity provided to California, including imported electricity, must be generated from plants that meet the standards set by the CPUC and CEC.

***Senate Bill 350 – Clean Energy and Pollution Reduction Act*:** In September 2015, the California Legislature passed SB 350, which increases the State's Renewables Portfolio Standard Program for content of electrical generation from the 33 percent target for 2020 to a 50 percent renewables target by 2030 (CPUC, 2025).

***Executive Order S-03-05*:** On June 1, 2005, Governor Schwarzenegger signed Executive Order S-03-05, the purpose of which was to implement requirements for the California Environmental Protection Agency (CalEPA) to provide ongoing reporting on a biennial basis to the State Legislature and Governor's Office on how global warming is affecting the state. Required areas of impact reporting include public

health, water supply, agriculture, coastline, and forestry. The CalEPA secretary is required to prepare and report on ongoing and upcoming mitigation designed to counteract these impacts.

***Executive Order B-30-15*:** On April 15, 2015, Governor Brown signed Executive Order B-30-15, the purpose of which is to establish a GHG reduction of 40 percent below 1990 levels by 2030. The Executive Order intended to help the state work towards a further emissions reduction target of 80 percent below 1990 levels by the year 2050. The order directed state agencies to prepare for climate change impacts through prioritization of adaptation actions to reduce GHG emissions, preparation for uncertain climate impacts through implementation of flexible approaches, protection of vulnerable populations, and prioritization of natural infrastructure approaches.

***Executive Order B-55-18 and SB 100 – 100 Percent Clean Energy Act of 2018*:** On September 10, 2018, Governor Brown signed both SB 100 – 100 Percent Clean Energy Act of 2018 and Executive Order B-55-18 To Achieve Carbon Neutrality. SB 100 sets California on course to achieving carbon-free emissions from the electric power production sector by 2045. SB 100 also increases the required emissions reduction generated by retail sales to 60 percent by 2030, an increase of 10 percent compared to previous goals. B-55-18 establishes a new goal of achieving statewide "carbon neutrality as early as possible and no later than 2045, and to achieve and maintain net negative emissions thereafter" (Governor Brown, 2018).

Local

Monterey Bay Air Resources District: To date, MBARD has not adopted regulations or CEQA guidance for analysis of GHG effects of land use projects; nor has it prepared a qualified GHG reduction plan for use or reference by local agencies. MBARD recommends utilizing thresholds set by neighboring districts, such as the SMAQMD. Therefore, the Proposed Project would be considered to result in a significant construction GHG related impact if the Proposed Project would emit more than 1,100 metric tons of CO_2e ($MTCO_2e$) per year (SMAQMD, 2020).

1982 Monterey County General Plan: There are no policies or goals from the 1982 Monterey County General Plan that would be applicable to the Proposed Project.

***Carmel Area LUP*:** The Carmel Area LUP includes goals and policies related to the regulation of greenhouse gas emissions. None of the greenhouse gas-related goals from the Carmel Area LUP may apply to the Proposed Project.

City's General Plan: The City's General Plan includes goals and policies related to the reduction of greenhouse gas emissions. The following policies from the City's General Plan may apply to the Proposed Project:

G7-3: To reduce release of airborne pollutants and contribution to green house gases.

O7-3: Promote planning and programs that result in the reduction of airborne pollutants.

P7-15: Continue to implement the City's Green Building Program requiring green building construction practices for both residential and nonresidential construction.

P7-18: Adopt and encourage sustainable practices that promote energy efficiency, improve air quality and preserve natural resources when consistent with the City's diverse design traditions.

Del Monte Forest Area LUP: There are no policies or goals from the Del Monte Forest Area LUP that would be applicable to the Proposed Project.

Would the project:	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	■	☐
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	■	☐

Impact Discussion

a. Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

The Proposed Project is in the NCCAB, where MBARD regulates air quality. For the purposes of this analysis, the SMAQMD's threshold of 1,100 $MTCO_2e$ is being utilized given the fact that MBARD has not yet adopted construction thresholds for GHG emissions. If a project emits less than 1,100 $MTCO_2e$ per year, its GHG emissions impact would be less-than-significant. The Proposed Project would generate temporary GHG emissions during construction activities. Detailed air quality modeling for construction of the Proposed Project was performed, as shown in **Appendix B**. The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites, which would require the use of mechanized equipment during construction that would emit GHGs. **Table 5** shows the Project's projected emissions of GHGs during construction.

Table 5
Construction Emissions of GHGs

Construction Phase	Annual Emissions ($MTCO_2e$/Year)
Site Preparation (2026)	39.80
Paving (2027)	38.43
Trenching (2026)	70.44
Trenching (2027)	172.1
Total Annual Construction Emissions:	320.77
Amortized Construction Emissions:[1]	10.69

Source: **Appendix B**
1. Amortized emissions are quantified based on an estimated 30-year project life.

As shown in **Table 5**, construction-period GHG emissions would be well below MBARD's threshold of 1,100 $MTCO_2e$ per year. As a result, the Proposed Project would have a less-than-significant impact from emissions of GHGs during construction.

The Proposed Project is a replacement of existing utilities and would not generate additional GHG emissions during operation compared to existing conditions. However, when accounting for the amortized construction GHG emissions over the lifetime of the proposed utility infrastructure, the

Proposed Project would generate an increase of 10.69 $MTCO_2e$/year of GHG of annual emissions. These amortized annual emissions would be well below MBARD's threshold of 1,100 $MTCO_2e$/year. As a result, the Proposed Project would have a less-than-significant impact from emissions of GHGs during construction.

b. Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

As described above, the Proposed Project is not expected to generate GHG emissions that would exceed applicable thresholds. In addition, the Proposed Project would not conflict with any applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases, as the Proposed Project would not generate long-term emissions of GHGs. The Proposed Project would have a less-than-significant impact with regard to conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

4.8 Hazards and Hazardous Materials

Environmental Setting

Hazardous materials, as defined by the California Code of Regulations, are substances with certain physical properties that could pose a substantial present or future hazard to human health or the environment when improperly handled, disposed, or otherwise managed. Hazardous waste is any hazardous material that is discarded, abandoned, or slated to be recycled. Hazardous materials and waste can result in public health hazards if improperly handled, released into the soil or groundwater, or through airborne releases in vapors, fumes, or dust. Soil and groundwater having concentrations of hazardous constituents higher than specific regulatory levels must be handled and disposed of as hazardous waste when excavated or pumped from an aquifer.

Review of the California Department of Toxic Substances Control's (DTSC) EnviroStor database and the State Water Resources Control Board's (SWRCB) GeoTracker database confirmed that the Proposed Project site is not a hazardous materials site and is not adjacent to any site considered an active hazardous materials site. According to the GeoTracker database, there is an open site assessment for potential contaminants of concern located at the Carmel Cleaners facility in the City, approximately 0.5 miles from the Pescadero Road site and 0.7 miles from the Carmel Woods site. The Proposed Project sites are located within 4.5 miles of the Monterey Regional Airport.

The Stevenson Lower and Middle School is located adjacent to the Pescadero Road site, and 0.5 miles from the Carmel Woods site. The next closest school is Carmel High School, which is one (1) mile away from the Proposed Project sites.

The Project does not include the use of significant quantities of hazardous materials. All fueling of construction equipment would occur at the WWTP's on-site refueling station or other construction staging areas. All refueling of construction equipment would occur at least 100 feet from riparian habitat, bodies of surface water, and any other areas that could potentially flow into bodies of surface water in the event of an accidental spill.

Government Code Section 65962.5 requires CalEPA to develop a Cortese List that is updated at least annually. While CalEPA no longer maintains a single Cortese List, CalEPA uses the following database and list to meet the requirements of Government Code Section 65962.5.

- List of Hazardous Waste and Substances sites from DTSC database.
- List of Leaking Underground Storage Tank (LUST) Sites from the SWRCB GeoTracker database.
- List of solid waste disposal sites identified by the SWRCB or a RWQCB with waste constituents above hazardous waste levels outside the waste management unit.
- List of "active" Cease and Desist Orders (CDO) and Clean-up and Abatement Orders (CAO) from the SWRCB.
- List of hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code, identified by DTSC.

Both Project sites are located in a local responsibility area (LRA) with a very high fire hazard and near a state responsibility area (SRA) with a very high fire hazard.

Regulatory Environment

Federal

Environmental Protection Agency: The EPA is responsible for enforcing regulations at the federal level pertaining to hazardous materials and waste. The primary federal hazardous materials and wastes laws are contained in the Resources Conservation and Recovery Act (RCRA) of 1976 and in the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980.

Comprehensive Environmental Response, Compensation and Liability Act: CERCLA, more commonly known as Superfund, established the National Priorities List for identifying and obtaining funding for remediation of severely contaminated sites. Federal regulations pertaining to hazardous materials and wastes are contained in 40 CFR. The regulations contain specific guidelines for determining whether a waste is hazardous, based on either the source of generation or the characteristics of the waste.

U.S. Department of Transportation: The U.S. Department of Transportation (DOT) regulates transportation of hazardous materials by truck and rail. DOT regulations establish criteria for safe handling procedures. The California Administrative Code also includes federal safety standards.

***Solid Waste Disposal Act/Federal Resource Conservation and Recovery Act*:** RCRA manages solid waste, landfills, and medical wastes. Under this act, solid wastes include hazardous materials. The act provides provisions for the generation, storage, treatment, and disposal of hazardous waste.

Toxic Substances Control Act: The Toxic Substances Control Act (TSCA), passed in 1976, requires the EPA to report, test, place restrictions on, and keep record of chemical substances and mixtures. The EPA has authority over the use, production, importation, and disposal of specific chemicals. Some chemicals include polychlorinated biphenyls (PCBs), asbestos, radon, and lead paint.

State

***California Environmental Protection* Agency:** The EPA has delegated much of its regulatory authority to individual states whenever adequate state regulatory programs exist. The DTSC Division of CALEPA is the

agency empowered to enforce federal hazardous materials and waste regulations in California, in conjunction with the EPA.

California hazardous materials and waste laws incorporate federal standards, but in many respects, are stricter. For example, the California Hazardous Waste Control Law, the State equivalent of RCRA, contains a much broader definition of hazardous materials and waste. The CCR, Titles 22 and 26, contain State hazardous materials waste laws. Regulations implementing the California Hazardous Waste Control Law list hazardous chemicals; establish criteria for identifying, packaging, and labeling hazardous wastes; prescribe management of hazardous wastes; establish permit requirements for hazardous waste treatment, storage, disposal, and transportation; and identify hazardous wastes that cannot be disposed of in landfills.

Local

***1982 Monterey County General Plan Policies*:** The 1982 Monterey County General Plan includes goals and policies related to hazards and hazardous materials that could apply to the Proposed Project:

Objective 17.4: Reduce fire hazard risks to an acceptable level by regulating the type, density, location, and/or design and construction of development.

Objective 18.1: Reduce the level of risk from hazardous chemicals to an acceptable level by regulating the storage of hazardous chemicals.

***Carmel Area LUP*:** The Carmel Area LUP includes goals and policies related to hazards and hazardous materials. The following goal from the Carmel Area LUP may apply to the Proposed Project:

2.7.4.6: The County shall require all new development to have adequate water available for fire suppression. The Fire Districts and the Planning and Building Inspection Department shall determine the adequacy and location of individual water storage to be provided.

City's General Plan: The City's General Plan includes goals and policies related to hazards and hazardous materials. The following policies from the City's General Plan may apply to the Proposed Project:

P5-188: Cooperate with regional and state agencies in the detection and elimination of illegal discharges of pollutants into Carmel Bay. Promote the proper disposal of pollutants to the sanitary sewer or hazardous waste facilities rather than the storm drainage system. Establish appropriate inspection criteria for new development and respond to complaints of illegal discharges. (LUP)

P8-19: Encourage new development located in or adjacent to fire hazard areas to incorporate fire preventative site design, access, landscaping and building materials, and other fire suppression techniques.

G8-3: Reduce potential impacts from hazardous materials.

O8-7: Minimize the generation of hazardous waste within the City and ensure that hazardous waste is transported and disposed of in a proper manner.

O8-8: Ensure that resources are available to effectively respond to hazardous-waste emergencies.

Del Monte Forest Area LUP: The Del Monte Forest Area LUP includes goals and policies related to hazards and hazardous materials. The following policies from the Del Monte Forest Area LUP may apply to the Proposed Project:

38: New development shall be sited and designed to minimize risk from geologic, flood, or fire hazards; to assure stability and structural integrity; and to not threaten the stability of a site, contribute significantly to erosion, geologic instability, or destruction of the site or surrounding areas. Areas that are subject to the highest category of fire hazard in the California Department of Forestry and Fire Protection Fire Hazard Rating System shall be considered unsuitable for development, unless it can be clearly demonstrated that design measures can adequately mitigate the fire hazard. Mitigation of hazards shall be demonstrated by detailed technical reports specific to the hazard type in question (e.g., soils, geologic, geotechnical, erosion control, fire hazard, etc.) that are prepared by persons who are appropriately qualified in the hazard field in question (e.g., civil engineers and engineering geologists familiar with coastal processes, geotechnical engineers, etc.) and that are submitted as part of any permit application. All technical reports shall be prepared consistent with County criteria for such reports (e.g., criteria for detail on seismic hazards are contained in the General Plan Safety Element; criteria for detail on fire hazards are based on the fire hazard rating system of the California Department of Forestry and Fire Protection; criteria for detail on shoreline hazards are based on Coastal Commission guidelines). All technical reports and analyses shall accompany development applications and/or be part of any required environmental documentation (e.g., that is associated with CEQA).

Would the project:	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	■
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	■
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	■	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	■
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	■

Would the project:	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	■	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	■	☐

Impact Discussion

a/b. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

The Proposed Project does not include the use of significant quantities of hazardous materials. However, construction equipment utilized for installation of new underground sewer main lines in both Project sites may require the use of or generate limited quantities of acutely hazardous materials, substances, or waste (such as fuels, solvents, etc.). The construction contractor would be required to implement BMPs for the use, storage, and transport of hazardous materials for fueling equipment and disposing of construction waste. All fueling of construction equipment would occur at the WWTP's on-site refueling station or other construction staging areas. All refueling of construction equipment would occur at least 100 feet from riparian habitat, bodies of surface water, and any other areas that could potentially flow into bodies of surface water in the event of an accidental spill. In addition, the Proposed Project would utilize fuel containment equipment (i.e., absorbent sheets and waddles) at the refueling site as a construction BMPs. The Proposed Project would not introduce new hazards or require the use, transport, or disposal of hazardous materials beyond those previously associated with the existing sewer main lines. Operation of the Proposed Project would include regular maintenance to minimize the potential for sewage leaks. However, this is consistent with CAWD's existing maintenance schedule. Furthermore, the anticipated maintenance schedule under Proposed Project conditions is anticipated to be less than existing conditions as the new sewer alignments would be more reliable and easier to access. As a result, the Proposed Project would have no impact with respect to creating a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials and/or reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment during construction.

c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

The Stevenson Lower and Middle School is located adjacent to the Pescadero Road site, and 0.5 miles from the Carmel Woods site. The next closest school is Carmel High School, which is located approximately one (1) mile away from the Proposed Project sites. While construction of the Proposed Project could require handling small quantities of hazardous or acutely hazardous materials, substances, or waste (such as fuels, solvents, etc.), the construction contractor would handle and store all such materials in accordance with applicable manufacturers' recommendations. Operation of the Proposed

Project would not require the handling of significant quantities of hazardous materials or result in the emission of hazardous materials. Therefore, the Proposed Project would have a less-than-significant impact regarding the emission or handling of hazardous materials within one-quarter mile of an existing school.

d. Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code § 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

The SWRCB and the DTSC maintain databases of other hazardous material release sites with documented environmental contamination (DTSC, 2026). No hazardous materials release records are known to occur within the Proposed Project area based on a search of SWRCB and DTSC regulatory databases. No active hazardous materials sites are known to occur within the vicinity of the Proposed Project site. Therefore, the Proposed Project would have no impact related to being located on a site included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

The Proposed Project is located within 4.5 miles of the Monterey Regional Airport and is therefore not in the Monterey Regional Airport's Airport Influence Area. Since the Proposed Project is not located within an airport LUP area, the Proposed Project would have no impact related to this hazard.

f. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

The County of Monterey Multi-Jurisdictional Hazard Mitigation Plan does not identify specific designated evacuation routes, since evacuation routes are considered dynamic and would change based on the nature and location of an emergency. As a result, all local roadways within the Proposed Project area could potentially be utilized as evacuation routes during an emergency. The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. A maximum of eight construction personnel may be present with an estimated eight trips per day, which would generate minimal additional traffic on local roadways in case of an emergency.

During construction in the Pescadero Road area, portions of Pescadero Road, Lincoln Street, and Monte Verde Streets in the vicinity of the work would be closed to all vehicle and pedestrian through traffic during working hours. Traffic would be routed around the work area through 1st Avenue, Dolores Street, and Castro Lane. Detours and road closures in the Carmel Woods Project site would be temporary and would vary as construction occurs. Although various impacts to vehicle and pedestrian access would occur, including lane closures and complete road closures, a Traffic Control Plan (TCP) would be developed to maintain access for local traffic in accordance with County requirements for encroachment permits. This would reduce potential interference with emergency response vehicles or emergency area evacuation resulting from proposed road or lane closures. In addition, lane or road closures from the Proposed Project would be short-term overall and would not be located in a single place for long periods of time due to the linear nature of the Proposed Project. The Proposed Project would not generate additional traffic once operational that could interfere with emergency response or evacuation.

Therefore, the Proposed Project would have a less-than-significant impact related to impairing implementation or physically interfere with an adopted emergency response plan or emergency evacuation plan.

g. Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Both Proposed Project components are located in an LRA mapped as a very high fire hazard and near a SRA mapped as a very high fire hazard (Monterey County, 2026). The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. Construction of the Proposed Project could result in sparks or other sources of ignition, constituting a temporary construction-related fire hazard. However, construction would comply with all applicable fire safety provisions, thereby reducing the risk of damage from fire to the maximum extent practicable. All mechanized construction equipment would be fitted with spark arrestors in compliance with all applicable State and local regulations, which would substantially reduce the risk of wildland fire as a result of construction. Although the Proposed Project borders the Del Monte Forest Area, all construction work involving mechanized equipment would be limited to the outlined existing paved roadways and would not exacerbate fire risk in the forest. Once operational, the Proposed Project would be located underground and would not expose people or structures to wildland fires. Therefore, the Proposed Project would have a less-than-significant impact related to a significant risk of loss, injury, or death involving wildland fires.

4.9 Hydrology and Water Quality

Environmental Setting

The Project is not located in any groundwater basin, although it is in the Carmel River Watershed. The nearest groundwater basin is the Carmel River Groundwater Basin, which is located about two (2) miles from the Proposed Project site and is managed by the Monterey Peninsula Water Management District (MPWMD). The Carmel Valley Groundwater Basin is designated by the California Department of Water Resources (DWR) as a medium priority basin (SWRCB, 2026). The Proposed Project is designated by the Federal Emergency Management Agency (FEMA) as Flood Zone X (Unshaded), located in an area with minimal flood hazards.

Regulatory Environment

Federal

***National Flood Insurance Program*:** FEMA established the National Flood Insurance Program (NFIP) to reduce flooding on private and public properties. The program provides subsidized flood insurance to communities that comply with FEMA regulations protecting development in floodplains. As part of the program, FEMA publishes Flood Insurance Rate Maps (FIRM) that identify Special Flood Hazard Areas (SFHA). An SFHA is an area that would be inundated by the one-percent annual chance flood, which is also referred to as the base flood or 100-year flood.

***Porter-Cologne Water Quality Act*:** The Porter-Cologne Act delegates authority to the SWRCB to establish regional water quality control boards. The Central Coast RWQCB has authority to use planning, permitting, and enforcement to protect beneficial uses of water resources in the Project region. Under

the Porter-Cologne Water Quality Control Act (California Water Code Sections 13000 - 14290), the RWQCB is authorized to regulate the discharge of waste that could affect the quality of the State's waters, including projects that do not require a federal permit through the USACE. To meet RWQCB 401 Certification standards, all hydrologic issues related to a project must be addressed, including the following:

- Wetlands
- Watershed hydrograph modification
- Proposed creek or riverine related modifications
- Long-term post-construction water quality

Any construction or demolition activity that results in land disturbance equal to or greater than one (1) acre must comply with the Construction General Permit (CGP), administered by the SWRCB. The CGP requires the installation and maintenance of best management practices to protect water quality until the site is stabilized.

State

***Statewide Construction General Permit*:** The SWRCB has implemented an NPDES CGP for the State of California. For projects disturbing one (1) acre or more, a Notice of Intent (NOI) and SWPPP must be prepared by a qualified professional prior to commencement of construction. The CGP includes requirements for training, inspection, record keeping, and for projects of certain risk levels, monitoring. The general purpose of the requirements is to minimize the discharge of pollutants and to protect beneficial uses and receiving waters from the adverse effects of construction-related storm water discharges.

Local

***1982 Monterey County General Plan Policies*:** The 1982 Monterey County General Plan includes goals and policies related to hydrology and water quality that could apply to the Proposed Project:

Objective 5.1: Protect and preserve watersheds and recharge areas, particularly those critical for the replenishment of reservoirs and aquifers.

Policy 5.1.1: Vegetation and soil shall be managed to protect critical watershed areas.

Policy 5.1.2: Land use and development shall be accomplished in a manner to minimize runoff and maintain groundwater recharge in vital water resource areas.

Objective 5.2: Preserve vegetation where necessary to protect water ways from bank erosion and siltation.

Policy 5.2.1: Owners of property adjacent to waterways or responsible agencies shall be encouraged to maintain healthy vegetation along the drainage course, or provide other suitable means of preventing bank erosion or siltation.

Goal 16: To minimize the risk from the damaging effects of flooding and erosion.

Policy 16.2.4: All new development, including filling, grading, and construction, within designated 100-year floodplain areas shall conform to the guidelines of the National Flood Insurance

Program and policies established by the County Board of Supervisors, with the advice of the Monterey County Flood Control and Water Conservation District.

***Carmel Area LUP*:** The Carmel Area LUP includes goals and policies related to the regulation of hydrology and water quality. The following goals from the Carmel Area LUP may apply to the Proposed Project:

2.7.4.1: The County's primary means of minimizing risk from flood hazards shall be through land use planning. Open space uses such as agriculture, passive to low intensity recreation, and wildlife habitat are considered acceptable land uses in the 100-year floodplain.

2.7.4.5: Where development is allowed or structural flood control measures are required, restoration of waterway banks and disturbed areas to a natural vegetated appearance shall be required. Landscaping themes shall emphasize the use of native plants which are appropriate to riparian corridors. Revegetation of disturbed riparian corridors by planting of native trees shall be encouraged due to their role in absorbing and channeling the force of floods away from adjacent banks.

City's General Plan: The City's General Plan includes goals and policies related to the regulation of hydrology and water quality. The following policies from the City's General Plan may apply to the Proposed Project:

G1-6: Protect, conserve, and increase Carmel's available water resources and water quality. (LUP)

P1-115: Monitor the capacity of the Carmel Area Wastewater District for wastewater treatment. Ensure sufficient capacity is available for all projected development with priority given to uses consistent with the Coastal Act, including residential uses, and that this capacity is considered in all land use decisions.

P5-188: Cooperate with regional and state agencies in the detection and elimination of illegal discharges of pollutants into Carmel Bay. Promote the proper disposal of pollutants to the sanitary sewer or hazardous waste facilities rather than the storm drainage system. Establish appropriate inspection criteria for new development and respond to complaints of illegal discharges. (LUP)

Del Monte Forest Area LUP: The Del Monte Forest Area LUP includes goals and policies related to the regulation of hydrology and water quality. The following policy from the Del Monte Forest Area LUP may apply to the Proposed Project:

4: All development shall employ adequate erosion/sediment control and water quality construction best management practices (BMPs) during construction, and all such BMPs shall be in place prior to the commencement of construction and shall be maintained in good operating condition through the construction period.

Would the project:	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☐	☐	■	☐

Would the project:	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	■	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i) result in substantial erosion or siltation on- or off-site?	☐	☐	■	☐
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?	☐	☐	■	☐
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	■	☐
iv) impede or redirect flood flows?	☐	☐	■	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	■	☐
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	■

Impact Discussion

a. Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

Implementation of the Proposed Project would require approximately 3,400 cy of cut and 3,400 cy of fill, a total of 10,800 sf of trenching and ground disturbance, and newly paved impervious surfaces that could result in temporary water quality impacts. Replacement impervious surfaces would be installed such that drainage conditions are the same or better than pre-Project conditions. However, soil disturbance and newly paved areas could potentially generate minor additional runoff compared to existing conditions that could potentially degrade regional surface water and/or groundwater quality. However, the overall amount of newly paved surfaces represents a minor increase in impervious surface coverage compared to existing conditions and would not generate runoff in substantial quantities such that impacts to the quality of regional surface water or groundwater would occur.

In addition, water quality impacts could occur as a result of runoff from the use of hazardous materials (e.g., diesel fuel, gasoline, etc.) during Project implementation. The existing sewer main runs upslope from, and parallel to, Pescadero Creek and associated riparian corridor. The construction contractor would be required to implement BMPs for the use, storage, and transport of hazardous materials for fueling equipment and disposing of construction waste. To minimize water quality impacts, the contractor would be required to use the on-site refueling stations at the WWTP or other construction

staging areas. These refueling areas, as discussed previously, would be located at least 100 feet from surface waterways and/or riparian habitats to reduce impacts from potential spills, including impacts related to violation of water quality standards. All waste generated by the Project, including exported soil materials, would be disposed of in accordance with all waste discharge requirements. Therefore, the Project would have a less-than-significant impact related to violating applicable water quality standards or waste discharge requirements, or otherwise degrading the quality of surface water or groundwater.

b. Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. The Proposed Project includes new/repaved impervious surfaces that could interfere with groundwater recharge. However, this paved area would largely encompass previously disturbed and developed roadways. The Proposed Project site is not located in a designated groundwater basin and therefore would not impact groundwater recharge. Given the relatively small area of disturbance and minor increase of new/repaved impervious surfaces compared to existing conditions, the Proposed Project would not substantially interfere with groundwater recharge. The Project would not introduce any new water uses that could substantially decrease groundwater supplies. The Proposed Project would have a less-than-significant impact from interfering with groundwater recharge or decreasing groundwater supplies.

c. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: i) Result in substantial erosion or siltation on-or-off site, ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on-or-off site, iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff, or iv) impede or redirect flood flows?

The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. The Proposed Project would not result in new impervious surfaces that would result in a substantial increase in additional runoff that would exceed the capacity of existing or planned stormwater systems or substantially alter the existing drainage pattern of the Project sites. The Proposed Project would not substantially increase the rate or amount of service runoff or impede or redirect flood flows. The Proposed Project includes installation of new utility lines that that could result in increased erosion or siltation on-or-offsite during construction. However, the Proposed Project would implement BMPs, as discussed in **Section 4.6, Geology and Soils,** during construction to reduce erosion and the loss of topsoil. In addition, these impacts would be limited to the construction period, and no operational impacts would occur as the utility lines would be installed underground. Therefore, the Proposed Project would have a less-than-significant impact with regard to substantial alteration of existing drainage pattern of the Project site.

d. Would the project, in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

The Proposed Project site is located outside of the tsunami hazard zone as delineated by the California DOC (DOC, 2026). Therefore, the Proposed Project would not result in the risk of pollutants due to

inundation from a tsunami. There are no stationary bodies of water located in the vicinity of the Proposed Project. As a result, the Proposed Project would not result in the risk or release of pollutants due to inundation from a seiche.

The Proposed Project sites are located within FEMA Flood Zone X (Unshaded) and is therefore considered to be in a low flood hazard area (Monterey County, 2026). Therefore, it is unlikely that flooding of the Proposed Project sites during construction would risk pollutant release. In addition, all Project materials that could release pollutants in the event of flooding would be stored and maintained in accordance with all manufacturer specifications to prevent the risk of pollutant release. All potential sources of pollutants associated with construction of the Proposed Project would be removed from staging areas following completion of Project activities. Once operational, the Proposed Project components would be located underground and the risk of pollutant release due to flooding would be minimal. For these reasons, the Proposed Project would have a less-than-significant impact related to the risk of pollutant release due to site inundation by flooding.

e. Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

The Proposed Project is not located in a designated groundwater basin and therefore would not impact groundwater recharge. The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites, and does not include any new development or new impervious surfaces that could potentially conflict or obstruct with implementation of a water quality control plan. Therefore, no impact would occur.

4.10 Noise

Environmental Setting

Noise is generally defined as sound that is loud, disagreeable, or unexpected. Sound is mechanical energy transmitted in the form of a wave because of a disturbance or vibration. Sound levels are described in terms of both amplitude and frequency. Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. Sound levels are usually measured and expressed in decibels (dB) using the A-weighted sound pressure level (dBA) with 0 dB corresponding to the threshold of hearing. The A-weighting scale is an adjustment to the actual sound pressure levels so that they are consistent with the human hearing response. Decibels are measured on a logarithmic scale that quantifies sound intensity in a manner similar to the Richter scale used to measure earthquake magnitudes. A doubling of the energy of a noise source, such as doubling of traffic volume, would increase the noise level by three dB; dividing the energy in half would result in a three dB decrease (Caltrans, 2013). **Table 6** provides typical noise levels for construction equipment at distances of 50, 100, 200, and 400 ft.

Table 6
Construction Equipment Noise Emission Levels

Equipment	Typical Noise Level (dBA) 50 feet from Source	Typical Noise Level (dBA) 100 feet from Source[1]	Typical Noise Level (dBA) 200 feet from Source[1]	Typical Noise Level (dBA) 400 feet from Source[1]
Air Compressor	81	75	69	63
Backhoe	80	74	68	62
Ballast Equalizer	82	76	70	64
Ballast Tamper	83	77	71	65
Compactor	82	76	70	64
Concrete Mixer	85	79	73	67
Concrete Pump	82	76	70	64
Concrete Vibrator	76	70	64	58
Dozer	85	79	73	67
Generator	81	75	69	63
Grader	85	79	73	67
Impact Wrench	85	79	73	67
Jack Hammer	88	82	76	70
Loader	85	79	73	67
Paver	89	83	77	71
Pneumatic Tool	85	79	73	67
Pump	76	70	64	58
Roller	74	68	62	56

Source: DOT, Transit Noise and Vibration Impact Assessment, 2006
Note: Construction generated noise levels drop off at a rate of about six (6) dBA per doubling of distance between the source and receptor.

The County General Plan provides land use compatibility guidelines for community noise levels. Normally acceptable noise levels range between 50 and 60 dBA for single-family residential land uses and between 50 and 70 dBA for neighborhood parks, schools, and commercial uses (Monterey County, 2010). Additional guidance for noise is provided by the Caltrans 2018 *Standard Specifications* document (Section 14-8.02A), which suggests that construction equipment should not exceed 86 dBA L_{max} at a distance of 50 feet from job site activities between 9:00 PM to 6:00 AM. Furthermore, the MCC prohibits the operation of machinery that exceeds 85 dBA at 50 feet at any time of day.

Ground-borne vibration consists of the oscillatory waves that move from a source through the ground to adjacent buildings or structures and vibration energy may propagate through the buildings or structures. Vibration may be felt, may manifest as an audible low-frequency rumbling noise (referred to as ground-borne noise), and may cause windows, items on shelves, and pictures on walls to rattle. The primary concern from vibration under CEQA is that it can be intrusive and annoying to building occupants at vibration-sensitive land uses and may cause structural damage.

Ground-borne vibration generated by manmade activities typically attenuates rapidly as distance from the source of the vibration increases. Vibration amplitudes are usually expressed in peak particle velocity (PPV). The PPV is normally described in inches per second (in/sec). PPV is defined as the maximum instantaneous positive or negative peak of a vibration signal and is often used to measure potential damage to structures as a result of ground-borne vibration. High levels of ground-borne vibration may cause damage to nearby buildings or structures; at lower levels, ground-borne vibration may cause minor cosmetic (i.e., non-structural damage) such as cracks. These vibration levels are nearly exclusively associated with high impact activities such as blasting, pile-driving, vibratory compaction,

demolition, drilling, or excavation. **Table 7** summarizes the vibration damage criteria recommended by the FTA for evaluating the potential for architectural damage to buildings. Vibration criteria related to human annoyance potential is provided in **Table 8**.

Table 7
Guideline Vibration Damage Potential Threshold Criteria (PPV)

Structure and Condition	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Source: AMBIENT, 2026

Table 8
Guideline Vibration Annoyance Potential Criteria (PPV)

Human Response	Transient Sources	Continuous/Frequent Intermittent Sources
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.10
Severe	2.0	0.4

Source: AMBIENT, 2026

The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites, and would result in temporary noise and ground-borne vibration during construction activities. The Proposed Project site is located in unincorporated Monterey County between the City and Del Monte Forest. Sensitive noise receptors within 25 feet of the vicinity of the Proposed Project include private residences.

Regulatory Environment

State

The State of California regulates vehicular and freeway noise affecting classrooms, sets standards for sound transmission and occupational noise control, and identifies noise insulation standards and airport noise/land-use compatibility criteria.

***California General Plan Guidelines*:** The State of California General Plan Guidelines, published by the Governor's Office of Land Use and Climate Innovation (LCI) (formerly the Office of Planning and Research), also provides guidance for the acceptability of projects in specific CNEL/Ldn contours. The guidelines also present adjustment factors that may be used to arrive at noise acceptability standards that reflect the noise control goals of the community, the community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution. For multi-family land uses, the State of California General Plan Guidelines identify a "normally acceptable" exterior noise level of up to 65 dBA CNEL/Ldn. Multi-family land uses are considered "conditionally acceptable" in noise environments of 60 to 70 dBA CNEL/Ldn, "normally unacceptable" in exterior noise environments of 70

to 75 CNEL/Ldn, and "clearly unacceptable" in exterior noise environments exceeding 75 dBA CNEL/Ldn. Assuming a minimum exterior-to-interior noise reduction of 25 dB, an exterior noise environment of 70 dBA CNEL/Ldn would allow for a normally acceptable interior noise level of 45 dBA CNEL/Ldn.

***California Code of Regulations*:** The California Commission of Housing and Community Development officially adopted noise insulation standards in 1974. In November 1988, the BSC approved revisions to these standards (Title 24, Part 2, CCR). Title 24 requires interior noise levels attributable to exterior sources must not exceed 45 dB in any habitable room. Additionally, the code specifies that multi-family residential buildings or structures that will be located in exterior CNEL (or Ldn) contours of 60 dBA, or greater, of sources such as a freeway, expressway, parkway, major street, thoroughfare, airport, rail line, rapid transit line or industrial noise source shall require an acoustical analysis showing that the building has been designed to limit intruding noise to an interior CNEL (or Ldn) of 45 dBA. Predictions must also be made for future noise levels for a period of at least 10 years from the time of building permit application.

Local

1982 Monterey County General Plan: The 1982 Monterey County General Plan includes goals and policies related to noise that could apply to the Proposed Project:

Objective 22.2: Ensure, through land use planning, a quiet acoustic environment in portions of the County to be developed.

Policy 22.2.1: The County shall require new development to conform to the noise parameters established by Table 6, Land Use Compatibility for Exterior Community Noise Environments.

Policy 22.3.1: The County shall develop cooperative working relationships between those uses that produce noise and those that are sensitive to noise to mitigate existing noise problems.

***Carmel Area LUP*:** None of the goals and policies related to noise standards from the Carmel Area LUP will apply to the Proposed Project.

City's General Plan: The City's General Plan includes the following goals and policies related to noise that could apply to the Proposed Project:

G9-1: Preserve Carmel's overall quiet environment; reduce noise in Carmel to levels compatible with the existing and future land uses and prevent the increase of noise levels in areas where noise sensitive uses are located.

O9-3: Control unnecessary, excessive and annoying noises within the City where not preempted by Federal or State control.

Del Monte Forest Area LUP: There are no policies or goals from the Del Monte Forest Area LUP that would be applicable to the Proposed Project.

Monterey County Code: Chapter 10.60 of the MCC enforces construction and operational noise regulations. MCC Section 10.60.030 prohibits the operation of machinery that exceeds 85 dBA at 50 feet at any time of day. MCC Section 10.60.040 limits nighttime noise levels to 45 dBA L_{eq} and 65 dBA L_{max} at 50 feet between 9:00 p.m. and 7:00 a.m. MCC Section 10.60.040(C) provides exemptions to compliance with the exterior nighttime noise level standards, including for equipment used in an emergency, which is defined as a situation arising from fire, explosion, act of God, or act of public enemy which, if not

corrected immediately, will potentially result in the loss of life, property or substantial environmental resources. However, there is no exemption provided for nighttime construction noise. The MCC does not include quantitative standards for ground-borne vibration.

City's Municipal Code: Section 8.56 of the City's Municipal Code specifies that "Class B" noise (including but not limited to noise created by power equipment and tools, appliances, workshops, vehicle repairs and testing, and construction projects) shall not be created or emitted between the hours of 6:30 P.M. of one day and 8:00 A.M. of the following day. The City does not have a quantitative threshold for construction noise.

Would the project result in:	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	■	☐	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	■	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	■

Impact Discussion

a. Would the project result in the generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Proposed Project construction activities would generate temporary noise, exposing sensitive receptors located directly adjacent to the Proposed Project sites to increased noise levels. The Proposed Project would involve the limited use of mechanized equipment, including excavators, dump trucks, backhoes, delivery trucks, pipe fusing equipment, asphalt pavers, a winch/pulling unit and cable with bursting head, and a water truck, which may result in increased noise levels at sensitive receptors during implementation of the Proposed Project. Typical noise levels for these equipment types are provided in **Table 6**, above. Due to the linear nature of the Proposed Project, noise generated from construction would not be located in a single location for extended period of time.

MCC Section 10.60.030 prohibits the operation of machinery that exceeds 85 dBA at 50 feet at any time of day. These thresholds are relied upon for the entire Project, including work taking place within City limits, since the City does not have an adopted quantitative noise threshold for construction noise. The nearest sensitive receptors are single-family residences that are located within approximately 25 feet of the Proposed Project sites, as well as the Stevenson Lower and Middle School, located approximately 50 feet from the Pescadero Road Project site. These sensitive residential receptors would be exposed to

noise from construction activities during the course of Project construction. Given the proximity of sensitive receptors to the Proposed Project sites, this analysis assumes a threshold of 85 dBA at 25 feet rather than the established threshold of 85 dBA at 50 feet. This represents a conservative analysis because 85 dBA would attenuate to approximately 79 dBA at 25 feet.

Construction noise was estimated using the Federal Highway Administration's (FHWA) Roadway Construction Noise Model (FHWA, 2006). The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites and would have a lower long-term noise average than a development project located at a single location due to the linear nature of the Project, as work would not remain concentrated in single locations for extended periods of time. As discussed above, Project construction could occur within approximately 25 feet of sensitive residential receptors, and approximately 50 feet from educational receptors. For the purposes of this analysis, the loudest piece of construction equipment (paver) was evaluated at a distance of 25 feet from the nearest sensitive receptor. Under this scenario, the hourly noise level at 50 feet from the construction area is calculated to be 83 dBA L_{eq}. Therefore, at the nearest noise-sensitive receivers to the Project area (approximately 25 feet), pipeline construction activities would generate maximum hourly noise levels up to 88 dBA L_{eq}. This would exceed the threshold of 85 dBA at 25 feet, which could result in a potentially significant temporary noise impact from construction. Implementation of **Mitigation Measure NOI-1** would minimize construction noise levels to below the MCC construction threshold and would reduce potentially significant impacts from temporary construction noise to sensitive receptors to a less-than-significant level.

> **Mitigation Measure NOI-1**: During Project construction, the Project contractor shall ensure that construction noise levels at the adjacent single-family residential uses are reduced to a noise level not to exceed the MCC's construction noise threshold of 85 dBA L_{eq} and shall implement the following measures:
>
> - At the construction area, provide a sign that includes a 24-hour telephone number for project information, and a procedure where a field engineer/construction manager respond to and investigate noise complaints and take corrective action, if necessary, in a timely manner.
> - If a noise complaint(s) is registered, the contractor and CAWD shall conduct noise measurements at the use(s) that registered the complaint and modify the means and methods of construction to maintain noise levels below the 85 dBA at 25 feet threshold.
> - The following measures may also be used to reduce noise levels:
> - The use of bells, whistles, alarms, and horns shall be restricted to safety warning purposes only.
> - Noise-reducing enclosures shall be used around stationary noise-generating equipment (e.g., compressors and generators) or located as far from sensitive receptors, as feasible.

No increase in ambient noise levels is expected during operation of the Proposed Project since all Project components would be located underground and would not generate any noise. No impact from an increase in operational noise levels would occur as a result of the Proposed Project.

b. Would the project result in the generation of excessive groundborne vibration or groundborne noise levels?

The Proposed Project would involve the limited use of mechanized equipment, including excavators, dump trucks, backhoes, delivery trucks, pipe fusing equipment, asphalt pavers, a winch/pulling unit and cable with bursting head, and a water truck, which may result in increased noise and ground-borne vibration levels at sensitive receptors during implementation of the Proposed Project. The Proposed Project is located within approximately 25 feet adjacent to residences throughout most of the roadways within the Proposed Project sites, therefore potentially impacting sensitive receptors during construction. The use of mechanized equipment during Project construction would generate increased temporary ground-borne vibration. The Proposed Project would include the use of loaded trucks, which could generate vibration levels at or exceeding 0.076 PPV at nearby buildings. This would be below the 0.12 PPV that could potentially result in structural damage to buildings adjacent to the Proposed Project sites (**Table 6**) and below the "distinctly perceptible" range of 0.25 PPV for transient sources of vibration and the "strongly perceptible" range of 0.10 PPV for continuous sources of vibration (**Table 7**). Use of equipment producing greater ground-borne vibration (i.e. roller compactor, bulldozers, etc.) is not proposed. In addition, due to the linear nature of the Proposed Project, noise and ground-borne vibration generated from construction would not be located in a single location for extended period of time. As a result, ground-borne vibration from Project construction would be below applicable Caltrans thresholds for ground-borne vibration.

Once operational, the Proposed Project would be located underground and would not generate a substantial permanent increase in noise levels or produce substantial groundborne vibration compared to existing conditions. Therefore, the Proposed Project would have a less-than-significant impact with regards to the generation of excessive groundborne vibration or groundborne noise levels.

c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

There are no active airports within two miles of the Project site. The Monterey Regional Airport is located approximately 4.5 miles from the Carmel Woods Project site. As result, the Proposed Project would have no impact from exposing people residing or working in the Project area to excessive noise levels from airport operation.

4.11 Public Services

Environmental Setting

The majority of the Proposed Project is located in unincorporated Monterey County and is served by the Monterey County Sheriff's Office for police protection and the Cypress Fire Protection District for fire protection services. Although the Carmel Police Department is the nearest police department and serves the City, the Carmel Police Department could reasonably be expected to respond to an emergency taking place at the Proposed Project sites.

The Proposed Project is not located on any State Parks property. There are no County parks surrounding the Proposed Project sites. Forest Hill Park, operated by the City, is located about 0.2 miles south of the Pescadero Road Project site and 0.5 miles south of the Carmel Woods Project site. There are no other

recreational facilities located on the Project site or surrounding area. The Carmel Unified School District (CUSD) serves the schools within the Project area. The closest school is the Stevenson Lower and Middle School, which is located adjacent to the Pescadero Road site and 0.5 miles from the Carmel Woods site. The next closest school is Carmel High School, which is one mile away from the Proposed Project sites. Additionally, the Community Hospital of the Monterey Peninsula is located about 0.6 miles from the Carmel Woods Project site and one mile from the Pescadero Road Project site. No other public facilities are located on the Proposed Project sites.

Regulatory Environment

Local

***1982 Monterey County General Plan*:** None of the policies provided in the 1982 County General Plan related to public services are applicable to the Proposed Project.

***Carmel Area LUP*:** None of the policies provided in the Carmel Area LUP related to public services are applicable to the Proposed Project.

City's General Plan: The following policy from the City's General Plan could apply to the Proposed Project:

O6-2: Support adequate levels of public services and facilities to serve the needs of the community, including police and fire protection, refuse and sanitary disposal services, building safety and public utility services.

Del Monte Forest Area LUP: There are no policies or goals from the Del Monte Forest Area LUP related to public services that would be applicable to the Proposed Project.

Would the project:	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:	☐	☐	■	☐
a) Fire Protection?	☐	☐	■	☐
b) Police Protection?	☐	☐	■	☐
c) Schools?	☐	☐	☐	■
d) Parks?	☐	☐	☐	■
e) Other public facilities?	☐	☐	☐	■

Impact Discussion

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

a. Fire Protection?

The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. The Proposed Project would not require the provision or the need for new or altered fire protection facilities since it consists of modifications to existing sewer infrastructure. Although most of the Project construction work would take place underground, temporary road closures and/or detours would be required due to the limited width of affected roadways.

During construction in the Pescadero Road area, portions of Pescadero Road, Lincoln Street, and Monte Verde Streets in the vicinity of the work would be closed to all vehicle and pedestrian through traffic during working hours. Traffic would be routed around the work area through 1st Avenue, Dolores Street, and Castro Lane. Detours and road closures in the Carmel Woods Project site would be temporary and would vary as construction occurs due to the linear nature of Project construction. The Proposed Project would require temporary lane closures due to the work within existing local roadways. This may have an impact on fire protection facilities due to accessibility and response times. However, although various impacts to vehicle and pedestrian access would occur, including lane closures and complete road closures, a TCP would be developed to maintain access for traffic in accordance with County requirements for encroachment permits. This would reduce potential interference with emergency response vehicles or emergency area evacuation resulting from proposed road or lane closures. In addition, lane or road closures from the Proposed Project would be short-term overall and would not be located in a single place for long periods of time due to the linear nature of the Proposed Project. Once operational, there would be no impact to fire protection services. Therefore, the Proposed Project would have a less-than-significant impact on acceptable service ratios, response times, or other performance objectives for fire protection services.

b. Police Protection?

The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. The Proposed Project would not require the provision or the need for new or altered fire protection facilities since it consists of modifications to existing sewer infrastructure. Although most of the Project construction work would take place underground, temporary road closures and/or detours would be required due to the limited width of affected roadways.

During construction in the Pescadero Road area, portions of Pescadero Road, Lincoln Street, and Monte Verde Streets in the vicinity of the work would be closed to all vehicle and pedestrian through traffic during working hours. Traffic would be routed around the work area through 1st Avenue, Dolores Street, and Castro Lane. Detours and road closures in the Carmel Woods Project site would be temporary and would vary as construction occurs due to the linear nature of Project construction. The Proposed Project would require temporary lane closures due to the work within existing local roadways. This may have an

impact on police protection facilities due to accessibility and response times. However, although various impacts to vehicle and pedestrian access would occur, including lane closures and complete road closures, a TCP would be developed to maintain access for traffic in accordance with County requirements for encroachment permits. In addition, lane or road closures from the Proposed Project would be short-term overall and would not be located in a single place for long periods of time due to the linear nature of the Proposed Project. Once operational, there would be no impact to police protection services. Therefore, the Proposed Project would have a less-than-significant impact on acceptable service ratios, response times, or other performance objectives for police protection services.

c. Schools?

The nearest schools to the Proposed Project sites is the Stevenson Lower and Middle School, which is located adjacent (within approximately 50 feet) to the Pescadero Road Project site and approximately 0.5 miles from the Carmel Woods Project site. The next closest school is Carmel High School, which is one mile away from the Proposed Project sites. The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. New utility installation would be limited to the outlined residential roadways and would not impact the operation of the Stevenson Lower and Middle School or any other educational facilities. The Proposed Project is a replacement of existing wastewater utility lines and would not facilitate population growth that would indirectly increase demand for educational services and result in impacts to schools. No impact would occur on existing school facilities as a result of the Proposed Project.

d. Parks?

The Mission Trail Nature Preserve, located in and operated by the City, is located approximately 1.5 miles south of the Proposed Project sites. Forest Hill Park, also operated by the City, is located about 0.2 miles south of the Pescadero Road Project site and 0.5 miles south of the Carmel Woods Project site. The Proposed Project is not located on any State Parks property (Monterey County, 2026). The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. In addition, once operational, the Proposed Project would be located underground and would not impact any current or future parks facilities in the surrounding area. Therefore, there would be no impact on existing park facilities as a result of the Proposed Project.

e. Other public facilities?

The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites, and would have no impact on public facilities. The Community Hospital of the Monterey Peninsula is located about 0.6 miles from the Carmel Woods Project component and one mile from the Pescadero Road Project component; however, the Proposed Project sites would be limited to the outlined roadways and would not impact the hospital. There are no other public facilities located around the Proposed Project site. In addition, once operational, the Proposed Project would be located underground and would not impact any current or future public facilities in the surrounding area. Therefore, there would be no impact to other public facilities.

4.12 Transportation

Environmental Setting

The Proposed Project is located in unincorporated Monterey County between the City and Del Monte Forest. The Pescadero Road site is located along Pescadero Road, Lincoln Street, 2nd Avenue, and Monte Verde Street. The Carmel Woods site is located along Camino Del Monte, San Juan Road, San Marcos Road, San Lucas Road, Portola Avenue, San Luis Road, South San Luis Road, San Pedro Lane, San Mateo Avenue, Carpenter Street, and along Highway 1 in the Carmel Woods residential area, directly northwest of the Pescadero Road area, between Highway 1 and 17 Mile Drive, bounded by Camino Del Monte in the south. The Proposed Project would be constructed within a paved and previously disturbed area that contains existing sewer infrastructure. The roadways are primarily used as local access routes for the nearby residential neighborhoods. Regional access to both Proposed Project sites is provided from SR 1. Local access to the Project sites is provided by Camino Del Monte, Carpenter Street, Pescadero Road, and Monte Verde Street. Monterey-Salinas Transit (MST) provides public transit services in the Project area. Bus routes serving the Project area include Lines 91 and 94 (limited-service routes), as well as Line 5, which operates in the broader vicinity of the Proposed Project and connects the City to downtown Monterey and Carmel Valley.

Regulatory Environment

State

Senate Bill 743: SB 743 required that starting July 2020 transportation impact for projects per CEQA be based on a project's Vehicle Miles Traveled (VMT). CEQA Guidelines Section 15064.3, subdivision (b)(1) calls for the evaluation of transportation impacts of projects based on VMT. CEQA uses the VMT metric to evaluate a project's transportation impacts. The publication *Technical Advisory on Evaluating Transportation Impacts in CEQA, State of California Governor's Office of Planning and Research*, December 2018, suggests that a significant environmental impact would occur if a project would generate more than 110 trips per day.

Local

***1982 Monterey County General Plan*:** None of the policies provided in the 1982 County General Plan related to transportation are applicable to the Proposed Project.

***Carmel Area LUP*:** The Carmel Area LUP includes goals and policies related to the regulation of transportation. None of the transportation-related goals from the Carmel Area LUP may apply to the Proposed Project.

City's General Plan: The City's General Plan includes the following goals and policies related to the regulation of transportation that could apply to the Proposed Project:

O2-3: Preserve and enhance the qualities that contribute to the residential character of the community, including quiet neighborhoods, low levels of illumination, lack of nighttime activity, safe environment, pedestrian use of streets, and maintenance of property values by mitigating the adverse impacts of high volume through-traffic. (LUP)

P2-15: Recognize that the impact of a large number of non-resident vehicles including tourist buses is not consistent with the residential character of Carmel. Mitigate impacts on visual quality, circulation, and ambience to the extent possible. (LUP)

Del Monte Forest Area LUP: There are no policies or goals from the Del Monte Forest Area LUP related to the regulation of transportation that would be applicable to the Proposed Project.

Would the project:	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☐	☐	■	☐
b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	■	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	■	☐
d) Result in inadequate emergency access?	☐	☐	■	☐

Impact Discussion

a. Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites, and would not conflict with a program, plan, ordinance, or policy addressing the circulation system. Both Proposed Project components are located in residential areas. Proposed Project construction would occur within the existing roadways and public ROWs. During construction in the Pescadero Road area, portions of Pescadero Road, Lincoln Street, and Monte Verde Streets in the vicinity of the work would be closed to all vehicle and pedestrian through traffic during working hours. Traffic would be routed around the work area through 1st Avenue, Dolores Street, and Castro Lane. Detours and road closures in the Carmel Woods Project site would be temporary and would vary as construction occurs. As discussed previously, the road closures as part of the Proposed Project would be conducted in accordance with the requirements of a County encroachment permit, including but not limited to preparation of a TCP. The TCP would address the construction schedule, street closures and/or detours, construction staging areas and parking, and planned truck routes. Construction is a short-term, temporary activity and construction trips would account for a relatively small portion of existing traffic on area roadways. Therefore, the Proposed Project would have a less-than-significant impact related to conflicting with programs, plans, ordinances, or policies related to circulation on area roadways.

The Proposed Project sites do not contain any dedicated bicycle lanes; instead, bicycle riders in the area would utilize public roadways. Bicycle travel on area roadways would be temporarily impacted by work in public roadways as described above. The TCP would identify any closures or detours specific to bicycle traffic. Once operational, the Proposed Project would be located underground and would not interfere with bicycle travel in the Project area. Therefore, the Proposed Project would have a less-than-

significant impact related to conflicting with programs, plans, ordinances, or policies related to circulation on bicycle facilities.

Limited pedestrian facilities are located throughout the Proposed Project sites. Work within the roadway could potentially also require the closure of pedestrian facilities such as sidewalks. The TCP would identify any closures or detours specific to pedestrian traffic. Once operational, the Proposed Project would be located underground and would not interfere with pedestrian foot-travel in the Proposed Project area. Therefore, the Proposed Project would have a less-than-significant impact related to conflicting with programs, plans, ordinances, or policies related to circulation on pedestrian facilities.

MST provides public transit services within the Project area as discussed previously. Work within the roadway could potentially also require the temporary rerouting of public transit services within the Project area. The TCP would identify any closures or detours specific to public transit. Once operational, the Proposed Project would be located underground and would not interfere with public transit in the Project area. Therefore, the Proposed Project would have a less-than-significant impact related to conflicting with programs, plans, ordinances, or policies related to circulation on public transit facilities.

Based on the discussion above, implementation of the TCP in compliance with the terms of a County encroachment permit would reduce potential impacts from the Proposed Project to a less-than-significant impact related to potential conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

b. Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

The Proposed Project would result in a nominal increase in traffic associated with construction activities. CEQA Guidelines Section 15064.2 subdivision (b)(1) calls for the evaluation of transportation impacts of projects based on VMT. CEQA uses the VMT metric to evaluate a project's transportation impacts. The County has not yet adopted VMT thresholds. In the absence of County VMT standard metrics, this IS/MND relies on the LCI's recommended small project screening threshold to determine whether the Proposed Project's VMT effects would be significant. The Proposed Project would result in a significant traffic-related effect if the Proposed Project would generate more than 110 daily trips.

The Proposed Project would result in temporary increases in traffic during construction. A maximum of eight construction personnel may be present with an estimated 16 trips per day (assuming two one-way vehicle trips per worker per workday, with no carpooling).

Vehicles would bring mechanized equipment, including excavators, dump trucks, backhoes, delivery trucks, pipe fusing equipment, asphalt pavers, a winch/pulling unit and cable with bursting head, and a water truck, to the Project site. Equipment may be delivered all at once or deliveries could take place on an as-needed basis over the course of Project construction. Equipment would be stored on site throughout construction until no longer required. Based on the construction schedule of 16 months and the temporary nature of Project construction, construction traffic would not exceed the threshold of 110 daily trips. Therefore, this impact would be less-than-significant.

Following completion of the Project, operational maintenance is projected to be less than existing conditions due to the increased reliability of the new sewer lines. Any regular maintenance would be included in CAWD's existing maintenance schedule for their collection system, and no new trips would

be required. Therefore, anticipated operational traffic trips would be well below the threshold of 110 daily trips. This would be a less-than-significant impact.

c. Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. The Proposed Project would occur along existing roadways at both of the Proposed Project sites and does not include any new roadway features that would substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersection) or incompatible uses. Temporary road closures as part of the Proposed Project could result in the temporary introduction of incompatible uses (construction equipment) on public roadways or hazards from detour routes. However, the Proposed Project would be required to remedy any potential hazards and/or introduction of incompatible uses as part of the TCP preparation process to meet County requirements for an encroachment permit. Disturbed roadways would be restored to previous conditions following construction. Furthermore, the Proposed Project would be located underground during operation and would not create a permanent geometric design feature. Therefore, the Proposed Project would have a less-than-significant impact from creating a geometric design feature or introducing incompatible uses to public roadways.

d. Would the project result in inadequate emergency access?

The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. The Proposed Project could temporarily limit emergency access due to temporary road closures. Public roadways at the Pescadero Road Project site (Pescadero Road, Lincoln Street, Monte Verde Street, etc.) would be temporarily closed at various times and locations throughout construction to vehicle and pedestrian traffic during working hours. Detours and road closures would also occur in the Carmel Woods Project site and would vary as construction occurs. Traffic would be routed around the work area through 1st Avenue, Dolores Street, and Castro Lane in accordance with the Project's TCP developed as part of the County's encroachment permit process. Adherence to the TCP would reduce impacts related to inadequate emergency access during construction of the Proposed Project. Furthermore, all impacts to emergency access would be temporary and all Project area roadways would be restored to existing or better conditions following completion of construction. Therefore, the Proposed Project would have a less-than-significant impact in regard to emergency access.

4.13 Tribal Cultural Resources

Albion Environmental, Inc. (Albion) prepared a Phase I Cultural Resource Inventory and AB 52 Consultation for the Project sites in January 2026. The Phase I Cultural Resource Inventory includes the results of background research and field reconnaissance of the Proposed Project area. Background research consisted of a records search from CHRIS, the NWIC, and a SLF search, followed by a pedestrian archaeological field survey of the Project area. The field reconnaissance consisted of a pedestrian survey of the Project area between January 19 and 21, 2026, which investigated the Project area for cultural and TCRs. See **Section 4.4, Cultural Resources** for additional discussion.

CAWD sent out tribal consultation letters pursuant to AB 52 based on NAHC's tribal stakeholder consultation list on October 1, 2025. A sample outreach letter is provided in **Appendix F**. In addition,

CAWD conducted additional outreach via email on November 3, 2025. CAWD received a request to consult on the Proposed Project from the Costanoan Rumsen Carmel Tribe on February 11, 2026. CAWD also received a request to consult on the Proposed Project from the Esselen Tribe of Monterey County on October 22, 2025. The representatives of the Esselen Tribe of Monterey County expressed their concerns related to potential inadvertent discovery of tribal resources, especially along Pescadero Canyon, during the Proposed Project. The KaKoon Ta Ruk Band of Ohlone-Costanoan Indians of the Big Sur Rancheria expressed concerns about potential cultural resources on the Project site, but stated that they did not have the resources to send a monitor. The KaKoon Ta Ruk Band of Ohlone-Costanoan Indians of Big Sur Rancheria requested that a Treatment Protocol be included in the Project's mitigation measures, and requested updates regarding the Proposed Project. The Ohlone/Costanoan-Esselen Nation also requested consultation on February 11, 2026.

CAWD conducted initial consultation meetings with the Costanoan Rumsen Carmel Tribe, the Esselen Tribe of Monterey County, and the Ohlone/Costanoan-Esselen Nation on April 2, April 8, and April 16, 2026, respectively. All of the tribes indicated their interest in the Project area and referenced that TCRs were located in the Project area. Specific resources and locations of resources were not identified during the initial consultation meetings.

Environmental Setting

Regional History

Prior to Euro-American contact, the area now known as Monterey County was inhabited by native speakers of the Costanoan, Esselen, and Salinan languages. The traditional way of life for the native inhabitants was largely destroyed in the 1760s with the arrival of Euro-Americans.

The Ohlone inhabited a large range along the coast of California that extended from the San Francisco Peninsula south to the Monterey Peninsula and included inland areas from the Santa Clara Valley through San Juan Batista. While first contact between Indigenous communities and Europeans took place in 1542, European settlement began in the 1760's when the Spanish established colonies. The establishment of Misión San Carlos de Borromeo de Carmelo marked the beginning of a period of intense Native American conversion to Catholicism. After Mexico gained its independence from Spain in 1820, the government granted most land around Monterey to wealthy Mexican families as large tracts of lands known as ranchos. Following the 1846 capture of California by the United States, industry in the Salinas Valley shifted away from grazing lands and towards agriculture. As the competition for land increased with the arrival of Anglo settlers, Native American communities continued to disappear.

Regulatory Environment

State

California Public Resources Code: Several sections of the California PRC protect cultural resources located on public land. Under PRC Section 5097.5, no person shall knowingly and willfully excavate upon, or remove, destroy, injure, or deface, any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site (including fossilized footprints), inscriptions made by human agency, rock art, or any other archaeological, paleontological, or historical feature situated on public lands, except with the express permission of the public agency that has jurisdiction over the lands. Violation of this section is a misdemeanor.

PRC Section 5097.98 states that if Native American human remains are identified within a project area, the landowner must work with the Native American Most Likely Descendant as identified by the NAHC to develop a plan for the treatment or disposition of the human remains and any items associated with Native American burials with appropriate dignity. Section 15064.5 of the State CEQA Guidelines also addresses these procedures. California Health and Safety Code Section 7050.5 prohibits disinterring, disturbing, or removing human remains from a location other than a dedicated cemetery. Section 30244 of the PRC requires reasonable mitigation for impacts on paleontological and archaeological resources that occur because of development on public lands.

California Health and Safety Code: California Health and Safety Code Section 7050.5 regulates the treatment of human remains. In the event of discovery or recognition of any human remains 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 remains until the coroner of the county in which the human remains are discovered has determined that the remains are not subject to his or her authority. If the coroner recognizes the human remains to be those of a Native American or has reason to believe that they are those of a Native American, he or she shall contact the NAHC by telephone within 24 hours.

***Native American Heritage Commission*:** The NAHC was created by statute in 1976, is a nine-member body appointed by the Governor to identify and catalog cultural resources (i.e., places of special religious or social significance to Native Americans and known graves and cemeteries of Native Americans on private lands) in California. The Commission is responsible for preserving and ensuring accessibility of sacred sites and burials, the disposition of Native American human remains and burial items, maintaining an inventory of Native American sacred sites located on public lands, and reviewing current administrative and statutory protections related to these sacred sites.

State Assembly Bill 52: Prior to the enactment of Assembly Bill 52, the State of California found current laws provided limited protection for sites, features, places, objects, and landscapes with cultural value to California Native American Tribes. These items and locations included the protection of Native American sacred places such as places of worship, religious or ceremonial sites, and sacred shrines. California Native Americans have used, and continue to use, natural settings in the conduct of religious observances, ceremonies, and cultural practices and beliefs. These resources reflect the Tribes' continuing cultural ties to the land and their traditional heritage. Many of these archaeological, historical, cultural, and sacred sites are not located in the current boundaries of California Native American reservations and rancherias and therefore are not covered by the protectionist policies of Tribal governments. To recognize California Native American Tribal sovereignty and the unique relationship of California local governments and public agencies with California Native American Tribal governments, and respecting the interests and roles of project proponents, the Legislature enacted AB 52 Native Americans: California Environmental Quality Act.

AB 52 formally recognizes that California Native American prehistoric, historic, archaeological, cultural, and sacred places are essential elements in Tribal cultural traditions, heritages, and identities. California Native American Tribes are experts regarding their Tribal history and practices for which they are traditionally and culturally affiliated. Due to this unique history, and to uphold existing rights of all California Native American Tribes to participate in, and contribute their knowledge to, environmental analysis, projects should include Tribal knowledge about the land and TCRs at issue. Projects should also consider a potential significant impact on those resources. Therefore, a meaningful consultation

between California Native American Tribal governments and lead agencies, respecting the interests and roles of all California Native American Tribes and project proponents, and the level of required confidentiality concerning TCRs shall occur. Doing so will allow identification of potential TCRs onsite and incorporation of culturally appropriate mitigation measures considered by the decision-making body of the lead agency. Doing so also enables California Native American Tribes to manage and accept conveyances of, and act as caretakers of, TCRs and ultimately establishes that a substantial adverse change to a TCR has a significant effect on the environment.

Local

***1982 Monterey County General Plan*:** The 1982 Monterey County General Plan includes policies related to the preservation of tribal cultural resources; please see **Section 4.4, Cultural Resources**.

***Carmel Area LUP*:** The Carmel Area LUP includes goals and policies related to the preservation of tribal cultural resources. Applicable goals from the Carmel Area LUP are summarized in **Section 4.4, Cultural Resources**.

City's General Plan: The City's General Plan includes goals and policies related to the preservation of cultural resources; please see **Section 4.4, Cultural Resources**.

Del Monte Forest Area LUP: The Del Monte Forest Area LUP includes policies related to the preservation of tribal cultural resources; please see **Section 4.4, Cultural Resources**.

Would the project:	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or	☐	■	☐	☐
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	■	☐	☐

Impact Discussion

a.i. and a.ii, Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is: Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

The Proposed Project is located in unincorporated Monterey County between the City and Del Monte Forest. According to the NWIC record search conducted by Albion, there is one (1) previously identified cultural resource within the Project area, the Stevenson Lower and Middle School, and 17 cultural resources within a 0.25-mile radius of the Project area (see **Section 4.4, Cultural Resources**). The Project site does not include any sites associated with TCRs that are listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k). CAWD sent out tribal consultation letters pursuant to AB 52 based on their internal consultation list on October 1, 2025. In addition, CAWD conducted additional outreach via email on November 3, 2025. CAWD received a request to consult on the Proposed Project from the Costanoan Rumsen Carmel Tribe on February 11, 2026, and requested that they be involved in monitoring since the Project site is located in a sacred area. CAWD also received a request to consult on the Proposed Project from the Esselen Tribe of Monterey County on October 22, 2025. The representatives of the Esselen Tribe of Monterey County expressed their concerns related to potential inadvertent discovery of tribal resources, especially along Pescadero Canyon, during the Proposed Project.

The KaKoon Ta Ruk Band of Ohlone-Costanoan Indians of the Big Sur Rancheria expressed concerns about potential cultural resources on the Project site, but stated that they did not have the resources to send a monitor, requested a Treatment Protocol be included in Project mitigation measures, and requested updates regarding the Proposed Project. The Ohlone/Costanoan-Esselen Nation also requested consultation on February 11, 2026.

CAWD conducted initial consultation meetings with the Costanoan Rumsen Carmel Tribe, the Esselen Tribe of Monterey County, and the Ohlone/Costanoan-Esselen as stated above. The tribes indicated that they have significant history in the area and that the Project site was sensitive for TCRs. Locations of specific resources were not provided during consultation. CAWD would implement the following mitigation measures based on the results of tribal consultation.

> **Mitigation Measure TCR-1**: CAWD shall notify tribal representatives from the Esselen Tribe of Monterey County, the Ohlone Costanoan Esselen Nation, and the Costanoan Rumsen Carmel Tribe at least 30 days prior to the start of ground disturbing activities. In the event that one or multiple of the notified tribes choose to perform a Cultural Resources Sensitivity Training for construction personnel, this training would be provided prior to start of ground disturbing activities. Cultural resources sensitivity training shall be presented to all construction personnel. The training shall focus on how to identify Tribal Cultural Resources that may be encountered

during earthmoving activities, and the procedures to be followed in such an event. This training shall be provided for any new personnel joining the construction team.

Mitigation Measure TCR-2: CAWD shall notify Native American monitors associated with the Esselen Tribe of Monterey County, the Ohlone Costanoan Esselen Nation, and the Costanoan Rumsen Carmel Tribe at least 30 days prior to start of ground disturbing activities. In the event that one or multiple tribes choose to monitor project-related ground disturbance, tribal monitoring shall be distributed equitably, based on budgeted costs, among each of these tribal groups. A Native American monitoring rotation schedule shall be incorporated into the CRMDP (see **Mitigation Measure CUL-1**). The monitors shall have the authority to halt and redirect work should any Tribal Cultural Resources be identified during monitoring (See **Mitigation Measures CUL-3** and **TCR-3**). The tribal monitoring program shall follow protocols outlined in the CRMDP, which shall contain an allowance that the tribal monitor may reduce or discontinue monitoring as warranted, at the discretion of the tribal monitor, in consultation with CAWD.

Mitigation Measure TCR-3: In the event that potential TCRs are identified by the tribal monitor, ground-disturbing activities within a 100-foot radius of the discovery shall be halted or diverted (See **Mitigation Measure CUL-3** for a discussion of Cultural Resources Inadvertent Discoveries Protocols). Work shall be allowed to continue outside of the 100-foot buffer area. If the tribal monitor determines that any cultural resources exposed during construction constitute a Tribal Cultural Resource (TCR) under CEQA, he/she shall notify CAWD and other appropriate parties of the evaluation. Tribal monitors shall consult with the qualified Archaeologist to develop and implement a Cultural Resources Treatment Plan (CRTP), which shall consider the resources' tribal value, and would outline methods to be used to mitigate project impacts to TCRs (see **Mitigation Measure CUL-3**). The plan shall include avoidance of the resource or, if avoidance of the resource is infeasible, the plan shall outline the appropriate treatment of the resource in coordination with the Esselen Tribe of Monterey County, the Ohlone Costanoan Esselen Nation, and the Costanoan Rumsen Carmel Tribe. The plan shall include measures to ensure the find is treated in a manner that respectfully retains, to the degree feasible, the qualities that render the resource significant to the participating Native American groups. Examples of appropriate mitigation for TCRs include, but are not limited to, protecting the cultural character and integrity of the resource, protecting traditional use of the resource, protecting the confidentiality of the resource, or heritage recovery.

With implementation of the mitigation measures listed above, the Proposed Project would have a less-than-significant impact on Tribal Cultural Resources.

4.14 Utilities and Service Systems

Environmental Setting

Water Supply and Wastewater

California American Water (CalAm) provides water service to the Project area. The Project site is located primarily in unincorporated Monterey County, between Del Monte Forest and the City. The Carmel Area Wastewater District provides wastewater collection service to the Proposed Project area.

Solid Waste

Waste Management, Inc. provides solid waste and recycling collection services for the unincorporated portions of Monterey County. Solid waste generated during construction and demolition activities would be disposed of at the nearest regulated landfill, which is the Monterey Peninsula Landfill and Materials Recovery Facility located north of the City of Marina and operated by ReGen Monterey.

Regulatory Environment

State

***Assembly Bill 939*:** California AB 939 established the California Integrated Waste Management Board (CalRecycle), which required all California counties to prepare Integrated Waste Management Plans. Additionally, AB 939 required all municipalities to divert 50 percent of their waste stream by the year 2000.

Local

***1982 Monterey County General Plan*:** None of the policies provided in the 1982 County General Plan related to utilities and service systems are applicable to the Proposed Project.

***Carmel Area LUP*:** The Carmel Area LUP includes goals and policies related to the regulation of utilities and service systems. The following policy from the Carmel Area LUP may apply to the Proposed Project:

3.3.3.1: The County should support the wastewater reclamation project proposed by the Carmel Sanitary District. The development of new facilities shall avoid damage of riparian habitat and conversion of prime agricultural land.

City's General Plan: The City's General Plan includes the following policy related to the regulation of utilities and service systems that could apply to the Proposed Project:

P5-188: Cooperate with regional and state agencies in the detection and elimination of illegal discharges of pollutants into Carmel Bay. Promote the proper disposal of pollutants to the sanitary sewer or hazardous waste facilities rather than the storm drainage system. Establish appropriate inspection criteria for new development and respond to complaints of illegal discharges. (LUP)

Del Monte Forest Area LUP: The Del Monte Forest Area LUP includes the following policy related to the regulation of utilities and service systems that could apply to the Proposed Project:

118: Development shall only be approved if it is first clearly demonstrated that the additional wastewater discharge associated with such development will not significantly adversely impact coastal resources, including primarily in terms of Carmel Bay.

Would the project:	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which would cause significant environmental effects?	☐	☐	■	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☐	■
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	■
d) Generate solid waste in excess of State or local standards or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	■	☐
e) Comply with federal, state, and local management and reduction statuses and regulations related to solid waste?	☐	☐	■	☐

Impact Discussion

a. Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which would cause significant environmental effects?

The Proposed Project would not expand the potable water system or increase potable water pipeline capacity to serve additional customers. The Proposed Project consists of the replacement, abandonment, and rehabilitation of the existing sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. The Proposed Project would not induce an increase in population that would increase in demands for water service. Construction may temporarily increase water use at the Project sites for dust suppression; however, these impacts would be short-term. Pipe bursting activities would have the potential to damage existing water mains in close proximity to the project alignment due to their age (over 100 years old). To avoid impacts to these existing water mains, the location of water mains would be determined prior to construction by submitting a request to the Underground Service Alert. Where water mains are located within three feet of pipe bursting of the existing sewer main, the construction contractor would be required to excavate and expose the water main, which would allow the soils around the water main to shift without damaging the water main. Therefore, impacts related to water facilities as a result of Proposed Project construction would be less than significant.

Replacing and rehabilitating the damaged sewer mains at the Pescadero Road and Carmel Woods Project sites is necessary to continue to provide reliable service to the District’s customers and minimize

the potential for sewer spills in the future. The Pescadero Road Project component involves the replacement of a damaged section of sewer main located in and parallel to Pescadero Road on the northwest side of the City to continue to provide reliable service to the District's customers and minimize the potential for future sewer spills. The existing sewer main on the forested hillside of Pescadero Canyon has been damaged by tree falls and is in poor condition. Localized high points and other condition issues have caused several sewer spills, and maintenance crews have had difficulty accessing the sewer main for maintenance. The Carmel Woods Project component involves the replacement and rehabilitation of existing gravity sewer mains and manholes. Damaged VCP mains would be replaced with new PVC or HDPE pipes in accordance with CAWD standards. The Proposed Project would replace all manholes determined to be in poor condition with new pre-cast concrete manholes or rehabilitate existing manholes with a lining system. The Proposed Project itself would not generate wastewater, and no new or expanded wastewater facilities would be required. Because the Proposed Project is a replacement and rehabilitation of an existing facility and would not generate new wastewater nor increase capacity, impacts to wastewater treatment and demand would be less than significant.

As discussed in **Section 4.9, Hydrology and Water Quality**, construction activities would not increase the amount of impervious surface along the project alignment because a majority of the Proposed Project involves replacement and rehabilitation activities that would be installed under existing impervious roadways. Additionally, the Proposed Project includes pipe bursting, a trenchless method of replacing buried pipelines, which reduces ground disturbance and the need for additional impervious surfaces. Therefore, the Proposed Project would not alter the drainage pattern of the Proposed Project sites and would not increase stormwater flow such that new or expanded stormwater drainage systems would be necessary. Therefore, this impact is less than significant.

As discussed in **Section 4.5, Energy**, operational energy demand would be similar to existing conditions. The Proposed Project would require energy for the installation of new pipelines, as well as any segments of existing utility lines to be removed (rather than abandoned in place), and the transport of material for construction and waste generated by construction activities. In addition, energy would be consumed due to vehicle trips to and from the Project site during construction. The Proposed Project would not generate a new demand for electricity or natural gas. Project operation would include routine inspections and maintenance. Maintenance needs are expected to be reduced in comparison to existing conditions due to the improved conditions of the system after the proposed project. No new electric or gas infrastructure would be required that would cause significant environmental effects due to the proximity of existing connections. The Proposed Project would not involve any components requiring telecommunications infrastructure and is not anticipated to involve the relocation of any existing telecommunications facilities. Therefore, the Proposed Project would have a less-than-significant impact with regard to the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which would cause significant environmental effects.

b. Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. The Proposed Project would not include the construction of any new water utilities and therefore would not introduce new potable water connections from reasonably foreseeable future development. As a result, the Proposed Project

would have no impact related to increasing demand on existing or proposed water systems and would not impact water supplies during normal, dry, and multiple dry years compared to existing conditions.

c. Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites, and would not introduce new wastewater connections that would increase demand on existing or proposed wastewater systems. Therefore, no impact would occur.

d. and e. Would the project generate solid waste in excess of State or local standards or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals? Would the project comply with federal, state, and local management and reduction statuses and regulations related to solid waste?

The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. The Proposed Project would generate solid waste as a byproduct of the installation of new utility lines. Waste generated by the Proposed Project during construction would be disposed of at local waste processing facilities. Solid waste generated during construction would be minimal and would be disposed of in compliance all applicable federal, State, and local regulations related to solid waste reduction. The Proposed Project would not generate solid waste once operational. This would be a less-than-significant impact.

4.15 Wildfire

Environmental Setting

The State Fire Marshal is mandated to classify lands within SRAs into Fire Hazard Severity Zones (FHSZs). FHSZs are defined by the California Department of Forestry and Fire Protection (CALFIRE) and are designated as “Very High,” “High,” or “Moderate,” based on the presence of fire-prone vegetation, climate, topography, assets at risk (e.g., high population centers), and a fire protection agency’s ability to provide service to the area (CALFIRE, 2025). Areas outside of designated SRAs, including the Proposed Project sites, are considered LRAs, where fire response is the primary responsibility of local fire agencies.

The County of Monterey is characterized by moderate to very high fire hazards. California Building Code Chapter 7a includes provisions for the construction of new buildings within very high fire hazard severity zones (VHFHSZ) to improve the ignition resistance of buildings. CALFIRE identifies the land within the jurisdiction of the City as an LRA. The Proposed Project sites also border an SRA, which encompasses Del Monte Forest (CALFIRE, 2024). Fire protection for the Proposed Project site falls under the jurisdiction of the Cypress Fire Protection District. The Proposed Project site is located in a high fire hazard severity zone (Monterey County, 2026).

Regulatory Environment

State

Public Resources Code Section 4201 – 4204: Sections 4201 through 4204 of the California Public Resources Code direct the CALFIRE to map Fire Hazard Safety Zones (FHSZs) within SRAs, based on relevant factors such as fuel, terrain, and weather. Mitigation strategies and building code requirements to reduce wildland fire risks to buildings within SRAs are based on these zone designations.

Government Code Section 51175-51189: Sections 51175 through 51189 of the California Government Code directs CalFire to recommend FHSZs within LRAs. Local agencies are required to designate Very High Fire Hazard Safety Zones (VHFHSZs) in their jurisdiction within 120 days of receiving recommendations from CALFIRE and may include additional areas not identified by CalFire as VHFHSZs.

Local

***1982 Monterey County General Plan Policies*:** The 1982 Monterey County General Plan includes the following objective related to wildfire that could apply to the Proposed Project (see also **Section 4.8**. **Hazards and Hazardous Materials**):

Objective 17.4: Reduce fire hazard risks to an acceptable level by regulating the type, density, location, and/or design and construction of development.

***Carmel Area LUP*:** The Carmel Area LUP includes goals and policies related to wildfire. The following goals from the Carmel Area LUP may apply to the Proposed Project:

2.7.4.6: The County shall require all new development to have adequate water available for fire suppression. The Fire Districts and the Planning and Building Inspection Department shall determine the adequacy and location of individual water storage to be provided.

City's General Plan: The City's General Plan includes goals and policies related to wildfire. The following policies from the City's General Plan may apply to the Proposed Project:

O8-4: Prevent or reduce the potential for life loss, injury, and property damage from fire hazards.

P8-18: Ensure adequate water supply for fire emergencies.

P8-19: Encourage new development located in or adjacent to fire hazard areas to incorporate fire preventative site design, access, landscaping and building materials, and other fire suppression techniques.

Del Monte Forest Area LUP: The Del Monte Forest Area LUP includes goals and policies related to hazards and hazardous materials. The following policy from the Del Monte Forest Area LUP may apply to the Proposed Project (see also **Section 4.8**. **Hazards and Hazardous Materials**):

38: New development shall be sited and designed to minimize risk from geologic, flood, or fire hazards; to assure stability and structural integrity; and to not threaten the stability of a site, contribute significantly to erosion, geologic instability, or destruction of the site or surrounding areas. Areas that are subject to the highest category of fire hazard in the California Department of Forestry and Fire Protection Fire Hazard Rating System shall be considered unsuitable for development, unless it can be clearly demonstrated that

design measures can adequately mitigate the fire hazard. Mitigation of hazards shall be demonstrated by detailed technical reports specific to the hazard type in question (e.g., soils, geologic, geotechnical, erosion control, fire hazard, etc.) that are prepared by persons who are appropriately qualified in the hazard field in question (e.g., civil engineers and engineering geologists familiar with coastal processes, geotechnical engineers, etc.) and that are submitted as part of any permit application. All technical reports shall be prepared consistent with County criteria for such reports (e.g., criteria for detail on seismic hazards are contained in the General Plan Safety Element; criteria for detail on fire hazards are based on the fire hazard rating system of the California Department of Forestry and Fire Protection; criteria for detail on shoreline hazards are based on Coastal Commission guidelines). All technical reports and analyses shall accompany development applications and/or be part of any required environmental documentation (e.g., that associated with CEQA).

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	■	☐
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	■	☐
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	■	☐
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	■	☐

Impact Discussion

a. Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

Both Proposed Project sites are located in an LRA with a very high fire hazard and near an SRA with a very high fire hazard. The Proposed Project sites are located in a high fire hazard severity zone (Monterey County, 2026). The Proposed Project sites are primarily located within previously developed roadways, and all components would be located underground after construction is completed.

During construction for the Pescadero Road Project component, portions of Pescadero Road, Lincoln Street, and Monte Verde Street in the vicinity of the work would be closed to all vehicle and pedestrian through traffic during working hours. However, as discussed in **Section 4.12, Transportation**, a TCP would be developed to maintain access for local traffic in accordance with County requirements for encroachment permits. Traffic would be routed around the work area through 1st Avenue, Dolores

Street, and Castro Lane. Detours and road closures in the Carmel Woods Project site would be temporary and would vary as construction occurs due to the linear nature of the Project. Although various impacts to vehicle and pedestrian access would occur, including lane closures and complete road closures, detour plans would be developed as part of the TCP to maintain access for local traffic. This would reduce potential interference with emergency response vehicles or wildfire-related emergency area evacuations resulting from proposed road or lane closures. In addition, lane or road closures from the Proposed Project would be short-term overall and would not be located in a single place for long periods of time due to the linear nature of the Proposed Project. Although various impacts to vehicle and pedestrian access would occur, including lane closures and complete road closures, detour plans would be developed to maintain access for traffic. Therefore, impacts with regard to the impairment of an adopted emergency response plan or emergency evacuation plan would be less-than-significant.

b. Would the project, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. Although construction of the Proposed Project could result in sparks or other sources of ignition, constituting a temporary construction-related fire hazard, construction would comply with all applicable fire safety provisions thereby reducing fire risk to the maximum extent practicable. Additionally, although the Proposed Project borders the Del Monte Forest Area, all construction work requiring the use of mechanical equipment would be limited to the outlined residential roadways and would not exacerbate fire risk in the forest. All construction work requiring mechanized equipment would take place in paved areas devoid of vegetation, and the risk for wildfire as a result of Project construction would be low. Furthermore, once operational, all components of the Proposed Project would be located underground and would not increase the risk of wildfire. As a result, the Proposed Project would have a less-than-significant impact related to exacerbating fire risk due to slope, prevailing winds, and other factors.

c. Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

The Proposed Project would not require the installation or maintenance of associated infrastructure such as roads, fuel breaks, emergency water sources, power lines, or other utilities that could exacerbate fire risk or cause additional environmental impacts. The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. Although construction of the Proposed Project could result in sparks or other sources of ignition, constituting a temporary construction-related fire hazard, construction would comply with all applicable fire safety provisions thereby reducing fire risk to the maximum extent practicable. Additionally, although the Proposed Project borders the Del Monte Forest Area, all construction work would be limited to the outlined residential roadways and would not exacerbate fire risk in the forest. Once operational, the Proposed Project would be located underground and would not exacerbate fire risk. Therefore, impacts associated with exacerbated fire risk due to installation or maintenance of associated infrastructure would be less-than-significant.

d. Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. All construction work would be limited to the outlined residential roadways and therefore would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. Therefore, impacts would be less-than-significant.

4.16 Mandatory Findings of Significance

Does the project:	Potentially Significant Impact	Less-Than-Significant With Mitigation Incorporated	Less-Than-Significant Impact	No Impact
a) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number, or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	■	☐	☐
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)?	☐	☐	■	☐
c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	■	☐

Impact Discussion

a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number, or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. As described below, the Proposed Project would not 1) degrade the quality of environment, 2) substantially reduce the habitat of a fish or wildlife species, 3) cause a fish or wildlife population to drop below self-sustaining levels, 4) threaten or eliminate a plant or animal community, 5) reduce the number or restrict the range of a rare or

endangered plant or animal, or 6) eliminate important examples of major periods of California history or prehistory.

The Proposed Project would result in temporary, construction-related impacts to biological resources, undiscovered cultural or TCRs, and undiscovered human remains interred outside of a formal cemetery. These impacts would be mitigated to less-than-significant through the implementation of the mitigation measures identified in this IS/MND. No operational impacts associated with the Proposed Project have been identified as a result of the Proposed Project. No additional mitigation is necessary beyond the mitigation identified in each of the respective topical CEQA sections contained in this IS/MND.

b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)

The Proposed Project would not result in a cumulatively considerable adverse environmental effect. This IS/MND contains mitigation to reduce all potentially significant impacts to a less-than-significant level. CEQA allows a lead agency to determine that a project's contribution to a potential cumulative impact is not considerable and, thus, not significant when mitigation measures identified in the Initial Study would render those potential impacts less than considerable (CEQA Guidelines 15064(h)(2)).

The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. Where potentially significant effects are identified, mitigation measures are presented in this IS/MND to reduce these impacts to a less-than-significant level. The Proposed Project is contained entirely to the Pescadero Road Project site and the Carmel Woods Project site. No other projects are proposed at the Pescadero Road Project site or the Carmel Woods Project site that could result in a cumulatively considerable impact. No operational changes would result in increased sewer treatment capacity that could indirectly result in cumulative impacts.

c. Does the project have environmental effects which would cause substantial adverse effects on human beings, either directly or indirectly?

The Proposed Project would not have a substantial adverse effect on human beings, either directly or indirectly. The Proposed Project consists of the replacement, abandonment, and rehabilitation of sewer main utility lines at the Pescadero Road and Carmel Woods Project sites. This IS/MND contains mitigation measures to reduce all potentially significant direct and indirect impacts to human beings to a less-than-significant level.

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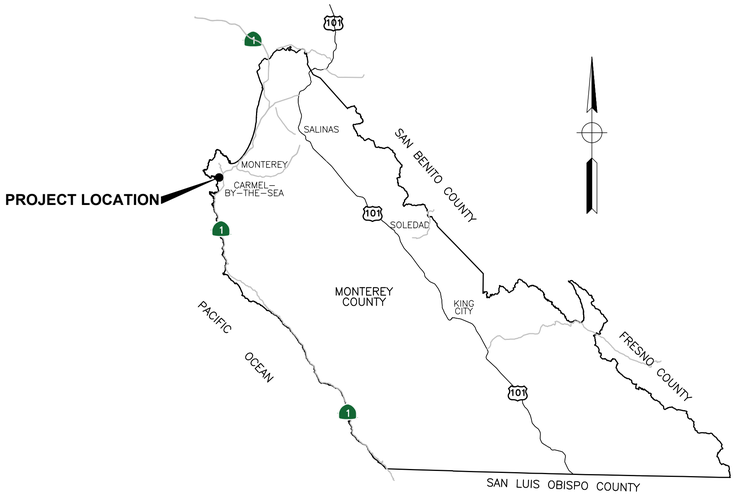
Appendix A
Draft 60 Percent Project Design Plans

CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT

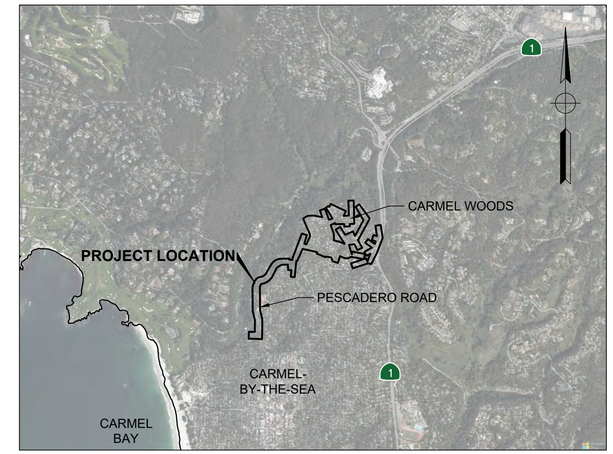
CARMEL AREA WASTEWATER DISTRICT



VICINITY MAP
NOT TO SCALE

CARMEL AREA WASTEWATER DISTRICT · SINCE 1908 ·

FEBRUARY 2026



LOCATION MAP
2,000' 0' 2,000'
1 in. = 2,000 ft.

PLAN LEGEND

	EXISTING 1-FT. CONTOUR LINE		ABANDON SEWER MAIN
150	EXISTING 5-FT. CONTOUR LINE		DEMOLISH SEWER MAIN
	APPROXIMATE PARCEL BOUNDARY	W	EXISTING WATER LINE
S	EXISTING SEWER MAIN	G	EXISTING GAS LINE
S	NEW SEWER MAIN	E (OH)	EXISTING OVERHEAD WIRE
SS	EXISTING SSMH	TC	EXISTING TELECOMMUNICATIONS LINE
SS	NEW SSMH	E	EXISTING ELECTRICAL LINE
CO	EXISTING CLEANOUT		EXISTING FENCELINE
CO	NEW CLEANOUT		EXISTING TREE
	EASEMENT BOUNDARY		RE-GRADED DITCH LIMITS
	ENVIRONMENTALLY SENSITIVE AREA - POTENTIAL WETLANDS		

ABBREVIATIONS

CAWD	CARMEL AREA WASTEWATER DISTRICT	O.F.C.I.	OWNER-FURNISHED/CONTRACTOR-INSTALLED
CO.	COUNTY	PCC	PORTLAND CEMENT CONCRETE
DR	DIMENSION RATIO	PVC	POLYVINYL CHLORIDE
E	EAST(ERN)	R	RADIUS
ELEV	ELEVATION	S	SOUTH(ERN)
FT.	FOOT (FEET)	SDR	STANDARD DIMENSION RATIO
H	HORIZONTAL	SS	SANITARY SEWER, STAINLESS STEEL
IN.	INCH(ES)	SSMH	SANITARY SEWER MANHOLE
INV	INVERT	SSPWC	STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION
L	LENGTH		
LF	LINEAR FEET	STA	STATION(ING)
MIN.	MINIMUM	STD	STANDARD PLAN
N	NORTH(ERN)	TYP	TYPICAL
NAD83	NORTH AMERICAN DATUM OF 1983	U.S.	UNITED STATES
NAVD88	NORTH AMERICAN VERTICAL DATUM OF 1988	V	VERTICAL
NO.	NUMBER	VCP	VITRIFIED CLAY PIPE
NPDES	NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM	W	WEST(ERN)
O.C.	ON CENTER		
O.D.	OUTER DIAMETER		

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REV	DATE	BY	DESCRIPTION

MNS
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DESIGNED: JA
DRAWN: KD
CHECKED: NEP

JORDYN A. ARREOLA
PRINCIPAL ENGINEER
R.C.E. 94046 EXP. 9 - 30 - 2026
DATE

REGISTERED PROFESSIONAL ENGINEER · JORDYN A. ARREOLA · C94046 · Exp. 9-30-2026 · CIVIL · STATE OF CALIFORNIA

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CARMEL AREA WASTEWATER DISTRICT · SINCE 1908 ·

CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

TITLE SHEET, VICINITY MAP, AND LOCATION MAP

PROJECT NUMBER
CMAWD.21041

DRAWING NUMBER
G-1

SHEET NUMBER
1 OF **61**

Fri,02 Feb,26 01:33:26 PM by: Jordyn Arreola C:\Bcs\Projects\CMAWD\Carmel Area WWD\CMAWD.21040 Pescadero Sewer\2 Eng\12\G2-1 Sheet-Title.dwg

GENERAL NOTES

1. ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH THE 2019 EDITION OF THE CARMEL AREA WASTEWATER DISTRICT (CAWD, DISTRICT) STANDARDS, "2024 STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (SSPWC)", "2021 STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION (SPPWC)", AND THE CONTRACT DOCUMENTS.

2. NOTIFY THE DISTRICT'S REPRESENTATIVE AND ALL OTHER PARTIES REQUIRED BY THE CONTRACT DOCUMENTS AT LEAST TEN (10) CALENDAR DAYS PRIOR TO THE START OF WORK.

3. AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO COMMENCING CONSTRUCTION, CONTACT THE REGIONAL NOTIFICATION CENTER (UNDERGROUND SERVICE ALERT OF NORTHERN CALIFORNIA - U.S.A. AT 811) AND REQUEST UTILITY OWNERS MARK OR OTHERWISE INDICATE THE LOCATION OF THEIR FACILITIES. TAKE ALL NECESSARY MEASURES TO PROTECT ALL UTILITIES AND ALL STRUCTURES FOUND AT THE SITE.

4. ALL REQUIRED PERMITS AND NECESSARY CITY OF CARMEL-BY-THE-SEA AND COUNTY OF MONTEREY BUSINESS LICENSE(S) SHALL BE OBTAINED BY THE CONTRACTOR PRIOR TO BEGINNING CONSTRUCTION.

5. DURING ALL PHASES OF CONSTRUCTION, INCLUDING SUSPENSION OF WORK, UNTIL FINAL ACCEPTANCE OF THE PROJECT, OBSERVE, FOLLOW AND IMPLEMENT ALL THE REQUIREMENTS OF THE NPDES, CONSTRUCTION GENERAL PERMIT, AND ENVIRONMENTAL PROTECTION PLAN AND KEEP THE WORK SITE CLEAN AND FREE FROM RUBBISH AND DEBRIS. ALSO ABATE DUST NUISANCE BY SPRINKLING WITH WATER AND USING DUST FENCES OR OTHER METHODS AS DIRECTED BY THE DISTRICT'S REPRESENTATIVE THROUGHOUT THE CONSTRUCTION OPERATION.

6. KEEP A STRICT RECORD OF ALL CHANGES AND SUBMIT THIS RECORD TO THE DISTRICT. BEFORE THE RELEASE FOR FINAL ACCEPTANCE OF THE PROJECT WILL BE FILED, COORDINATE TRANSFERRING "AS-BUILT" INFORMATION ON THE CONTRACT DRAWINGS AND DELIVER THE CERTIFIED "AS-BUILT" PLANS TO THE DISTRICT.

7. EXERCISE DUE CARE TO AVOID DAMAGE TO EXISTING IMPROVEMENTS OR FACILITIES, UTILITY FACILITIES, ADJACENT PROPERTY, AND TREES AND SHRUBBERY TO REMAIN. ALL DAMAGE CAUSED TO PUBLIC STREETS, INCLUDING HAUL ROUTES, ALLEYS, SIDEWALKS, CURBS OR STREET FURNISHINGS, OR TO PRIVATE PROPERTY SHALL BE REPAIRED AT THE SOLE EXPENSE OF THE CONTRACTOR TO THE SATISFACTION OF THE DISTRICT'S REPRESENTATIVE.

8. DESIGNATE AND KEEP ON THE PROJECT AT ALL TIMES WHILE WORK IS BEING PERFORMED A COMPETENT SUPERINTENDENT WHO SHALL NOT BE REPLACED WITHOUT WRITTEN NOTICE TO THE DISTRICT'S REPRESENTATIVE. THE SUPERINTENDENT WILL BE THE CONTRACTOR'S REPRESENTATIVE AT THE SITE AND SHALL HAVE AUTHORITY TO ACT ON BEHALF OF THE CONTRACTOR. ALL COMMUNICATIONS GIVEN TO THE SUPERINTENDENT SHALL BE AS BINDING AS IF GIVEN TO THE CONTRACTOR. DURING PERIODS WHEN THE WORK IS SUSPENDED, MAKE APPROPRIATE ARRANGEMENTS FOR ANY EMERGENCY WORK WHICH MAY BE REQUIRED.

9. THE COST OF ALL INITIAL TESTING AND RETESTING TO BE PERFORMED UNDER THE DIRECTION OF THE DISTRICT'S REPRESENTATIVE SHALL BE BORNE BY THE CONTRACTOR, UNLESS OTHERWISE SPECIFIED.

10. WHEN THE WORK ON ANY PORTION OF THE PROJECT IS SUFFICIENTLY COMPLETE TO BE UTILIZED OR PLACED INTO SERVICE, THE DISTRICT SHALL HAVE THE RIGHT UPON WRITTEN NOTIFICATION TO THE CONTRACTOR TO UTILIZE SUCH PORTIONS OF THE WORK AND TO PLACE THE OPERABLE PORTIONS INTO SERVICE AND TO OPERATE SAME. UPON SAID NOTICE AND COMMENCEMENT OF UTILIZATION OR OPERATION BY THE DISTRICT, THE CONTRACTOR SHALL BE RELIEVED OF THE DUTY OF MAINTAINING THE PORTIONS SO UTILIZED OR PLACED INTO OPERATION; PROVIDED, HOWEVER, NOTHING IN THIS NOTE SHALL BE CONSTRUED AS RELIEVING THE CONTRACTOR OF THE FULL RESPONSIBILITY FOR COMPLETING THE WORK IN ITS ENTIRETY, FOR MAKING GOOD DEFECTIVE WORK AND MATERIALS, FOR PROTECTING THE WORK FROM DAMAGE, AND FOR BEING RESPONSIBLE FOR DAMAGE.

11. CONDUCT OPERATIONS AS TO OFFER THE LEAST POSSIBLE OBSTRUCTION AND INCONVENIENCE TO THE PUBLIC, AND HAVE UNDER CONSTRUCTION NO GREATER LENGTH OR AMOUNT OF WORK THAN CAN BE EXECUTED PROPERLY WITH DUE REGARD TO THE RIGHTS OF THE PUBLIC.

12. UNTIL THE ACCEPTANCE OF THE WORK, THE RESPONSIBLE CHARGE AND CARE OF THE WORK AND OF THE MATERIALS TO BE USED THEREIN (INCLUDING MATERIALS FOR WHICH THE CONTRACTOR HAS RECEIVED PARTIAL PAYMENT OR MATERIALS WHICH HAVE BEEN FURNISHED BY THE DISTRICT) SHALL LIE WITH THE CONTRACTOR. THE CONTRACTOR SHALL BEAR THE RISK OF INJURY, LOSS, OR DAMAGE TO ANY PART THEREOF BY THE ACTION OF ELEMENTS OR FROM ANY OTHER CAUSE, WHETHER ARISING FROM THE EXECUTION OR FROM THE NON-EXECUTION OF THE WORK.

13. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK; AND SHALL FULLY COMPLY WITH ALL STATE, FEDERAL, AND OTHER LAWS, RULES, REGULATIONS, AND ORDERS RELATING TO SAFETY OF WORKERS AND ALL OTHERS. THIS MAY INCLUDE THE ISSUANCE OF PERSONAL PROTECTIVE EQUIPMENT.

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GENERAL NOTES CONTINUED

14. TYPICAL DETAILS APPLY WHETHER OR NOT THEY ARE SPECIFICALLY REFERENCED ON INDIVIDUAL PLANS, DETAILS, OR SECTIONS.

15. VERIFY DIMENSIONS AND CONDITIONS AT THE SITE BEFORE STARTING WORK. ANY CONFLICT BETWEEN DETAILS OR DIMENSIONS ON THE DRAWINGS SHALL BE REPORTED PROMPTLY TO THE DISTRICT'S REPRESENTATIVE WHO WILL DETERMINE THE INTENT OF THE DRAWINGS.

16. THE CONTRACTOR SHALL MAINTAIN A COMPLETE SET OF CONTRACT DOCUMENTS, INCLUDING PLANS AND SPECIFICATIONS, AT THE JOB SITE WHILE ANY WORK IS BEING CONDUCTED.

17. CONTRACTOR SHALL PREPARE EROSION AND SEDIMENT CONTROL PLANS THAT INCLUDE LOCATIONS AND INSTALLATION DETAILS FOR EROSION AND SEDIMENT CONTROL BMPS, MATERIAL STAGING AREAS, AND STABILIZED ACCESS, PER CASQA AND OTHER APPLICABLE STANDARDS. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE BMPS.

18. SURVEY MONUMENTS: SURVEY MONUMENTS SHALL BE PROTECTED IN PLACE WHEREVER FEASIBLE. SURVEY MONUMENTS REMOVED OR DAMAGED DUE TO CONSTRUCTION OPERATIONS SHALL BE RESTORED BY A LICENSED LAND SURVEYOR. ALL SURVEY MONUMENTS LOCATED WITHIN THE TRENCH PATCH SHALL BE REPLACED IN ACCORDANCE WITH CITY OF CARMEL-BY-THE-SEA OR COUNTY OF MONTEREY STANDARD, WHICHEVER IS APPLICABLE.

ENVIRONMENTAL NOTES

1. TO BE ADDED IN FUTURE SUBMITTAL

SITE ACCESS NOTES

1. CONTRACTOR SHALL COMPLY WITH THE PROVIDED TRAFFIC CONTROL PLANS, OR PROVIDE ALTERNATIVE TRAFFIC CONTROL PLANS FOR REVIEW AND APPROVAL.

2. CONTRACTOR SHALL MAINTAIN PORTABLE SIGNAGE AS REQUIRED BY THE SPECIFICATIONS AT EACH ACTIVE WORK HEADING, THROUGHOUT PROJECT CONSTRUCTION.

3. COORDINATE WITH GREENWASTE RECOVERY AND WASTE MANAGEMENT TO PROVIDE ACCESS FOR WASTE COLLECTION THROUGHOUT CONSTRUCTION TO FACE OF ACTIVE HEADING.

4. DEDICATED CONTRACTOR STAGING AND STORAGE AREA IS LOCATED AT THE DISTRICT'S WASTEWATER TREATMENT PLANT. IF ADDITIONAL STAGING AND STORAGE AREAS ARE NEEDED, ADDITIONAL AREAS WILL BE SECURED BY THE CONTRACTOR. STAGING AND STORAGE OF EQUIPMENT AND MATERIALS ON OTHER PRIVATE PROPERTIES IS PROHIBITED WITHOUT WRITTEN PERMISSION BY BOTH THE PRIVATE PROPERTY OWNER AND THE DISTRICT.

5. THE CONTRACTOR MAY UTILIZE THE PUBLIC RIGHT OF WAY ADJACENT TO THE ACTIVE CONSTRUCTION HEADING FOR STORAGE AND STAGING OF MATERIALS, PROVIDED THE STAGED EQUIPMENT IS NOT IN CONFLICT WITH OTHER REQUIREMENTS OF THE CONTRACT DOCUMENTS.

6. PROVIDE FENCING WITH VISUAL SCREENING FOR ANY STAGED MATERIALS AND EQUIPMENT REMAINING OVERNIGHT.

UNDERGROUND UTILITY NOTES

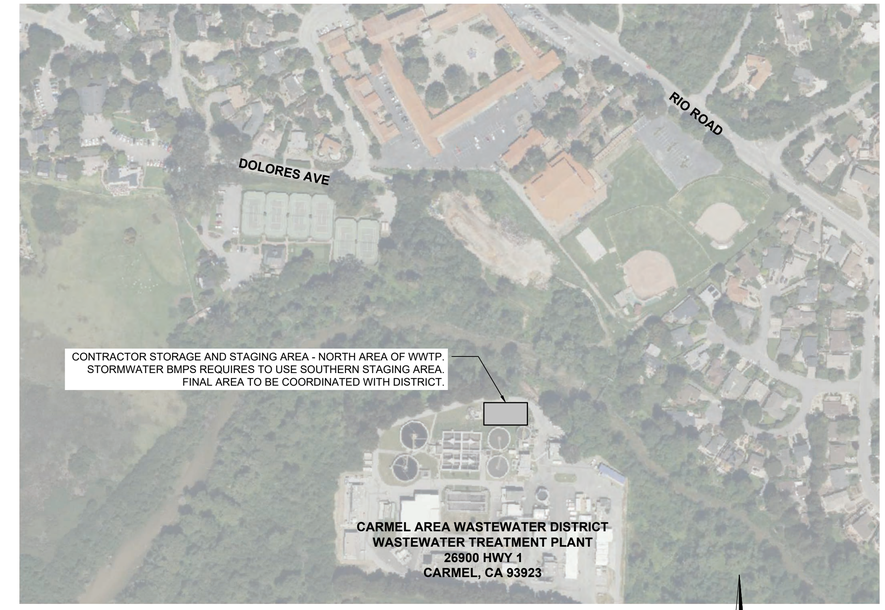
1. ALL UTILITIES SHOWN ON THESE PLANS WERE SCALED FROM UTILITY MAPS RECEIVED FROM UTILITY OWNERS. THEY ARE NOT NECESSARILY COMPLETE OR ACCURATE AND ARE BASED ON THE INFORMATION AVAILABLE TO THE DESIGN ENGINEER AT THE TIME THESE PLANS WERE PRODUCED. THE EXISTENCE AND LOCATION OF SEWER FACILITIES SHOWN ON THESE PLANS WERE OBTAINED FROM AVAILABLE DISTRICT RECORDS. THE DISTRICT DOES NOT GUARANTEE THE ACCURACY OF THESE RECORDS. THE ACTUAL LOCATIONS OF THE UTILITIES SHOWN ON THESE PLANS AND ALL UTILITIES SHOWN SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF THE ACCURACY OF THE INFORMATION PROVIDED.

2. FOR OPEN CUT SEWER INSTALLATION OR REPLACEMENT, PROVIDE SHOP DRAWINGS WITH POTHOLED UTILITY INFORMATION DISPLAYED FOR REVIEW BY THE ENGINEER 72 HOURS MINIMUM PRIOR TO COMMENCEMENT OF ANY EXCAVATION OF THESE SEGMENTS.

3. THE CONTRACTOR SHALL EXCAVATE AND EXPOSE ALL GAS MAINS AND ALL OTHER UTILITIES WITHIN 4 FEET (HORIZONTAL OR VERTICAL) OF PIPE BURSTING ALIGNMENTS PATH PRIOR TO BURSTING OPERATIONS TO AVOID DAMAGE TO EXISTING UTILITIES. CONTRACTOR SHALL COORDINATE WITH PG&E WHEN WORKING WITHIN 5 FEET OF GAS MAINS.

4. IN OPEN CUT SEWER REPLACEMENT SECTIONS, EXISTING SEWER PIPE SHALL BE REMOVED AND DISPOSED OF AT THE CONTRACTOR' S EXPENSE.

5. CONTRACTOR SHALL FIELD LOCATE ALL EXISTING SEWER LATERALS CONNECTING TO EXISTING SEWER MAINS TO BE REPLACED. RECONNECT LATERALS TO REPLACED SEWER MAIN. CONTRACTOR TO VERIFY EXISTING LATERAL SIZES PRIOR TO REPLACEMENT. REPLACEMENT DIAMETER SHALL MATCH EXISTING UNLESS OTHERWISE NOTED OR OTHERWISE DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL IDENTIFY THE LOCATION OF EACH LATERAL CONNECTION, INCLUDING THE STATION OF EACH LATERAL CONNECTION WHICH IS LOCATED DIFFERENTLY THAN WHERE SHOWN ON THE RECORD DRAWINGS. CONTRACTOR SHALL VERIFY THAT LATERALS SHOWN ON THE PLANS AS INACTIVE ARE ACTUALLY INACTIVE PRIOR TO PIPE BURSTING.



CONTRACTOR STORAGE AND STAGING AREA

200' 100' 0' 100' 200'
1 in. = 200 ft.

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REV	DATE	BY	DESCRIPTION

MNS
811 El Capitan Way, Suite 130
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DESIGNED: JA
DRAWN: KD
CHECKED: NEP

JORDYN A. ARREOLA
PRINCIPAL ENGINEER
R.C.E. 94046 EXP. 9 - 30 - 2026
DATE

REGISTERED PROFESSIONAL ENGINEER JORDYN A. ARREOLA C94046 Exp. 9-30-2026 CIVIL STATE OF CALIFORNIA

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CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

GENERAL AND CIVIL NOTES

PROJECT NUMBER
CMAWD.21041
DRAWING NUMBER
G-2
SHEET NUMBER
2 OF **61**

C:\BeaProjects\CMAWD Carmel Area WWTP\CMAWD.21041 Pescadero Sewer\2 Eng\CADD Sheets\General Notes & Sheet Layout.dwg
Mon 23-Feb-26 09:23:14 PM by: Jordyn Arreola

SHEET INDEX

SHEET NO.	DRAWING NO.	DESCRIPTION
1	G-1	TITLE SHEET, VICINITY MAP, AND LOCATION MAP
2	G-2	GENERAL AND CIVIL NOTES
3	G-3	SHEET INDEX
4	G-4	SHEET LAYOUT PLAN
5	G-5	BENCHMARK & BASIS OF BEARING
6	G-6	MANHOLE REHABILITATION SCHEDULE 1
7	G-7	MANHOLE REHABILITATION SCHEDULE 2
8	C-1	PESCADERO ROAD SEWER PLAN AND PROFILE STA 10+00 TO 16+00
9	C-2	PESCADERO ROAD SEWER PLAN AND PROFILE STA 16+00 TO 22+00
10	C-3	PESCADERO ROAD SEWER PLAN AND PROFILE STA 22+00 TO 27+50
11	C-4	PESCADERO ROAD SEWER PLAN AND PROFILE STA 27+50 TO 33+00
12	C-5	PESCADERO ROAD SEWER PLAN AND PROFILE STA 33+00 TO 35+00
13	C-6	PESCADERO ROAD SEWER PLAN AND PROFILE STA 45+00 TO 47+50
14	C-7	PESCADERO ROAD SEWER PLAN AND PROFILE STA 47+90 TO 50+10
15	C-8	PESCADERO ROAD SEWER PLAN AND PROFILE STA 40+00 TO 44+50
16	C-9	PESCADERO ROAD SEWER PLAN AND PROFILE STA 55+00 TO 57+50
17	C-10	PESCADERO ROAD SEWER PLAN AND PROFILE STA 57+60 TO 63+50
18	C-11	PESCADERO ROAD SEWER PLAN AND PROFILE STA 65+00 TO 70+00
19	C-12	CAMINO DEL MONTE STREET SEWER PLAN AND PROFILE STA 70+00 TO 74+25
20	C-13	CAMINO DEL MONTE STREET SEWER PLAN AND PROFILE STA 123+80 TO 125+00
21	C-14	SAN JUAN ROAD SEWER PLAN AND PROFILE STA 75+00 TO 79+00
22	C-15	SAN JUAN ROAD SEWER PLAN AND PROFILE STA 79+00 TO 83+00
23	C-16	SAN JUAN ROAD SEWER PLAN AND PROFILE STA 83+00 TO 87+00
24	C-17	SAN JUAN ROAD SEWER PLAN AND PROFILE STA 90+00 TO 91+25
25	C-18	SAN JUAN ROAD SEWER PLAN AND PROFILE STA 95+00 TO 98+25
26	C-19	SAN MARCOS ROAD SEWER PLAN AND PROFILE STA 100+00 TO 103+00
27	C-20	PESCADERO ROAD SEWER PLAN AND PROFILE STA 105+00 TO 108+00
28	C-21	SAN MARCOS ROAD SEWER PLAN AND PROFILE STA 110+00 TO 116+00
29	C-22	SAN MARCOS ROAD SEWER PLAN AND PROFILE STA 120+50 TO 122+50
30	C-23	PORTOLA ROAD SEWER PLAN AND PROFILE STA 125+00 TO 130+00
31	C-24	PORTOLA ROAD SEWER PLAN AND PROFILE STA 130+00 TO 135+00
32	C-25	SAN JUAN ROAD SEWER PLAN AND PROFILE STA 135+00 TO 137+00
33	C-26	SAN JUAN ROAD SEWER PLAN AND PROFILE STA 140+00 TO 143+00
34	C-27	SAN JUAN ROAD SEWER PLAN AND PROFILE STA 143+00 TO 145+90
35	C-28	SAN JUAN ROAD SEWER PLAN AND PROFILE STA 145+90 TO 149+60
36	C-29	SAN JUAN ROAD SEWER PLAN AND PROFILE STA 155+00 TO 160+50
37	C-30	SAN PEDRO LANE SEWER PLAN AND PROFILE STA 160+50 TO 165+00
38	C-31	SAN JUAN ROAD SEWER PLAN AND PROFILE STA 170+00 TO 171+50
39	C-32	SAN LUCAS ROAD SEWER PLAN AND PROFILE STA 180+00 TO 184+30
40	C-33	SAN LUIS AVENUE SEWER PLAN AND PROFILE STA 186+30 TO 189+00
41	C-34	SAN LUIS AVENUE SEWER PLAN AND PROFILE STA 195+00 TO 198+00
42	C-35	SAN LUIS AVENUE SEWER PLAN AND PROFILE STA 198+00 TO 201+50
43	C-36	SAN MATEO AVENUE SEWER PLAN AND PROFILE STA 210+00 TO 212+50
44	C-37	SAN MATEO AVENUE SEWER PLAN AND PROFILE STA 212+50 TO 218+00
45	C-38	SAN PEDRO LANE SEWER PLAN AND PROFILE STA 218+00 TO 222+10
46	C-39	SAN LUIS AVENUE SEWER PLAN AND PROFILE STA 225+00 TO 227+00
47	C-40	CAMINO DEL MONTE STREET SEWER PLAN AND PROFILE STA 240+00 TO 244+00
48	C-41	CARPENTER STREET SEWER PLAN AND PROFILE STA 244+00 TO 247+50
49	C-42	CABRILLO HIGHWAY SEWER PLAN AND PROFILE STA 247+50 TO 251+50
50	C-43	CABRILLO HIGHWAY SEWER PLAN AND PROFILE STA 251+50 TO 254+50
51	C-44	CABRILLO HIGHWAY SEWER PLAN AND PROFILE STA 260+00 TO 261+10
52	C-45	SAN LUIS AVENUE SEWER PLAN AND PROFILE STA 265+00 TO 268+50
53	C-46	SAN MATEO AVENUE SEWER PLAN AND PROFILE STA 268+50 TO 270+50
54	C-47	CAMINO DEL MONTE STREET SEWER PLAN AND PROFILE STA 280+00 TO 282+00
55	C-48	CAMINO DEL MONTE STREET SEWER PLAN AND PROFILE STA 285+00 TO 287+65
56	C-49	EXISTING SEWER MAIN REHABILITATION PLAN - STA 50+00 TO STA 66+50
57	C-50	CIVIL DETAILS 1
58	C-51	CIVIL DETAILS 2
59	C-52	CIVIL DETAILS 3
60	T-1	TRAFFIC CONTROL SHEET LAYOUT
61	T-2	TRAFFIC CONTROL NOTES

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DESIGNED: JA
DRAWN: KD
CHECKED: NEP

JORDYN A. ARREOLA
PRINCIPAL ENGINEER
R.C.E. 94046 EXP. 9 - 30 - 2026

DATE

REGISTERED PROFESSIONAL ENGINEER
JORDYN A. ARREOLA
C94046
Exp. 9-30-2026
CIVIL
STATE OF CALIFORNIA

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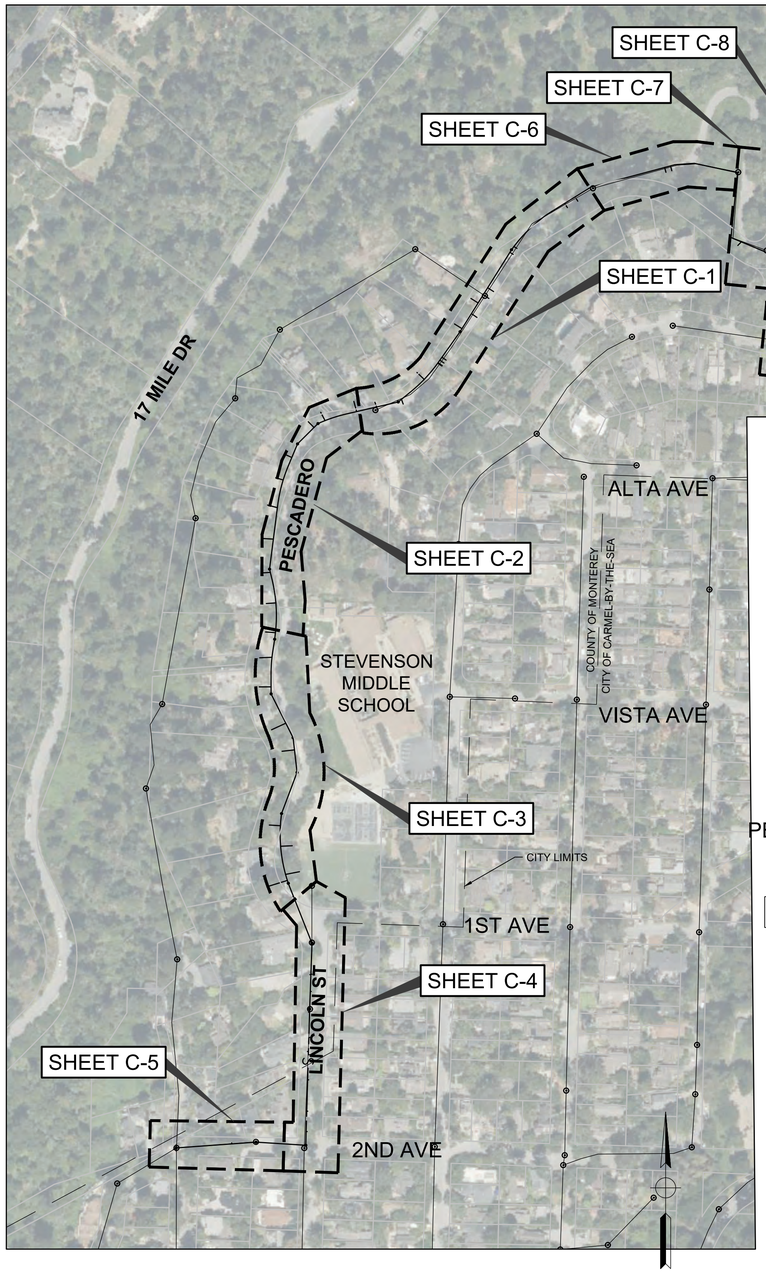
CARMEL AREA WASTEWATER DISTRICT · SINCE 1908 ·

CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

SHEET INDEX

PROJECT NUMBER
CMAWD.21041
DRAWING NUMBER
G-3
SHEET NUMBER
3 OF **61**

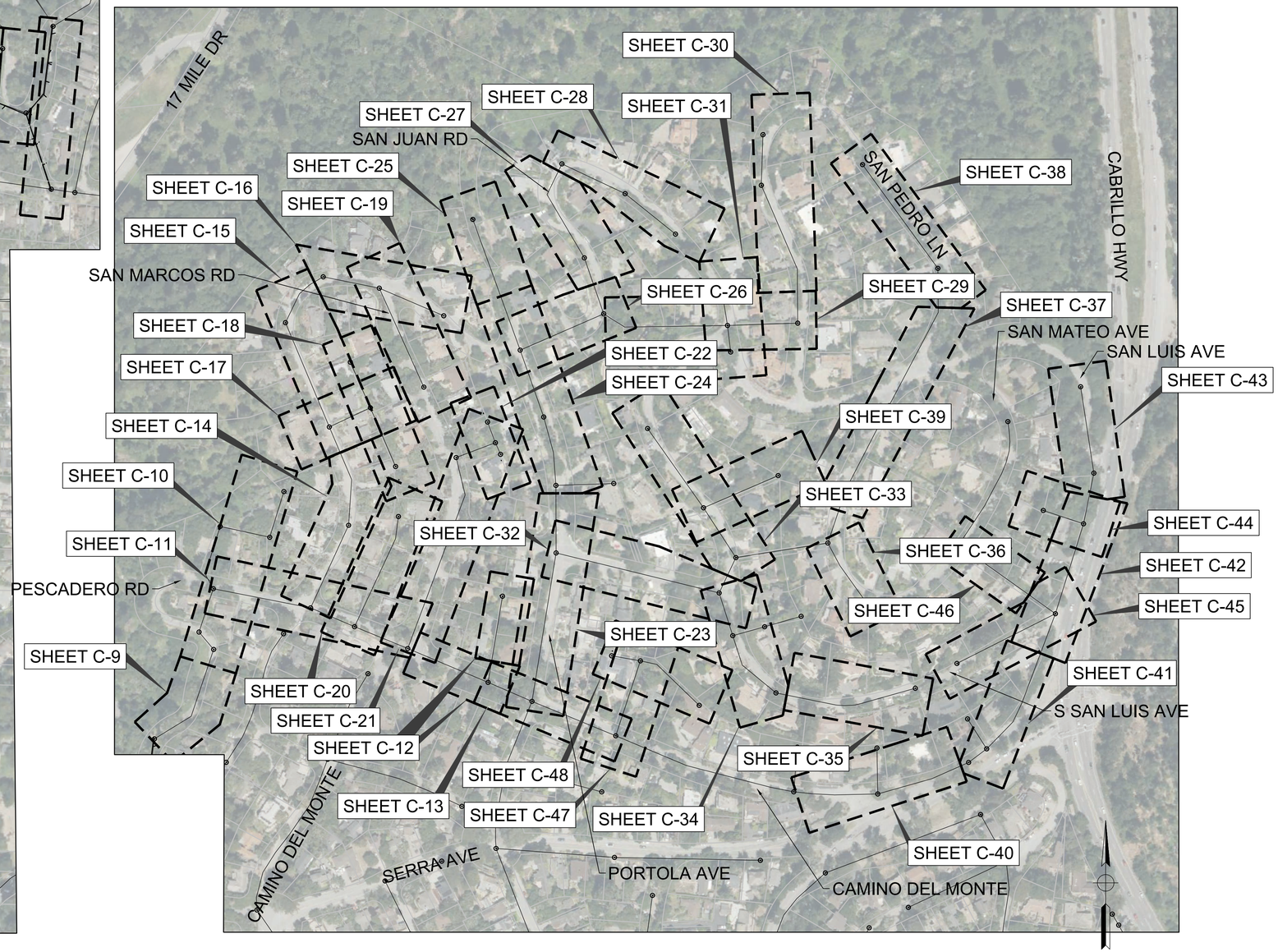
Fri 02 Feb 26 02:50:07 PM by: Jordyn Arreola C:\BurrProjects\CMAWD\Carmel Area WW\CMAWD.21040\1 Precedent Sewer\2 Eng\CAD\2 Sheets\General Notes & Sheet Layout.dwg



SHEET LAYOUT PLAN

150' 0' 150'

1 in. = 150 ft.



SHEET LAYOUT PLAN

150' 0' 150'

1 in. = 150 ft.

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CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

SHEET LAYOUT PLAN

PROJECT NUMBER
CMAWD.21041

DRAWING NUMBER
G-4

SHEET NUMBER
4 OF **61**

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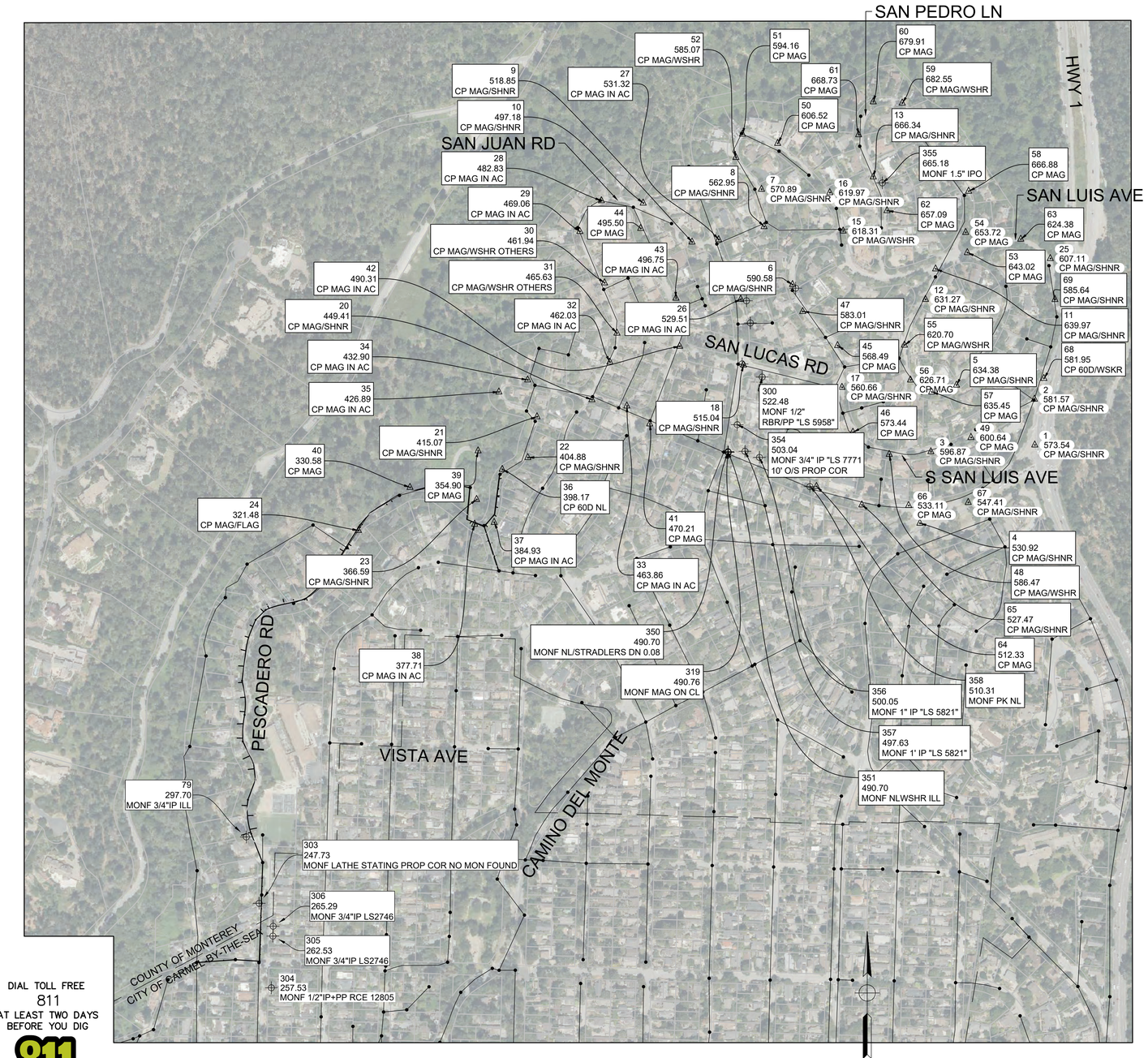

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SHEET LAYOUT PLAN

250' 0' 250'

1 in. = 250 ft.

BASIS OF BEARINGS

ALL DISTANCES, BEARINGS, AND COORDINATES ARE BASED ON ZONE 4 OF THE CALIFORNIA COORDINATE SYSTEM (CCS), NAD83 (2011), EPOCH 2017.50. THE HORIZONTAL ADJUSTMENT WAS PERFORMED BY UTILIZING 2 CONTINUOUS GLOBAL POSITIONING SYSTEM (CGPS) STATIONS TO ESTABLISH HORIZONTAL COORDINATE VALUES. THE VALUES FOR THESE CGPS STATIONS (P171 & P231) WERE PROVIDED BY THE CALIFORNIA SPATIAL REFERENCE CENTER (CSRC). THE MEASURED DISTANCES FOR THE PROJECT ARE GROUND DISTANCES. GROUND DISTANCES WERE OBTAINED BY DIVIDING THE GRID DISTANCES USING THE COMBINATION FACTOR OF 0.9999320276 CALCULATED AT CONTROL POINT 7.

BENCHMARK

ELEVATIONS ARE BASED ON THE CGPS STATIONS (P171, P210, P211, P231 & P232) PROVIDED BY THE CALIFORNIA SPATIAL REFERENCE CENTER (CSRC) ON THE NAVD88 VERTICAL DATUM.

DATUM/ELEVATIONS:

CONTROL POINTS

CP	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	2102365.657	5706317.0521	573.5476	CP MAG/SHNR
2	2102551.979	5706315.6633	581.572	CP MAG/SHNR
3	2102338.34	5705894.5603	596.8655	CP MAG/SHNR
4	2102047.37	5705849.7062	530.9429	CP MAG/SHNR
5	2102609.116	5705998.914	634.381	CP MAG/SHNR
6	2103018.08	5705332.0481	590.5608	CP MAG/SHNR
7	2103405.468	5705205.5981	570.8873	CP MAG/SHNR
8	2103253.5596	5705216.0364	562.947	CP MAG/SHNR
9	2103190.9192	5704923.1543	518.8865	CP MAG/SHNR
10	2103349.3133	5704724.6359	497.1817	CP MAG/SHNR
11	2103081.6927	5705913.7381	639.9749	CP MAG/SHNR
12	2102957.671	5705872.6173	631.2663	CP MAG/SHNR
13	2103455.7365	5705660.3207	666.3367	CP MAG/SHNR
15	2103235.6744	5705537.6342	618.314	CP MAG/WSHR
16	2103391.6261	5705483.3912	619.9745	CP MAG/SHNR
17	2102599.9252	5705533.0119	560.6477	CP MAG/SHNR
18	2102690.7299	5705132.6059	515.0368	CP MAG/SHNR
20	2102549.6779	5704515.9529	449.4562	CP MAG/SHNR
21	2102480.3864	5704292.6892	415.0706	CP MAG/SHNR
22	2102314.3454	5704255.274	404.9082	CP MAG/SHNR
23	2102144.2354	5704046.8906	366.5876	CP MAG/SHNR
24	2102018.0569	5703566.52	321.534	CP MAG/FLAG
25	2103123.8536	5706380.2678	607.1064	CP MAG/SHNR
26	2102958.0688	5705121.2543	529.5133	CP MAG IN AC
27	2103200.5281	5705031.3928	531.3173	CP MAG IN AC
28	2103358.8178	5704554.6102	482.8247	CP MAG IN AC
29	2103233.8339	5704466.8118	469.0612	CP MAG IN AC
30	2103024.9033	5704567.3492	461.9369	CP MAG/WSHR
31	2102820.4803	5704617.7916	465.6306	CP MAG/WSHR
32	2102702.8748	5704588.8329	462.0286	CP MAG IN AC
33	2102524.3206	5704658.1153	463.861	CP MAG IN AC
34	2102630.3135	5704254.699	432.895	CP MAG IN AC
35	2102581.3042	5704137.7	426.8838	CP MAG IN AC
36	2102266.4698	5704151.324	398.1601	CP 60D NL
37	2102050.8747	5704118.267	384.9243	CP MAG IN AC
38	2102043.7405	5704039.139	377.7023	CP MAG IN AC
39	2102341.7751	5704052.981	354.8941	CP MAG
40	2102193.112	5703776.028	330.5781	CP MAG
41	2102451.358	5704751.01	470.2029	CP MAG
42	2102767.1132	5704872.714	490.3058	CP MAG IN AC
43	2102962.7592	5704857.735	496.7449	CP MAG IN AC
44	2103246.1478	5704714.269	495.4959	CP MAG
45	2102769.9863	5705515.101	568.477	CP MAG
46	2102417.5836	5705577.589	573.4245	CP MAG
47	2102908.1467	5705373.276	582.9967	CP MAG/SHNR
48	2102327.3819	5705725.164	586.4633	CP MAG/WSHR
49	2102396.0939	5706057.691	600.6331	CP MAG
50	2103592.0362	5705271.358	606.5173	CP MAG
51	2103629.5416	5705128.052	594.1573	CP MAG
52	2103534.9643	5705101.629	585.0701	CP MAG/WSHR
53	2103147.7766	5706042.753	643.0181	CP MAG
54	2103229.8812	5706036.107	653.7168	CP MAG
55	2102771.7496	5705787.088	620.6981	CP MAG/WSHR
56	2102629.9004	5705811.698	626.7069	CP MAG
57	2102581.1743	5705897.865	635.451	CP MAG
58	2103397.5834	5706048.151	666.8821	CP MAG
59	2103755.969	5705778.103	682.5428	CP MAG/WSHR
60	2103761.038	5705660.104	679.903	CP MAG
61	2103627.4469	5705600.812	668.7265	CP MAG
62	2103318.2388	5705716.257	657.0862	CP MAG
63	2103202.4671	5706260.1035	624.3742	CP MAG
64	2102197.1035	5705429.2002	512.3334	CP MAG
65	2102121.9637	5705613.7528	527.4834	CP MAG/SHNR
66	2102119.3637	5705804.1456	533.1217	CP MAG
67	2102131.8471	5706046.486	547.4265	CP MAG/SHNR
68	2102636.1229	5706353.9927	581.9537	CP 60D/WSKR
69	2102957.2138	5706399.1851	585.6374	CP MAG/SHNR
300	2102641.8658	5705207.6625	522.4767	MONF 1/2" RBR/PP "LS 5958"
301	2102951.8286	5705144.0652	536.7744	MONF 1/2" RBR/PP "LS 5958"
302	2102861.7488	5705159.7872	529.8381	MONF 1/2"IP "RCE 424XX"
319	2102336.5126	5705068.3044	490.7584	MONF MAG ON CL
350	2102335.7364	5705070.1476	490.6978	MONF NL/STRADLERS DN 0.08'
351	2102338.4715	5705068.787	490.7009	MONF NL/WSHR ILL
352	2103003.1407	5705343.857	589.3015	MONF NL/STRADLERS DN.08'
353	2102695.0994	5705126.051	514.3167	MONF NL/STRADLERS
354	2102447.8938	5705106.429	503.0424	MONF 3/4" IP "LS 7771" 10' O/S PROP COR
355	2103431.3299	5705696.5731	665.1799	MONF 1.5" IPO
356	2102315.1266	5705196.5947	500.0458	MONF 1" IP "LS 5821"
357	2102339.8399	5705137.8882	497.6286	MONF 1" IP "LS 5821"
358	2102196.3429	5705402.0387	510.314	MONF PK NL

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PRINCIPAL ENGINEER
R.C.E. 94046 EXP. 9 - 30 - 2026
DATE

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CARMEL AREA WASTEWATER DISTRICT • SINCE 1908 •

CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

BENCHMARK & BASIS OF BEARING

PROJECT NUMBER
CMAWD.21041

DRAWING NUMBER
G-5

SHEET NUMBER
5 OF **61**

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Mon 23-Feb-26 05:23:14 PM by: Jordyn Arreola

MANHOLE REHABILITATION SCHEDULE

STRUCTURE NAME	STRUCTURE DEPTH (FEET)	REHABILITATION MEASURE(S)																	
		APPLY POLYURETHANE ULTRA-HIGH BUILD LINER	REPLACE COLLAR, SECURE WITH CONCRETE, AND ADD NEW HDPE GRADE RINGS	RAISE MANHOLE 6-12"	REPLACE WITH NEW 48" CONCRETE MANHOLE	REPLACE FRAME AND COVER	APPLY GROUT SKIM COAT TO MANHOLE BARREL AND CONE INTERIOR SURFACES	REMOVE RUNGS	REMOVE AND REPLACE 6-INCH CLEANOUT	EXISTING LATERAL CONNECTED TO THE CLEANOUT SHALL BE REROUTED	REMOVE AND REPLACE 6-INCH CLEANOUT WITH 4" CLEANOUT	REPLACE FRAME AND COVER WITH COMPOSITE LID	REPAIR BENCH WITH GROUT	REPLACE WITH 4" SADDLE AFTER PIPE BURSTING	GROUT INJECTION	DEMOLISH, RELOCATE, AND REPLACE MANHOLE	RECHANNELIZATION (SEE NOTES 1 & 2)	DEMOLISH PIPE RISER	DEMOLISH MANHOLE, REPLACE WITH DROP MANHOLE
DETAIL REFERENCES		DETAIL 5, SHEET C-51	DETAIL 2, SHEET C-53	CAWD STD SS-9	CAWD STD SS-9	CAWD STD SS-16	DETAIL 5, SHEET C-51	N/A	CAWD STD SS-1	N/A	DETAIL 1, SHEET C-53	CAWD STD SS-17	CAWD STD SS-9	CAWD STD SS-3	N/A	CAWD STD SS-9	CAWD STD SS-9	DETAIL 2, SHEET C-53	DETAIL 4, SHEET C-51
MH M602	5.4					X	X												
FI M604	1.8								X	X									
MH M605	7.6	X					X	X				X							
MH M606	5.4		X									X						X	
MH M607	4.2					X											X		
MH M609	3.6				X														
MH M610	2.9				X														
MH M611	3.7	X				X											X		
MH M615	5.4				X														
MH M700	5.2	X				X													
MH M701	3.1	X				X													
FI M702	2.9								X										
FI M703	3								X	X									
MH M704	8.8					X													
FI M705	2.2					X				X									
MH M706	4.9				X														
FI M707	1.9									X	X								
MH M708	3.6						X					X					X		
FI M709	1.7									X	X								
MH M710	2.8				X											X			
MH M711	5.1	X				X	X										X		
MH M712	4.3				X														
MH M713	4.3					X	X						X						
MH M714	5.1				X														
MH M715	5					X													
MH M716	6.3				X											X			
FI M717	4.5								X										
MH M718	4					X													
FI M719	3.6								X	X									
MH M720	3.6					X													
MH M721	5					X													
MH M722	2.7					X													
MH M723	8					X													
MH M724	5.8					X							X						
MH M725	4.8					X									X				
MH M726	5					X													
FI M727	2.5								X										
MH M728	3.2					X													
MH M729	4.5	X				X													
FI M730	3.9								X	X									
MH M731	7.9					X													
FI M732	2								X										
MH M733	5					X													
MH M734	4.7				X														
FI M735	2.8								X										
MH M736	6					X													

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MANHOLE REHABILITATION NOTES

1. RECHANNELIZATION SHALL BE DEFINED AS THE REPAIR OF THE MANHOLE BASE SECTION TO MEET DISTRICT STANDARD DIMENSIONS THROUGH USE OF A REPAIR MORTAR.
2. RECHANNELIZATION SHALL BE PER DETAILS 5, SHEET C-51 AND DISTRICT STANDARD PLAN SS-9.
3. INTERIOR GROUTING FOR VERTICAL SURFACES SHALL BE SIKAEMACO-488 CI, OR APPROVED EQUAL. MINIMUM APPLIED GROUT THICKNESS SHALL BE 1/2".

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CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

MANHOLE REHABILITATION SCHEDULE 1

PROJECT NUMBER **CMAWD.21041**
DRAWING NUMBER **G-6**
SHEET NUMBER **6** OF **61**

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Fri 3:52 Feb 28 02:50:47 PM by: Hope Mallory

MANHOLE REHABILITATION SCHEDULE

STRUCTURE NAME	STRUCTURE DEPTH (FEET)	REHABILITATION MEASURE(S)																	
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DETAIL REFERENCES		DETAIL 5, SHEET C-51	DETAIL 2, SHEET C-53	CAWD STD SS-9	CAWD STD SS-9	CAWD STD SS-16	DETAIL 5, SHEET C-51	N/A	CAWD STD SS-1	N/A	DETAIL 1, SHEET C-53	CAWD STD SS-17	CAWD STD SS-9	CAWD STD SS-3	N/A	CAWD STD SS-9	CAWD STD SS-9	DETAIL 2, SHEET C-53	DETAIL 4, SHEET C-51
FI M737	2.5								X										
MH M739	5.2					X													
MH M740	6.2					X													
FI M741	2.8								X										
MH M742	4				X														
MH M746	3.3					X													
MH M747	4.1					X													
MH M748	5					X											X		
MH M749	4.9					X							X				X		
FI M750	2.5								X	X									
FI M770	2.6					X													
FI M771	2								X										
MH M772	7.8			X								X							
FI M773	2								X										
MH M775	4.4				X			X											
FI M777	X										X								
MH M779	6.7	X				X													
MH M781	3					X													
MH M782	4.4					X											X		
Tee M784	NA													X					
FI M790	3.9								X	X									
MH M791	3.6						X					X							
FI M792	3.5										X								
FI M793	3.9										X								
MH N601	4.3				X											X			
MH N616	5.6					X											X		
MH N637	5.2					X													
MH N639	4.8	X				X											X		
MH N618	12.7																		X
MH N619	11.4				X														
FI N665	3.8				X														
MH N610	4.5				X														

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CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

MANHOLE REHABILITATION SCHEDULE 2

PROJECT NUMBER
CMAWD.21041
DRAWING NUMBER
G-7
SHEET NUMBER
7 OF **61**

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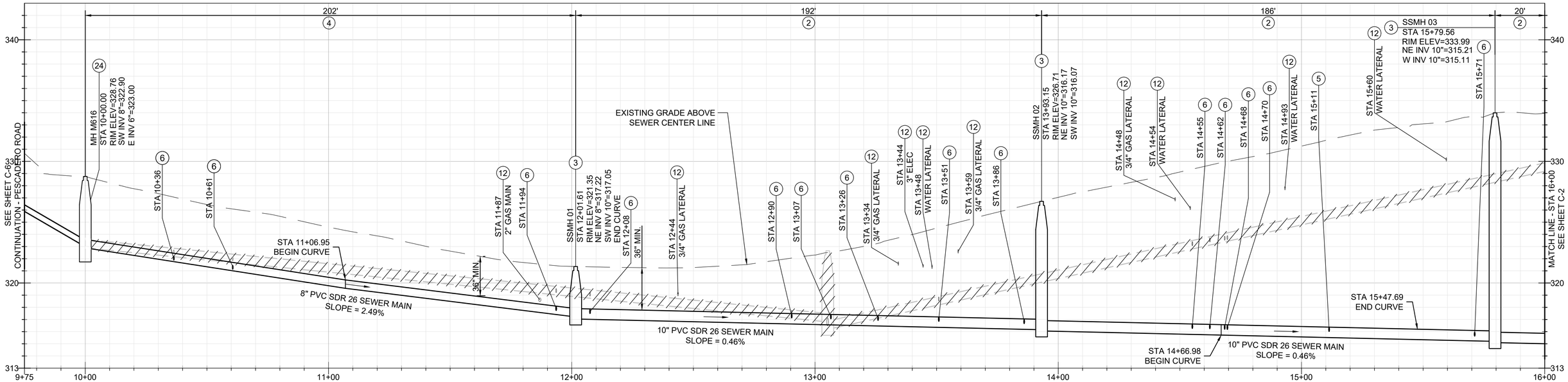


CONSTRUCTION NOTES

(2) INSTALL NEW 10-INCH PVC SDR 26 SEWER MAIN BY OPEN TRENCH CONSTRUCTION. TRENCH AND BACKFILL PER DETAIL 3, SHEET C-51.

(3) INSTALL NEW MANHOLE PER CAWD STD SS-9.

(4) REMOVE 8-INCH VCP SEWER AND REPLACE WITH 8-INCH PVC SDR 26 SEWER MAIN BY OPEN TRENCH CONSTRUCTION. TRENCH AND BACKFILL PER CAWD STD SS-24. SEE SPECIFICATIONS FOR BYPASSING REQUIREMENTS.

(5) PROVIDE STUB-OUT FOR FUTURE LATERAL CONNECTION PER DETAIL 2, SHEET C-50.

(6) RECONNECT EXISTING LATERALS PER SPECIFICATIONS AND CAWD STD PLAN SS-2 AND SS-3.

(8) DEMOLISH AND REMOVE EXISTING MANHOLE PER SHEET C-49.

(9) DEMOLISH AND REMOVE EXISTING 8-INCH VCP SEWER MAIN WHERE IN CONFLICT WITH NEW CONSTRUCTION PER SHEET C-49.

(10) ABANDON EXISTING 8-INCH VCP SEWER PER CAWD STD SS-26.

(12) PROTECT IN PLACE EXISTING UTILITY.

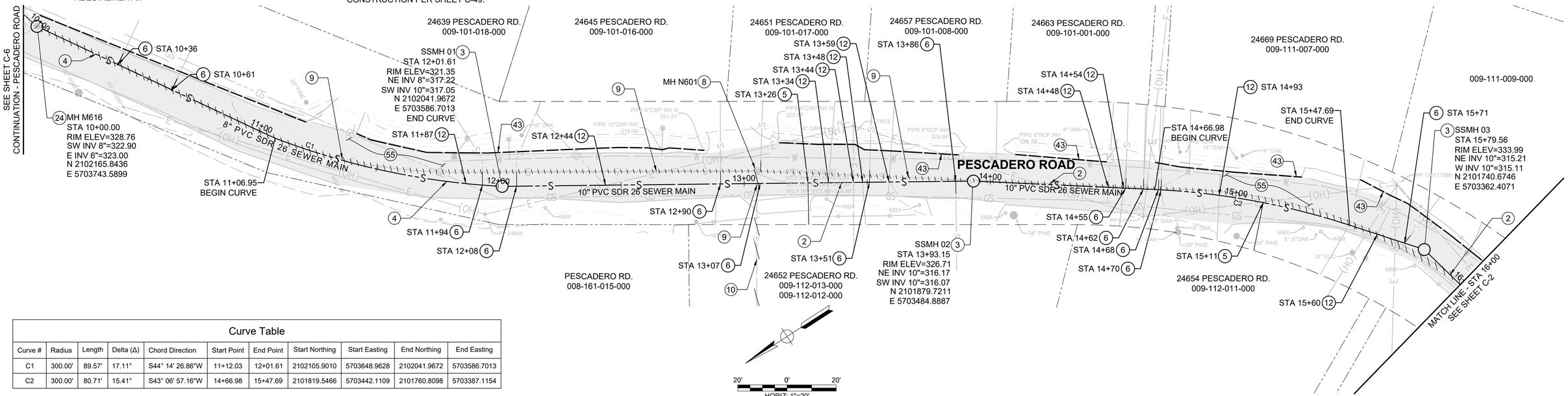
(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITION SCHEDULE, SHEET G-6 AND G-7.

(43) CLEAR EXISTING DRAINAGE SWALE PER DETAIL 1, SHEET C-50.

(55) PROVIDE FULL WIDTH 1.5" GRIND AND OVERLAY OF PESCADERO ROAD.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.



**60% DESIGN - NOT FOR CONSTRUCTION

Curve Table

Curve #	Radius	Length	Delta (Δ)	Chord Direction	Start Point	End Point	Start Northing	Start Easting	End Northing	End Easting
C1	300.00'	89.57'	17.11°	S44° 14' 26.86"W	11+12.03	12+01.61	2102105.9010	5703648.9628	2102041.9672	5703586.7013
C2	300.00'	80.71'	15.41°	S43° 06' 57.16"W	14+66.98	15+47.69	2101819.5466	5703442.1109	2101760.8098	5703387.1154

REV	DATE	BY	DESCRIPTION

MNS
811 El Capitan Way, Suite 130
San Luis Obispo, CA 93401
805-692-6921 | www.mnsengineers.com

DESIGNED: JA
DRAWN: KD
CHECKED: NEP

JORDYN A. ARREOLA
PRINCIPAL ENGINEER
R.C.E. 94046 EXP. 9 - 30 - 2026
DATE

REGISTERED PROFESSIONAL ENGINEER JORDYN A. ARREOLA C94046 Exp. 9-30-2026 CIVIL STATE OF CALIFORNIA

0 1/2 1 2
THIS BAR IS 2 INCHES AT FULL SCALE. IF NOT 2 INCHES, THEN SCALE ACCORDINGLY.
SCALE: AS NOTED

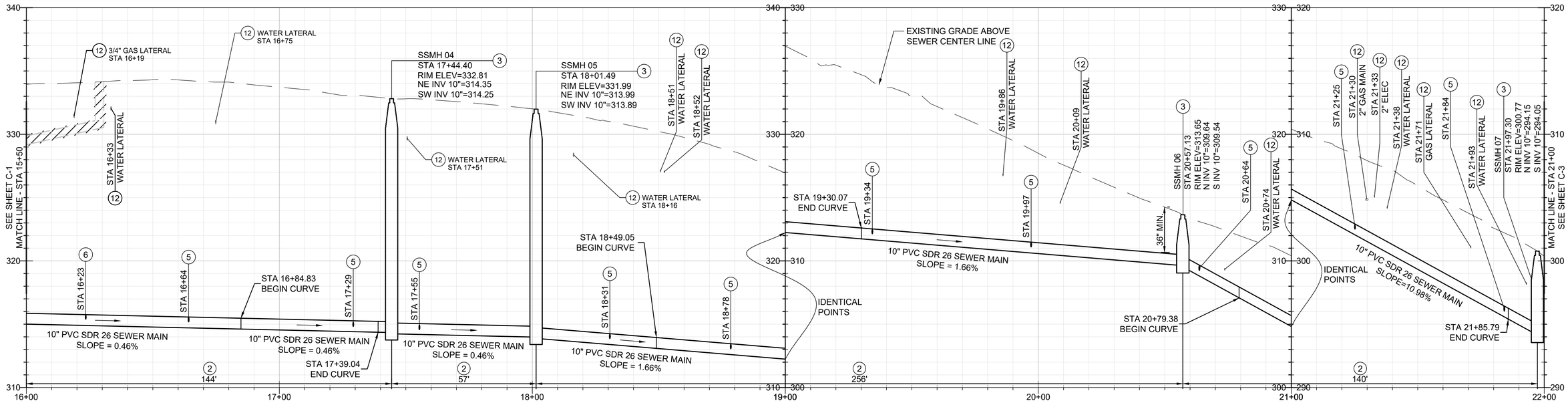
CARMEL AREA WASTEWATER DISTRICT · SINCE 1908 ·

CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REHABILITATION PROJECT
CARMEL AREA WASTEWATER DISTRICT

PESCADERO ROAD SEWER PLAN AND PROFILE STA 10+00 TO 16+00

PROJECT NUMBER CMAWD.21041
DRAWING NUMBER C-1
SHEET NUMBER 8 OF 61

C:\BoxFiles\Box\CMAWD Carmel Area WW\CMAWD\21041 Pescadero Sewer\2 Eng\CADD Sheets\Sewer PP\1-Ttl-PR.dwg
Wed 13 May 26 04:59:09 PM by: Jordyn Arreola



CONSTRUCTION NOTES

(2) INSTALL NEW 10-INCH PVC SDR 26 SEWER MAIN BY OPEN TRENCH CONSTRUCTION. TRENCH AND BACKFILL PER DETAIL 3, SHEET C-51.

(3) INSTALL NEW MANHOLE PER CAWD STD SS-9.

(5) PROVIDE STUB-OUT FOR FUTURE LATERAL CONNECTION PER DETAIL 2, SHEET C-50.

(6) RECONNECT EXISTING LATERALS PER SPECIFICATIONS AND CAWD STD PLAN SS-2 AND SS-3.

(7) DEMOLISH AND REMOVE EXISTING CLEANOUT.

(9) DEMOLISH AND REMOVE EXISTING 8-INCH VCP SEWER MAIN WHERE IN CONFLICT WITH NEW CONSTRUCTION PER SHEET C-49.

(10) ABANDON EXISTING 8-INCH VCP SEWER PER CAWD STD SS-26.

(12) PROTECT IN PLACE EXISTING UTILITY.

(43) CLEAR EXISTING DRAINAGE SWALE PER DETAIL 1, SHEET C-50.

(53) REMOVE TREE.

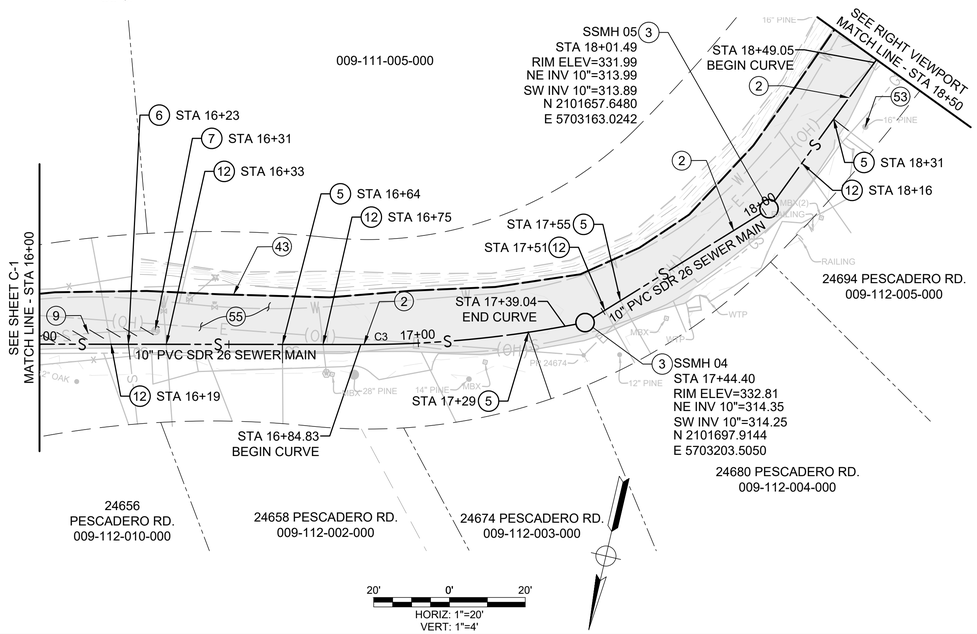
(55) PROVIDE FULL WIDTH 1.5" GRIND AND OVERLAY OF PESCADERO ROAD.

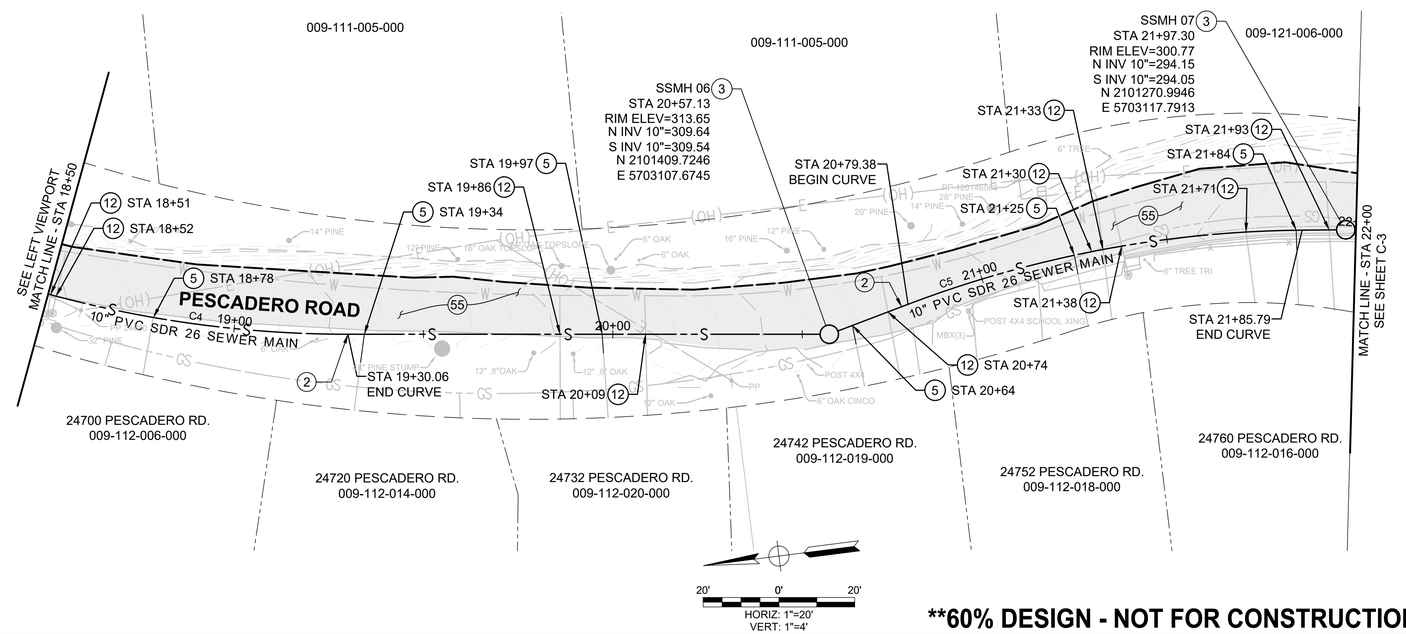
GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.

Curve Table

Curve #	Radius	Length	Delta (Δ)	Chord Direction	Start Point	End Point	Start Northing	Start Easting	End Northing	End Easting
C3	300.00'	54.21'	10.35°	S71° 47' 52.88"W	16+84.83	17+39.04	2101716.9490	5703259.8462	2101700.0383	5703208.4180
C4	300.00'	81.02'	15.47°	S15° 00' 00.15"W	18+49.05	19+30.06	2101613.7896	5703144.6450	2101535.7717	5703123.7401
C5	300.00'	106.41'	20.32°	S3° 23' 27.90"E	20+79.38	21+85.79	2101388.0970	5703112.8877	2101282.4312	5703119.1490





**60% DESIGN - NOT FOR CONSTRUCTION

REV	DATE	BY	DESCRIPTION

MNS
811 El Capitan Way, Suite 130
San Luis Obispo, CA 93401
805-692-6921 | www.mnsengineers.com

DESIGNED: JA
DRAWN: KD
CHECKED: NEP

JORDYN A. ARREOLA
PRINCIPAL ENGINEER
R.C.E. 94046 EXP. 9 - 30 - 2026
DATE

REGISTERED PROFESSIONAL ENGINEER JORDYN A. ARREOLA C94046 Exp. 9-30-2026 CIVIL STATE OF CALIFORNIA

0 1/2 1 2
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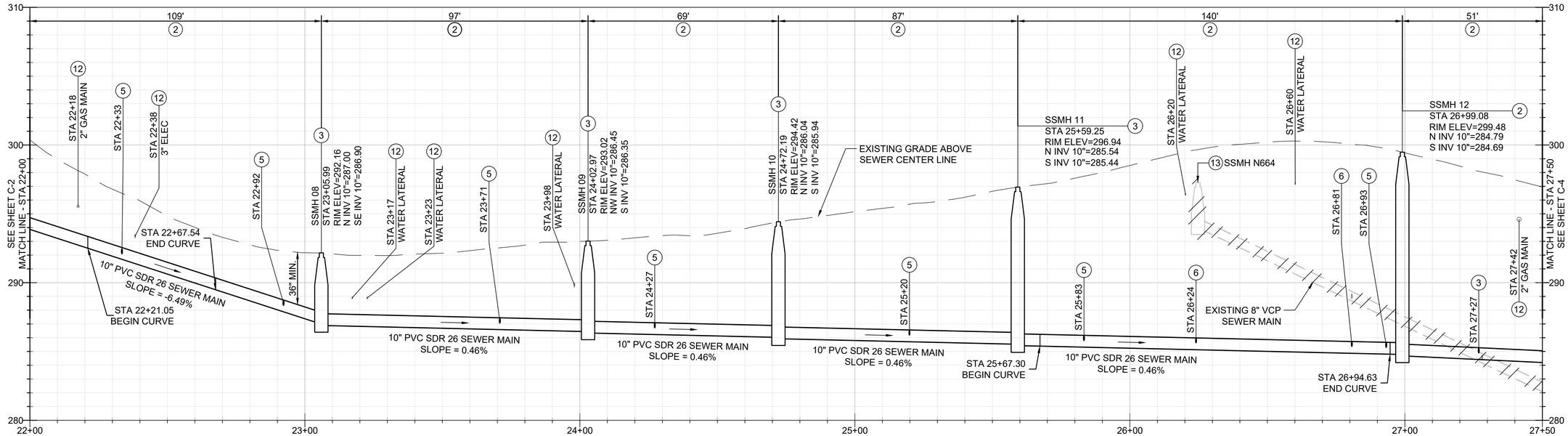
CARMEL AREA WASTEWATER DISTRICT • SINCE 1908 •

CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REHABILITATION PROJECT
CARMEL AREA WASTEWATER DISTRICT

PESCADERO ROAD SEWER PLAN AND PROFILE STA 16+00 TO 22+00

PROJECT NUMBER CMAWD.21041
DRAWING NUMBER C-2
SHEET NUMBER 9 OF 61

Wed 13,May,26 04:59:08 PM by: Jordyn Arreola C:\BasProjects\CMAWD Carmel Area WW\CMAWD.21041 Pescadero Sewer\2 Eng\CAD\2 Sheets\Sewer PR-1To-PR-6.dwg



CONSTRUCTION NOTES

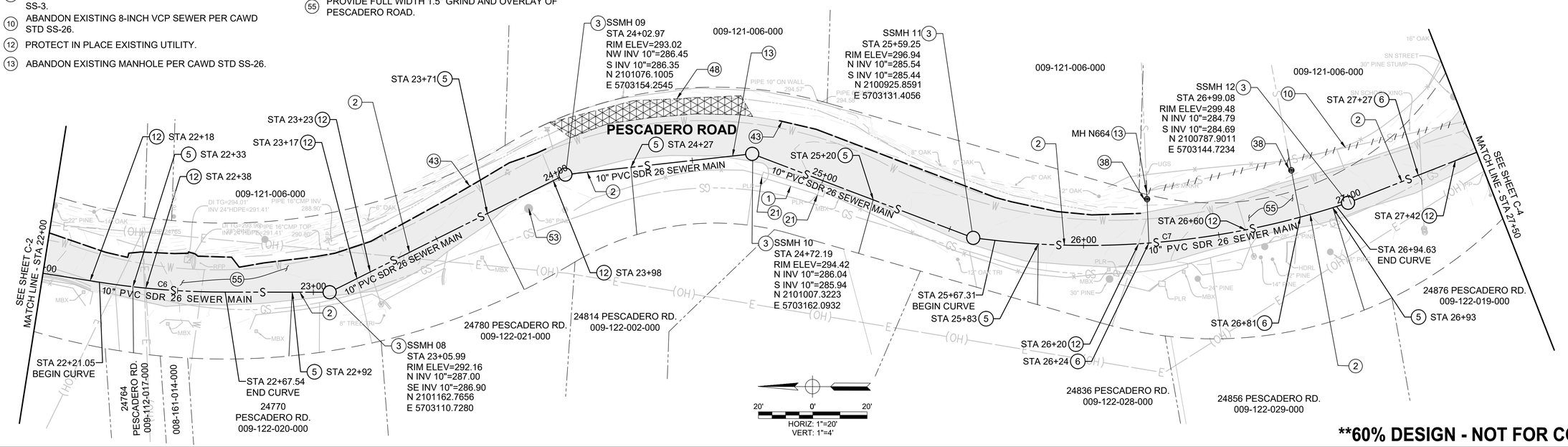
1. RESTORE BRICK DRIVEWAY IN KIND IF DAMAGED BY CONSTRUCTION.
2. INSTALL NEW 10-INCH PVC SDR 26 SEWER MAIN BY OPEN TRENCH CONSTRUCTION. TRENCH AND BACKFILL PER DETAIL 3, SHEET C-51.
3. INSTALL NEW MANHOLE PER CAWD STD SS-9.
5. PROVIDE STUB-OUT FOR FUTURE LATERAL CONNECTION PER DETAIL 2, SHEET C-50.
6. RECONNECT EXISTING LATERALS PER SPECIFICATIONS AND CAWD STD PLAN SS-2 AND SS-3.
10. ABANDON EXISTING 8-INCH VCP SEWER PER CAWD STD SS-26.
12. PROTECT IN PLACE EXISTING UTILITY.
13. ABANDON EXISTING MANHOLE PER CAWD STD SS-26.
21. PROTECT IN PLACE PILLARS.
38. INSTALL PROPERTY LINE CLEANOUT PER CAWD STD SS-3.
43. CLEAR EXISTING DRAINAGE SWALE PER DETAIL 1, SHEET C-50.
48. ENVIRONMENTALLY SENSITIVE AREA - POTENTIAL WETLANDS. COMPLY WITH ENVIRONMENTAL PROTECTION REQUIREMENTS.
53. REMOVE TREE.
55. PROVIDE FULL WIDTH 1.5" GRIND AND OVERLAY OF PESCADERO ROAD.

Curve Table

Curve #	Radius	Length	Delta (Δ)	Chord Direction	Start Point	End Point	Start Northing	Start Easting	End Northing	End Easting
C6	300.00'	46.49'	8.88°	S4° 20' 06.16"W	22+21.05	22+67.54	2101247.5236	5703114.1685	2101201.2151	5703110.6581
C7	300.00'	127.31'	24.31°	S5° 49' 43.69"E	25+67.31	26+94.63	2100917.8405	5703130.5163	2100792.1348	5703143.3489

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.



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MNS
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CHECKED: NEP

JORDYN A. ARREOLA
PRINCIPAL ENGINEER
R.C.E. 94046 EXP. 9 - 30 - 2026
DATE

REGISTERED PROFESSIONAL ENGINEER JORDYN A. ARREOLA C94046 Exp. 9-30-2026 CIVIL STATE OF CALIFORNIA

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CARMEL AREA WASTEWATER DISTRICT • SINCE 1908 •

CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REHABILITATION PROJECT
CARMEL AREA WASTEWATER DISTRICT

PESCADERO ROAD SEWER PLAN AND PROFILE STA 22+00 TO 27+50

PROJECT NUMBER
CMAWD.21041
DRAWING NUMBER
C-3
SHEET NUMBER
10 OF **61**

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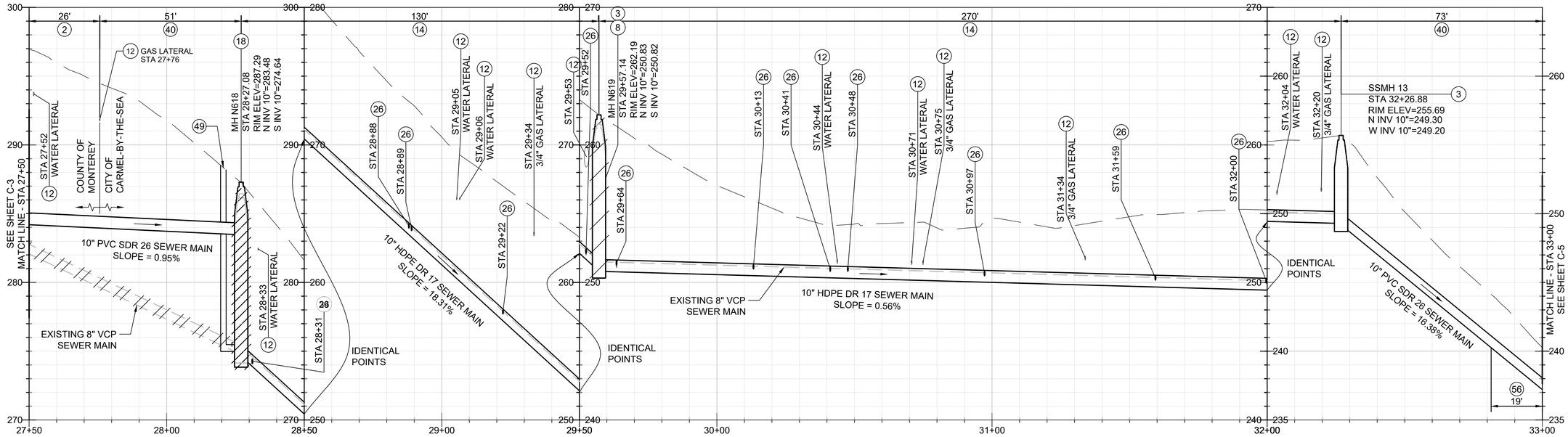
Wed 13 Mar 26 04:59:09 PM by: Jordyn Arreola



CONSTRUCTION NOTES

(2) INSTALL NEW 10-INCH PVC SDR 26 SEWER MAIN BY OPEN TRENCH CONSTRUCTION. TRENCH AND BACKFILL PER DETAIL 3, SHEET C-51.

(3) INSTALL NEW MANHOLE PER CAWD STD SS-9.

(6) RECONNECT EXISTING LATERALS PER SPECIFICATIONS AND CAWD STD PLAN SS-2 AND SS-3.

(8) DEMOLISH AND REMOVE EXISTING MANHOLE.

(9) DEMOLISH AND REMOVE EXISTING 8-INCH VCP SEWER MAIN WHERE IN CONFLICT WITH NEW CONSTRUCTION PER SHEET C-49.

(10) ABANDON EXISTING 8-INCH VCP SEWER PER CAWD STD SS-26.

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(12) PROTECT IN PLACE EXISTING UTILITY.

(14) INSTALL NEW 10-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

(15) REMOVE INTERFERING PORTIONS OF EXISTING SEWER PIPE. ABANDON CUT END OF EXISTING SEWER MAIN PER CAWD STD SS-26. SEE SPECIFICATIONS FOR BYPASSING REQUIREMENTS.

(16) PLUG MANHOLE INLET WITH MINIMUM OF 12" NON-SHRINK GROUT.

(17) PROTECT EXISTING MANHOLE.

(18) INSTALL DROP MANHOLE PER DETAIL 4, SHEET C-50.

(26) RE-ESTABLISH EXISTING LATERALS PER SPECIFICATIONS AND DETAIL 4, SHEET C-51.

(39) REROUTE LATERAL TO STATION SHOWN AND CONNECT TO SEWER MAIN PER SPECIFICATIONS AND CAWD STD SS-2.

(40) INSTALL NEW 10-INCH PVC SDR 26 SEWER MAIN BY OPEN TRENCH CONSTRUCTION. TRENCH AND BACKFILL PER DETAIL 1, SHEET C-51.

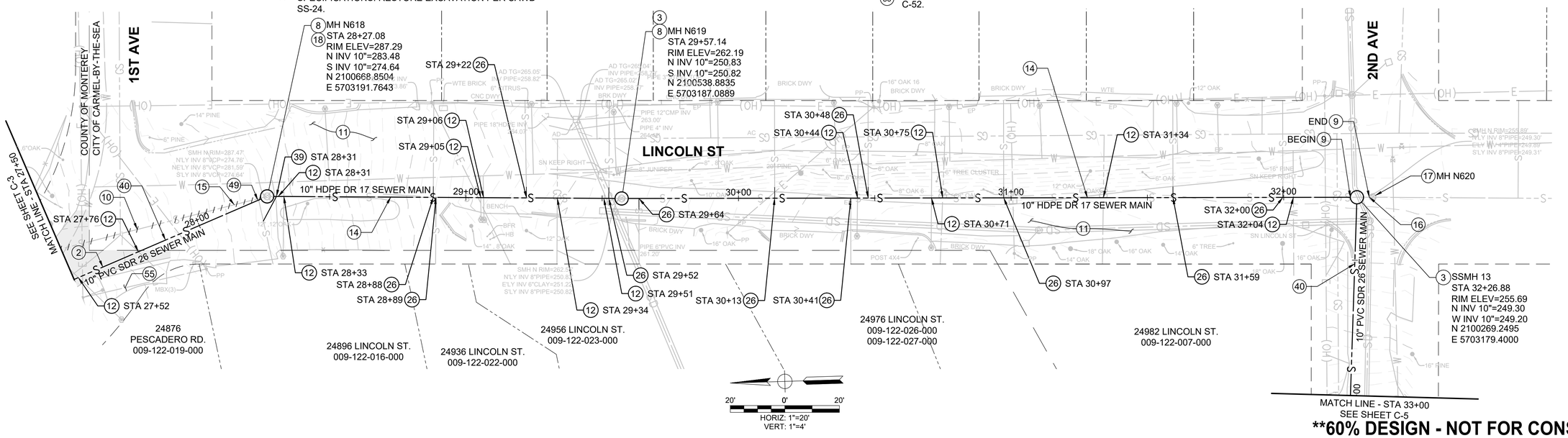
(49) INSTALL DROP STRUCTURE CLEANOUT PER DETAIL 4, SHEET C-50.

(55) PROVIDE FULL WIDTH 1.5" GRIND AND OVERLAY OF PESCADERO ROAD.

(56) CONCRETE ENCASE SEWER PER DETAIL 4, SHEET C-52.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.



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MNS
811 El Capitan Way, Suite 130
San Luis Obispo, CA 93401
805-692-6921 | www.mnsengineers.com

DESIGNED: JA
DRAWN: KD
CHECKED: NEP

JORDYN A. ARREOLA
PRINCIPAL ENGINEER
R.C.E. 94046 EXP. 9 - 30 - 2026
DATE

REGISTERED PROFESSIONAL ENGINEER JORDYN A. ARREOLA C94046 Exp. 9-30-2026 CIVIL STATE OF CALIFORNIA

0 1/2 1 2
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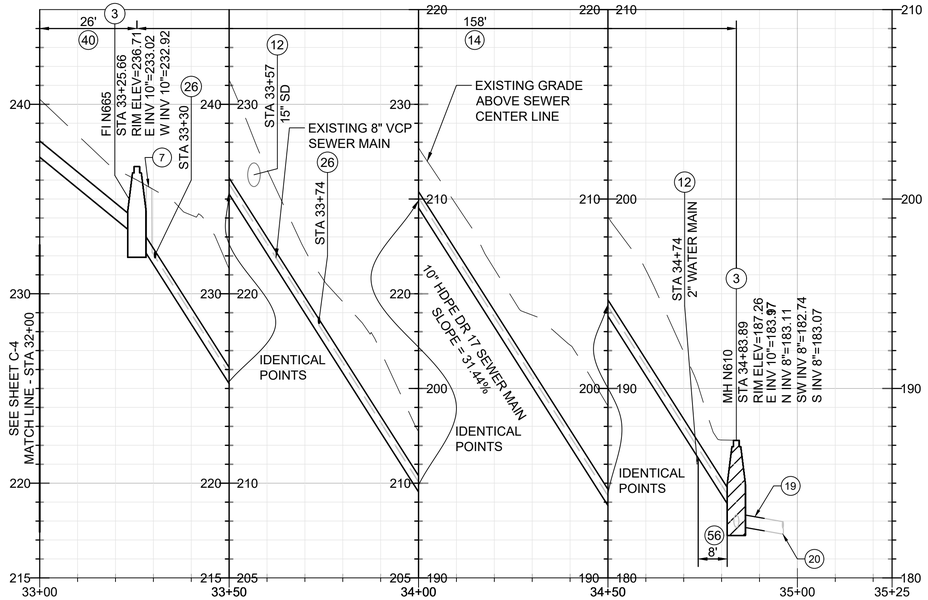
CARMEL AREA WASTEWATER DISTRICT · SINCE 1908

CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REHABILITATION PROJECT
CARMEL AREA WASTEWATER DISTRICT

PESCADERO ROAD SEWER PLAN AND PROFILE STA 27+50 TO 33+00

PROJECT NUMBER: CMAWD.21041
DRAWING NUMBER: C-4
SHEET NUMBER: 11 OF 61

C:\Bw\Projects\CMAWD Carmel Area WW\CMAWD.21041 Pescadero Sewer\Engr\CAD\2 Sheets\Sewer PP-To PNG.dwg
Wed 13 May 26 04:59:09 PM by: jordyn Arreola



CONSTRUCTION NOTES

(3) INSTALL NEW MANHOLE PER CAWD STD SS-9.

(7) DEMOLISH AND REMOVE EXISTING CLEANOUT.

(8) DEMOLISH AND REMOVE EXISTING MANHOLE.

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(12) PROTECT IN PLACE EXISTING UTILITY.

(14) INSTALL NEW 10-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

(19) PROVIDE 5-FEET OF PVC SDR 26 TO CONNECT TO EXISTING 8-INCH VCP PER DETAIL 2, SHEET C-51.

(20) RECONNECT SEWER PER SPECIFICATIONS AND DETAIL 5, SHEET C-51.

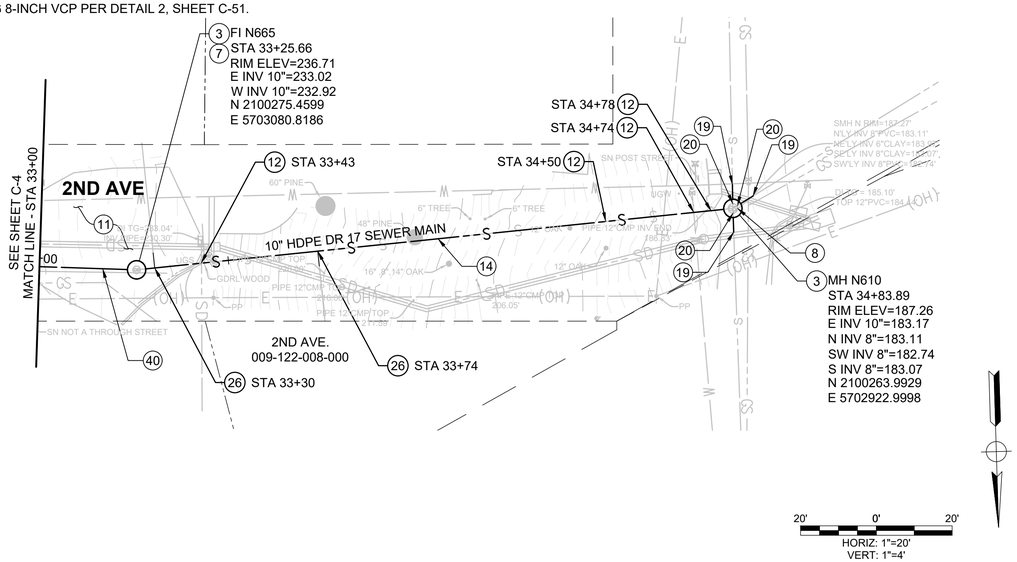
(26) RE-ESTABLISH EXISTING LATERALS PER SPECIFICATIONS AND DETAIL 4, SHEET C-51.

(40) INSTALL NEW 10-INCH PVC SDR 35 SEWER MAIN BY OPEN TRENCH CONSTRUCTION. TRENCH AND BACKFILL PER DETAIL 1, SHEET C-51.

(56) CONCRETE ENCASE SEWER PER DETAIL 4, SHEET C-52.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.



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MNS
811 El Capitan Way, Suite 130
San Luis Obispo, CA 93401
805-692-6921 | www.mnsengineers.com

DESIGNED: JA
DRAWN: KD
CHECKED: NEP

JORDYN A. ARREOLA
PRINCIPAL ENGINEER
R.C.E. 94046 EXP. 9 - 30 - 2026

DATE

REGISTERED PROFESSIONAL ENGINEER
JORDYN A. ARREOLA
C94046
Exp. 9-30-2026
CIVIL
STATE OF CALIFORNIA

0 1/2 1 2
THIS BAR IS 2 INCHES AT FULL SCALE. IF NOT 2 INCHES, THEN SCALE ACCORDINGLY.

SCALE:
AS NOTED

CARMEL AREA WASTEWATER DISTRICT · SINCE 1908 ·

CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REHABILITATION PROJECT
CARMEL AREA WASTEWATER DISTRICT

PESCADERO ROAD SEWER PLAN AND PROFILE STA 33+00 TO 35+00

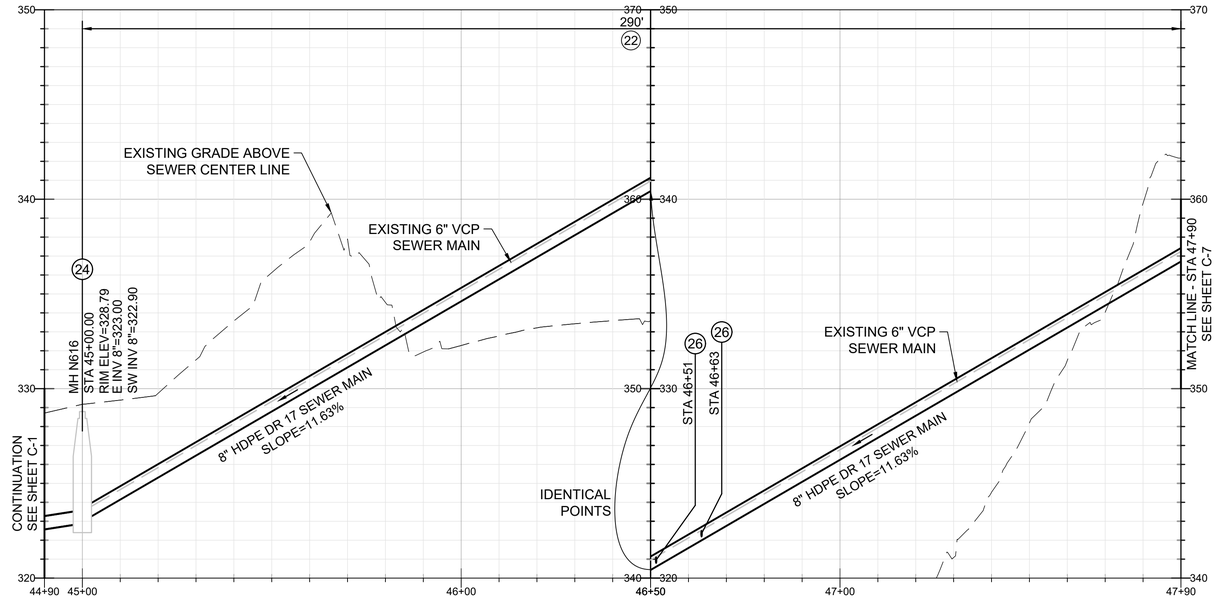
PROJECT NUMBER
CMAWD.21041

DRAWING NUMBER
C-5

SHEET NUMBER
12 OF 61

Wed 13 May,26 04:09:09 PM by: Jordyn Arreola C:\Bur\Projects\CMAWD\Carmel Area WW\CMAWD.21041 Pescadero Sewer\2 Eng\CAD\2 Sheets\Sewer PP-1 to PP-6.dwg

DISTRICT TO CONFIRM VERTICAL ALIGNMENT. CCTV SHOWS NO VERTICAL BENDS TO ACCOUNT FOR VERTICAL CHANGE IN GROUND SURFACE.



CONSTRUCTION NOTES

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(22) INSTALL NEW 8-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

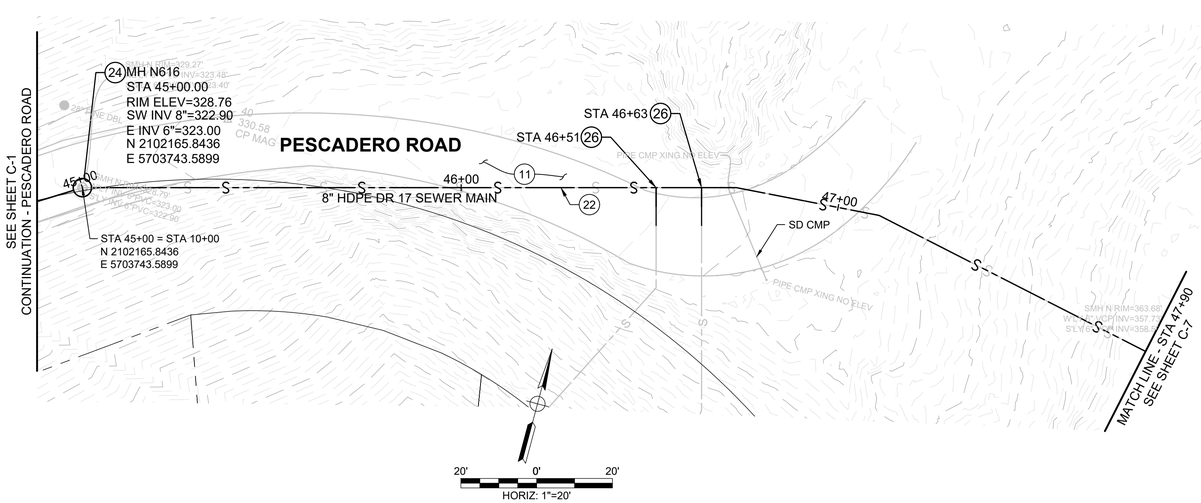
(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

(25) REMOVE EXISTING 6" VCP BEND AND REPLACE WITH 8" PVC LONG RADIUS SWEEP ELBOW TO MATCH EXISTING ANGLE.

(26) RE-ESTABLISH EXISTING LATERALS PER SPECIFICATIONS AND DETAIL 2, SHEET C-51.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.



DIAL TOLL FREE
811
AT LEAST TWO DAYS BEFORE YOU DIG

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DESIGNED: JA
DRAWN: KD
CHECKED: NEP

JORDYN A. ARREOLA
PRINCIPAL ENGINEER
R.C.E. 94046 EXP. 9 - 30 - 2026

DATE

REGISTERED PROFESSIONAL ENGINEER JORDYN A. ARREOLA C94046 Exp. 9-30-2026 CIVIL STATE OF CALIFORNIA

0 1/2 1 2
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SCALE:
AS NOTED

CARMEL AREA WASTEWATER DISTRICT • SINCE 1908 •

CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

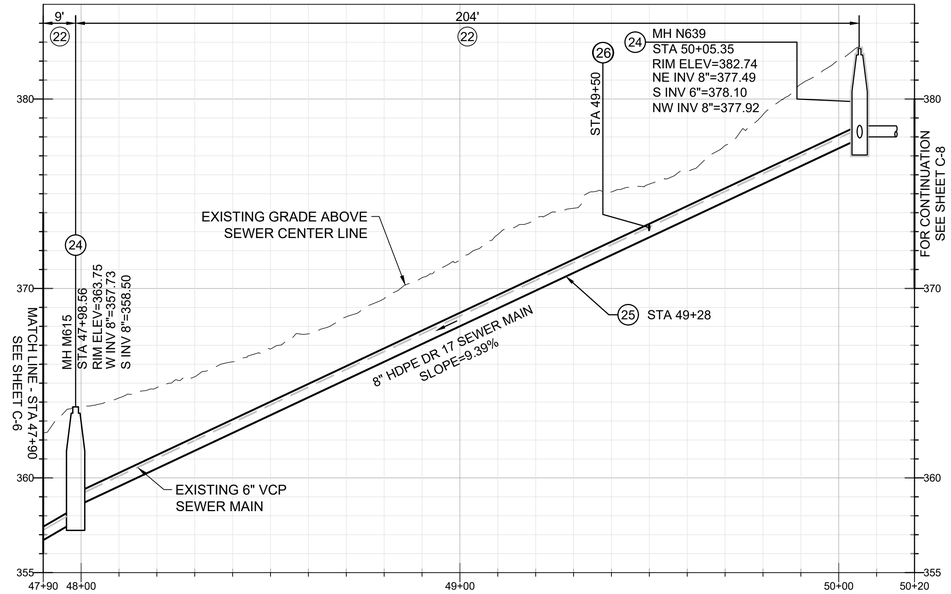
PESCADERO ROAD SEWER PLAN AND PROFILE STA 45+00 TO 47+50

PROJECT NUMBER
CMAWD.21041

DRAWING NUMBER
C-6

SHEET NUMBER
13 OF **61**

C:\Bluz\Projects\CMAWD Carmel Area WWD\CMAWD.21041 Pescadero Sewer\Exp\CADD\Sheets\Sewer PP4-7\-PR-11.dwg
Fri 2/14/26 04:43:15 PM by: Jordyn Arreola



CONSTRUCTION NOTES

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(22) INSTALL NEW 8-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

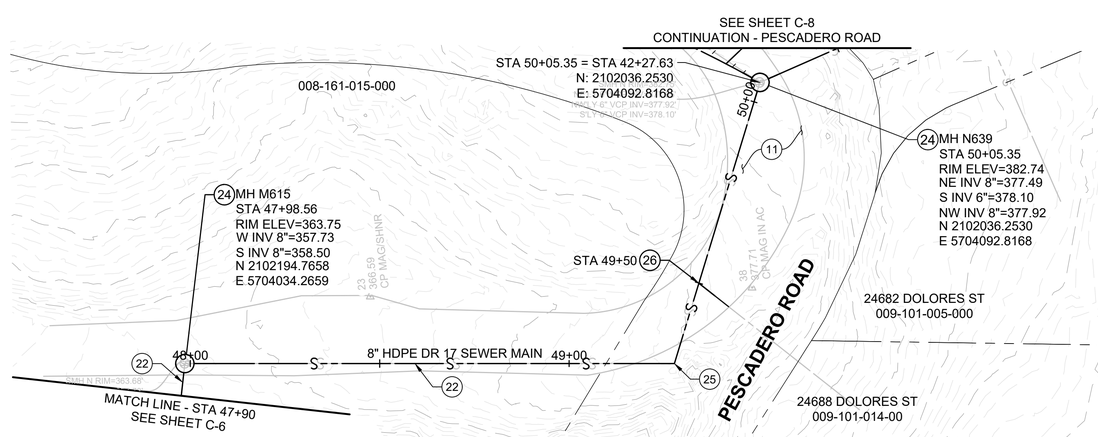
(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

(25) REMOVE EXISTING 6" VCP BEND AND REPLACE WITH 8" PVC LONG RADIUS SWEEP ELBOW TO MATCH EXISTING ANGLE.

(26) RE-ESTABLISH EXISTING LATERALS PER SPECIFICATIONS AND DETAIL 2, SHEET C-51.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.



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Know what's **below.**
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20' 0' 20'
HORIZ: 1"=20'
VERT: 1"=4'

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C94046
Exp. 9-30-2026
CIVIL
STATE OF CALIFORNIA

0 1/2 1 2
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SCALE:
AS NOTED

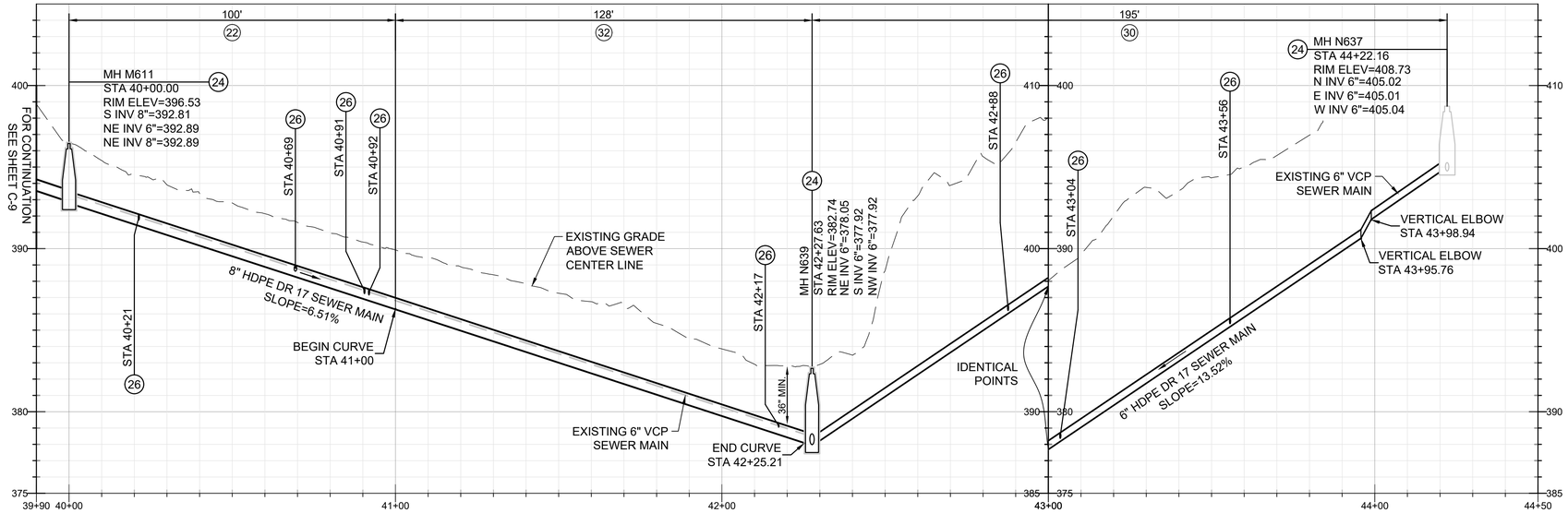
CARMEL AREA WASTEWATER DISTRICT
SINCE 1908

CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

PESCADERO ROAD SEWER PLAN AND PROFILE STA 47+90 TO 50+10

PROJECT NUMBER
CMAWD.21041
DRAWING NUMBER
C-7
SHEET NUMBER
14 OF **61**

C:\Bsv\Projects\CMAWD Carmel Area WWD\CMAWD.21041 Pescadero Sewer\CADD\Sheets\Sewer PP4-7c PR-11.dwg
Fri 2/16/26 04:43:15 PM by: Jordyn Arreola



CONSTRUCTION NOTES

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(15) REMOVE INTERFERING PORTIONS OF EXISTING SEWER PIPE. ABANDON CUT END OF EXISTING SEWER MAIN PER CAWD STD SS-26. SEE SPECIFICATIONS FOR BYPASSING REQUIREMENTS.

(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

(26) RE-ESTABLISH EXISTING LATERALS PER SPECIFICATIONS AND DETAIL 2, SHEET C-51.

(30) INSTALL NEW 6-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

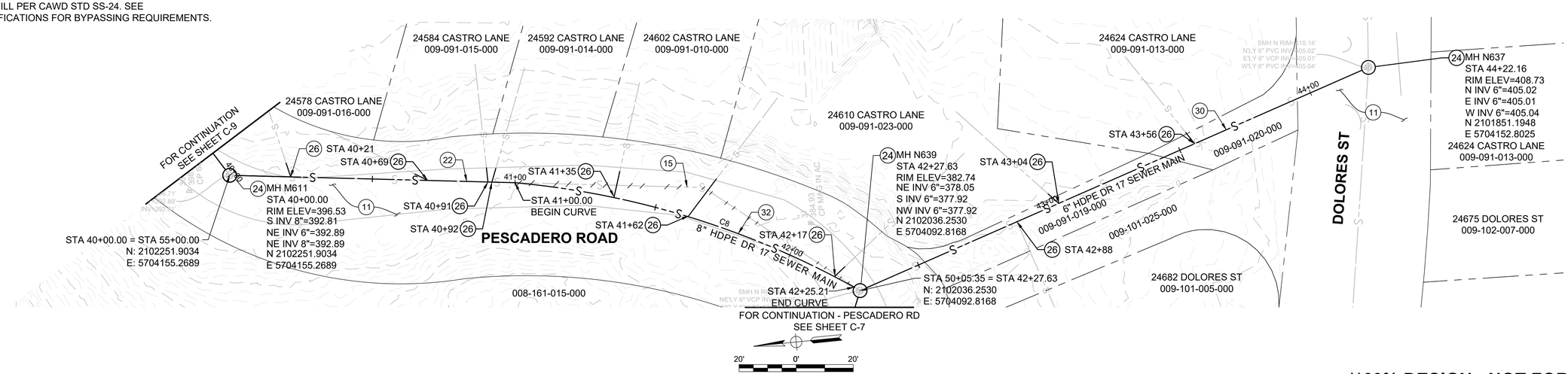
(32) INSTALL NEW 8-INCH PVC SDR26 SEWER MAIN BY OPEN TRENCH CONSTRUCTION. TRENCH AND BACKFILL PER CAWD STD SS-24. SEE SPECIFICATIONS FOR BYPASSING REQUIREMENTS.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.

Curve Table

Curve #	Radius	Length	Delta (Δ)	Chord Direction	Start Point	End Point	Start Northing	Start Easting	End Northing	End Easting
C8	300.00'	125.21'	23.91°	S22° 55' 11.31"W	41+00.00	42+25.21	2102152.7047	5704142.6350	2102038.2160	5704094.2264



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DESIGNED: JA
DRAWN: KD
CHECKED: NEP

JORDYN A. ARREOLA
PRINCIPAL ENGINEER
R.C.E. 94046 EXP. 9 - 30 - 2026
DATE

REGISTERED PROFESSIONAL ENGINEER JORDYN A. ARREOLA C94046 Exp. 9-30-2026 CIVIL STATE OF CALIFORNIA

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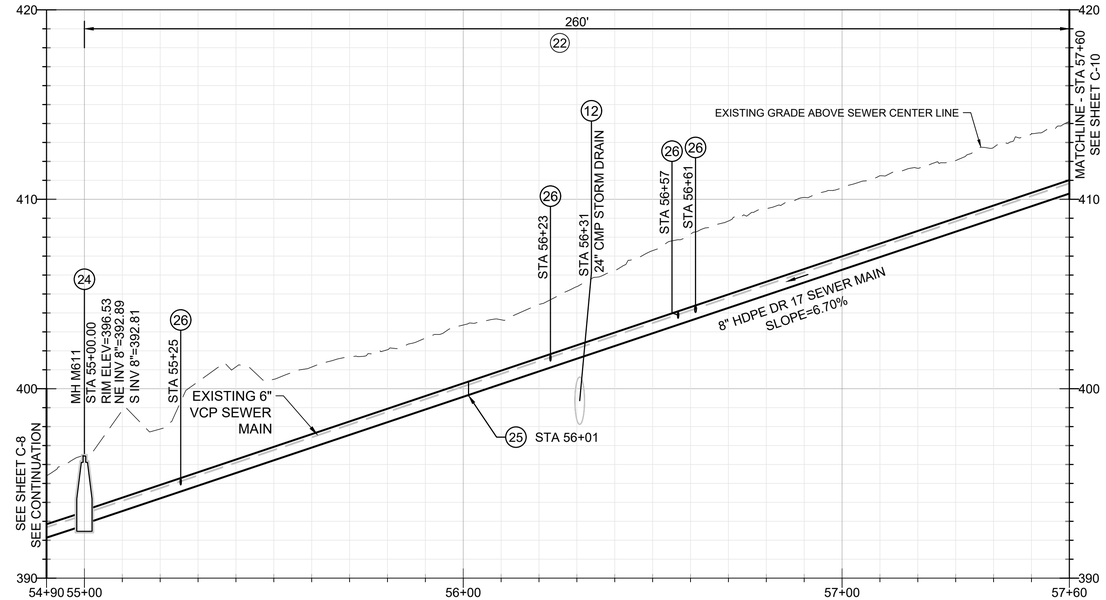
CARMEL AREA WASTEWATER DISTRICT • SINCE 1908 •

CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

PESCADERO ROAD SEWER PLAN AND PROFILE STA 40+00 TO 44+50

PROJECT NUMBER **CMAWD.21041**
DRAWING NUMBER **C-8**
SHEET NUMBER **15** OF **61**

C:\Bluz\Projects\CMAWD Carmel Area WWD\CMAWD.21041 Pescadero Sewer\Engr\CADD Sheets\Sewer PP4-7b PR11.dwg
Fri 2/14/26 05:07:55 PM by: Jordyn Arreola



CONSTRUCTION NOTES

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(12) PROTECT IN PLACE EXISTING UTILITY.

(22) INSTALL NEW 8-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

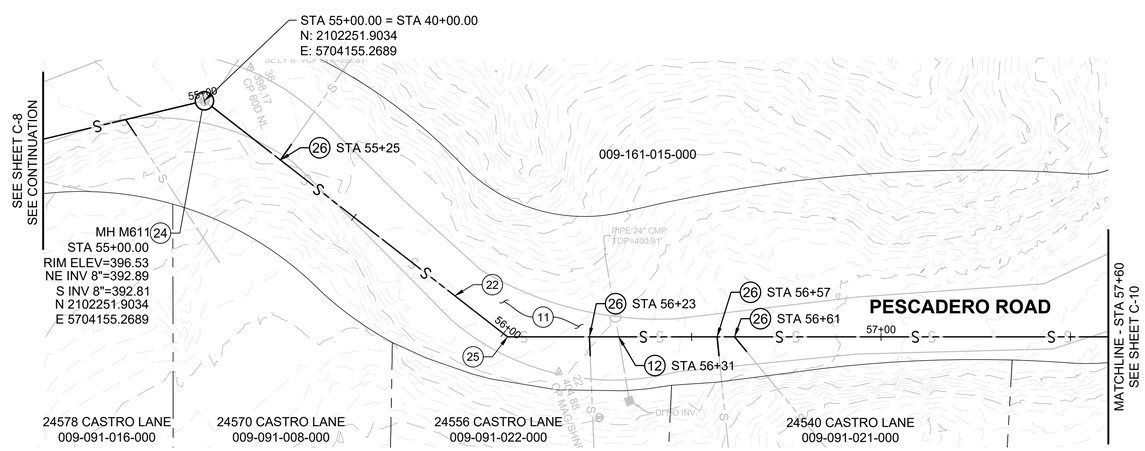
(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

(25) REMOVE EXISTING 6" VCP BEND AND REPLACE WITH 8" PVC LONG RADIUS SWEEP ELBOW TO MATCH EXISTING ANGLE.

(26) RE-ESTABLISH EXISTING LATERALS PER SPECIFICATIONS AND DETAIL 2, SHEET C-51.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.



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20' 0' 20'
HORIZ: 1"=20'
VERT: 1"=4'

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CHECKED: NEP

JORDYN A. ARREOLA
PRINCIPAL ENGINEER
R.C.E. 94046 EXP. 9 - 30 - 2026
DATE

REGISTERED PROFESSIONAL ENGINEER
JORDYN A. ARREOLA
C94046
Exp. 9-30-2026
CIVIL
STATE OF CALIFORNIA

0 1/2 1 2
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AS NOTED

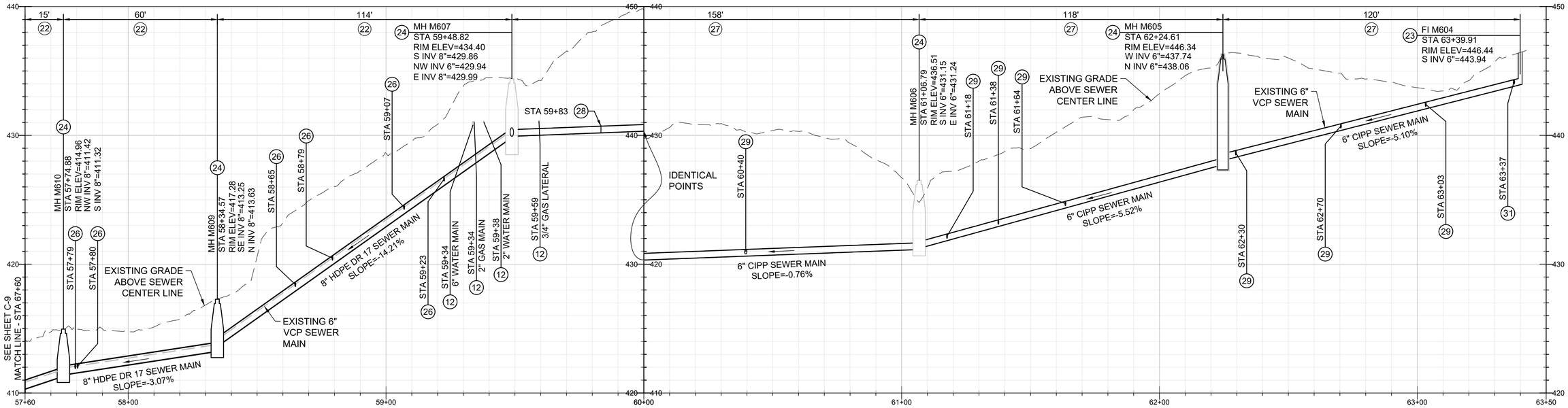
CARMEL AREA WASTEWATER DISTRICT · SINCE 1908 ·

CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

PESCADERO ROAD SEWER PLAN AND PROFILE STA 55+00 TO 57+50

PROJECT NUMBER
CMAWD.21041
DRAWING NUMBER
C-9
SHEET NUMBER
16 OF **61**

Fri,02 Feb,26 04:43:15 PM by: Jordyn Arreola C:\Bcs\Projects\CMAWD\Carmel Area WWD\CMAWD.21041 Pescadero Sewer\2 Eng\12\AQ2 Sheets\Sewer PP-6 To PP-11.dwg



CONSTRUCTION NOTES

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(12) PROTECT IN PLACE EXISTING UTILITY.

(22) INSTALL NEW 8-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

(23) REHABILITATE OR REPLACE EXISTING CLEANOUT PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

(26) RE-ESTABLISH EXISTING LATERALS PER SPECIFICATIONS AND DETAIL 2, SHEET C-51.

(27) REHABILITATE EXISTING SANITARY SEWER BY CURED-IN-PLACE PIPE (CIPP) LINING PER SPECIFICATIONS.

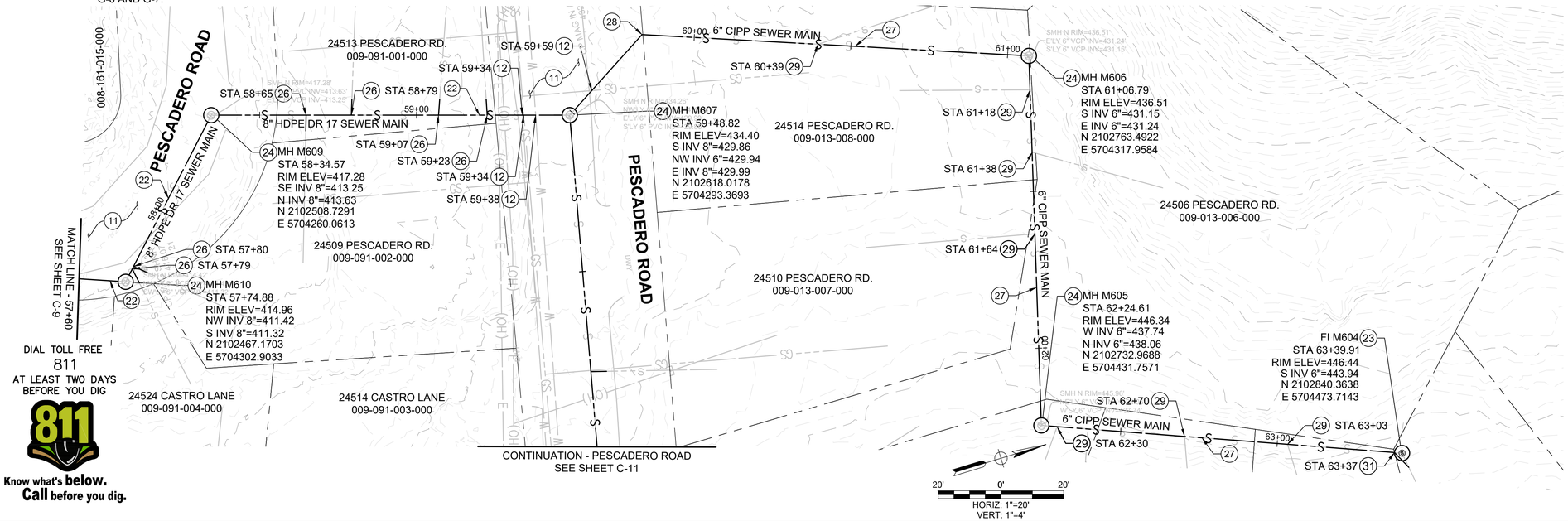
(28) REMOVE EXISTING 6" VCP BEND AND REPLACE WITH 6" PVC LONG RADIUS SWEEP ELBOW TO MATCH EXISTING ANGLE BEFORE LINING PIPE.

(29) RECONNECT SEWER LATERAL TO NEW CIPP WITH TOP HAT PER SPECIFICATIONS.

(31) EXISTING LATERAL CONNECTED TO THE BACK OF CLEANOUT. REROUTE LATERAL TO STATION SHOWN AND CONNECT TO SEWER MAIN PER SPECIFICATIONS AND CAWD STD SS-2.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.



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CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

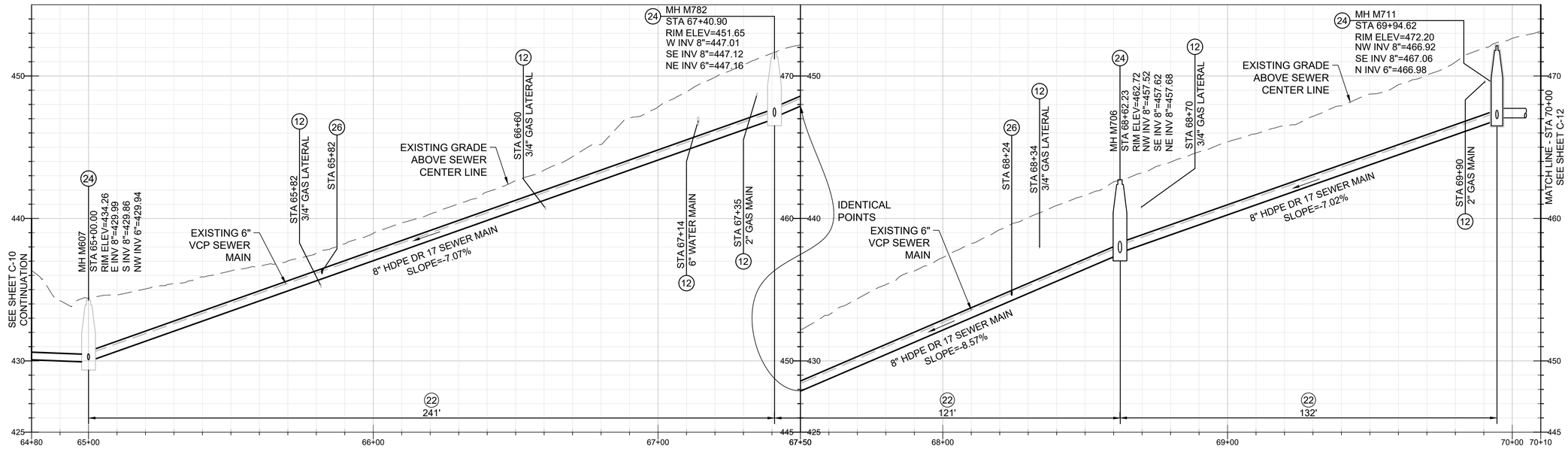
PESCADERO ROAD SEWER PLAN AND PROFILE STA 57+60 TO 63+50

PROJECT NUMBER
CMAWD.21041

DRAWING NUMBER
C-10

SHEET NUMBER
17 OF 61

Mon 23 Feb 26 09:24:11 AM by: Hope McKinney C:\Bcs\Projects\Internal\ Carmel Area Wastewater\21041 Pescadero Sewer\2 Eng\CADD\2 Sheets\Sewer PP4-7b Ph1.dwg



CONSTRUCTION NOTES

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(12) PROTECT IN PLACE EXISTING UTILITY.

(22) INSTALL NEW 8-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

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GENERAL NOTES

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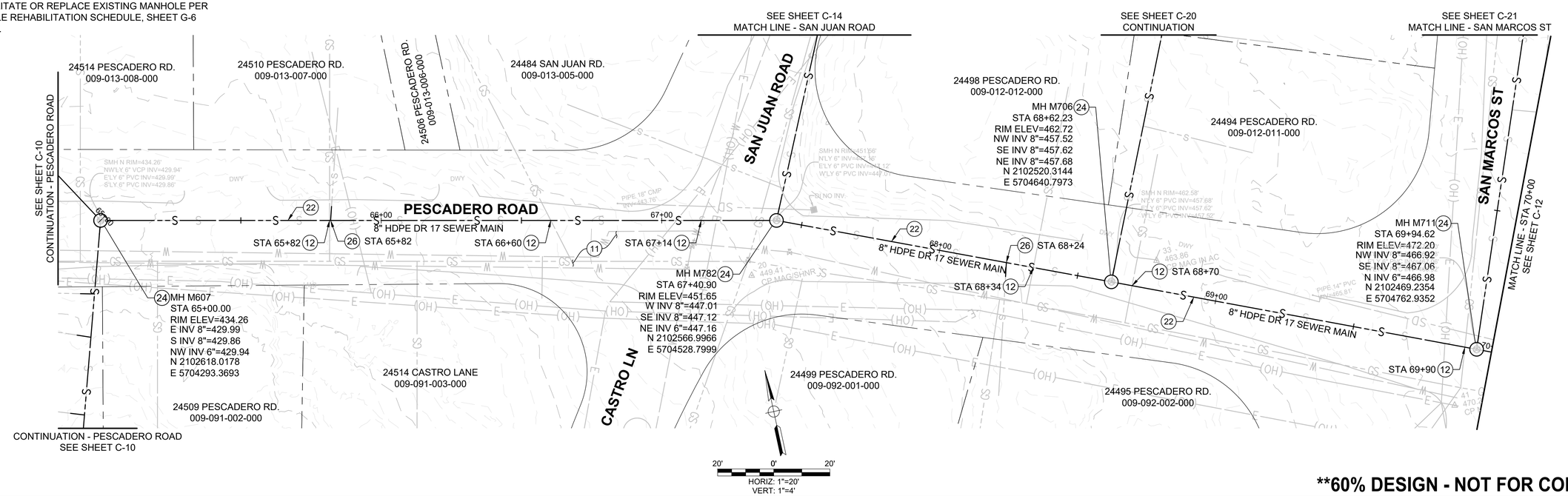
DISTRICT TO CONFIRM VERTICAL ALIGNMENT. CCTV SHOWS NO VERTICAL BENDS TO ACCOUNT FOR VERTICAL CHANGE IN GROUND SURFACE.



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PRINCIPAL ENGINEER
R.C.E. 94046 EXP. 9 - 30 - 2026

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C94046
Exp. 9-30-2026
CIVIL
STATE OF CALIFORNIA

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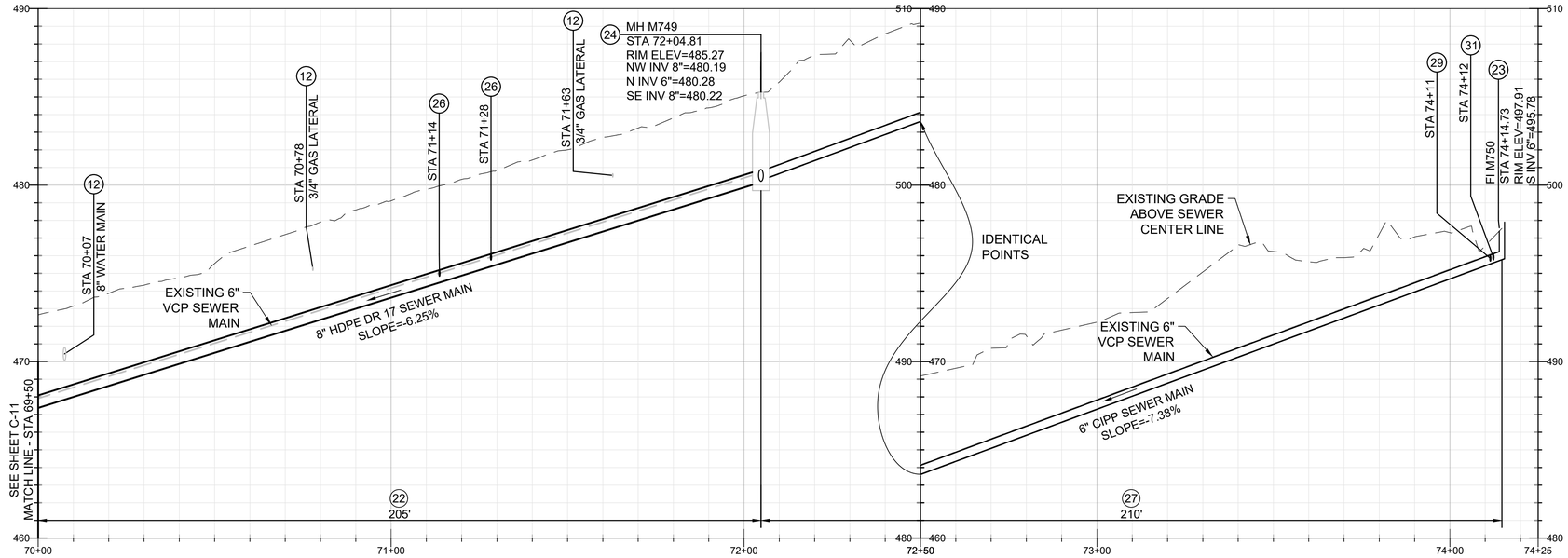
CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

PESCADERO ROAD SEWER PLAN AND PROFILE STA 65+00 TO 70+00

PROJECT NUMBER
CMAWD.21041
DRAWING NUMBER
C-11
SHEET NUMBER
18 OF **61**

Fri,02 Feb,26 04:43:15 PM by: Jordyn Arreola C:\Bcs\Projects\CMAWD\Carmel Area WW\CMAWD.21041 Pescadero Sewer\2 Eng\CIVil\2 Sheets\Sewer PP4 To PP11.dwg



CONSTRUCTION NOTES

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(12) PROTECT IN PLACE EXISTING UTILITY.

(22) INSTALL NEW 8-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

(23) REHABILITATE OR REPLACE EXISTING CLEANOUT PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

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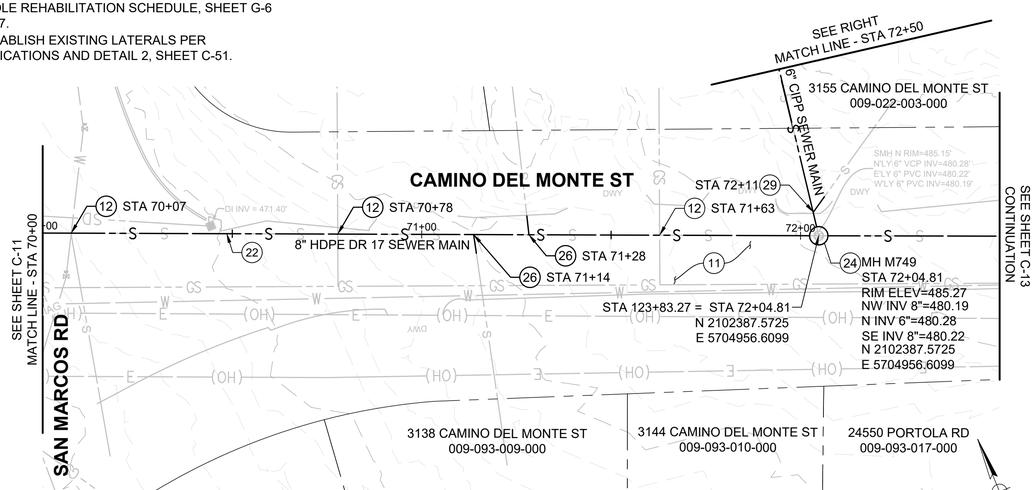
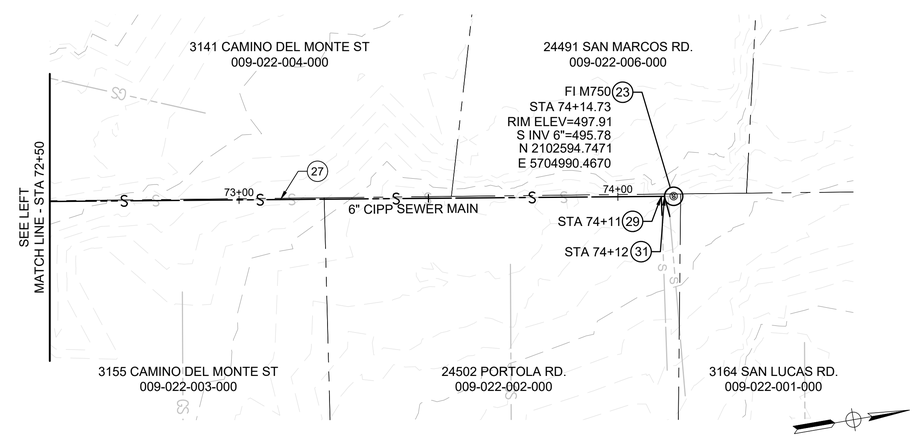
(29) RECONNECT SEWER LATERAL TO NEW CIPP WITH TOP HAT PER SPECIFICATIONS.

(31) EXISTING LATERAL CONNECTED TO THE BACK OF CLEANOUT. REROUTE LATERAL TO STATION SHOWN AND CONNECT TO SEWER MAIN PER SPECIFICATIONS AND CAWD STD SS-2.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.





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JORDYN A. ARREOLA
PRINCIPAL ENGINEER
R.C.E. 94046 EXP. 9 - 30 - 2026
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REGISTERED PROFESSIONAL ENGINEER JORDYN A. ARREOLA C94046 Exp. 9-30-2026 CIVIL STATE OF CALIFORNIA

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CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

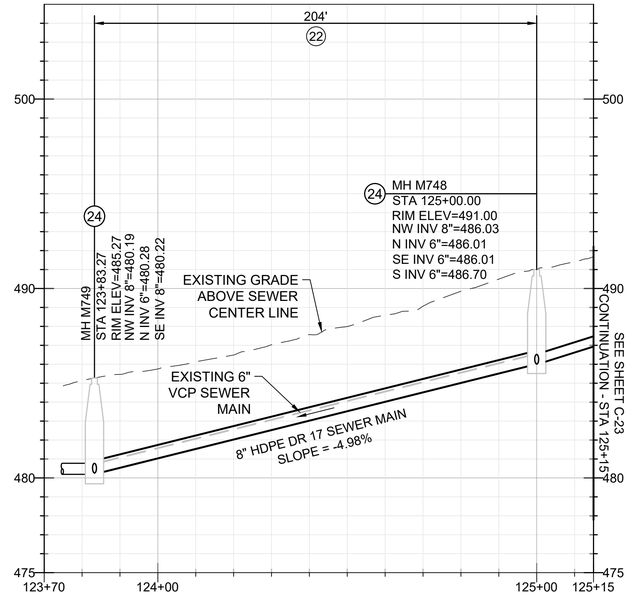
CAMINO DEL MONTE STREET SEWER PLAN AND PROFILE STA 70+00 TO 74+25

PROJECT NUMBER
CMAWD.21041

DRAWING NUMBER
C-12

SHEET NUMBER
19 OF 61

Fri 3/27/26 04:43:15 PM by: Jordyn Arreola C:\Bcs\Projects\CMAWD\Carmel Area WW\CMAWD.21041 Pescadero Sewer\2 Eng\CAD\2 Sheets\Sewer PP4 To PP11.dwg



CONSTRUCTION NOTES

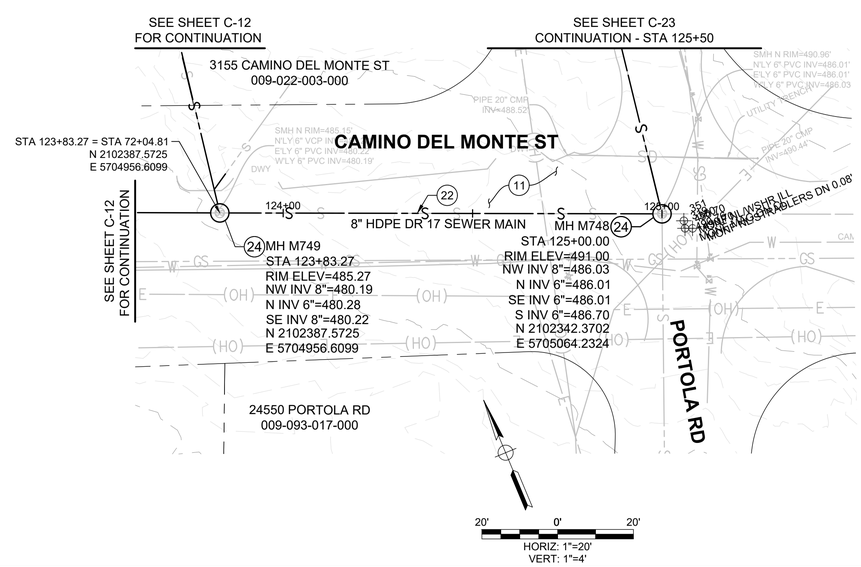
(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(22) INSTALL NEW 8-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.



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CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

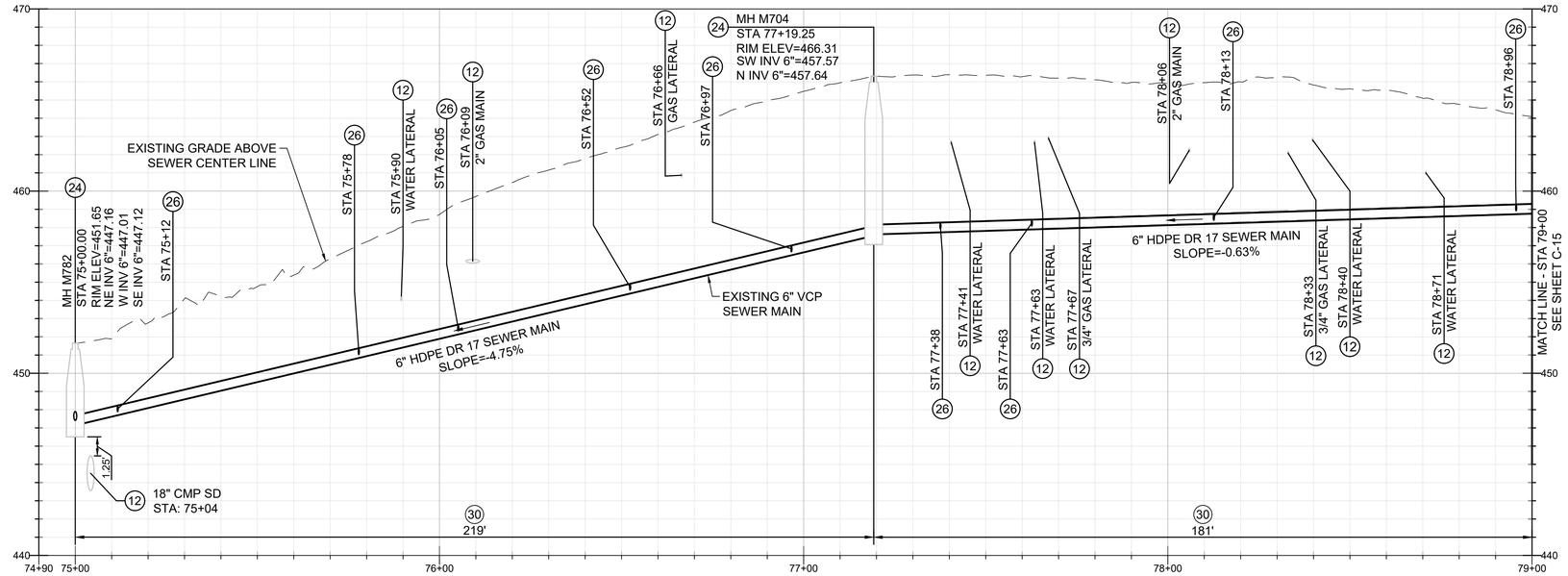
CAMINO DEL MONTE STREET SEWER PLAN AND PROFILE STA 123+80 TO 125+00

PROJECT NUMBER
CMAWD.21041

DRAWING NUMBER
C-13

SHEET NUMBER
20 OF **61**

Fri,02Feb,26 04:43:15 PM by: Jordyn Arreola C:\Bcu\Projects\CMAWD\Carmel Area WW\CMAWD.21041 Pescadero Sewer\2 Eng\CAD\2 Sheets\Sewer PP-A To PP-H.dwg



CONSTRUCTION NOTES

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(12) PROTECT IN PLACE EXISTING UTILITY.

(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEETS G-6 AND G-7.

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(28) REMOVE EXISTING 6" VCP BEND AND REPLACE WITH 6" PVC LONG RADIUS SWEEP ELBOW TO MATCH EXISTING ANGLE BEFORE LINING PIPE.

(30) INSTALL NEW 6-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

GENERAL NOTES

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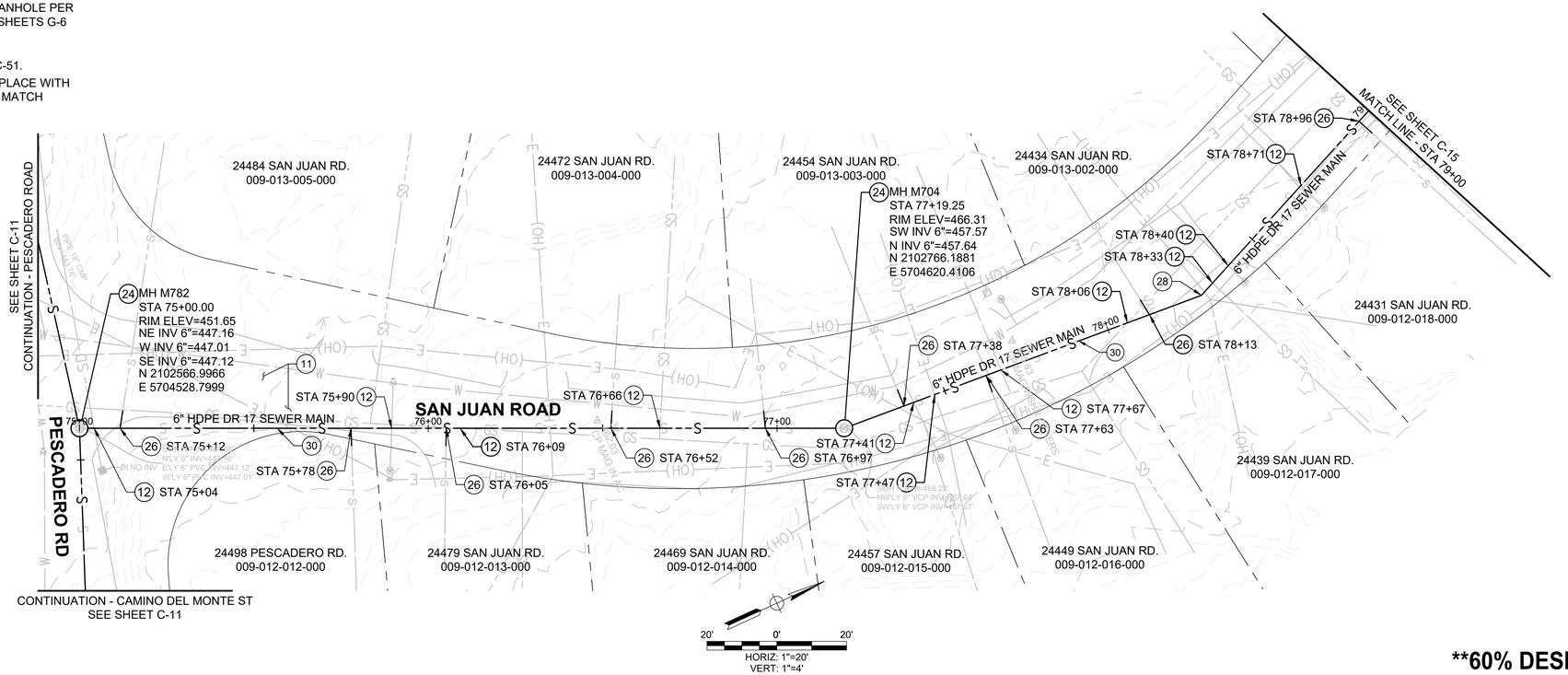

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DRAWN: KD
CHECKED: NEP

JORDYN A. ARREOLA
PRINCIPAL ENGINEER
R.C.E. 94046 EXP. 9 - 30 - 2026
DATE

REGISTERED PROFESSIONAL ENGINEER JORDYN A. ARREOLA C94046 Exp. 9-30-2026 CIVIL STATE OF CALIFORNIA

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AS NOTED

CARMEL AREA WASTEWATER DISTRICT · SINCE 1908 ·

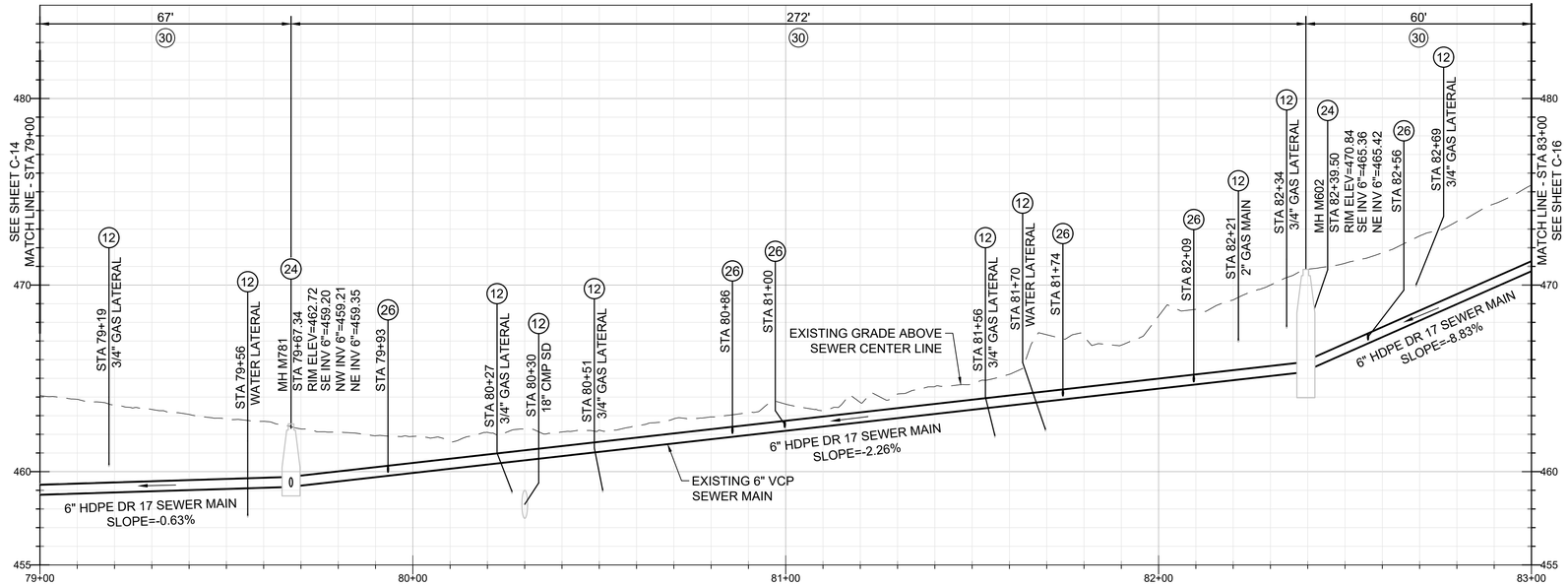
CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

SAN JUAN ROAD SEWER PLAN AND PROFILE STA 75+00 TO 79+00

PROJECT NUMBER
CMAWD.21041
DRAWING NUMBER
C-14
SHEET NUMBER
21 OF **61**

Mon 23-Feb-26 10:10:47 AM by: Hope Mahoney
C:\Bud\Projects\cmwd Carmel Area Wwd\cmwd.21041 Pescadero Sewer\2 Eng\CAD\2 Sheets\Sewer PH-17-To PH-17.dwg

DISTRICT TO CONFIRM VERTICAL ALIGNMENT. CCTV SHOWS NO VERTICAL BENDS TO ACCOUNT FOR VERTICAL CHANGE IN GROUND SURFACE.



CONSTRUCTION NOTES

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(12) PROTECT IN PLACE EXISTING UTILITY.

(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEETS G-6 AND G-7.

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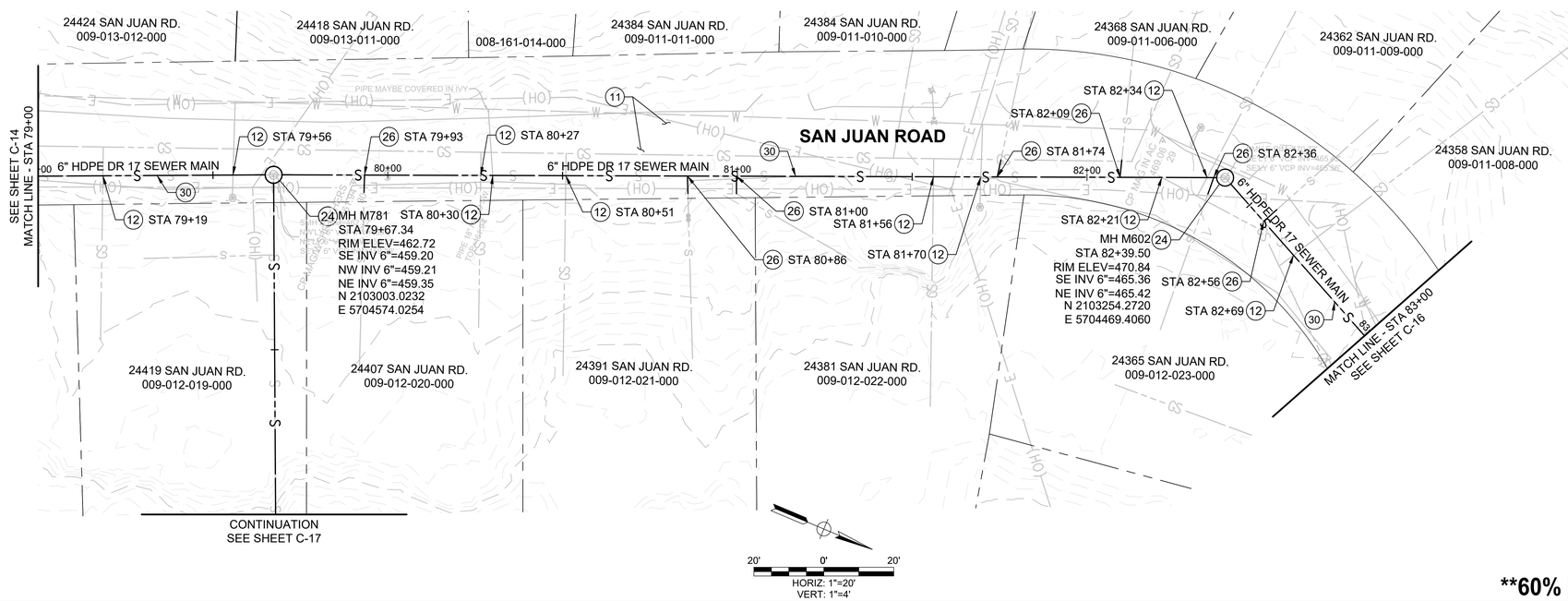

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San Luis Obispo, CA 93401
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DESIGNED: JA
DRAWN: KD
CHECKED: NEP

JORDYN A. ARREOLA
PRINCIPAL ENGINEER
R.C.E. 94046 EXP. 9 - 30 - 2026

DATE

REGISTERED PROFESSIONAL ENGINEER
JORDYN A. ARREOLA
C94046
Exp. 9-30-2026
CIVIL
STATE OF CALIFORNIA

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SCALE:
AS NOTED

CARMEL AREA WASTEWATER DISTRICT · SINCE 1908 ·

CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

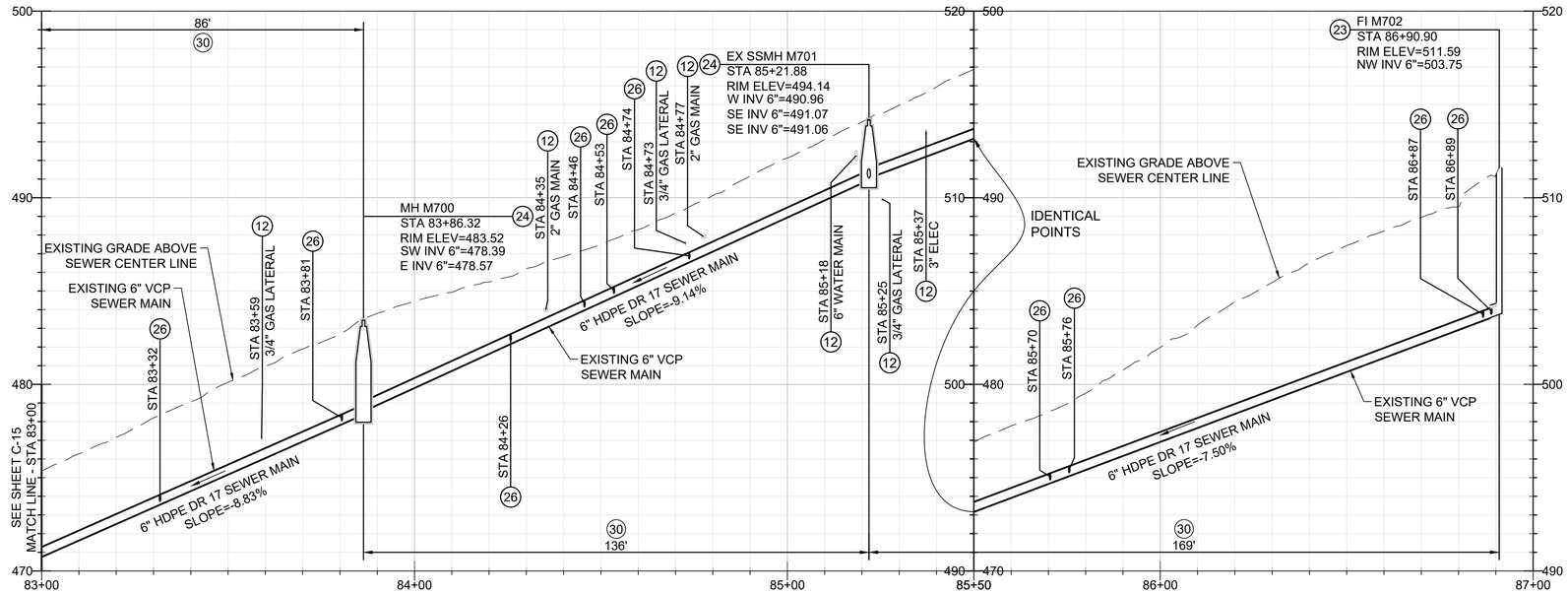
SAN JUAN ROAD SEWER PLAN AND PROFILE STA 79+00 TO 83+00

PROJECT NUMBER
CMAWD.21041

DRAWING NUMBER
C-15

SHEET NUMBER
22 OF **61**

Mon 03 Feb 26 10:10:07 AM By: Hope Mallory C:\Bcs\Projects\Active\Carmel Area Wastewater\21041 Pescadero Sewer\2 Eng\CADD2 Sheets\Sewer Ph\12 To 19\C-15.dwg



CONSTRUCTION NOTES

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(12) PROTECT IN PLACE EXISTING UTILITY.

(23) REHABILITATE OR REPLACE EXISTING CLEANOUT PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

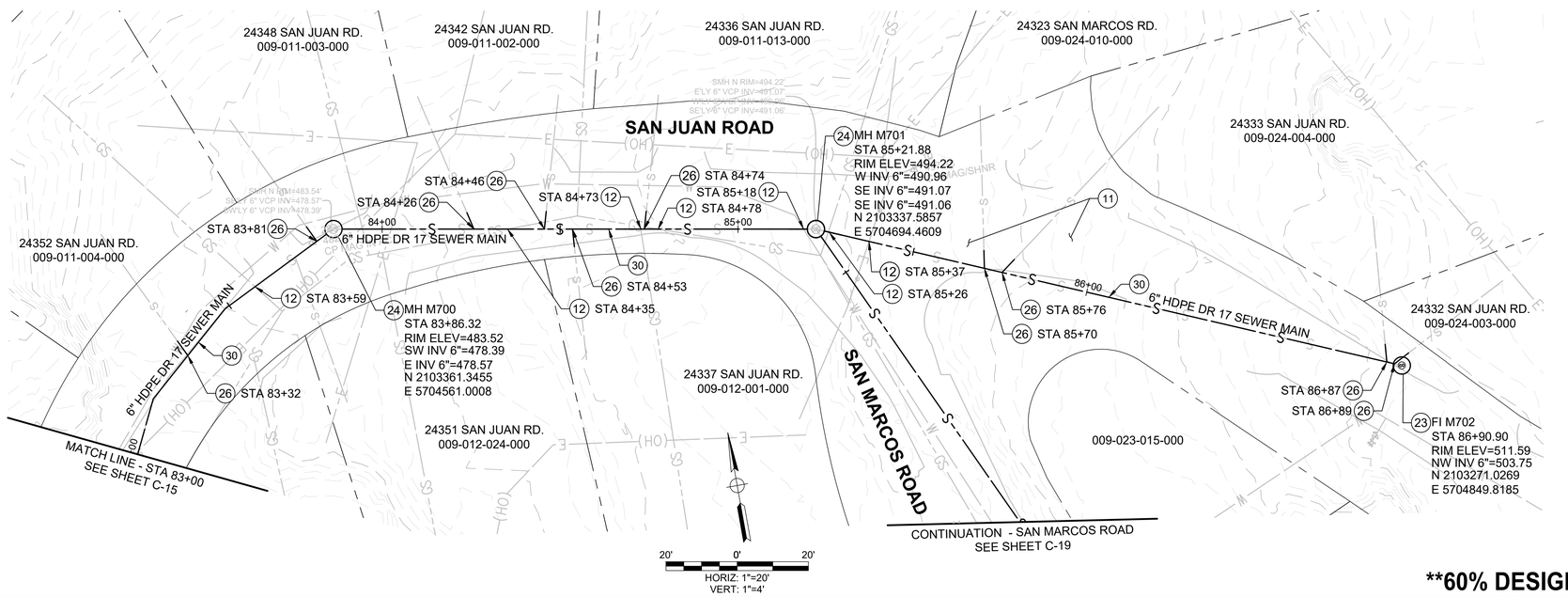
(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEETS G-6 AND G-7.

(26) RE-ESTABLISH EXISTING LATERALS PER SPECIFICATIONS AND DETAIL 2, SHEET C-51.

(30) INSTALL NEW 6-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.



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CHECKED: NEP

JORDYN A. ARREOLA
PRINCIPAL ENGINEER
R.C.E. 94046 EXP. 9 - 30 - 2026
DATE

REGISTERED PROFESSIONAL ENGINEER JORDYN A. ARREOLA C94046 Exp. 9-30-2026 CIVIL STATE OF CALIFORNIA

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SCALE: AS NOTED

CARMEL AREA WASTEWATER DISTRICT · SINCE 1908 ·

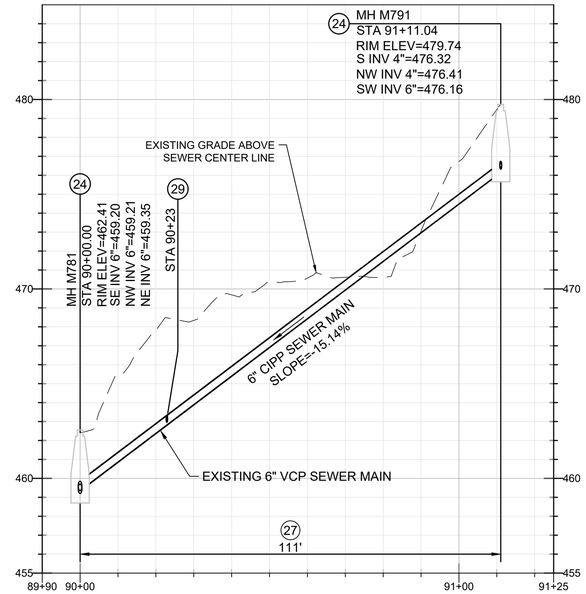
CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

SAN JUAN ROAD SEWER PLAN AND PROFILE STA 83+00 TO 87+00

PROJECT NUMBER **CMAWD.21041**
DRAWING NUMBER **C-16**
SHEET NUMBER **23** OF **61**

Mon 03 Feb 26 10:10:07 AM By: Hope Mallory C:\Bur\Projects\Active\ Carmel Area Wastewater\21041 Pescadero Sewer\2 Eng\CADD2 Sheets\Sewer Ph\2 Ph-17.dwg

DISTRICT TO CONFIRM VERTICAL ALIGNMENT. CCTV SHOWS NO VERTICAL BENDS TO ACCOUNT FOR VERTICAL CHANGE IN GROUND SURFACE.



CONSTRUCTION NOTES

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

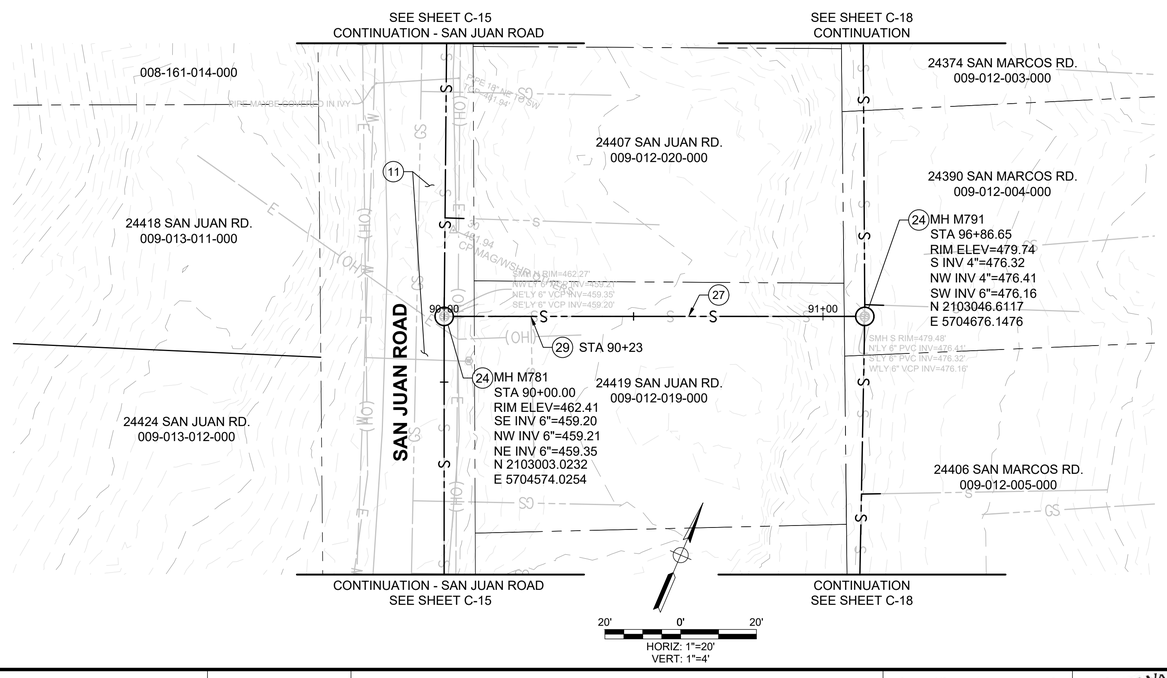
(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITION SCHEDULE, SHEETS G-6 AND G-7.

(27) REHABILITATE EXISTING SANITARY SEWER BY CURED-IN-PLACE PIPE (CIPP) LINING PER SPECIFICATIONS.

(29) RECONNECT SEWER LATERAL TO NEW CIPP WITH TOP HAT PER SPECIFICATIONS.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.



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AS NOTED

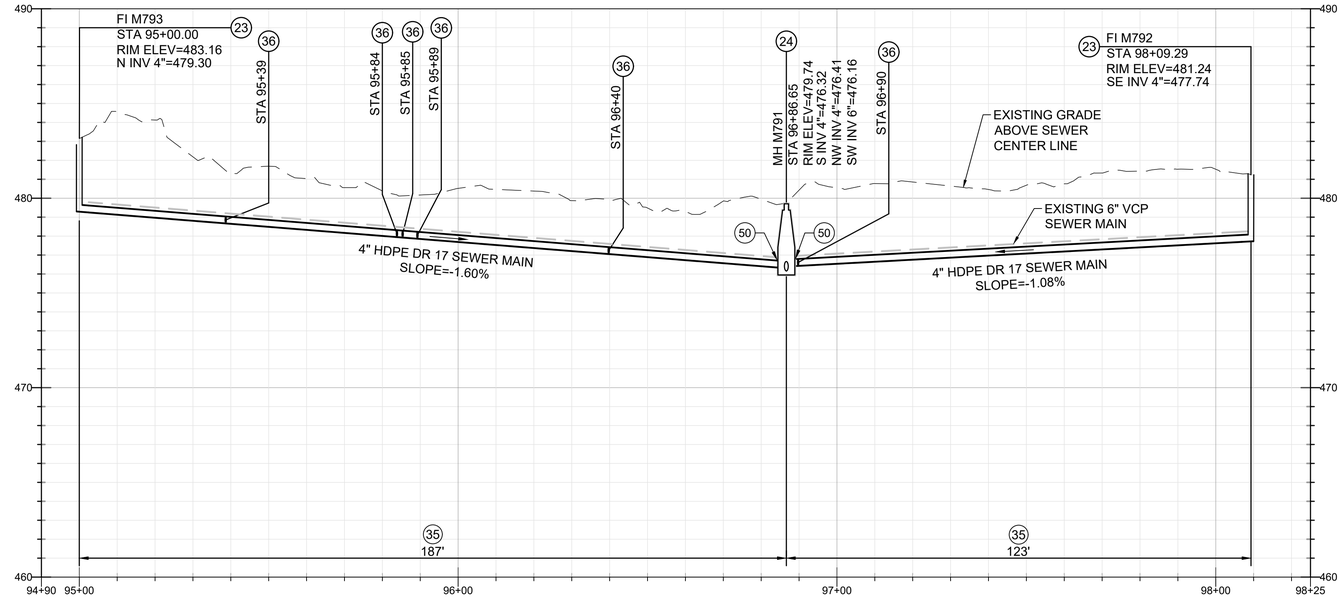
CARMEL AREA WASTEWATER DISTRICT · SINCE 1908 ·

CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

SAN JUAN ROAD SEWER PLAN AND PROFILE STA 90+00 TO 91+25

PROJECT NUMBER
CMAWD.21041
DRAWING NUMBER
C-17
SHEET NUMBER
24 OF **61**

C:\Bcs\Projects\CMAWD Carmel Area WW\CMAWD.21041 Pescadero Sewer\2 Eng\CAD\2 Sheets\Sewer PH-17c PH-17.dwg
Fri 03 Feb 26 12:48:58 PM by: Jordyn Arreola



CONSTRUCTION NOTES

(23) REHABILITATE OR REPLACE EXISTING CLEANOUT PER MANHOLE REHABILITION SCHEDULE, SHEET G-5 AND G-6.

(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITION SCHEDULE, SHEETS G-6 AND G-7.

(35) INSTALL CONTINUOUS SLIP LINE WITH 4" HDPE DR17, IPS SEWER MAIN IN EXISTING ALIGNMENT PER SPECIFICATIONS.

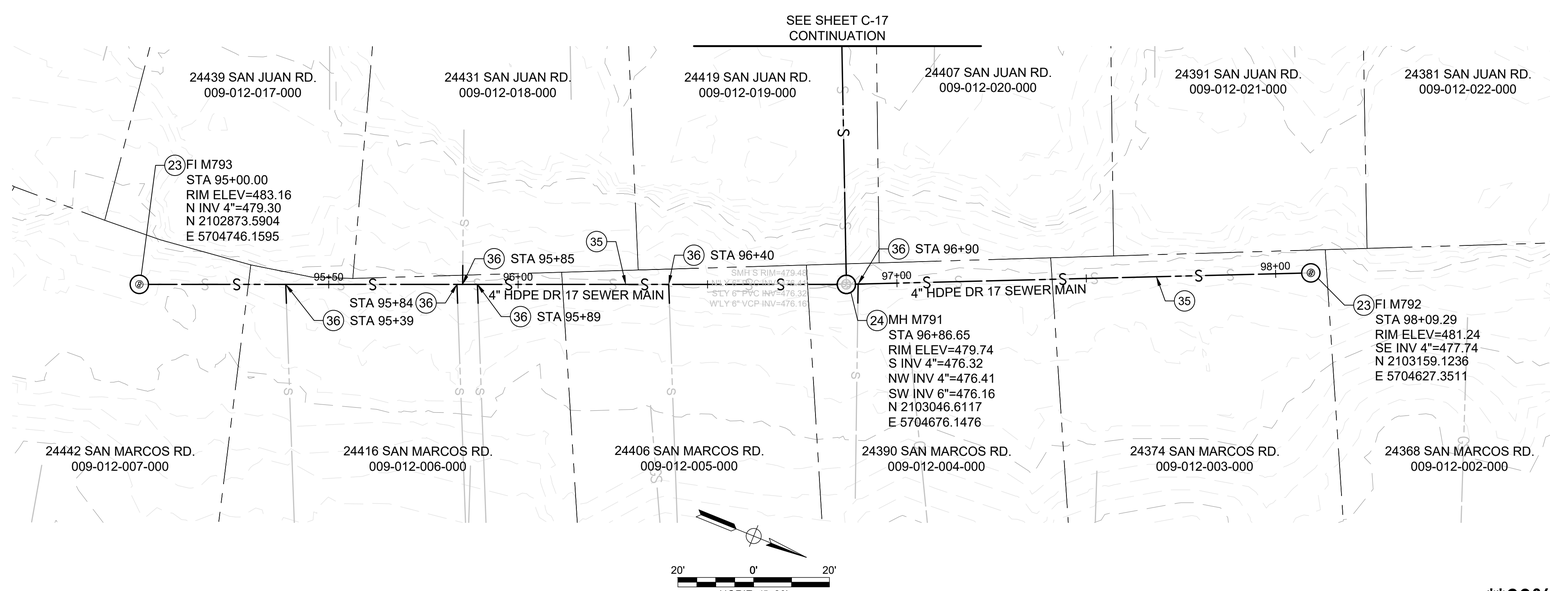
(36) REINSTATE LATERALS PER SPECIFICATIONS PER DETAIL 6, SHEET C-51 AND PER SPECIFICATIONS.

(50) INSTALL SLIPLINE MANHOLE CONNECTION USING ELECTROFUSION FLEX RESTRAINT DEVICE PER DETAIL 3, SHEET C-52.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.

DISTRICT TO DIP FI M792 TO PROVIDE DEPTH



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CHECKED: NEP

JORDYN A. ARREOLA
PRINCIPAL ENGINEER
R.C.E. 94046 EXP. 9 - 30 - 2026

DATE

REGISTERED PROFESSIONAL ENGINEER
JORDYN A. ARREOLA
C94046
Exp. 9-30-2026
CIVIL
STATE OF CALIFORNIA

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CARMEL AREA WASTEWATER DISTRICT
SINCE 1908

CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

SAN JUAN ROAD SEWER PLAN AND PROFILE STA 95+00 TO 98+25

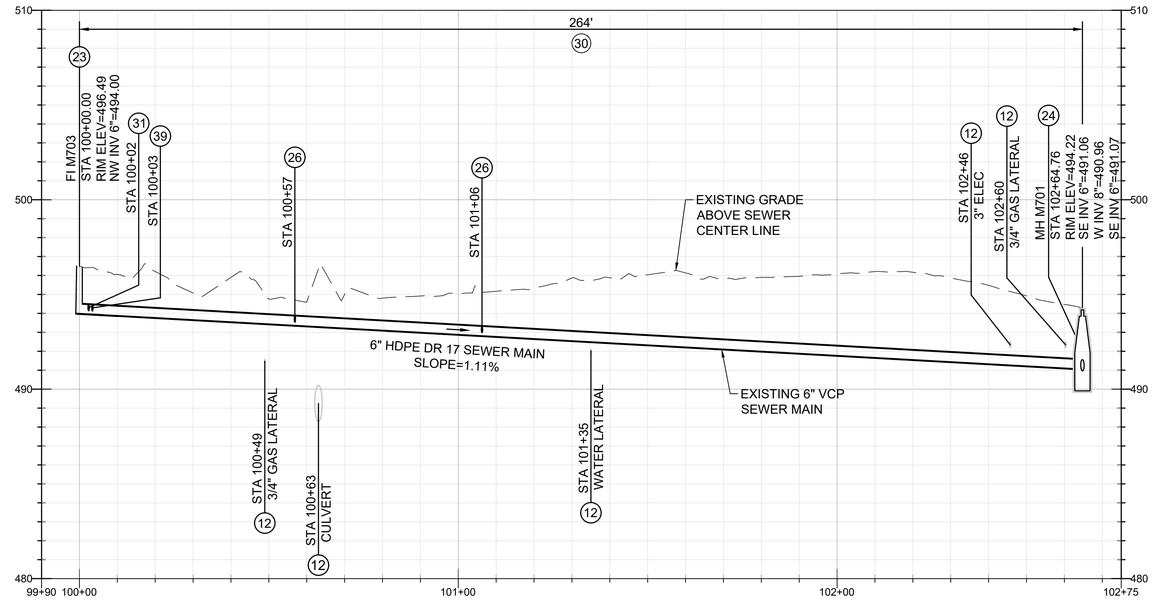
PROJECT NUMBER
CMAWD.21041

DRAWING NUMBER
C-18

SHEET NUMBER
25 OF **61**

C:\Bluo\Projects\CMAWD Carmel Area WWD\CMAWD.21041 Pescadero Sewer\2 Engr\CADD\Sheets\Sheet PR-13 To PR-17.dwg
Fri 20 Feb 26 12:49:56 PM by: Jordyn Arreola

DISTRICT TO CONFIRM VERTICAL ALIGNMENT. CCTV SHOWS NO VERTICAL BENDS TO ACCOUNT FOR VERTICAL CHANGE IN GROUND SURFACE.



CONSTRUCTION NOTES

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(12) PROTECT IN PLACE EXISTING UTILITY.

(23) REHABILITATE OR REPLACE EXISTING CLEANOUT PER MANHOLE REHABILITATION SCHEDULE, SHEETS G-6 AND G-7.

(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEETS G-6 AND G-7.

(26) RE-ESTABLISH EXISTING LATERALS PER SPECIFICATIONS AND DETAIL 2, SHEET C-51.

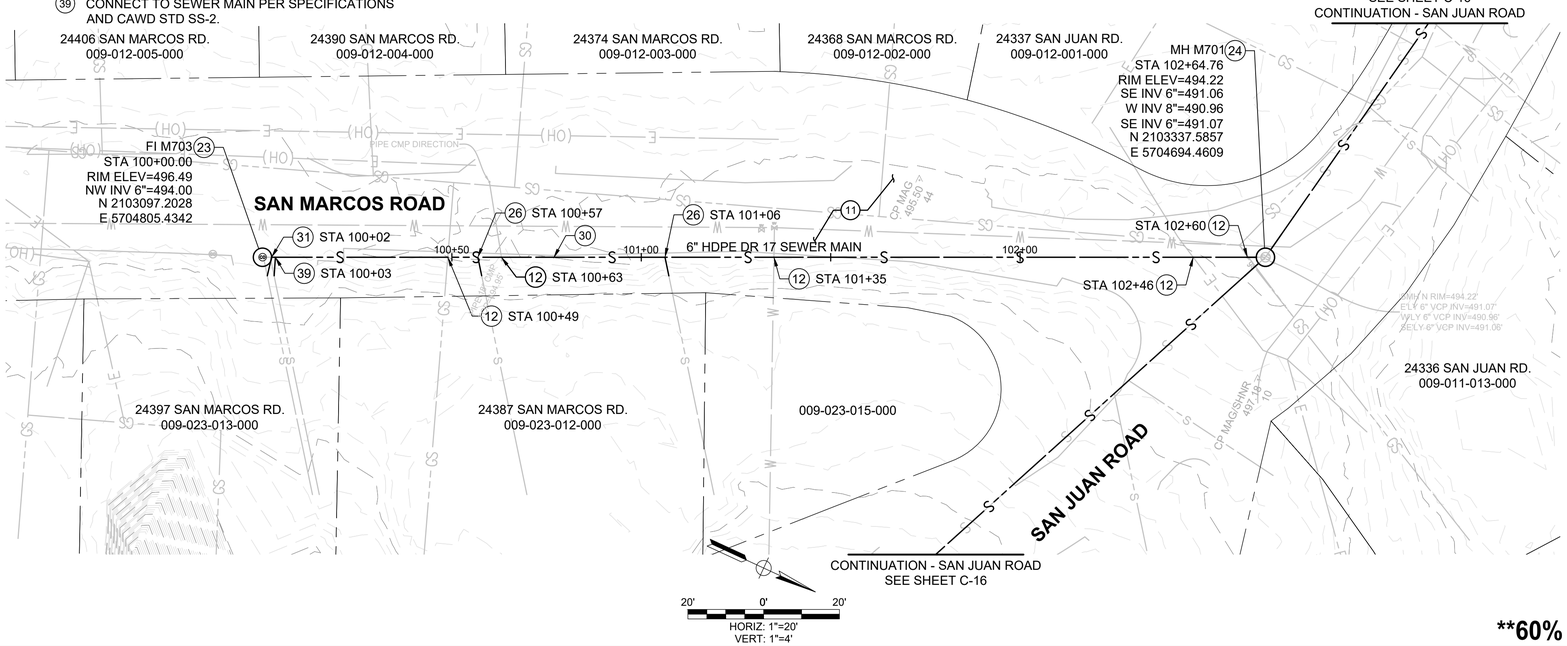
(30) INSTALL NEW 6-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

(31) EXISTING LATERAL CONNECTED TO THE BACK OF CLEANOUT. REROUTE LATERAL TO STATION SHOWN AND CONNECT TO SEWER MAIN PER SPECIFICATIONS AND CAWD STD SS-2.

(39) REROUTE LATERAL TO STATION SHOWN AND CONNECT TO SEWER MAIN PER SPECIFICATIONS AND CAWD STD SS-2.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.



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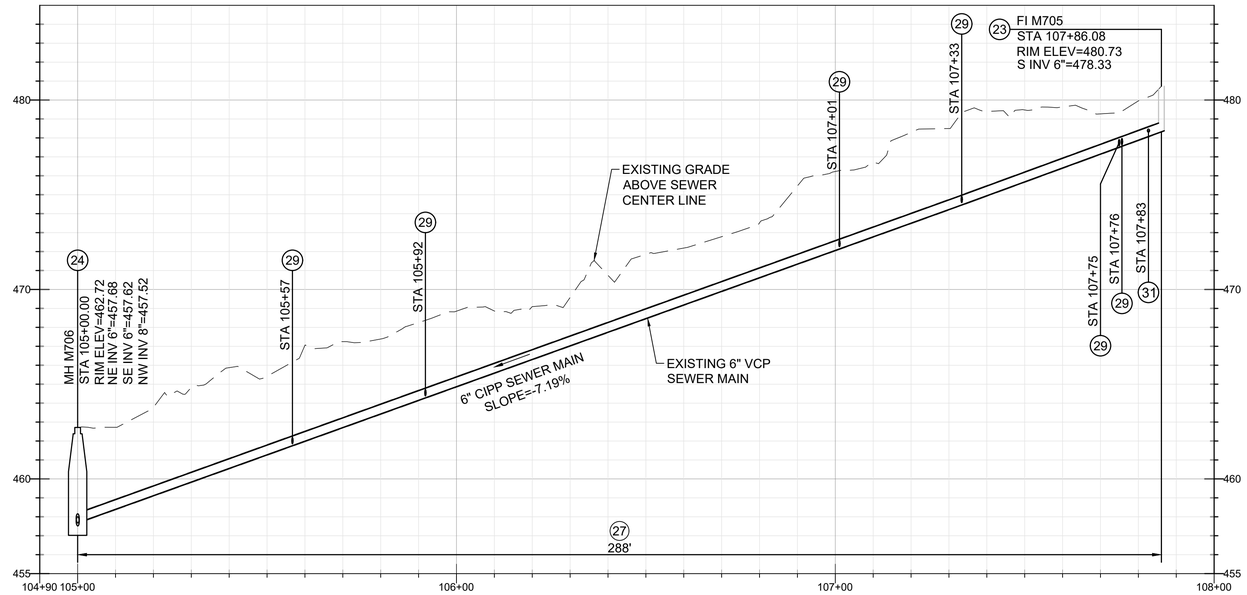
CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

SAN MARCOS ROAD SEWER PLAN AND PROFILE STA 100+00 TO 103+00

PROJECT NUMBER
CMAWD.21041
DRAWING NUMBER
C-19
SHEET NUMBER
26 OF **61**

Mon 23 Feb 26 12:43:33 PM by: Hope Mallorey C:\Bos\Projects\Inmsed Carmel Area Wastewater\21041 Pescadero Sewer\2 Eng\CADD\2 Sheets\Sewer Plan 18 To PR25.dwg

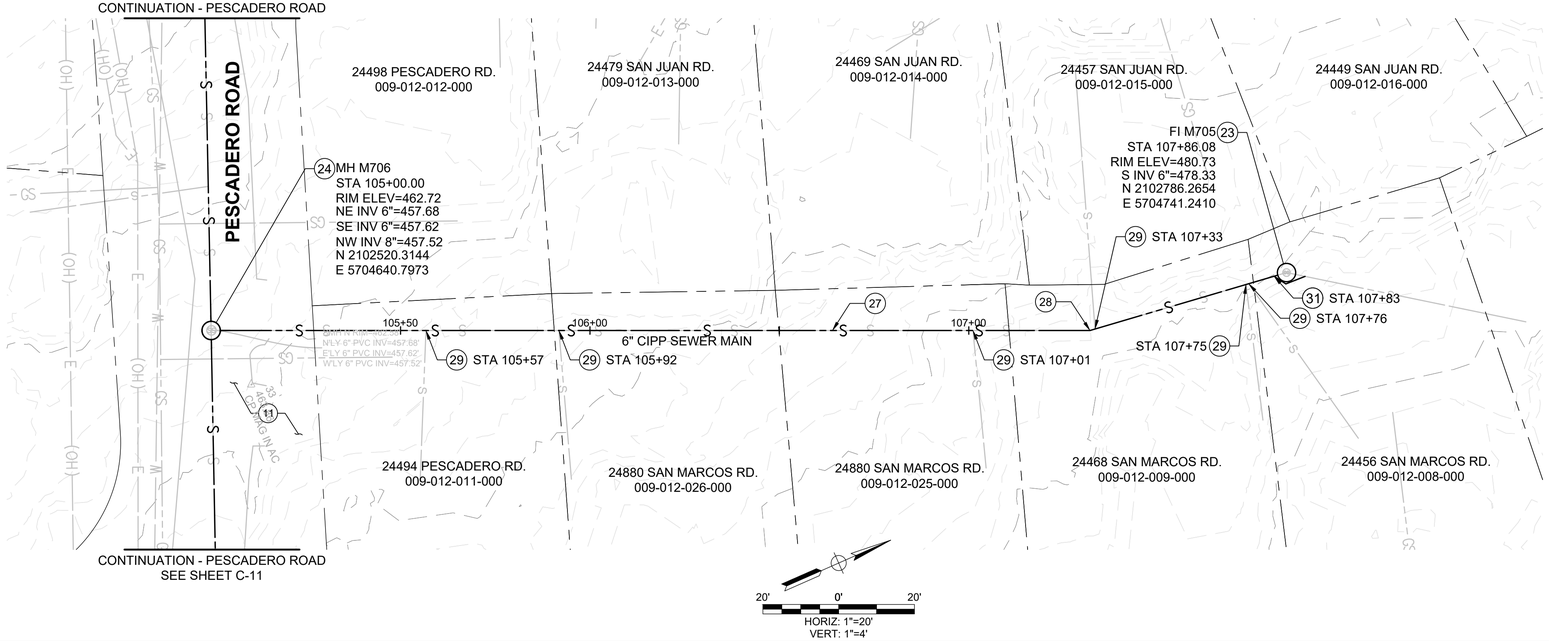


CONSTRUCTION NOTES

- (11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.
- (23) REHABILITATE OR REPLACE EXISTING CLEANOUT PER MANHOLE REHABILITATION SCHEDULE, SHEETS G-6 AND G-7.
- (24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEETS G-6 AND G-7.
- (27) REHABILITATE EXISTING SANITARY SEWER BY UV-CURED-IN-PLACE PIPE (CIPP) LINING PER SPECIFICATIONS.
- (28) REMOVE EXISTING 6" VCP BEND AND REPLACE WITH 6" PVC LONG RADIUS SWEEP ELBOW TO MATCH EXISTING ANGLE BEFORE LINING PIPE.
- (29) RECONNECT SEWER LATERAL TO NEW CIPP WITH TOP HAT PER SPECIFICATIONS.
- (31) EXISTING LATERAL CONNECTED TO THE BACK OF CLEANOUT. REROUTE LATERAL TO STATION SHOWN AND CONNECT TO SEWER MAIN PER SPECIFICATIONS AND CAWD STD SS-2.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.



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C94046
Exp. 9-30-2026
CIVIL
STATE OF CALIFORNIA

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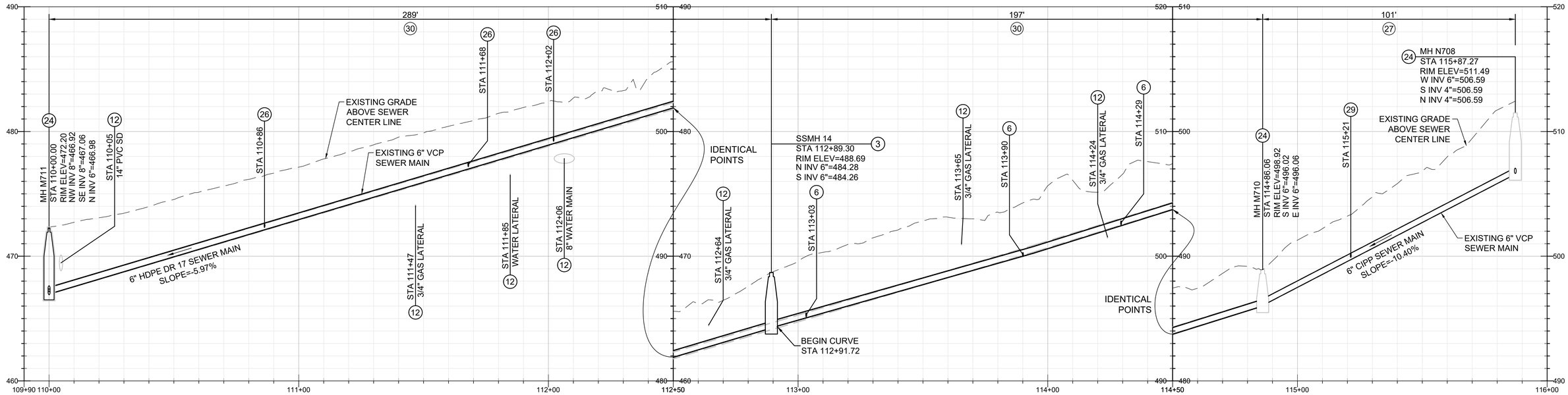
CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

PESCADERO ROAD SEWER PLAN AND PROFILE STA 105+00 TO 108+00

PROJECT NUMBER
CMAWD.21041
DRAWING NUMBER
C-20
SHEET NUMBER
27 OF **61**

Mon 03 Feb,26 12:43:33 PM by: Hope Mallory C:\Bur\Projects\Active\Carmel Area Wastewater\21041 Pescadero Sewer\2 Eng\CADD2 Sheets\Sewer PP-18 To PP-23.dwg



CONSTRUCTION NOTES

(3) INSTALL NEW MANHOLE PER CAWD STD SS-9.

(6) RECONNECT EXISTING LATERALS PER SPECIFICATIONS AND CAWD STD PLANS SS-2 AND SS-3.

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(12) PROTECT IN PLACE EXISTING UTILITY.

(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEETS G-6 AND G-7.

(26) RE-ESTABLISH EXISTING LATERALS PER SPECIFICATIONS AND DETAIL 4, SHEET C-51.

(27) REHABILITATE EXISTING SANITARY SEWER BY UV-CURED-IN-PLACE PIPE (CIPP) LINING PER SPECIFICATIONS.

(28) REMOVE EXISTING 6" VCP BEND AND REPLACE WITH 6" PVC LONG RADIUS SWEEP ELBOW TO MATCH EXISTING ANGLE BEFORE LINING PIPE.

(29) RECONNECT SEWER LATERAL TO NEW CIPP WITH TOP HAT PER SPECIFICATIONS.

(30) INSTALL NEW 6-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

GENERAL NOTES

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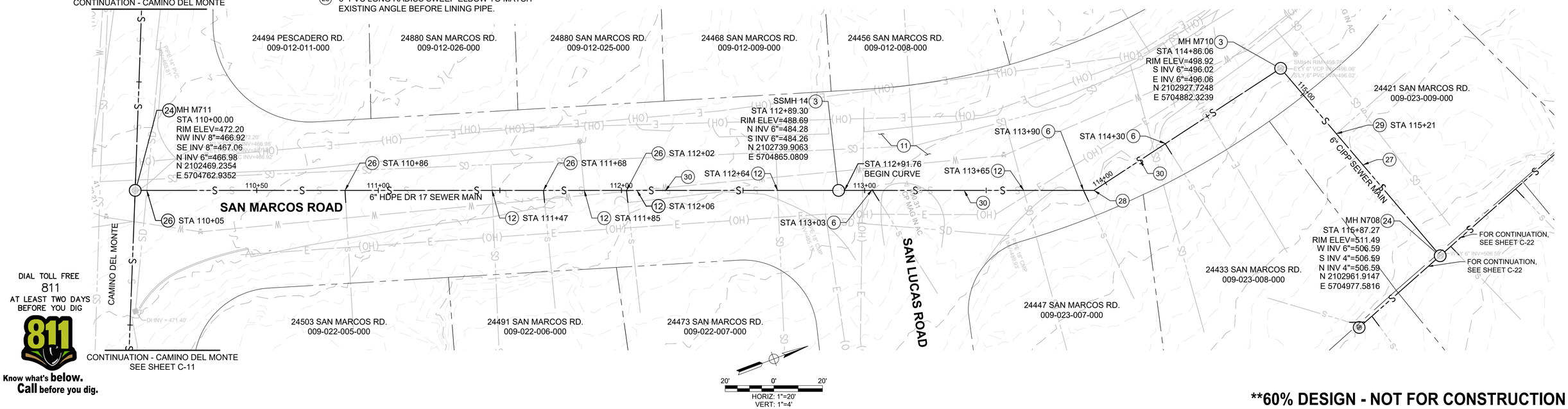

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C94046
Exp. 9-30-2026
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STATE OF CALIFORNIA

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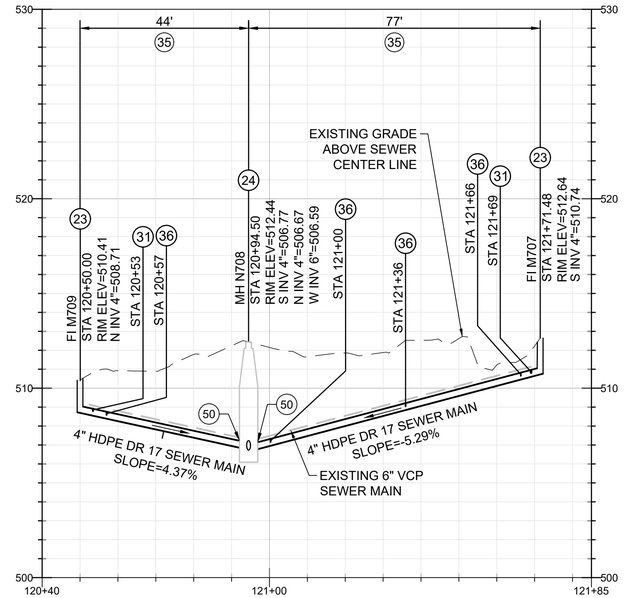
CARMEL AREA WASTEWATER DISTRICT
SINCE 1908

CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REHABILITATION PROJECT
CARMEL AREA WASTEWATER DISTRICT

SAN MARCOS ROAD SEWER PLAN AND PROFILE STA 110+00 TO 116+00

PROJECT NUMBER
CMAWD.21041
DRAWING NUMBER
C-21
SHEET NUMBER
28 OF **61**

C:\Box\Projects\CMAWD Carmel Area WWD\CMAWD.21041 Pescadero Sewer\2 Eng\CADD\2 Sheets\Sewer PP-05 To PP-23.dwg
Mon 11:May:26 12:03:14 PM by: Jordyn Arreola



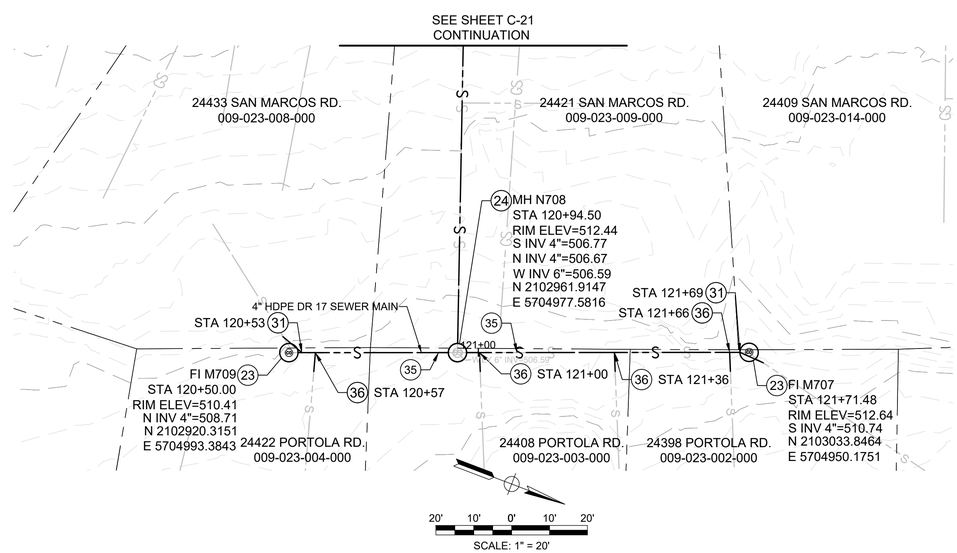
CONSTRUCTION NOTES

- (23) REHABILITATE OR REPLACE EXISTING CLEANOUT PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.
- (24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEETS G-6 AND G-7.
- (31) EXISTING LATERAL CONNECTED TO THE BACK OF CLEANOUT. REROUTE LATERAL TO STATION SHOWN AND CONNECT TO SEWER MAIN PER SPECIFICATIONS AND CAWD STD SS-2.
- (35) INSTALL CONTINUOUS SLIP LINE WITH 4" HDPE DR17, IPS SEWER MAIN IN EXISTING ALIGNMENT PER SPECIFICATIONS.
- (36) REINSTATE LATERALS PER DETAIL 6, SHEET C-51 AND SPECIFICATIONS.
- (50) INSTALL SLIPLINE MANHOLE CONNECTION USING ELECTROFUSION FLEX RESTRAINT DEVICE PER DETAIL 3, SHEET C-52.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.

COORDINATE DIP INFORMATION ON ALL STRUCTURES ON THIS SHEET WITH DISTRICT.



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C94046
Exp. 9-30-2026
CIVIL
STATE OF CALIFORNIA

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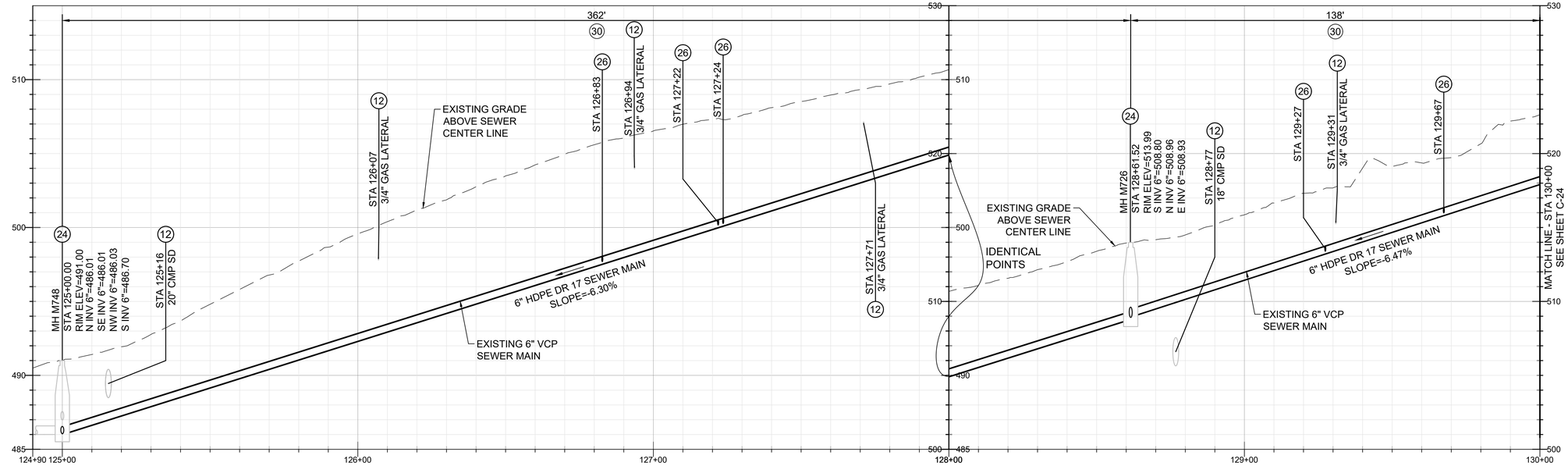
CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

SAN MARCOS ROAD SEWER PLAN AND PROFILE STA 120+50 TO 122+50

PROJECT NUMBER
CMAWD.21041
DRAWING NUMBER
C-22
SHEET NUMBER
29 OF **61**

Mon 23 Feb 26 12:43:33 PM by: Hope Mallory
C:\BoxSync\Documents\Carmel Area Wastewater\21041 Pescadero Sewer\Dwg\CADD\Sheets\Sewer PP\18 To PP\23.dwg



CONSTRUCTION NOTES

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(12) PROTECT IN PLACE EXISTING UTILITY.

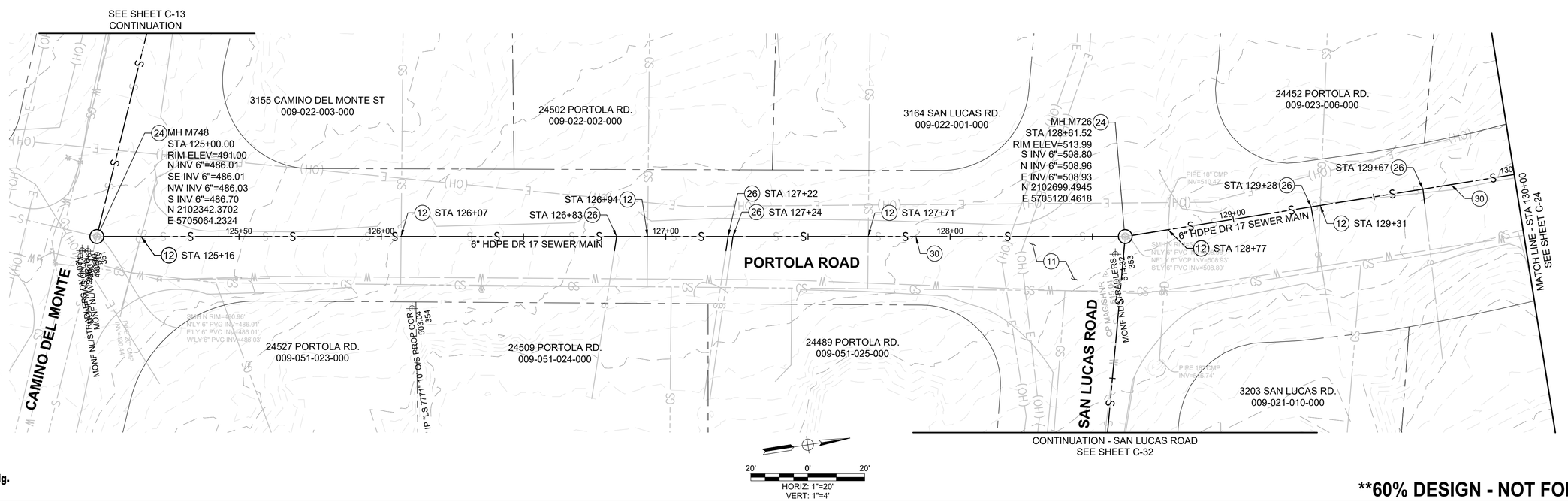
(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEETS G-6 AND G-7.

(26) RE-ESTABLISH EXISTING LATERALS PER SPECIFICATIONS AND DETAIL 2, SHEET C-51.

(30) INSTALL NEW 6-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.
2. NOTE MARKUPS ADDED TO NOTES SHEET.



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DESIGNED: JA
DRAWN: KD
CHECKED: NEP

JORDYN A. ARREOLA
PRINCIPAL ENGINEER
R.C.E. 94046 EXP. 9 - 30 - 2026
DATE

REGISTERED PROFESSIONAL ENGINEER
JORDYN A. ARREOLA
C94046
Exp. 9-30-2026
CIVIL
STATE OF CALIFORNIA

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SCALE:
AS NOTED

CARMEL AREA WASTEWATER DISTRICT · SINCE 1908 ·

CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

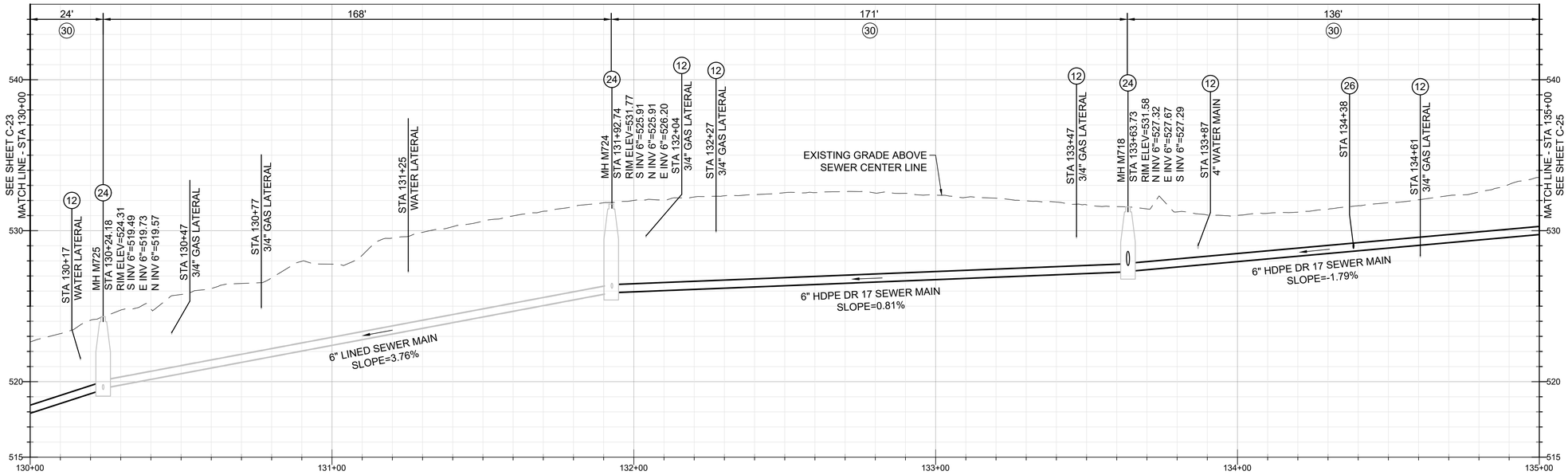
PORTOLA ROAD SEWER PLAN AND PROFILE STA 125+00 TO 130+00

PROJECT NUMBER
CMAWD.21041

DRAWING NUMBER
C-23

SHEET NUMBER
30 OF **61**

Mon 03 Feb,26 12:43:33 PM by: Hope Mallory C:\Bcs\Projects\Active\Carmel Area Wastewater\21041 Pescadero Sewer\Dwg\CADD2 Sheets\Sewer PH-18 To PH-23.dwg



CONSTRUCTION NOTES

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(12) PROTECT IN PLACE EXISTING UTILITY.

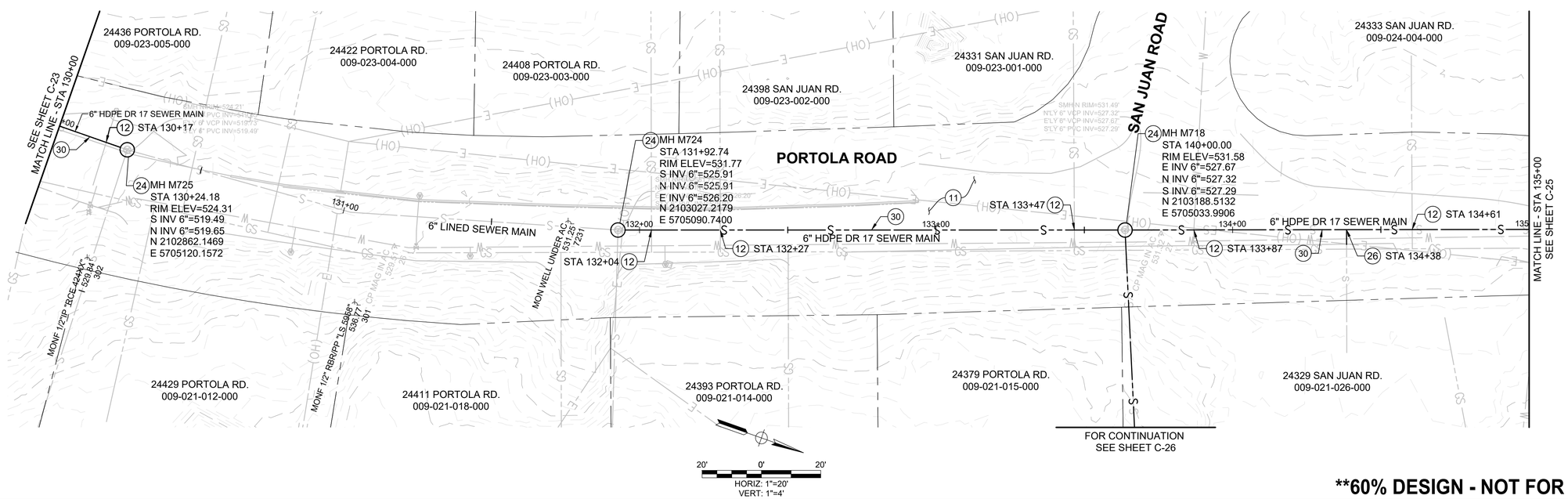
(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEETS G-6 AND G-7.

(26) RE-ESTABLISH EXISTING LATERALS PER SPECIFICATIONS AND DETAIL 2, SHEET C-51.

(30) INSTALL NEW 6-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.



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R.C.E. 94046 EXP. 9 - 30 - 2026

DATE

REGISTERED PROFESSIONAL ENGINEER
JORDYN A. ARREOLA
C94046
Exp. 9-30-2026
CIVIL
STATE OF CALIFORNIA

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CARMEL AREA WASTEWATER DISTRICT · SINCE 1908 ·

CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

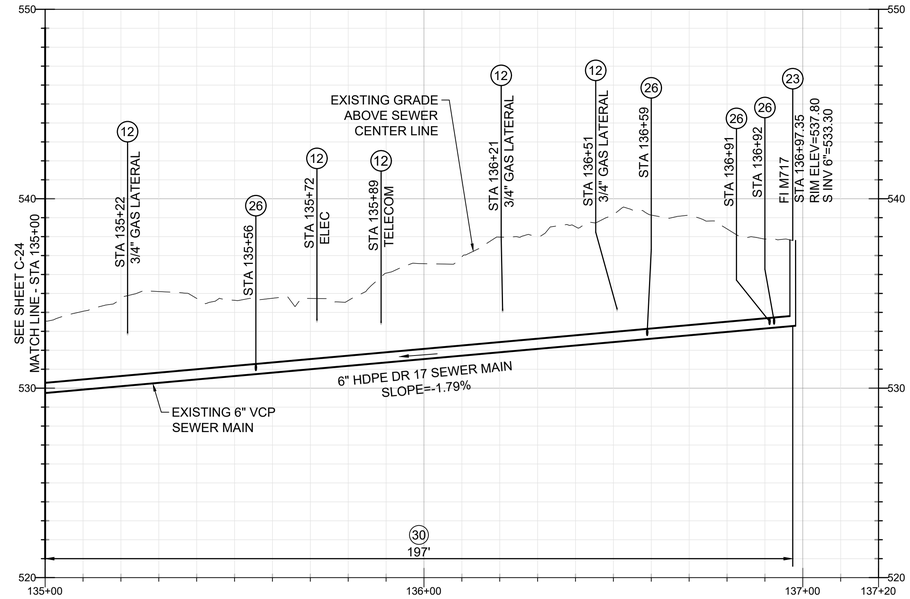
PORTOLA ROAD SEWER PLAN AND PROFILE STA 130+00 TO 135+00

PROJECT NUMBER
CMAWD.21041

DRAWING NUMBER
C-24

SHEET NUMBER
31 OF **61**

Mon 03 Feb,26 06:28:23 PM by: Jordyn Arreola C:\Bcs\Projects\CMAWD\Carmel Area WW\CMAWD.21041 Pescadero Sewer\2 Eng\CAD\2 Sheets\Sewer PP-24-To-PP-26.dwg



GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.

CONSTRUCTION NOTES

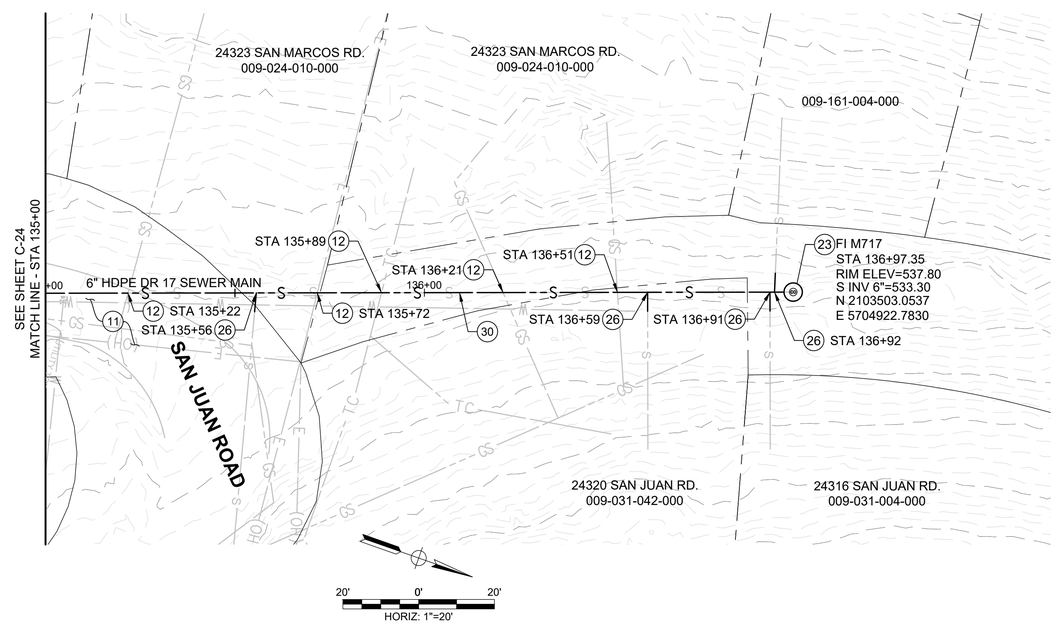
(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(12) PROTECT IN PLACE EXISTING UTILITY.

(23) REHABILITATE OR REPLACE EXISTING CLEANOUT PER MANHOLE REHABILITATION SCHEDULE, SHEETS G-6 AND G-7.

(26) RE-ESTABLISH EXISTING LATERALS PER SPECIFICATIONS AND DETAIL 2, SHEET C-51.

(30) INSTALL NEW 6-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.



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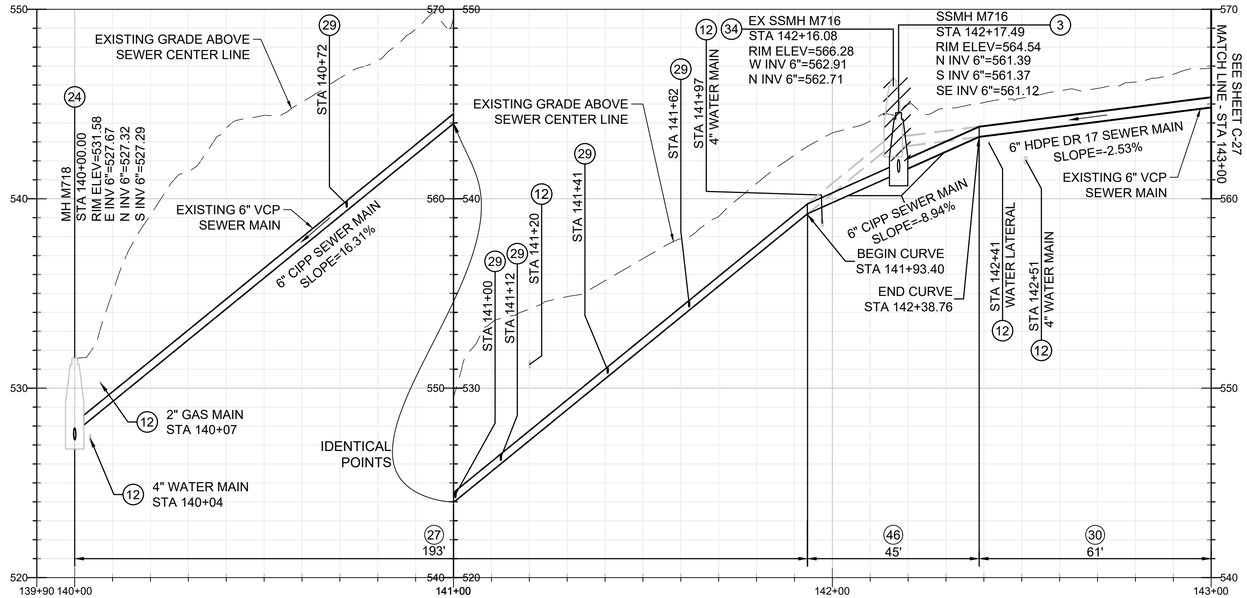
CARMEL AREA WASTEWATER DISTRICT
SINCE 1908

CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

SAN JUAN ROAD SEWER PLAN AND PROFILE STA 135+00 TO 137+00

PROJECT NUMBER
CMAWD.21041
DRAWING NUMBER
C-25
SHEET NUMBER
32 OF **61**

Mon 23 Feb,26 12:39:05 PM by: Owen Sullivan C:\Box\Projects\mnsd Carmel Area Wastewater\mnsd.21041 Pescadero Sewer\2 Eng\CAD\2 Sheets\Sewer PP\A-T-PP-C25.dwg



CONSTRUCTION NOTES

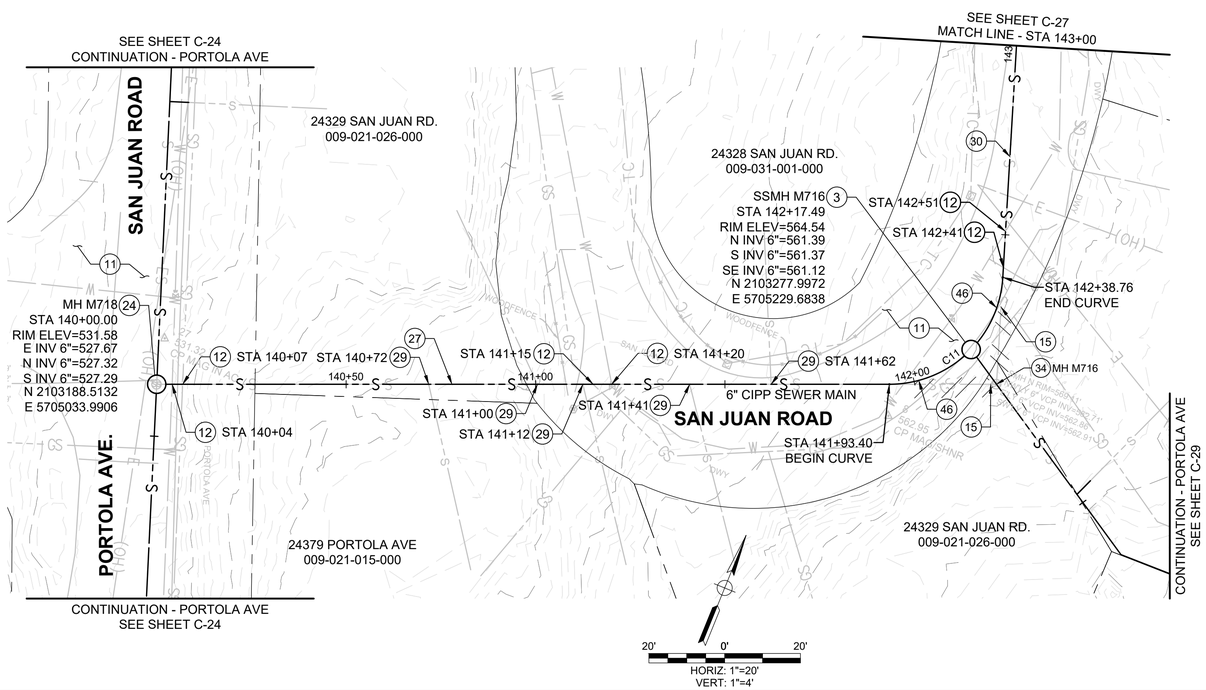
- (3) INSTALL NEW MANHOLE PER CAWD STD SS-9.
- (11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.
- (12) PROTECT IN PLACE EXISTING UTILITY.
- (15) REMOVE INTERFERING PORTIONS OF EXISTING SEWER PIPE. ABANDON CUT END OF EXISTING SEWER MAIN PER CAWD STD SS-26. SEE SPECIFICATIONS FOR BYPASSING REQUIREMENTS.
- (24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEETS G-6 AND G-7.
- (27) REHABILITATE EXISTING SANITARY SEWER BY UV-CURED-IN-PLACE PIPE (CIPP) LINING PER SPECIFICATIONS.
- (29) RECONNECT SEWER LATERAL TO NEW CIPP WITH TOP HAT PER SPECIFICATIONS.
- (30) INSTALL NEW 6-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.
- (34) DEMOLISH AND REMOVE EXISTING MANHOLE.
- (46) INSTALL NEW 6-INCH PVC SDR26 SEWER MAIN BY OPEN TRENCH CONSTRUCTION. TRENCH AND BACKFILL PER CAWD STD SS-24. SEE SPECIFICATIONS FOR BYPASSING REQUIREMENTS.

Curve Table

Curve #	Radius	Length	Delta (Δ)	Chord Direction	Start Point	End Point	START NORTHING	START EASTING	END NORTHING	END EASTING
C11	30.00'	45.35'	86.62°	N24° 33' 28.95"E	141+93.40	142+38.76	2103261.38	5705213.14	2103298.81	5705230.25

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.



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R.C.E. 94046 EXP. 9 - 30 - 2026
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REGISTERED PROFESSIONAL ENGINEER JORDYN A. ARREOLA C94046 Exp. 9-30-2026 CIVIL STATE OF CALIFORNIA

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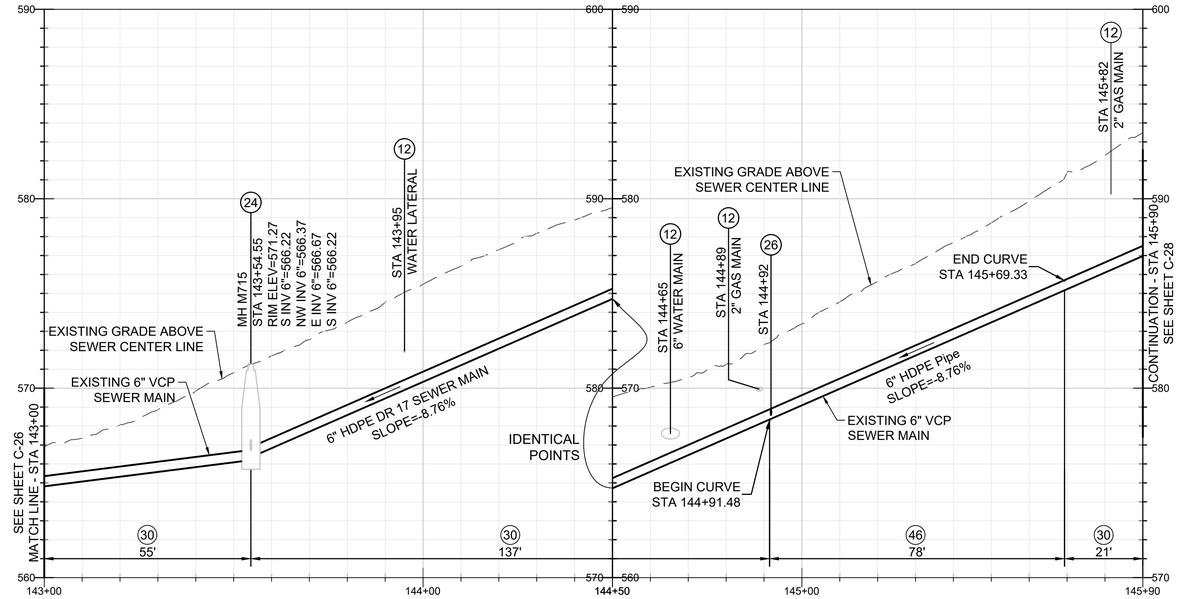
CARMEL AREA WASTEWATER DISTRICT • SINCE 1908 •

CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

SAN JUAN ROAD SEWER PLAN AND PROFILE STA 140+00 TO 143+00

PROJECT NUMBER **CMAWD.21041**
DRAWING NUMBER **C-26**
SHEET NUMBER **33** OF **61**

C:\Bsd\Projects\CMAWD Carmel Area WWD\CMAWD.21041 Pescadero Sewer\Excel Exp\CADZ Sheets\Sewer PP\A1 To PN-26.dwg
Mon 23-Feb-26 06:28:23 PM by: Jordyn Arreola



CONSTRUCTION NOTES

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(12) PROTECT IN PLACE EXISTING UTILITY.

(15) REMOVE INTERFERING PORTIONS OF EXISTING SEWER PIPE. ABANDON CUT END OF EXISTING SEWER MAIN PER CAWD STD SS-26. SEE SPECIFICATIONS FOR BYPASSING REQUIREMENTS.

(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEETS G-6 AND G-7.

(26) RE-ESTABLISH EXISTING LATERALS PER SPECIFICATIONS AND DETAIL 2, SHEET C-51.

(30) INSTALL NEW 6-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

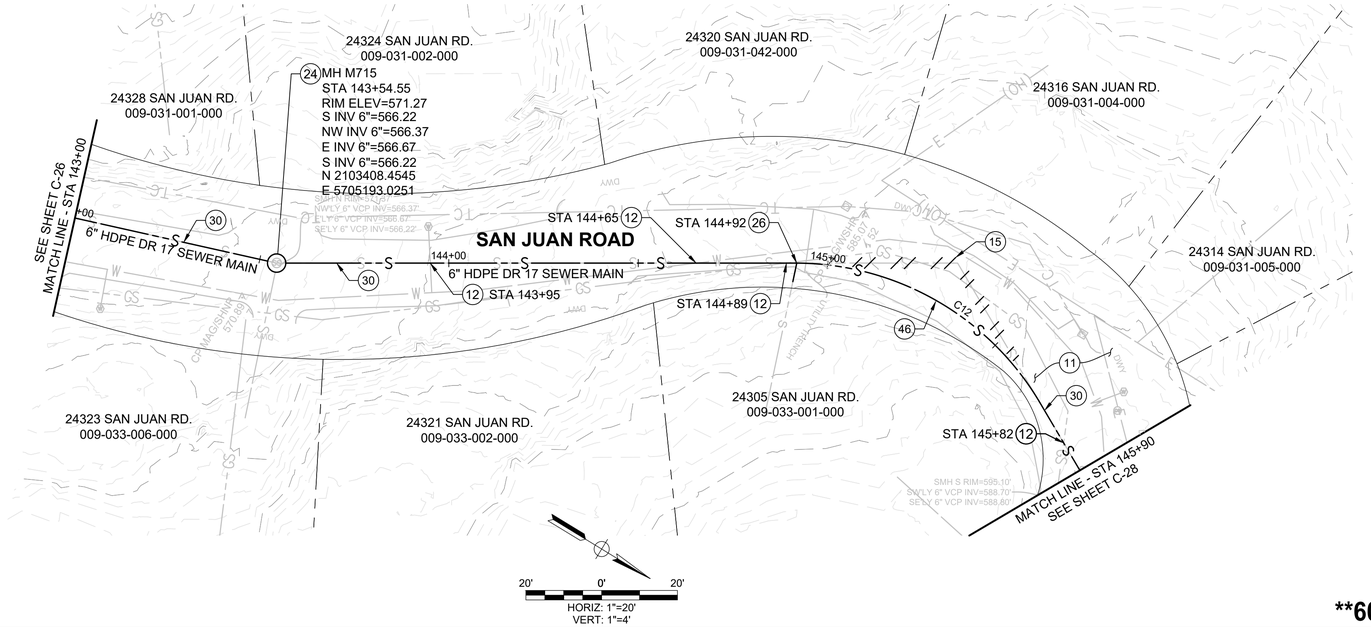
(46) INSTALL NEW 6-INCH HDPE DR17 SEWER MAIN BY OPEN TRENCH CONSTRUCTION. TRENCH AND BACKFILL PER CAWD STD SS-24. SEE SPECIFICATIONS FOR BYPASSING REQUIREMENTS.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.

Curve Table

Curve #	Radius	Length	Delta (Δ)	Chord Direction	Start Point	End Point	START NORTHING	START EASTING	END NORTHING	END EASTING
C12	75.00'	77.85'	59.47°	N1° 36' 30.46"W	144+91.48	145+69.33	2103525.40	5705121.80	2103599.77	5705119.71



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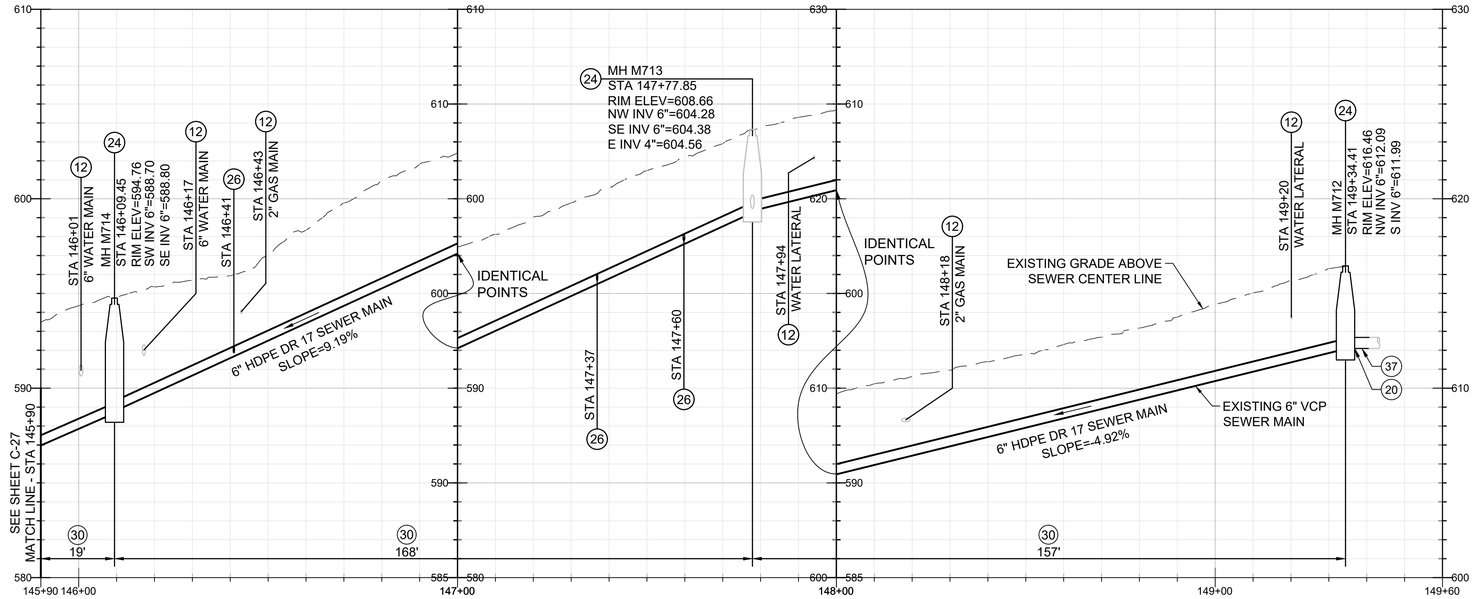
CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

SAN JUAN ROAD SEWER PLAN AND PROFILE STA 143+00 TO 145+90

PROJECT NUMBER
CMAWD.21041
DRAWING NUMBER
C-27
SHEET NUMBER
34 OF **61**

Mon 23 Feb,26 12:59:01 PM by: Owen Saffersky C:\Bcs\Projects\Internal\ Carmel Area Wastewater\21041 Pescadero Sewer\2 Eng\CADD2 Sheets\Sewer PP\34 To PP\26.dwg



CONSTRUCTION NOTES

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(12) PROTECT IN PLACE EXISTING UTILITY.

(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEETS G-6 AND G-7.

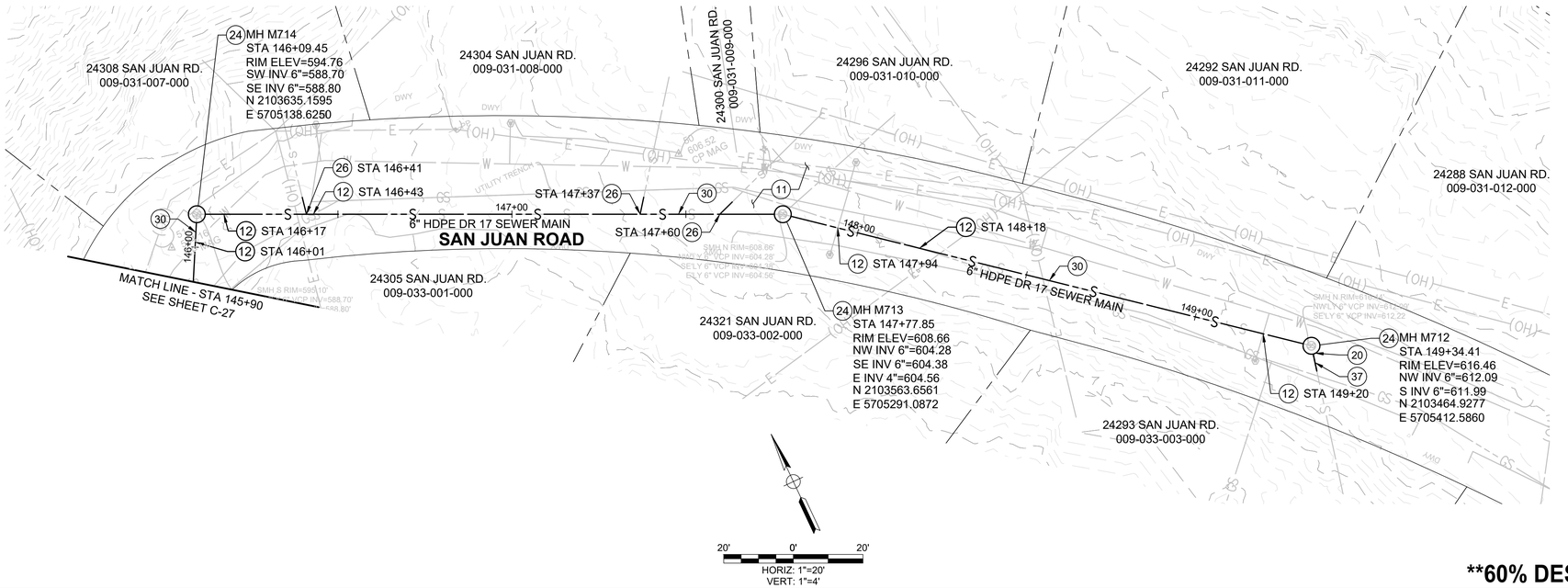
(26) RE-ESTABLISH EXISTING LATERALS PER SPECIFICATIONS AND DETAIL 2, SHEET C-51.

(30) INSTALL NEW 6-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

(37) PROVIDE 5-FEET OF PVC SDR 26 TO CONNECT TO EXISTING 6-INCH VCP PER DETAIL 2, SHEET C-52.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.



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R.C.E. 94046 EXP. 9 - 30 - 2026
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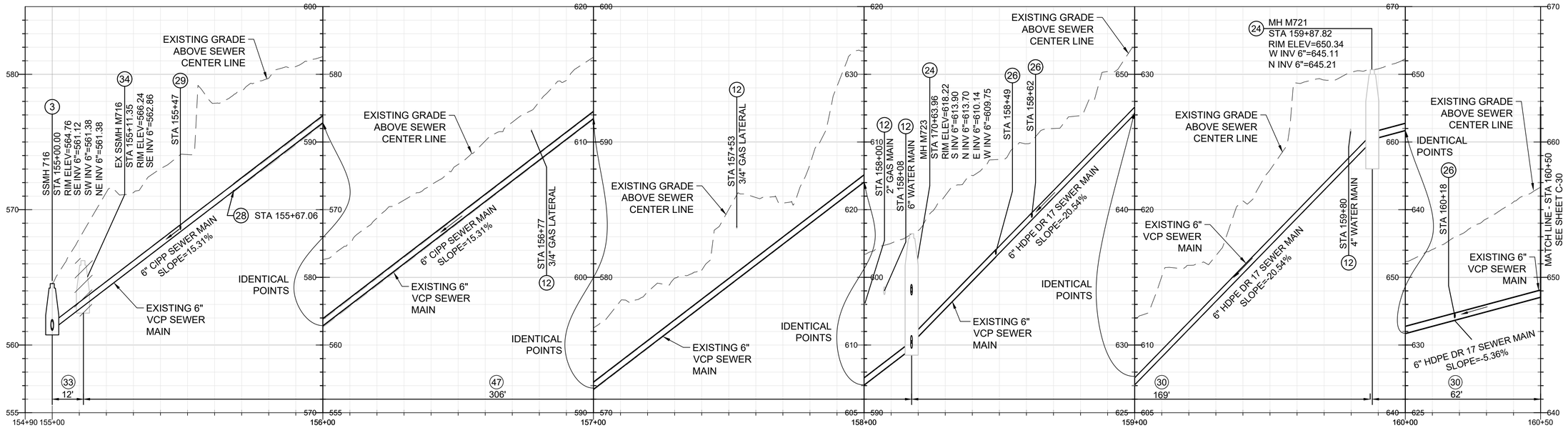
CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

SAN JUAN ROAD SEWER PLAN AND PROFILE STA 145+90 TO 149+60

PROJECT NUMBER
CMAWD.21041
DRAWING NUMBER
C-28
SHEET NUMBER
35 OF **61**

Mon 23 Feb,26 12:59:01 PM by: Owen Sullivan C:\Bur\Projects\Active\Carmel Area Wastewater\21041 Pescadero Sewer\2 Dwg\CADD2 Sheets\Sewer PP-24 To PP-26.dwg



CONSTRUCTION NOTES

(3) INSTALL NEW MANHOLE PER CAWD STD SS-9.

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(12) PROTECT IN PLACE EXISTING UTILITY.

(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

(26) RE-ESTABLISH EXISTING LATERALS PER SPECIFICATIONS AND DETAIL 2, SHEET C-51.

(28) REMOVE EXISTING 6" VCP BEND AND REPLACE WITH 6" PVC LONG RADIUS SWEEP ELBOW TO MATCH EXISTING ANGLE BEFORE LINING PIPE.

(29) RECONNECT SEWER LATERAL TO NEW CIPP WITH TOP HAT PER SPECIFICATIONS.

(30) INSTALL NEW 6-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

(33) INSTALL NEW 6-INCH PVC SDR26 SEWER MAIN BY OPEN TRENCH CONSTRUCTION. TRENCH AND BACKFILL PER CAWD STD SS-24. SEE SPECIFICATIONS FOR BYPASSING REQUIREMENTS.

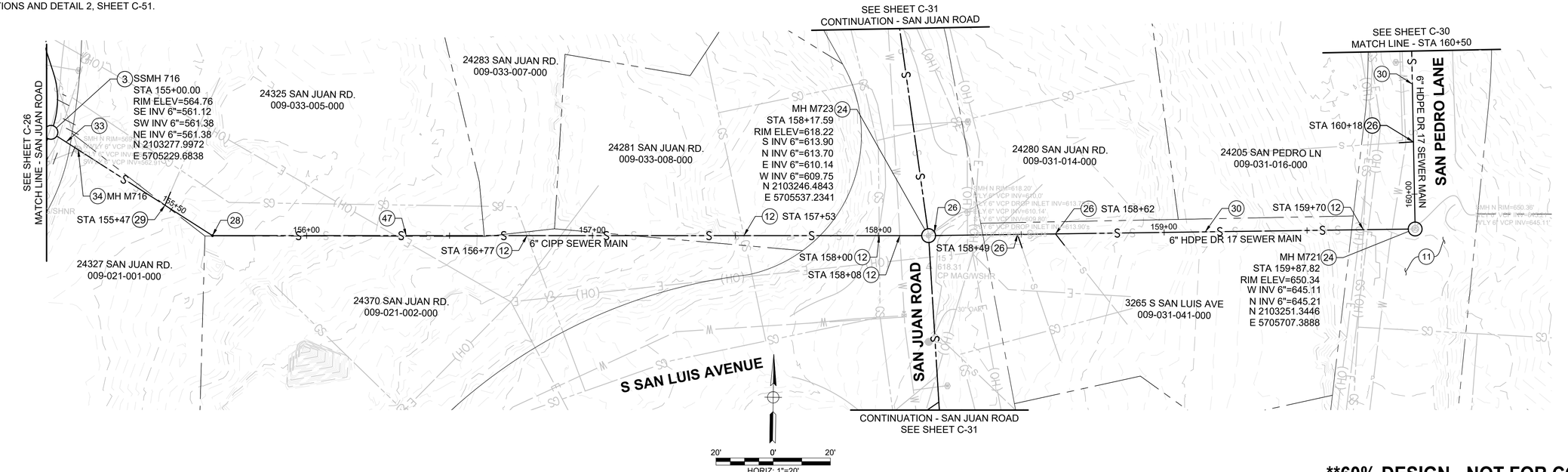
(34) DEMOLISH AND REMOVE EXISTING MANHOLE.

(47) REHABILITATE EXISTING SANITARY SEWER BY CURED-IN-PLACE PIPE (CIPP) LINING PER SPECIFICATIONS.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.

DISCUSS ACCESS FOR CONTRACTOR WITH THE SWEEP AT STA 155+47.



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CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

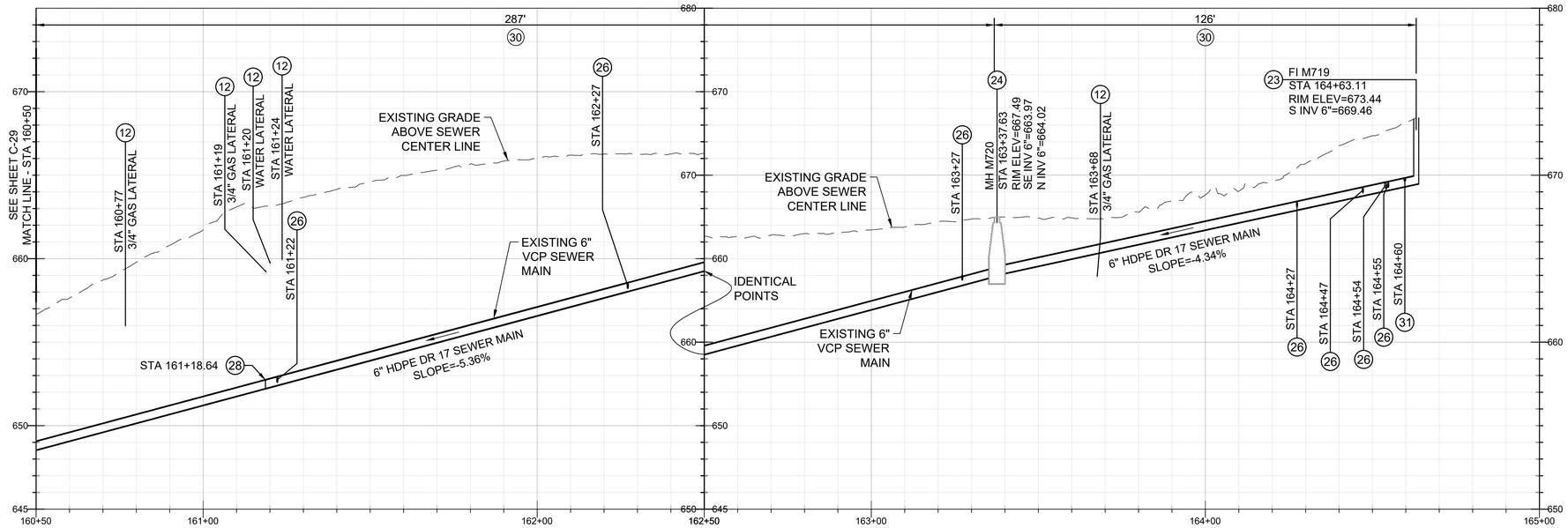
SAN JUAN ROAD SEWER PLAN AND PROFILE STA 155+00 TO 160+50

PROJECT NUMBER
CMAWD.21041

DRAWING NUMBER
C-29

SHEET NUMBER
36 OF 61

Mon 23 Feb 26 11:40:12 AM by: Jordyn Arreola C:\Bin\Projects\CMAWD\Carmel Area WW\CMAWD.21041 Pescadero Sewer\2 Eng\CAD\2 Sheets\Sewer PP\30-T0-PP-06.dwg



CONSTRUCTION NOTES

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(12) PROTECT IN PLACE EXISTING UTILITY.

(23) REHABILITATE OR REPLACE EXISTING CLEANOUT PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

(26) RE-ESTABLISH EXISTING LATERALS PER SPECIFICATIONS AND DETAIL 2, SHEET C-51.

(28) REMOVE EXISTING 6" VCP BEND AND REPLACE WITH 6" PVC LONG RADIUS SWEEP ELBOW TO MATCH EXISTING ANGLE BEFORE LINING PIPE.

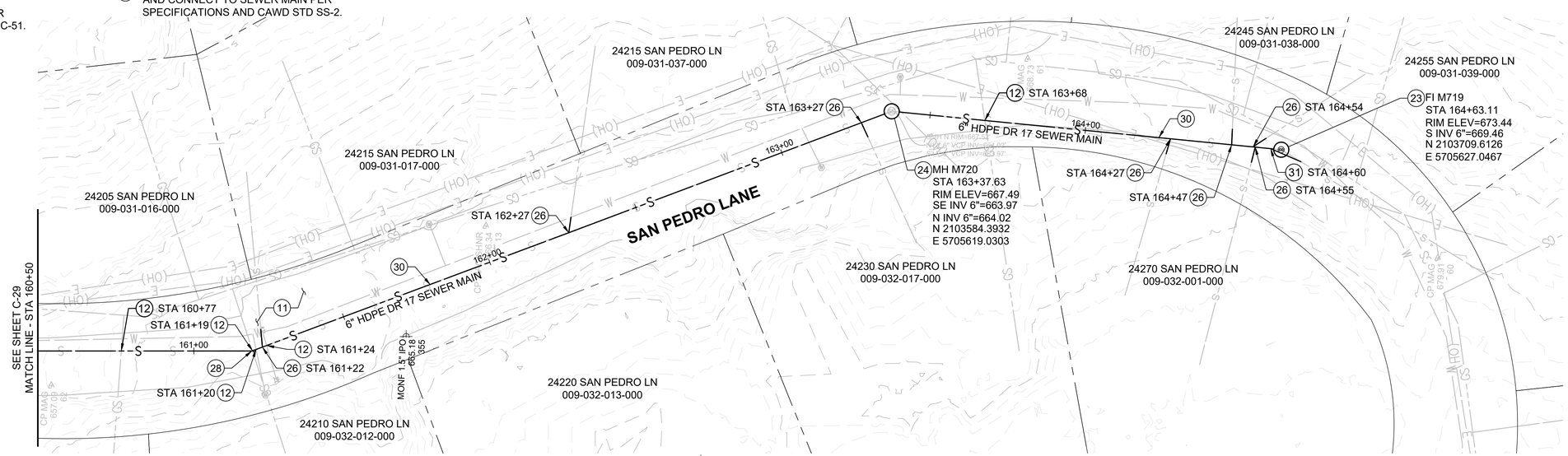
(30) INSTALL NEW 6-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

(31) EXISTING LATERAL CONNECTED TO THE BACK OF CLEANOUT. REROUTE LATERAL TO STATION SHOWN AND CONNECT TO SEWER MAIN PER SPECIFICATIONS AND CAWD STD SS-2.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.

DISTRICT TO CONFIRM VERTICAL ALIGNMENT. CCTV SHOWS NO VERTICAL BENDS TO ACCOUNT FOR VERTICAL CHANGE IN GROUND SURFACE.



20' 0' 20'

HORIZ: 1"=20'
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C94046
Exp. 9-30-2026
CIVIL
STATE OF CALIFORNIA

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SINCE 1908

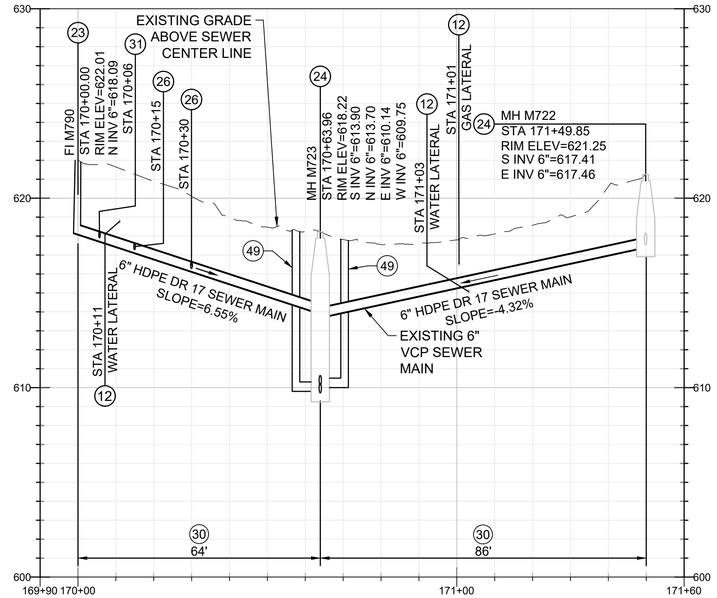
CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

SAN PEDRO LANE SEWER PLAN AND PROFILE STA 160+50 TO 165+00

PROJECT NUMBER
CMAWD.21041
DRAWING NUMBER
C-30
SHEET NUMBER
37 OF **61**

C:\Bcs\Projects\CMAWD Carmel Area WW\CMAWD.21041 Pescadero Sewer\2 Eng\CADD Sheets\Sewer PP\30 To PP\35.dwg
Mon 23 Feb 26 11:40:52 AM by: jordyn.arreola

DISCUSS LATERAL TIED INTO BACK OF FI M790.



GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.

CONSTRUCTION NOTES

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(12) PROTECT IN PLACE EXISTING UTILITY.

(23) REHABILITATE OR REPLACE EXISTING CLEANOUT PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

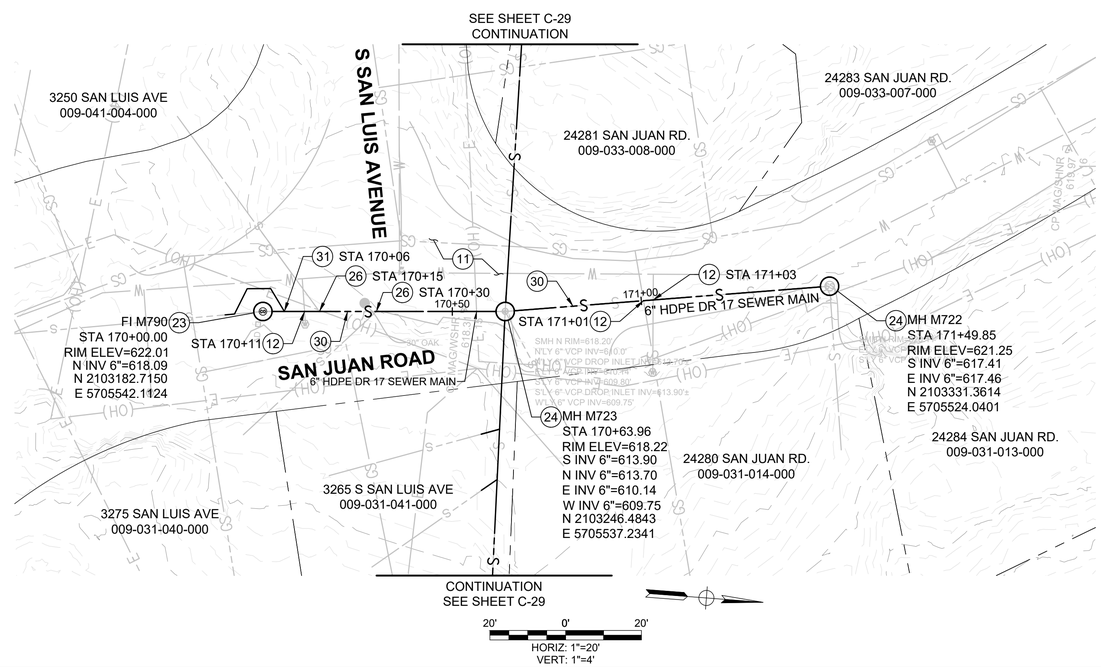
(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

(26) RE-ESTABLISH EXISTING LATERALS PER SPECIFICATIONS AND DETAIL 2, SHEET C-51.

(30) INSTALL NEW 6-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

(31) EXISTING LATERAL CONNECTED TO THE BACK OF CLEANOUT. REROUTE LATERAL TO STATION SHOWN AND CONNECT TO SEWER MAIN PER SPECIFICATIONS AND CAWD STD SS-2.

(49) INSTALL DROP STRUCTURE CLEANOUT PER DETAIL 4, SHEET C-51



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DRAWN: KD
CHECKED: NEP

JORDYN A. ARREOLA
PRINCIPAL ENGINEER
R.C.E. 94046 EXP. 9 - 30 - 2026
DATE

REGISTERED PROFESSIONAL ENGINEER JORDYN A. ARREOLA C94046 Exp. 9-30-2026 CIVIL STATE OF CALIFORNIA

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SCALE: AS NOTED

CARMEL AREA WASTEWATER DISTRICT · SINCE 1908 ·

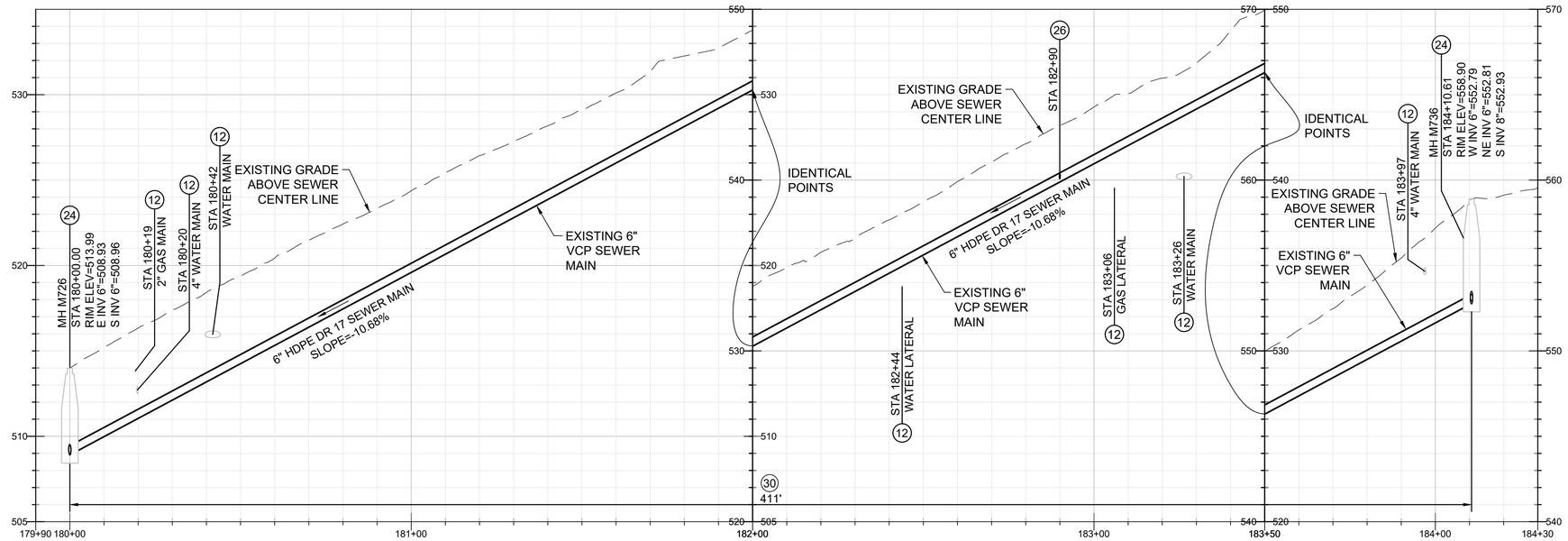
CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

SAN JUAN ROAD SEWER PLAN AND PROFILE STA 170+00 TO 171+50

PROJECT NUMBER **CMAWD.21041**
DRAWING NUMBER **C-31**
SHEET NUMBER **38** OF **61**

Mon 03 Feb,26 06:41:19 PM by: Jordyn Arreola C:\Bcs\Projects\CMAWD\Carmel Area WW\CMAWD.21041 Pescadero Sewer\2 Eng\CAD\2 Sheets\Sewer PP-00 To PP-06.dwg

EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE. NOTE POTENTIAL CONFLICT WITH WATER MAIN.



CONSTRUCTION NOTES

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(12) PROTECT IN PLACE EXISTING UTILITY.

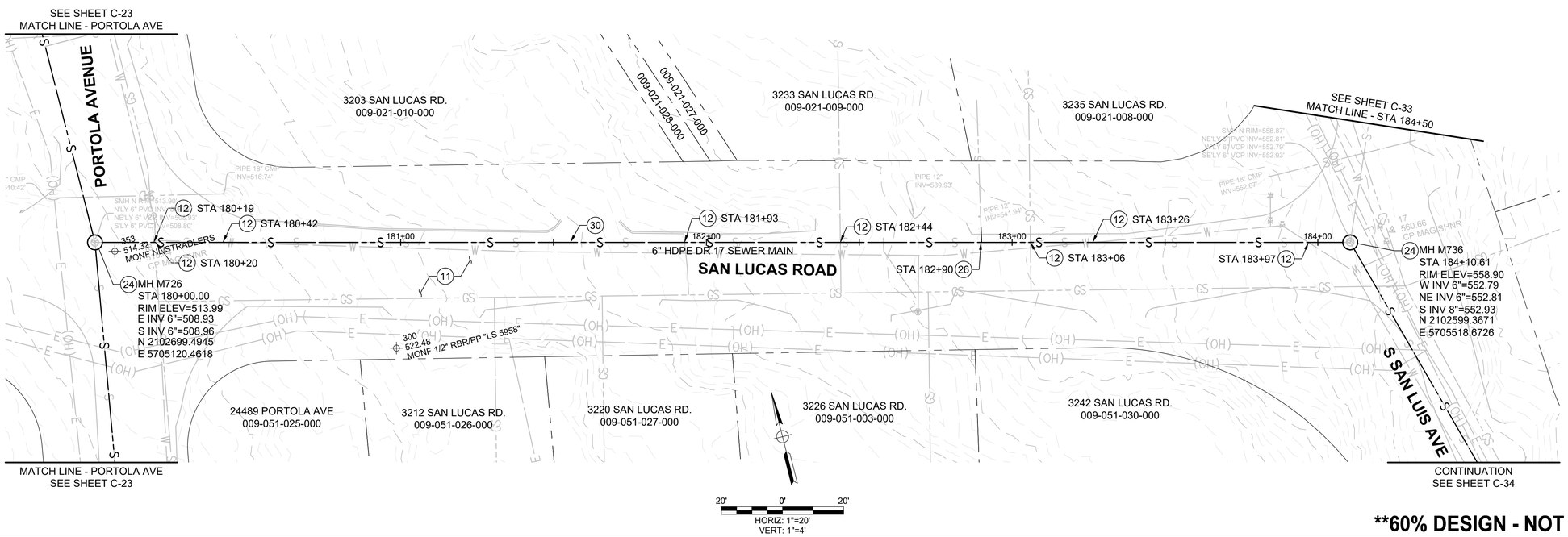
(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

(26) RE-ESTABLISH EXISTING LATERALS PER SPECIFICATIONS AND DETAIL 2, SHEET C-51.

(30) INSTALL NEW 6-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.



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R.C.E. 94046 EXP. 9 - 30 - 2026

DATE

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CARMEL AREA WASTEWATER DISTRICT · SINCE 1908 ·

CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

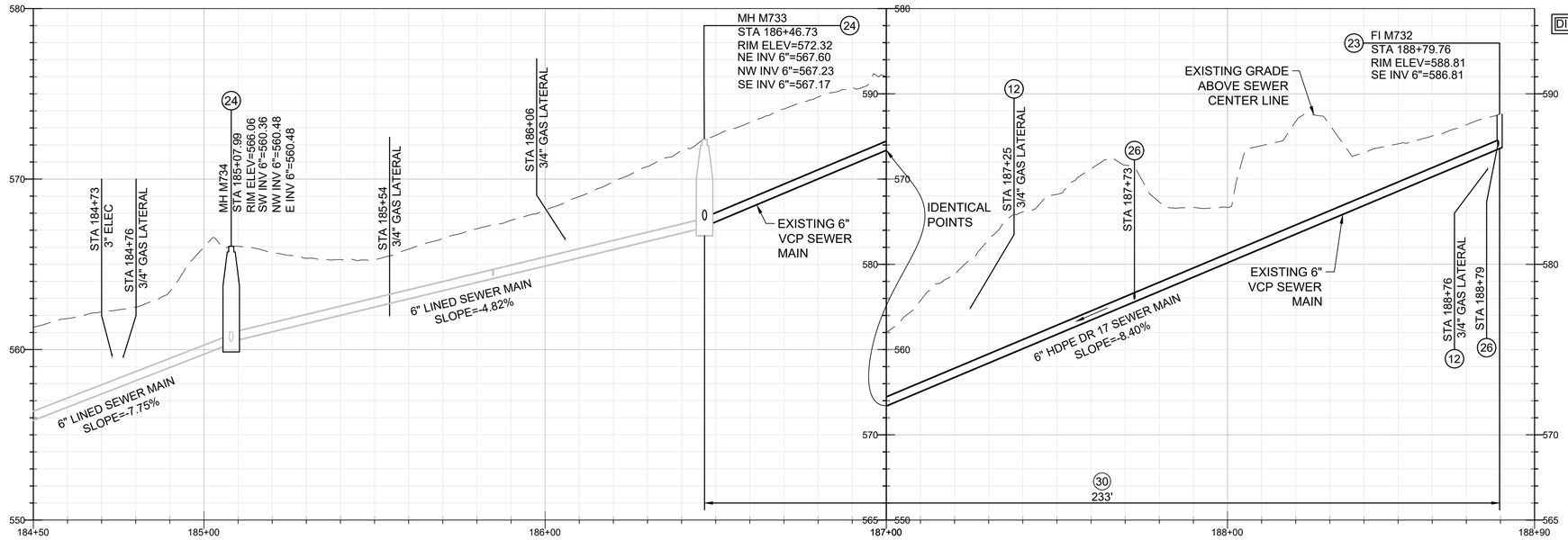
SAN LUCAS ROAD SEWER PLAN AND PROFILE STA 180+00 TO 184+30

PROJECT NUMBER
CMAWD.21041

DRAWING NUMBER
C-32

SHEET NUMBER
39 OF **61**

Mon 03 Feb,26 06:41:19 PM by: Jordyn Arreola C:\Bcs\Projects\CMAWD\Carmel Area WW\CMAWD.21041 Pescadero Sewer\2 Eng\CAD\2 Sheets\Sewer PP\C-32 to PP\06.dwg



DISTRICT TO CONFIRM DEPTH OF FI M732.

DISCUSS ALIGNMENT WITH DISTRICT BETWEEN FI M732 AND MH M733.

CONSTRUCTION NOTES

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(12) PROTECT IN PLACE EXISTING UTILITY.

(19) PROVIDE 5-FEET OF PVC SDR 26 TO CONNECT TO EXISTING 8-INCH VCP PER DETAIL 2, SHEET C-51.

(20) RECONNECT SEWER PER SPECIFICATIONS AND DETAIL 5, SHEET C-51.

(23) REHABILITATE OR REPLACE EXISTING CLEANOUT PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

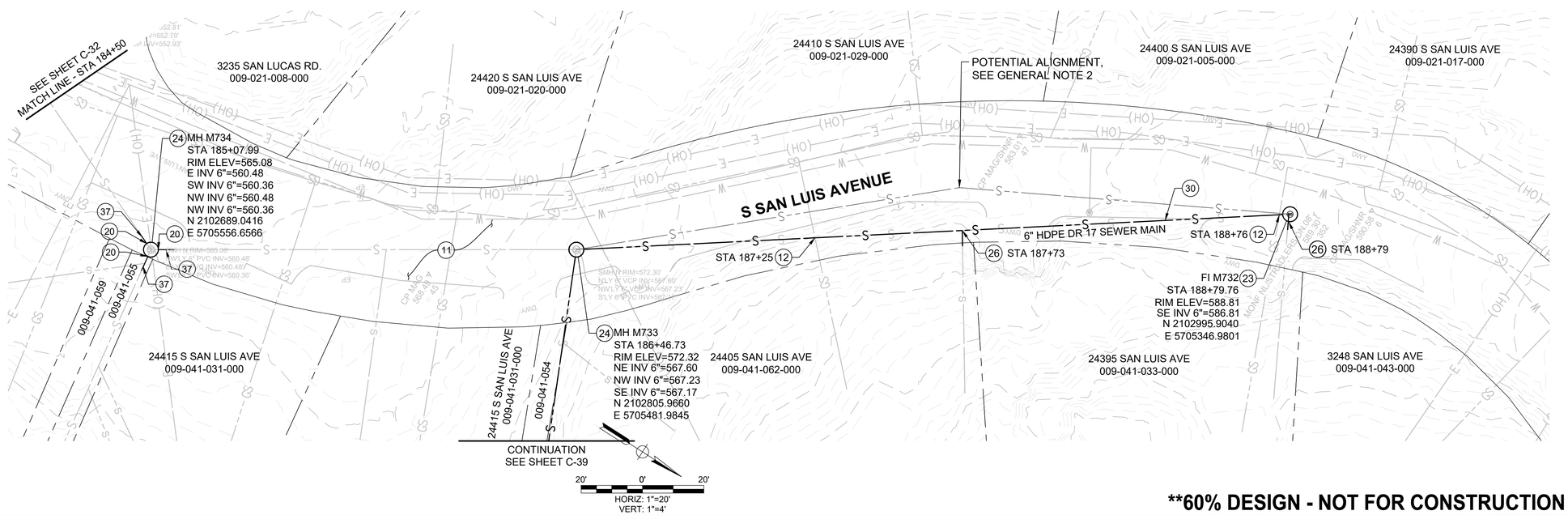
(26) RE-ESTABLISH EXISTING LATERALS PER SPECIFICATIONS AND DETAIL 2, SHEET C-51.

(30) INSTALL NEW 6-INCH HDPE DR 17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

(37) PROVIDE 5-FEET OF PVC SDR 26 TO CONNECT TO EXISTING 6-INCH VCP PER DETAIL 2, SHEET C-52.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.
2. POTENTIAL ALIGNMENT FROM CCTV DATA.



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C94046
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CIVIL
STATE OF CALIFORNIA

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SINCE 1908

CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

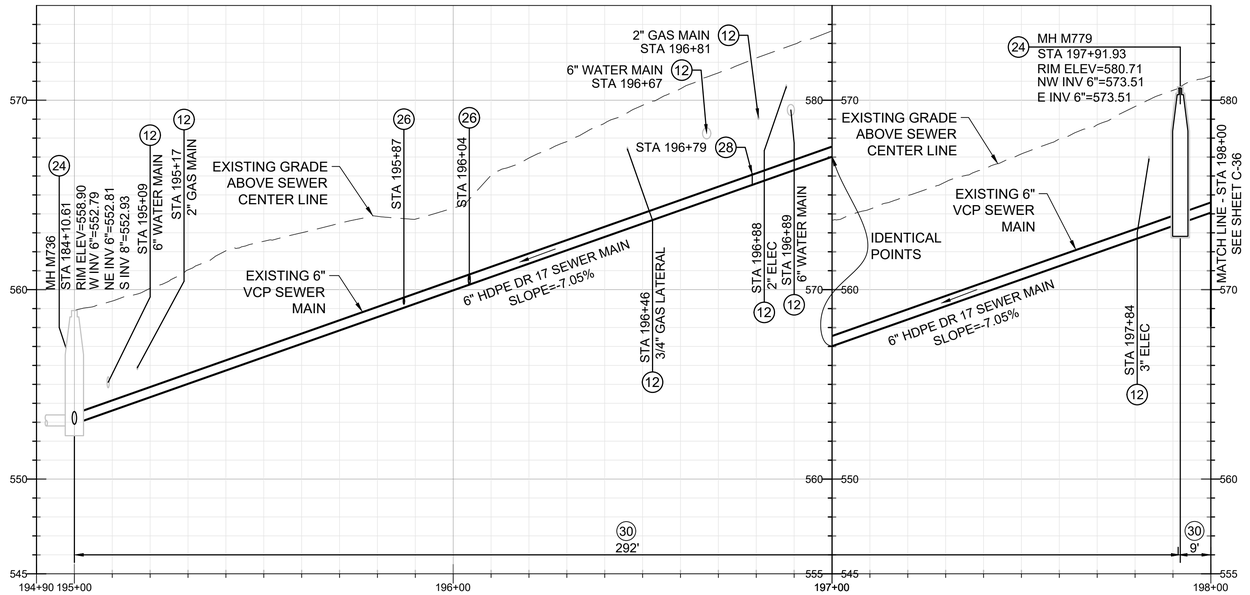
SAN LUIS AVENUE SEWER PLAN AND PROFILE STA 186+30 TO 189+00

PROJECT NUMBER
CMAWD.21041

DRAWING NUMBER
C-33

SHEET NUMBER
40 OF **61**

C:\Bsd\Projects\CMAWD Carmel Area WWD\CMAWD.21041 Pescadero Sewer\2 Eng\CADD\2 Sheets\Sewer PP\40 To PP-57.dwg
Mon 23-Feb-26 06:51:20 PM by: Jordyn Arreola



CONSTRUCTION NOTES

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(12) PROTECT IN PLACE EXISTING UTILITY.

(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

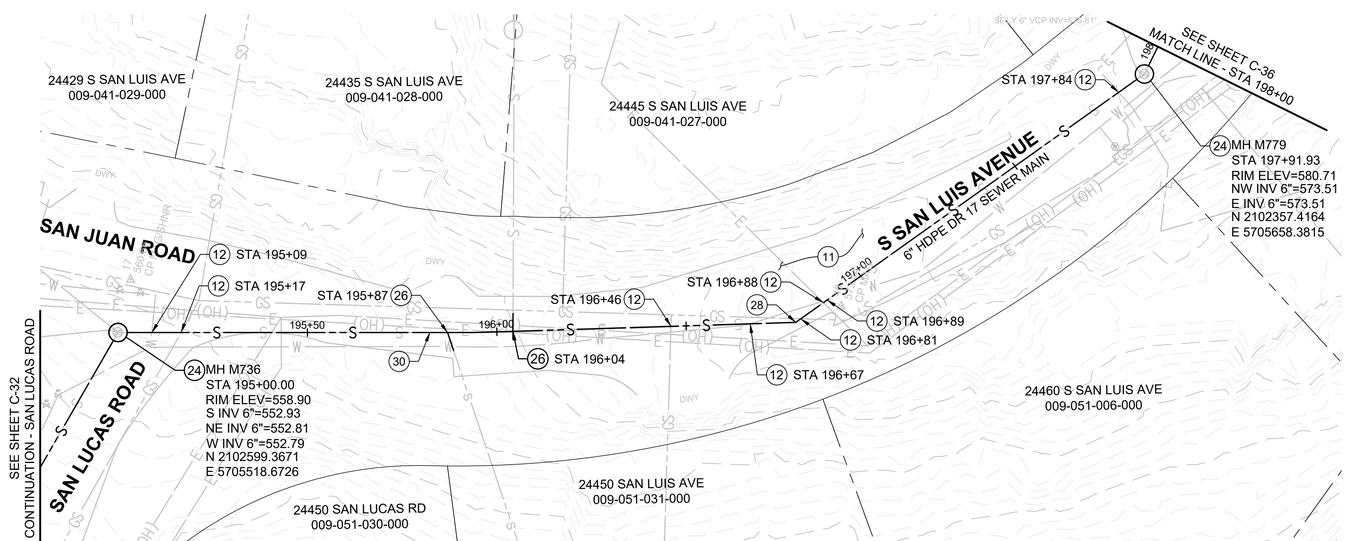
(26) RE-ESTABLISH EXISTING LATERALS PER SPECIFICATIONS AND DETAIL 2, SHEET C-51.

(28) REMOVE EXISTING 6" VCP BEND AND REPLACE WITH 6" PVC LONG RADIUS SWEEP ELBOW TO MATCH EXISTING ANGLE BEFORE LINING PIPE.

(30) INSTALL NEW 6-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.



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CHECKED: NEP

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R.C.E. 94046 EXP. 9 - 30 - 2026
DATE

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C94046
Exp. 9-30-2026
CIVIL
STATE OF CALIFORNIA

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CARMEL AREA WASTEWATER DISTRICT
SINCE 1908

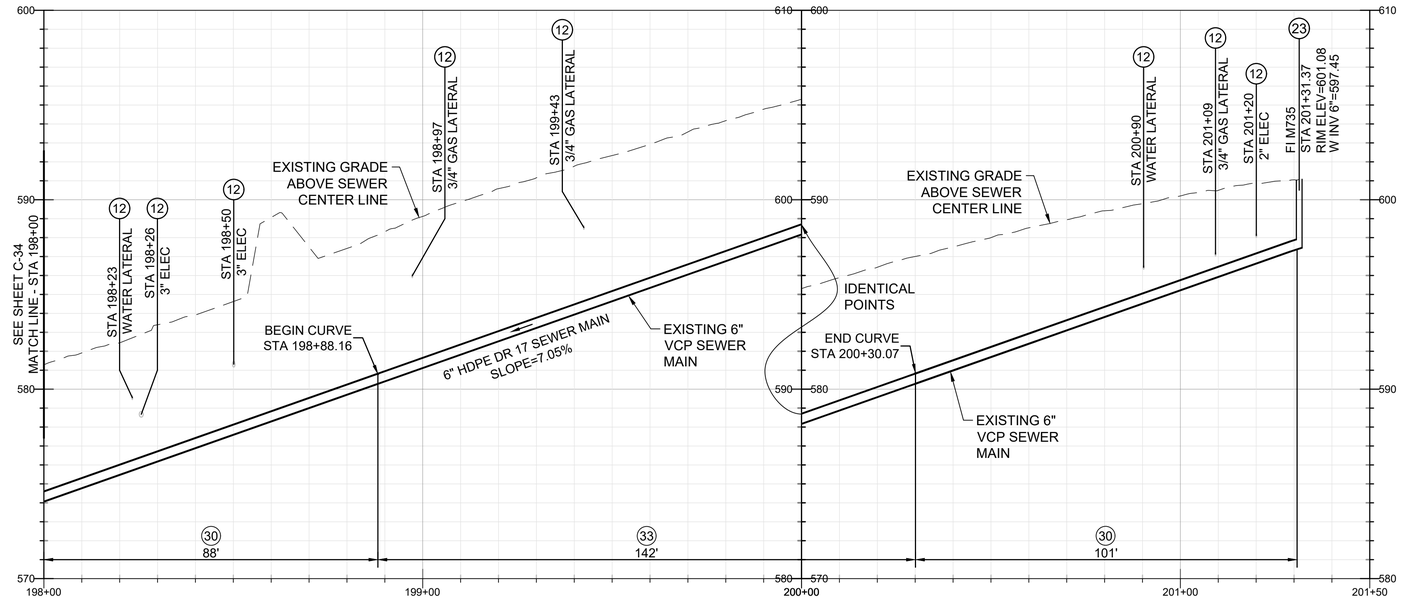
CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

SAN LUIS AVENUE SEWER PLAN AND PROFILE STA 195+00 TO 198+00

PROJECT NUMBER
CMAWD.21041
DRAWING NUMBER
C-34
SHEET NUMBER
41 OF **61**

C:\Bsd\Projects\Carmel Area Wastewater\21041 Pescadero Sewer\Eng\CADD\Sheets\Sewer PP\36 To PP\37.dwg
Fri 3/7/26,26 04:40:29 PM by: Owen Sullivan

DISCUSS LATERALS ON THIS SEGMENT WITH DISTRICT. THE CCTV IS INCOMPLETE AND COULD NOT GET PAST BEND IN MAIN.



CONSTRUCTION NOTES

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(12) PROTECT IN PLACE EXISTING UTILITY.

(15) REMOVE INTERFERING PORTIONS OF EXISTING SEWER PIPE. ABANDON CUT END OF EXISTING SEWER MAIN PER CAWD STD SS-26. SEE SPECIFICATIONS FOR BYPASSING REQUIREMENTS.

(23) REHABILITATE OR REPLACE EXISTING CLEANOUT PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

(30) INSTALL NEW 6-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

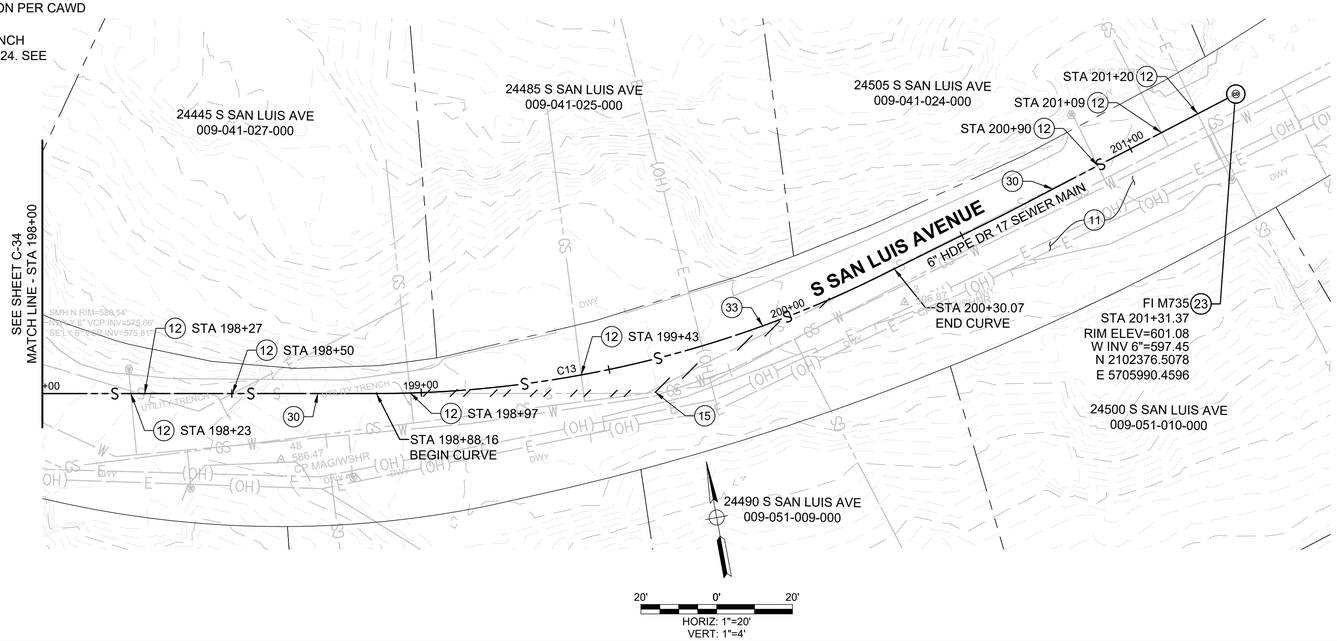
(33) INSTALL NEW 6-INCH PVC SDR26 SEWER MAIN BY OPEN TRENCH CONSTRUCTION. TRENCH AND BACKFILL PER CAWD STD SS-24. SEE SPECIFICATIONS FOR BYPASSING REQUIREMENTS.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.

Curve Table

Curve #	Radius	Length	Delta (Δ)	Chord Direction	Start Point	End Point	Start Northing	Start Easting	End Northing	End Easting
C13	300.00'	141.91'	27.10°	N86° 55' 24.77"E	198+88.16	200+30.07	2102339.9621	5705753.0178	2102347.5075	5705893.4072



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CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

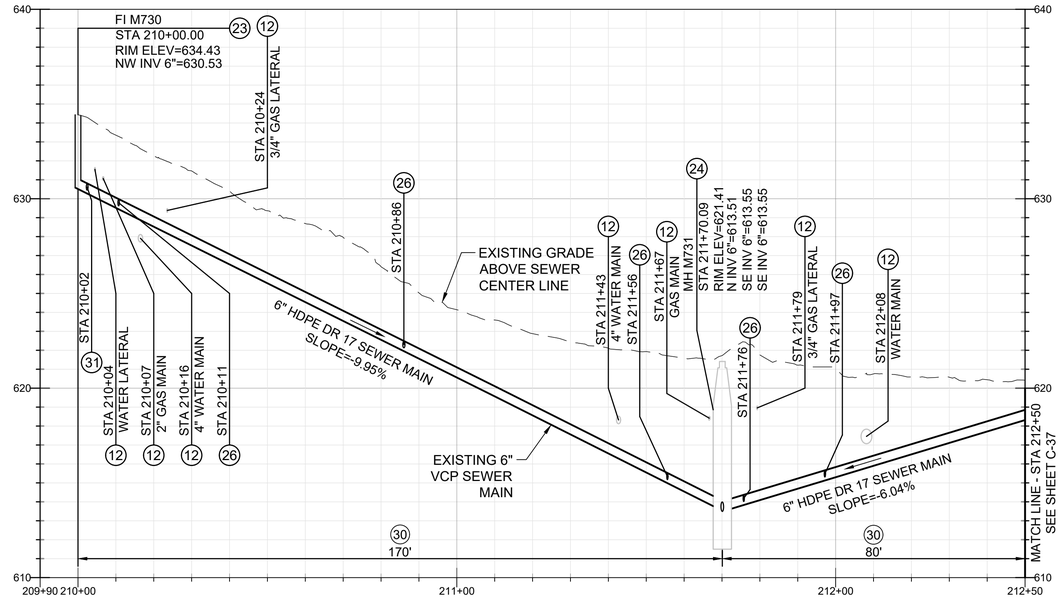
SAN LUIS AVENUE SEWER PLAN AND PROFILE STA 198+00 TO 201+50

PROJECT NUMBER
CMAWD.21041

DRAWING NUMBER
C-35

SHEET NUMBER
42 OF **61**

C:\BuildProjects\Armed Carmel Area WwComment 210041 Pescadero Sewer\2 Eng\CAD\2 Sheets\Sewer PP\M-TO PR\07.dwg
Mon 23 Feb 26 12:23:20 PM by: Jonathan Nass



CONSTRUCTION NOTES

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(12) PROTECT IN PLACE EXISTING UTILITY.

(23) REHABILITATE OR REPLACE EXISTING CLEANOUT PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

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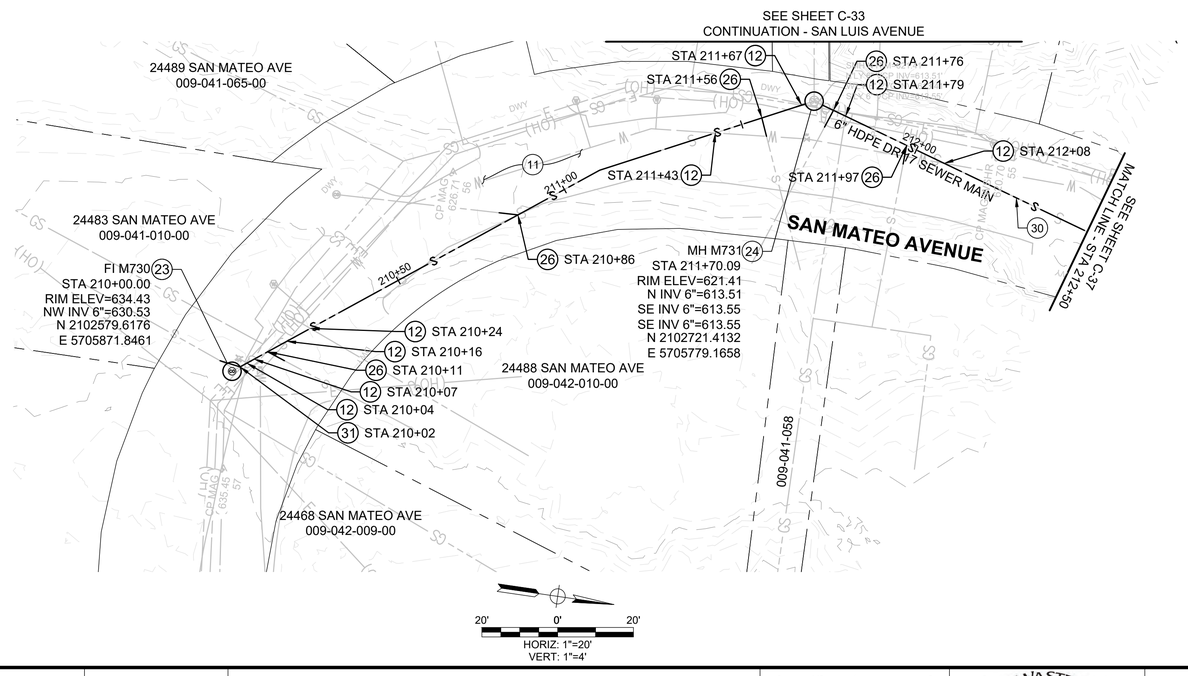
(26) RE-ESTABLISH EXISTING LATERALS PER SPECIFICATIONS AND DETAIL 2, SHEET C-51.

(30) INSTALL NEW 6-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

(31) EXISTING LATERAL CONNECTED TO THE BACK OF CLEANOUT. REROUTE LATERAL TO STATION SHOWN AND CONNECT TO SEWER MAIN PER SPECIFICATIONS AND CAWD STD SS-2.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.



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R.C.E. 94046 EXP. 9 - 30 - 2026
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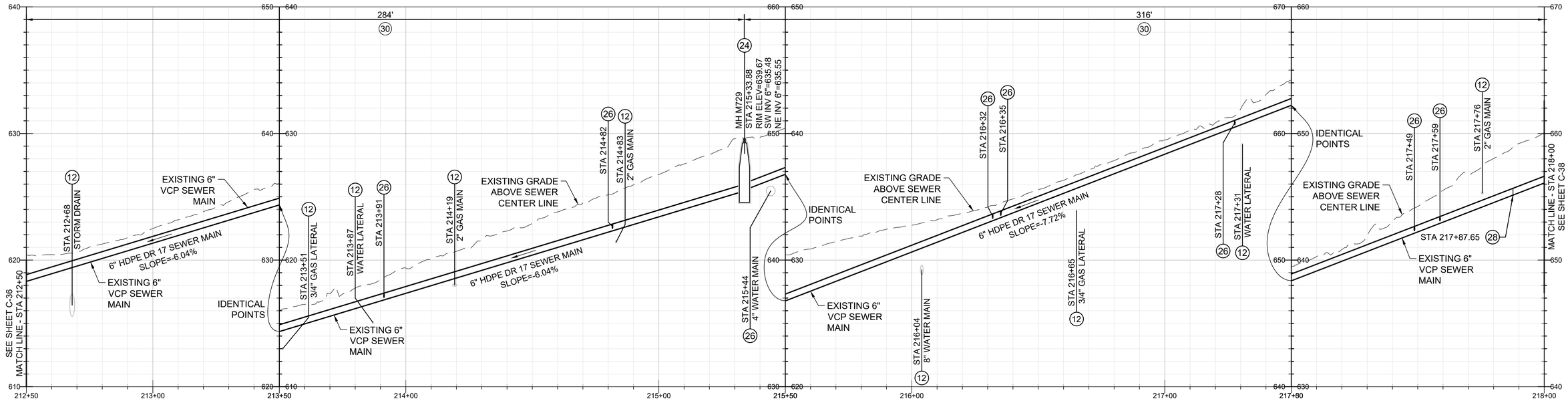
CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

SAN MATEO AVENUE SEWER PLAN AND PROFILE STA 210+00 TO 212+50

PROJECT NUMBER
CMAWD.21041
DRAWING NUMBER
C-36
SHEET NUMBER
43 OF **61**

C:\Bim\Projects\mnsengineers\Carmel Area Wastewater\21041 Pescadero Sewer\2 Eng\CADD Sheets\Added Sewer PP.dwg
Mon 23-Feb-26 11:22:41 AM by: Owen Sullivan



CONSTRUCTION NOTES

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(12) PROTECT IN PLACE EXISTING UTILITY.

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(26) RE-ESTABLISH EXISTING LATERALS PER SPECIFICATIONS AND DETAIL 2, SHEET C-51.

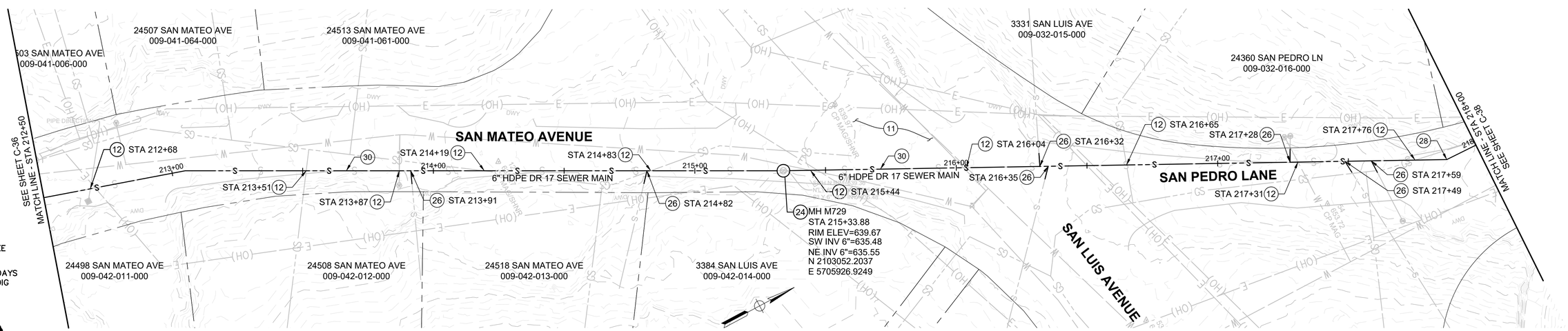
(28) REMOVE EXISTING 6" VCP BEND AND REPLACE WITH 6" PVC LONG RADIUS SWEEP ELBOW TO MATCH EXISTING ANGLE BEFORE LINING PIPE.

(30) INSTALL NEW 6-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.

DISTRICT TO CONFIRM VERTICAL ALIGNMENT. CCTV SHOWS NO VERTICAL BENDS WHERE SEWER IS SHALLOW.



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CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

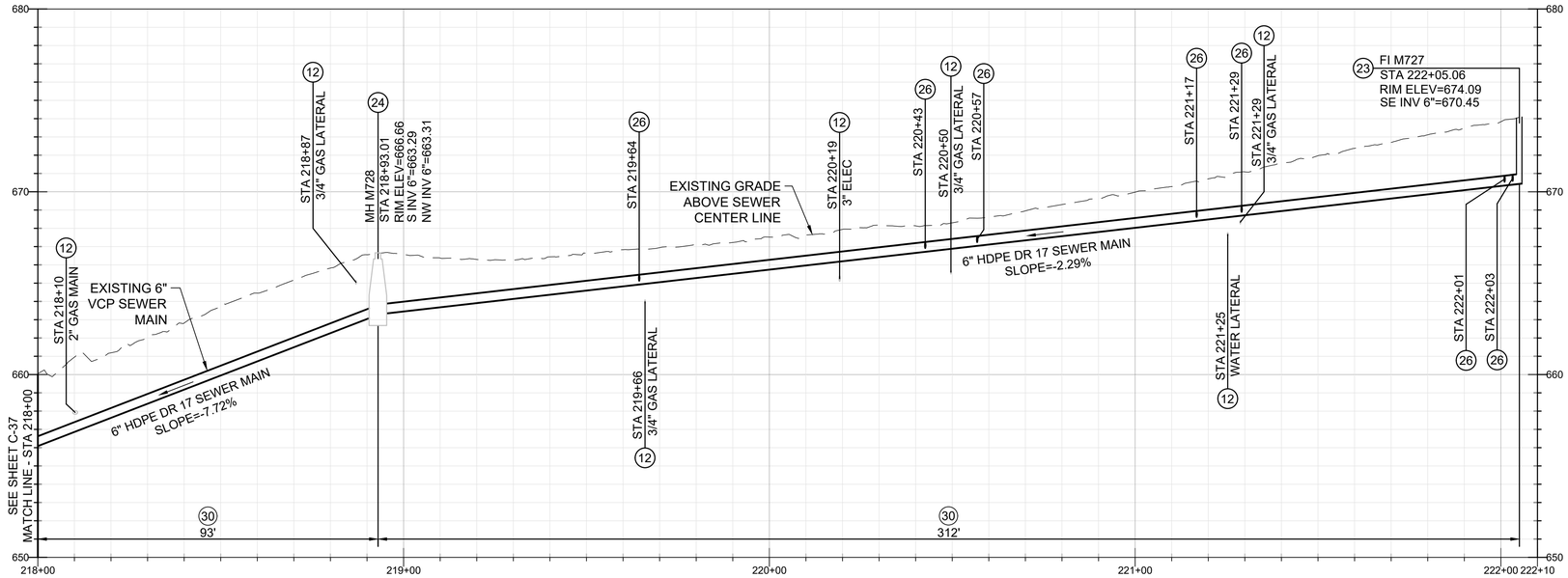
SAN MATEO AVENUE SEWER PLAN AND PROFILE STA 212+50 TO 218+00

PROJECT NUMBER
CMAWD.21041

DRAWING NUMBER
C-37

SHEET NUMBER
44 OF 61

C:\Bim\Projects\Carmel Area Wwd\Carmel\21041 Pescadero Sewer\Cad\Dwg\Sheets\Added Sewer PP.dwg
Fri 3:57 Feb 28 05:10:18 PM by: Owen Sullivan



DISTRICT TO CONFIRM VERTICAL ALIGNMENT. CCTV SHOWS NO VERTICAL BENDS WHERE SEWER IS SHALLOW.

CONSTRUCTION NOTES

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(30) INSTALL NEW 6-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

GENERAL NOTES

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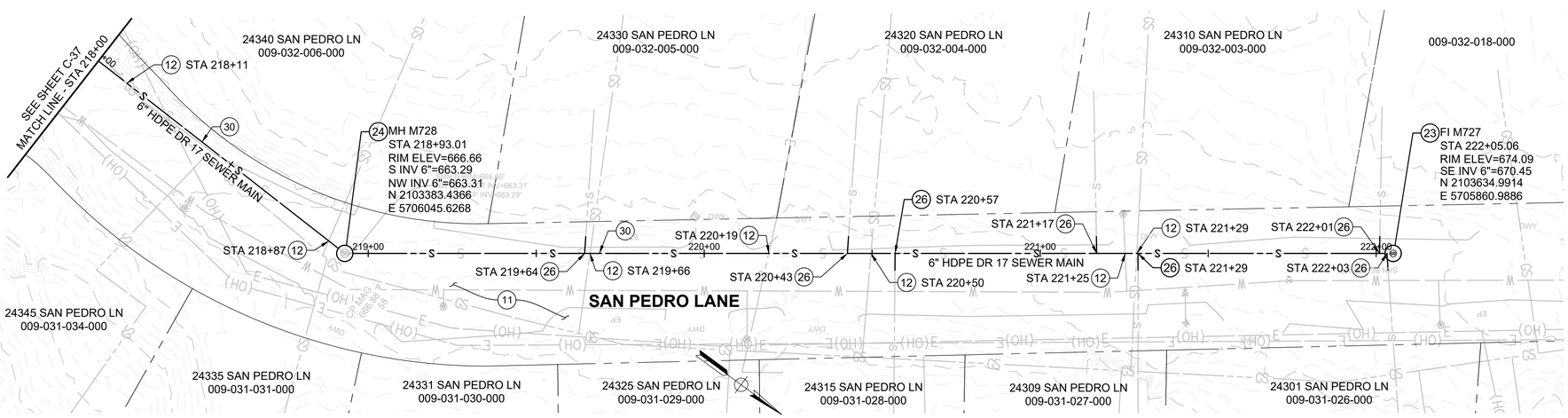

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20' 0' 20'
HORIZ: 1"=20'
VERT: 1"=4'

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DRAWN: KD
CHECKED: NEP

JORDYN A. ARREOLA
PRINCIPAL ENGINEER
R.C.E. 94046 EXP. 9 - 30 - 2026
DATE

REGISTERED PROFESSIONAL ENGINEER
JORDYN A. ARREOLA
C94046
Exp. 9-30-2026
CIVIL
STATE OF CALIFORNIA

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SCALE:
AS NOTED

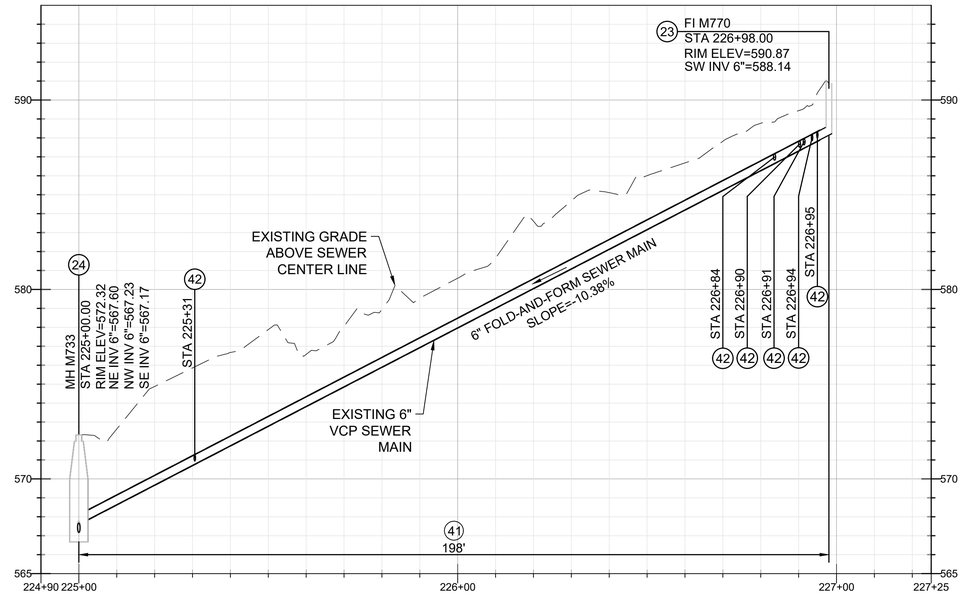
CARMEL AREA WASTEWATER DISTRICT · SINCE 1908 ·

CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

SAN PEDRO LANE SEWER PLAN AND PROFILE STA 218+00 TO 222+10

PROJECT NUMBER
CMAWD.21041
DRAWING NUMBER
C-38
SHEET NUMBER
45 OF **61**

Mar 23 Feb,26 11:07:41 AM by Owen Sullivan C:\Bur\Projects\Internal\Carmel Area Wastewater\21041 Pescadero Sewer\2 Eng\CADD2 Sheets\Added Sewer PP.dwg



CONSTRUCTION NOTES

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(23) REHABILITATE OR REPLACE EXISTING CLEANOUT PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

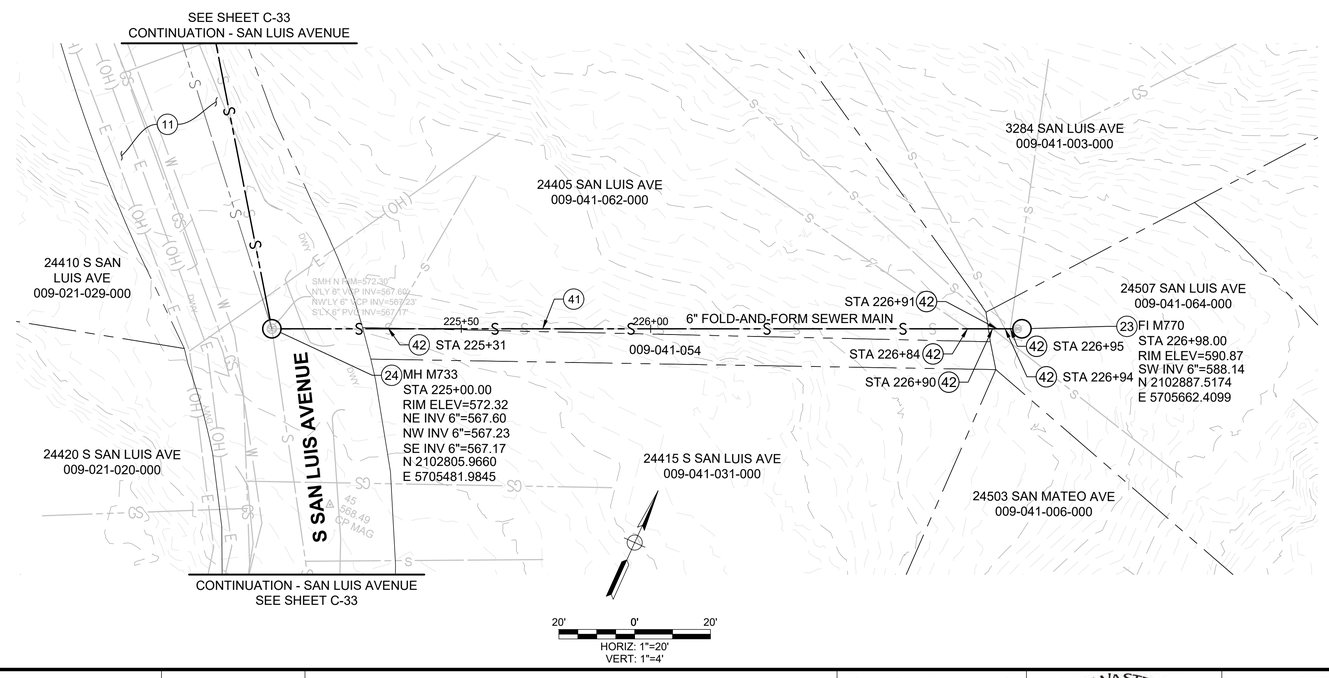
(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

(41) REHABILITATE EXISTING SANITARY SEWER BY FOLD-AND-FORM LINING PER SPECIFICATIONS.

(42) RE-ESTABLISH EXISTING LATERALS PER SPECIFICATIONS AND DETAIL 4, SHEET C-51.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.



20' 0' 20'
HORIZ: 1"=20'
VERT: 1"=4'

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PRINCIPAL ENGINEER
R.C.E. 94046 EXP. 9 - 30 - 2026
DATE

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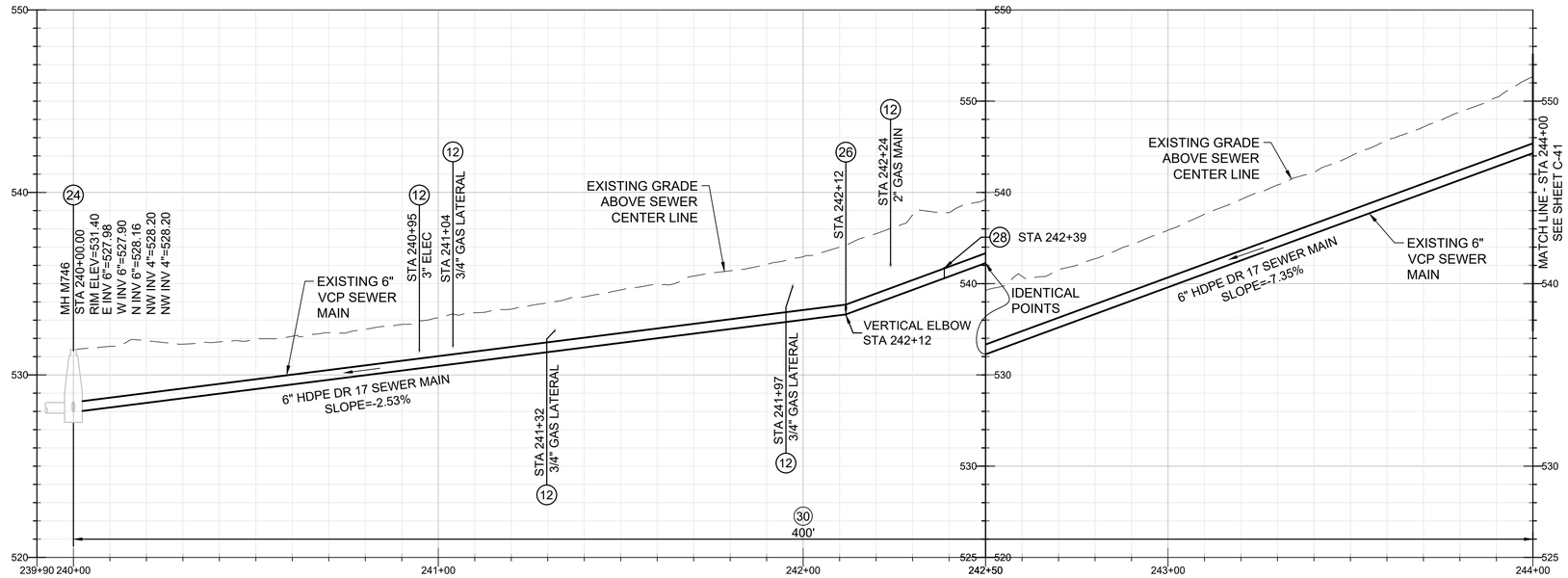
CARMEL AREA WASTEWATER DISTRICT · SINCE 1908 ·

CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

SAN LUIS AVENUE SEWER PLAN AND PROFILE STA 225+00 TO 227+00

PROJECT NUMBER
CMAWD.21041
DRAWING NUMBER
C-39
SHEET NUMBER
46 OF **61**

C:\Bim\Projects\mnsmed Carmel Area Wastewater\21041 Pescadero Sewer\2 Eng\CADD Sheets\Sewer PP\46 To PP\37.dwg
Fri 20 Feb 26 04:40:29 PM by: Owen Sullivan



CONSTRUCTION NOTES

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(12) PROTECT IN PLACE EXISTING UTILITY.

(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

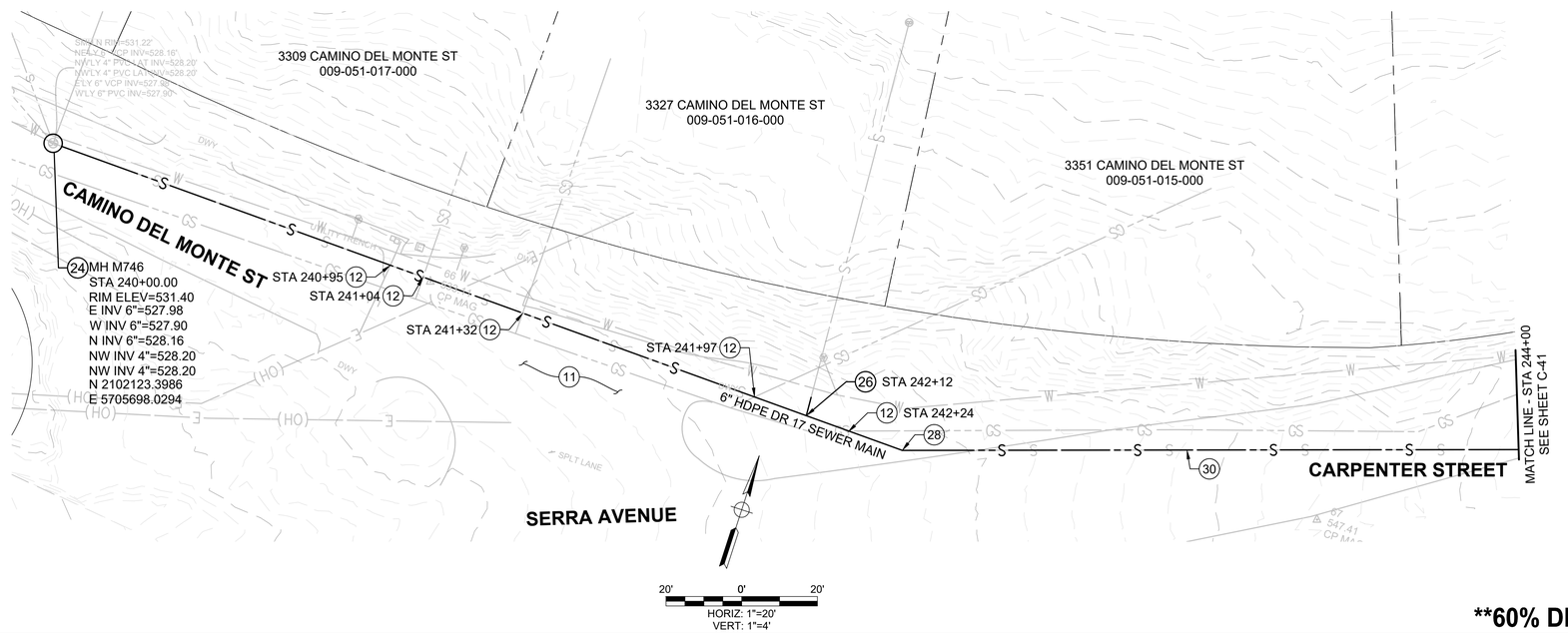
(26) RE-ESTABLISH EXISTING LATERALS PER SPECIFICATIONS AND DETAIL 2, SHEET C-51.

(28) REMOVE EXISTING 6" VCP BEND AND REPLACE WITH 6" PVC LONG RADIUS SWEEP ELBOW TO MATCH EXISTING ANGLE BEFORE LINING PIPE.

(30) INSTALL NEW 6-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.



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DATE

REGISTERED PROFESSIONAL ENGINEER
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C94046
Exp. 9-30-2026
CIVIL
STATE OF CALIFORNIA

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AS NOTED

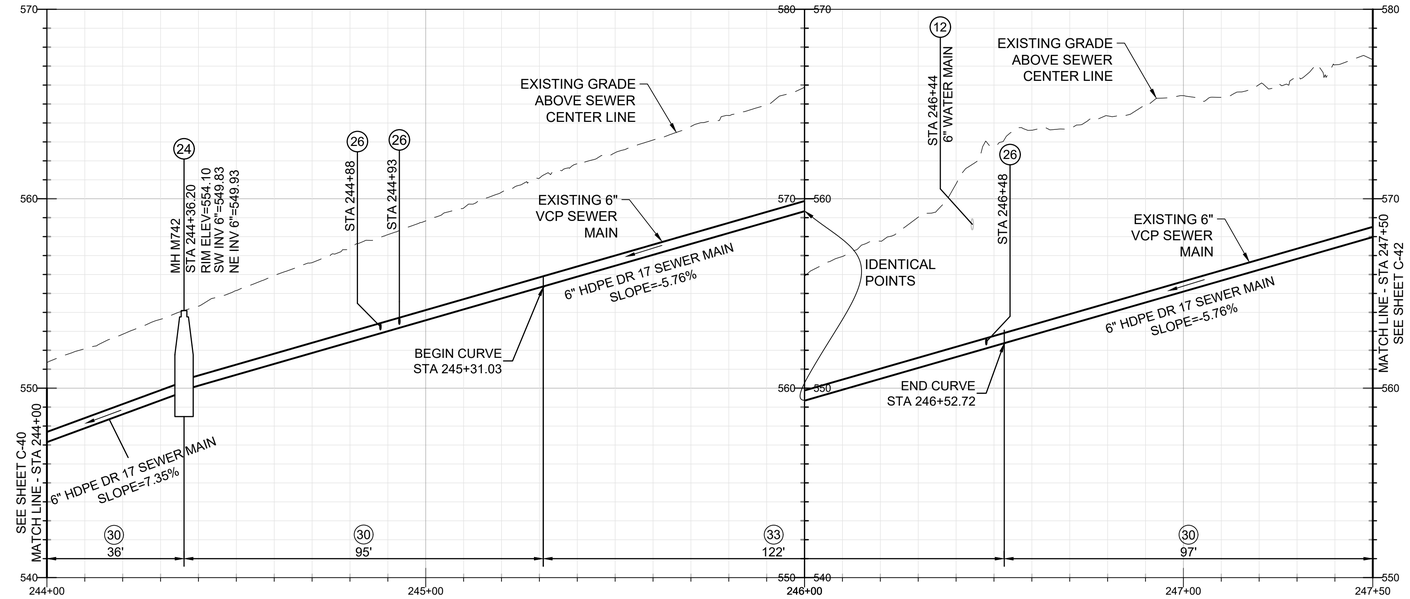
CARMEL AREA WASTEWATER DISTRICT · SINCE 1908 ·

CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

CAMINO DEL MONTE STREET SEWER PLAN AND PROFILE STA 240+00 TO 244+00

PROJECT NUMBER
CMAWD.21041
DRAWING NUMBER
C-40
SHEET NUMBER
47 OF **61**

Mon 23 Feb,26 10:52:57 AM by Owen Sullivan C:\Bcs\Projects\Internal\Carmel Area Wastewater\21041 Pescadero Sewer\2 Eng\CADD2 Sheets\Sewer PP - 6.dwg



CONSTRUCTION NOTES

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(12) PROTECT IN PLACE EXISTING UTILITY.

(15) REMOVE INTERFERING PORTIONS OF EXISTING SEWER PIPE. ABANDON CUT END OF EXISTING SEWER MAIN PER CAWD STD SS-26. SEE SPECIFICATIONS FOR BYPASSING REQUIREMENTS.

(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

(26) RE-ESTABLISH EXISTING LATERALS PER SPECIFICATIONS AND DETAIL 2, SHEET C-51.

(30) INSTALL NEW 6-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

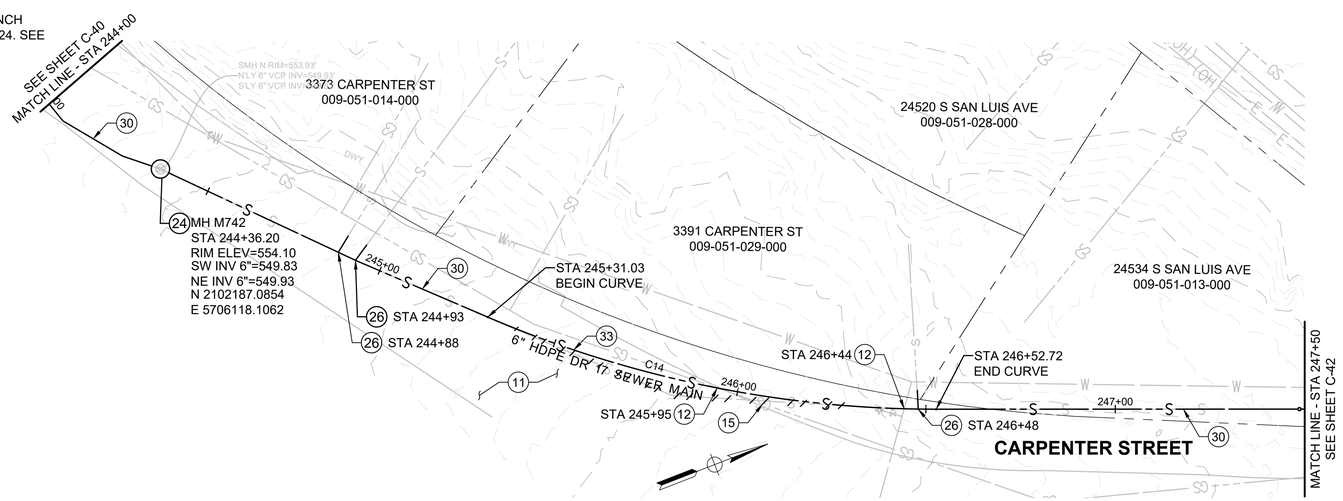
(33) INSTALL NEW 6-INCH PVC SDR26 SEWER MAIN BY OPEN TRENCH CONSTRUCTION. TRENCH AND BACKFILL PER CAWD STD SS-24. SEE SPECIFICATIONS FOR BYPASSING REQUIREMENTS.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.

Curve Table

Curve #	Radius	Length	Delta (Δ)	Chord Direction	Start Point	End Point	Start Northing	Start Easting	End Northing	End Easting
C14	300.00'	121.69'	23.24°	N32° 48' 49.37"E	245+31.03	246+52.72	2102253.4863	5706185.7919	2102355.0587	5706251.2852



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VERT: 1"=4'

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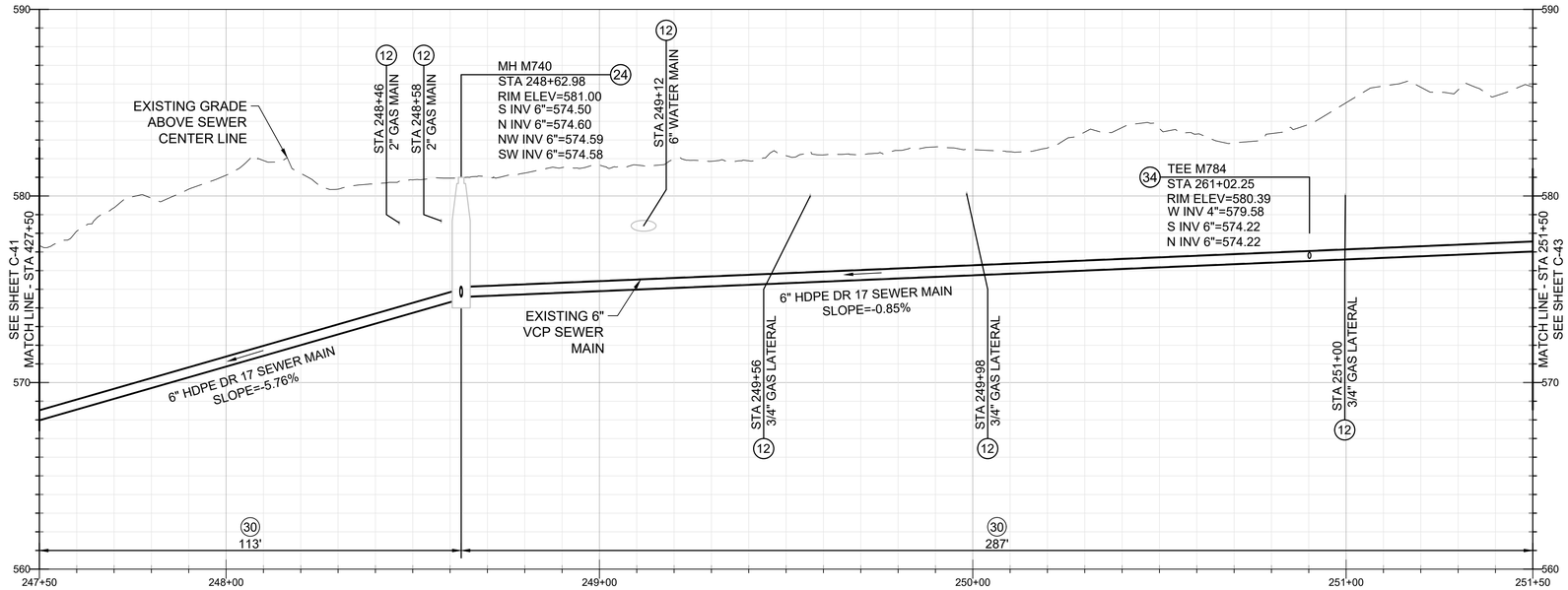
CARMEL AREA WASTEWATER DISTRICT • SINCE 1908 •

CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

CARPENTER STREET SEWER PLAN AND PROFILE STA 244+00 TO 247+50

PROJECT NUMBER
CMAWD.21041
DRAWING NUMBER
C-41
SHEET NUMBER
48 OF **61**

C:\Bcs\Projects\mnsed Carmel Area Wastewater\21041 Pescadero Sewer\2 Eng\CADD Sheets\Sewer PP - 6.dwg
Mon 23-Feb-26 10:24:48 AM by: Owen Sullivan



GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.

CALTRANS ENCROACHMENT PERMIT NOTES

1. AN ENCROACHMENT PERMIT FOR WORK WITHIN THE CALTRANS RIGHT OF WAY HAS BEEN OBTAINED FOR THE PROJECT AND IS INCLUDED IN THE SPECIFICATIONS
2. THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE ENCROACHMENT PERMIT AT ALL TIMES.

TRAFFIC CONTROL NOTES

1. CONTRACTOR MUST PROVIDE APPROPRIATE ADVANCED WARNING ON CABRILLO HIGHWAY PER THE CALIFORNIA MUTCD.
2. ALL TRAFFIC CONTROL SIGNS SHOULD BE COVERED OR REMOVED AT THE END OF EACH WORK DAY, NO SIGNS WILL BE POSTED DURING NON-WORKING HOURS.
3. CONTRACTOR SHALL COMPLY WITH THE PROVIDED TRAFFIC CONTROL PLANS, OR PROVIDE ALTERNATIVE TRAFFIC CONTROL PLANS FOR REVIEW AND APPROVAL.
4. PITS MUST BE PLATED WHEN THERE IS NO ACTIVE WORK BEING PERFORMED AND AT NIGHT.

CONSTRUCTION NOTES

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

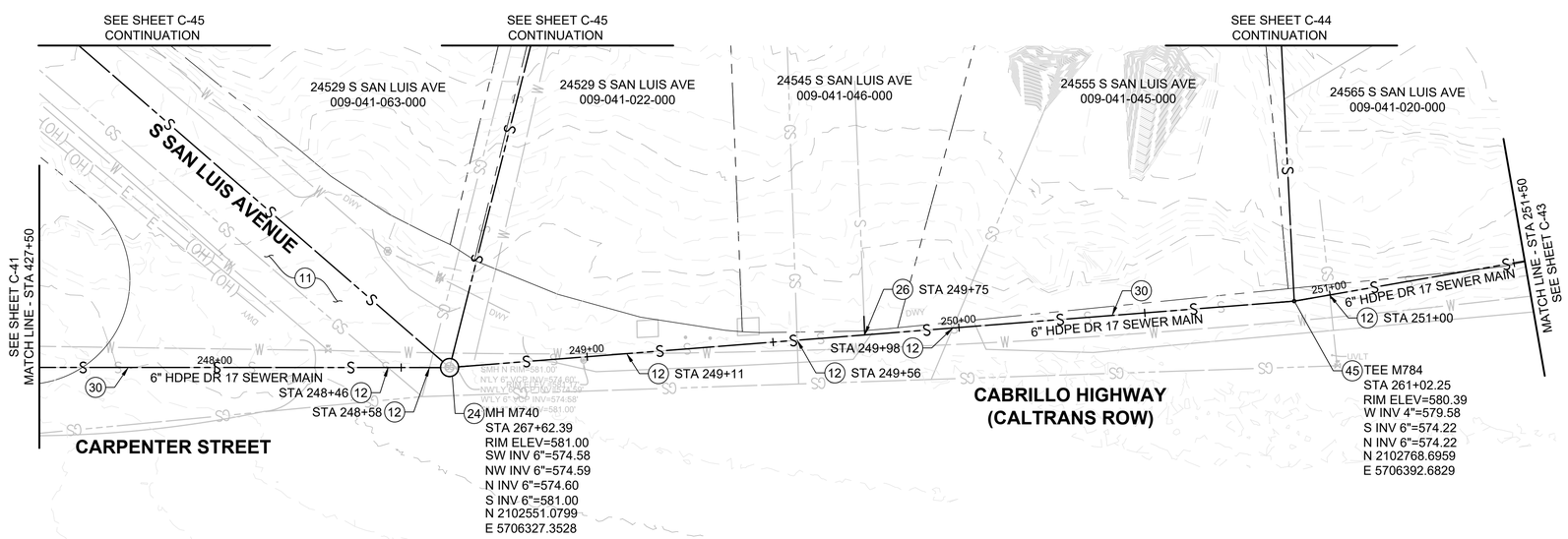
(12) PROTECT IN PLACE EXISTING UTILITY.

(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

(26) RE-ESTABLISH EXISTING LATERALS PER SPECIFICATIONS AND DETAIL 2, SHEET C-51.

(30) INSTALL NEW 6-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

(45) INSTALL NEW 4-INCH LATERAL AND REPLACE TEE WITH SADDLE.



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R.C.E. 94046 EXP. 9 - 30 - 2026

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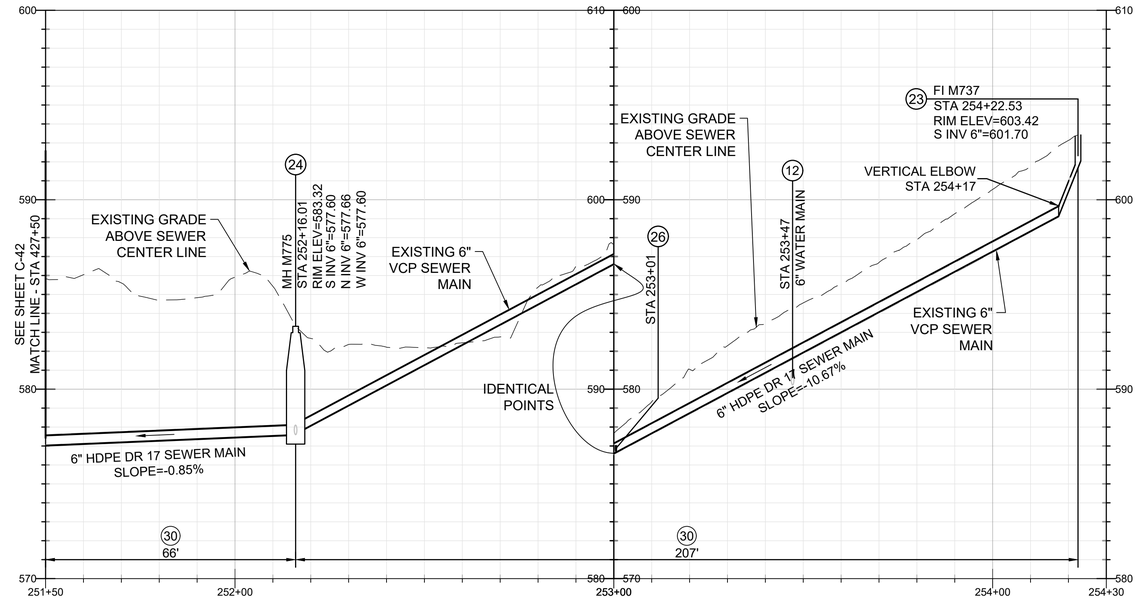
CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

CABRILLO HIGHWAY SEWER PLAN AND PROFILE STA 247+50 TO 251+50

PROJECT NUMBER
CMAWD.21041
DRAWING NUMBER
C-42
SHEET NUMBER
49 OF **61**

C:\Bluz\Projects\Active\ Carmel Area Wastewater\21041 Pescadero Sewer\2 Eng\CADD\Sheets\Sewer PP - 0.dwg
Mon 03 Feb,26 05:55:14 AM by Owen Sullivan



DISCUSS WITH DISTRICT ABOUT APPROACH AND PRIVATE LINE FROM CCTV.

DISTRICT TO CONFIRM VERTICAL ALIGNMENT. CCTV SHOWS NO VERTICAL BENDS WHERE SEWER IS SHALLOW.

CONSTRUCTION NOTES

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(12) PROTECT IN PLACE EXISTING UTILITY.

(19) PROVIDE 5-FEET OF PVC SDR 26 TO CONNECT TO EXISTING 8-INCH VCP PER DETAIL 2, SHEET C-51.

(23) REHABILITATE OR REPLACE EXISTING CLEANOUT PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

(26) RE-ESTABLISH EXISTING LATERALS PER SPECIFICATIONS AND DETAIL 2, SHEET C-51.

(30) INSTALL NEW 6-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

(37) PROVIDE 5-FEET OF PVC SDR 26 TO CONNECT TO EXISTING 6-INCH VCP PER DETAIL 2, SHEET C-52.

GENERAL NOTES

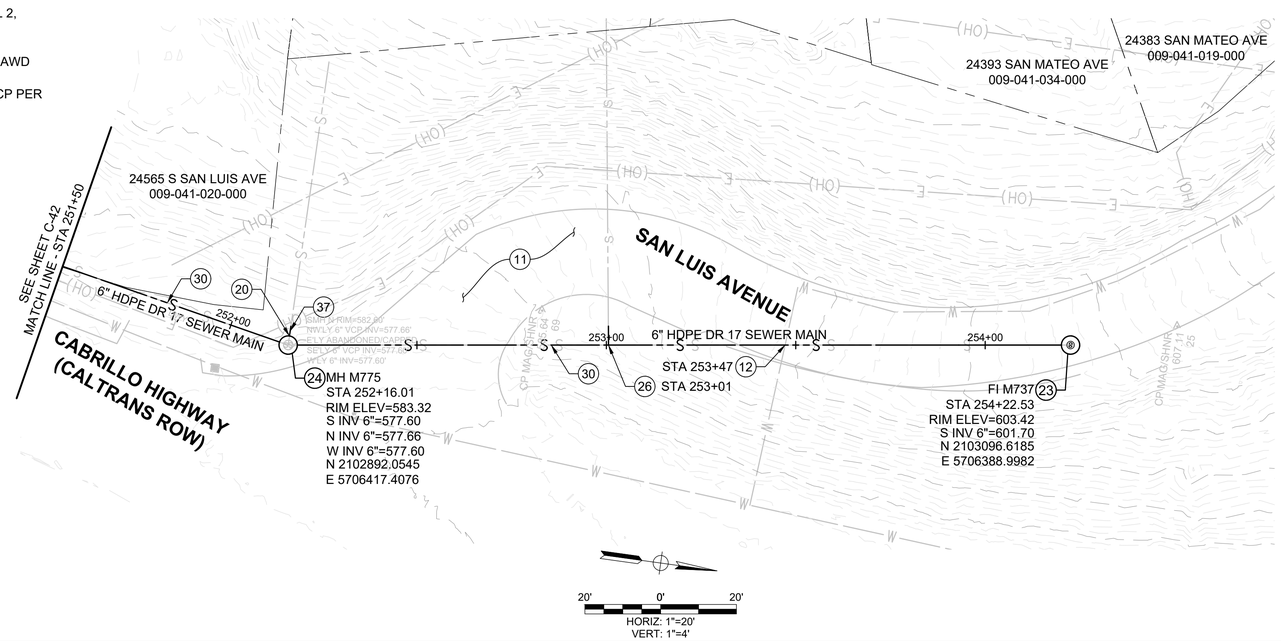
1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.

CALTRANS ENCROACHMENT PERMIT NOTES

1. AN ENCROACHMENT PERMIT FOR WORK WITHIN THE CALTRANS RIGHT OF WAY HAS BEEN OBTAINED FOR THE PROJECT AND IS INCLUDED IN THE SPECIFICATIONS
2. THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE ENCROACHMENT PERMIT AT ALL TIMES.

TRAFFIC CONTROL NOTES

1. CONTRACTOR MUST PROVIDE APPROPRIATE ADVANCED WARNING ON CABRILLO HIGHWAY PER THE CALIFORNIA MUTCD.
2. ALL TRAFFIC CONTROL SIGNS SHOULD BE COVERED OR REMOVED AT THE END OF EACH WORK DAY, NO SIGNS WILL BE POSTED DURING NON-WORKING HOURS.
3. CONTRACTOR SHALL COMPLY WITH THE PROVIDED TRAFFIC CONTROL PLANS, OR PROVIDE ALTERNATIVE TRAFFIC CONTROL PLANS FOR REVIEW AND APPROVAL.
4. PITS MUST BE PLATED WHEN THERE IS NO ACTIVE WORK BEING PERFORMED AND AT NIGHT.



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C94046
Exp. 9-30-2026
CIVIL
STATE OF CALIFORNIA

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CARMEL AREA WASTEWATER DISTRICT · SINCE 1908 ·

CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

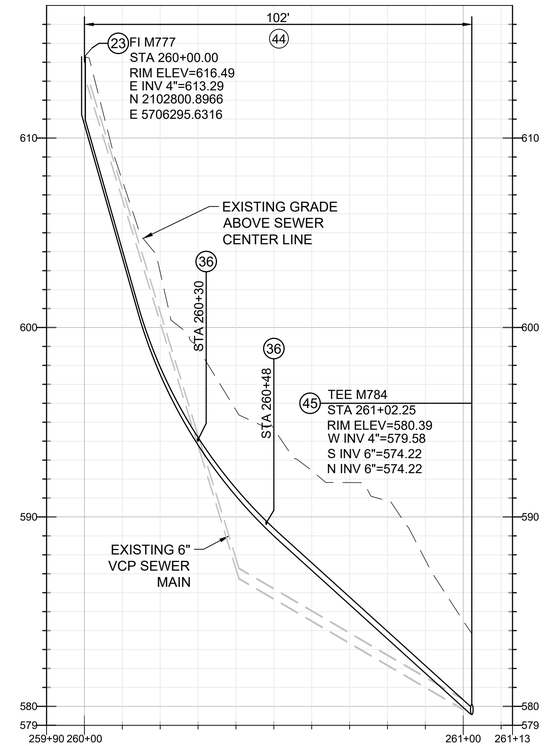
CABRILLO HIGHWAY SEWER PLAN AND PROFILE STA 251+50 TO 254+50

PROJECT NUMBER
CMAWD.21041

DRAWING NUMBER
C-43

SHEET NUMBER
50 OF **61**

Mon 03 Feb 26 06:57:56 PM by: Jordyn Arreola C:\Bcs\Projects\CMAWD\CMAWD.21041\Pescadero Sewer\2 Eng\CD\C2 Sheets\Sewer PP-1.dwg



CALTRANS ENCROACHMENT PERMIT NOTES

1. AN ENCROACHMENT PERMIT FOR WORK WITHIN THE CALTRANS RIGHT OF WAY HAS BEEN OBTAINED FOR THE PROJECT AND IS INCLUDED IN THE SPECIFICATIONS
2. THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE ENCROACHMENT PERMIT AT ALL TIMES.

TRAFFIC CONTROL NOTES

1. CONTRACTOR MUST PROVIDE APPROPRIATE ADVANCED WARNING ON CABRILLO HIGHWAY PER THE CALIFORNIA MUTCD.
2. ALL TRAFFIC CONTROL SIGNS SHOULD BE COVERED OR REMOVED AT THE END OF EACH WORK DAY, NO SIGNS WILL BE POSTED DURING NON-WORKING HOURS.
3. CONTRACTOR SHALL SHALL COMPLY WITH THE PROVIDED TRAFFIC CONTROL PLANS, OR PROVIDE ALTERNATIVE TRAFFIC CONTROL PLANS FOR REVIEW AND APPROVAL.
4. PITS MUST BE PLATED WHEN THERE IS NO ACTIVE WORK BEING PERFORMED AND AT NIGHT.

CONSTRUCTION NOTES

(6) RECONNECT EXISTING LATERALS PER SPECIFICATIONS AND CAWD STD PLANS SS-2 AND SS-3.

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

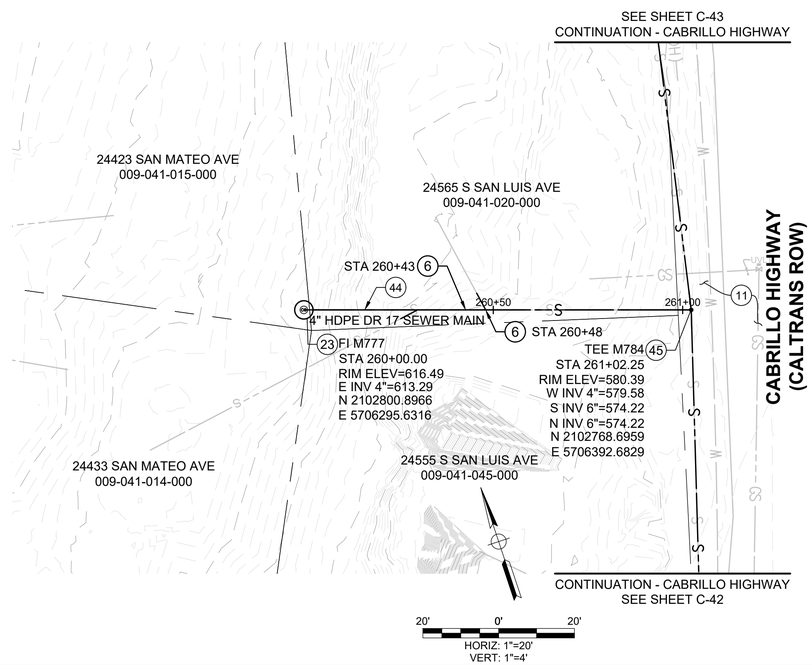
(23) REHABILITATE OR REPLACE EXISTING CLEANOUT PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

(44) INSTALL NEW 4-INCH HDPE DR17, IPS SEWER MAIN IN EXISTING ALIGNMENT BY OPEN TRENCH CONSTRUCTION. TRENCH AND BACKFILL PER CAWD STD SS-24. SEE SPECIFICATIONS FOR BYPASSING REQUIREMENTS.

(45) INSTALL NEW 4-INCH LATERAL AND REPLACE TEE WITH SADDLE.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.
2. EXISTING DEPTH AND VERTICAL ALIGNMENT IS UNKNOWN AND IS SHOWN APPROXIMATELY. CONTRACTOR IS NOT REQUIRED TO EXCAVATE TO EXISTING LINE IF DEEPER THAN PROPOSED VERTICAL ALIGNMENT.



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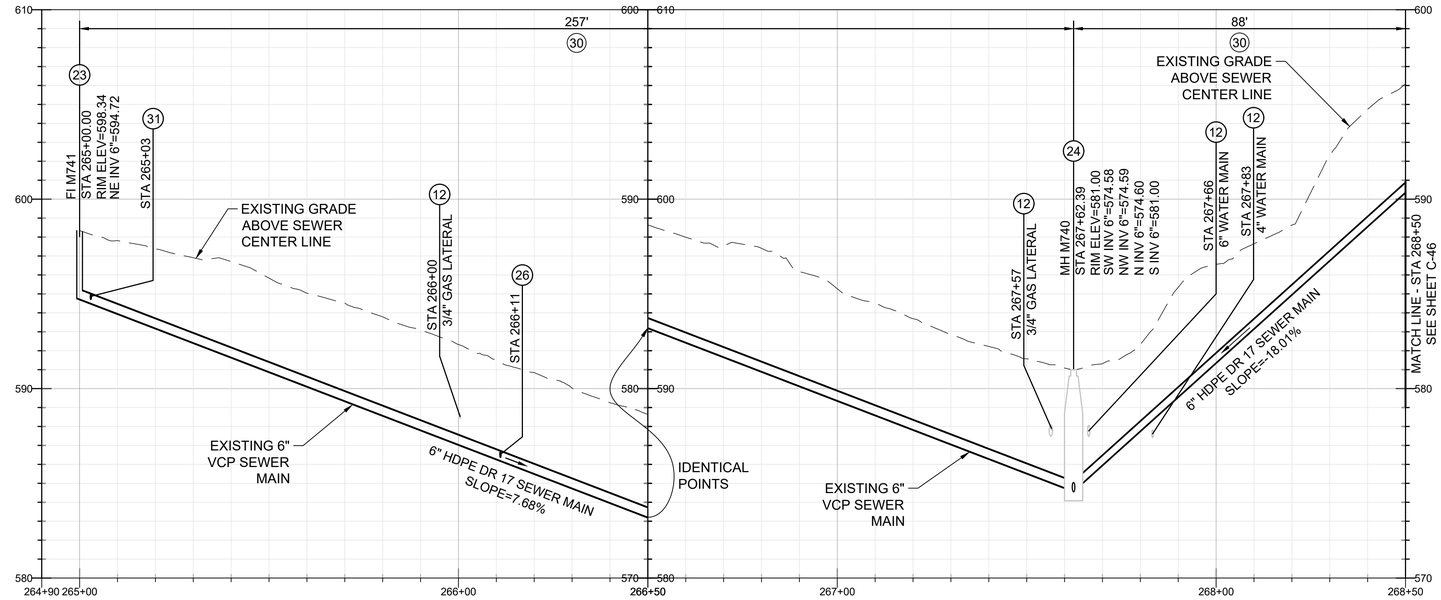
CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

CABRILLO HIGHWAY SEWER PLAN AND PROFILE STA 260+00 TO 261+10

PROJECT NUMBER
CMAWD.21041
DRAWING NUMBER
C-44
SHEET NUMBER
51 OF **61**

Fri 10/Feb/26 05:48:35 PM by: Jordyn Arreola C:\Bcs\Projects\CMAWD\Carmel Area WW\CMAWD.21041 Pescadero Sewer\2 Eng\12\AD2 Sheets\Sewer PP - 7.dwg



CALTRANS ENCROACHMENT PERMIT NOTES

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2. THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE ENCROACHMENT PERMIT AT ALL TIMES.

TRAFFIC CONTROL NOTES

1. CONTRACTOR MUST PROVIDE APPROPRIATE ADVANCED WARNING ON CABRILLO HIGHWAY PER THE CALIFORNIA MUTCD.
2. ALL TRAFFIC CONTROL SIGNS SHOULD BE COVERED OR REMOVED AT THE END OF EACH WORK DAY, NO SIGNS WILL BE POSTED DURING NON-WORKING HOURS.
3. CONTRACTOR SHALL COMPLY WITH THE PROVIDED TRAFFIC CONTROL PLANS, OR PROVIDE ALTERNATIVE TRAFFIC CONTROL PLANS FOR REVIEW AND APPROVAL.
4. PITS MUST BE PLATED WHEN THERE IS NO ACTIVE WORK BEING PERFORMED AND AT NIGHT.

CONSTRUCTION NOTES

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(12) PROTECT IN PLACE EXISTING UTILITY.

(23) REHABILITATE OR REPLACE EXISTING CLEANOUT PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

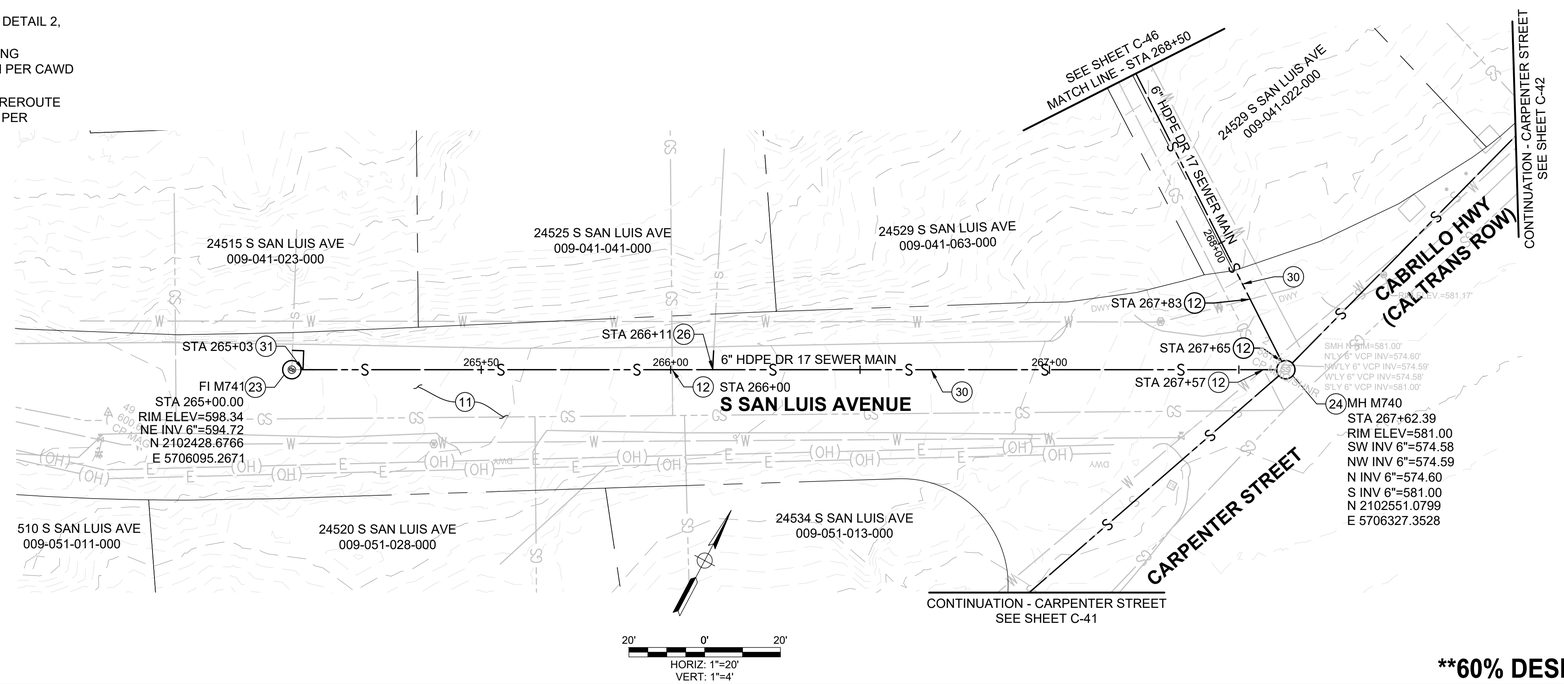
(26) RE-ESTABLISH EXISTING LATERALS PER SPECIFICATIONS AND DETAIL 2, SHEET C-51.

(30) INSTALL NEW 6-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

(31) EXISTING LATERAL CONNECTED TO THE BACK OF CLEANOUT. REROUTE LATERAL TO STATION SHOWN AND CONNECT TO SEWER MAIN PER SPECIFICATIONS AND CAWD STD SS-2.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.



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DESIGNED: JA
DRAWN: KD
CHECKED: NEP

JORDYN A. ARREOLA
PRINCIPAL ENGINEER
R.C.E. 94046 EXP. 9 - 30 - 2026

DATE

REGISTERED PROFESSIONAL ENGINEER JORDYN A. ARREOLA C94046 Exp. 9-30-2026 CIVIL STATE OF CALIFORNIA

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AS NOTED

CARMEL AREA WASTEWATER DISTRICT • SINCE 1908 •

CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

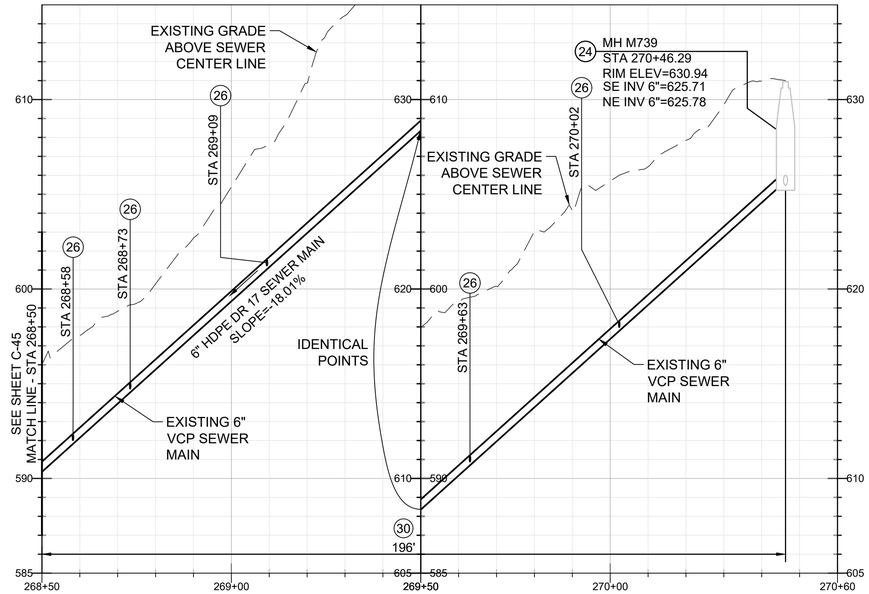
SAN LUIS AVENUE SEWER PLAN AND PROFILE STA 265+00 TO 268+50

PROJECT NUMBER
CMAWD.21041

DRAWING NUMBER
C-45

SHEET NUMBER
52 OF **61**

C:\Bluz\Projects\CMAWD Carmel Area WWD\CMAWD.21041 Pescadero Sewer\CADD\Sheets\Sewer PP - 7.dwg
Fri 2024-Feb-26 03:46:35 PM by: Jordyn Arreola



CONSTRUCTION NOTES

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

(12) PROTECT IN PLACE EXISTING UTILITY.

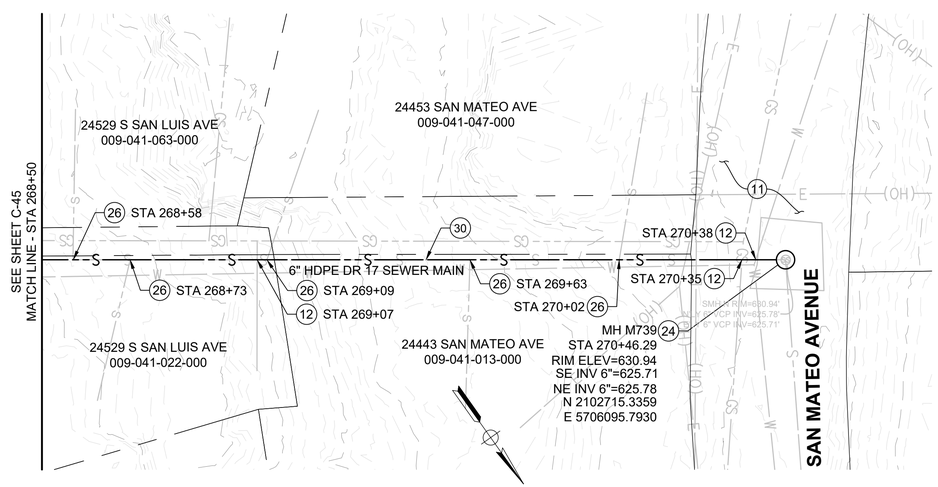
(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

(26) RE-ESTABLISH EXISTING LATERALS PER SPECIFICATIONS AND DETAIL 2, SHEET C-51.

(30) INSTALL NEW 6-INCH HDPE DR17 SEWER MAIN BY PIPE BURSTING CONSTRUCTION PER SPECIFICATIONS. RESTORE EXCAVATION PER CAWD SS-24.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.



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R.C.E. 94046 EXP. 9 - 30 - 2026

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JORDYN A. ARREOLA
C94046
Exp. 9-30-2026
CIVIL
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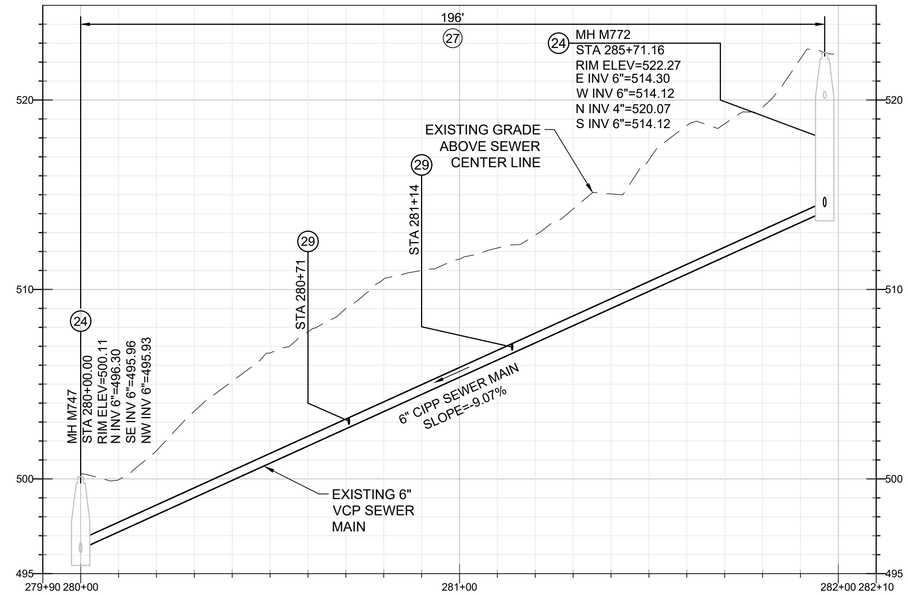
CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

SAN MATEO AVENUE SEWER PLAN AND PROFILE STA 268+50 TO 270+50

PROJECT NUMBER
CMAWD.21041
DRAWING NUMBER
C-46
SHEET NUMBER
53 OF **61**

Fri 2/14/25 09:48:38 PM by: Jordyn Arreola C:\Bcs\Projects\CMAWD Carmel Area WW\CMAWD.21041 Pescadero Sewer\2 Eng\CMAD Sheets\Sewer PP - 1.dwg



CONSTRUCTION NOTES

(11) PLACE MICROSURFACING ON FULL WIDTH OF STREET.

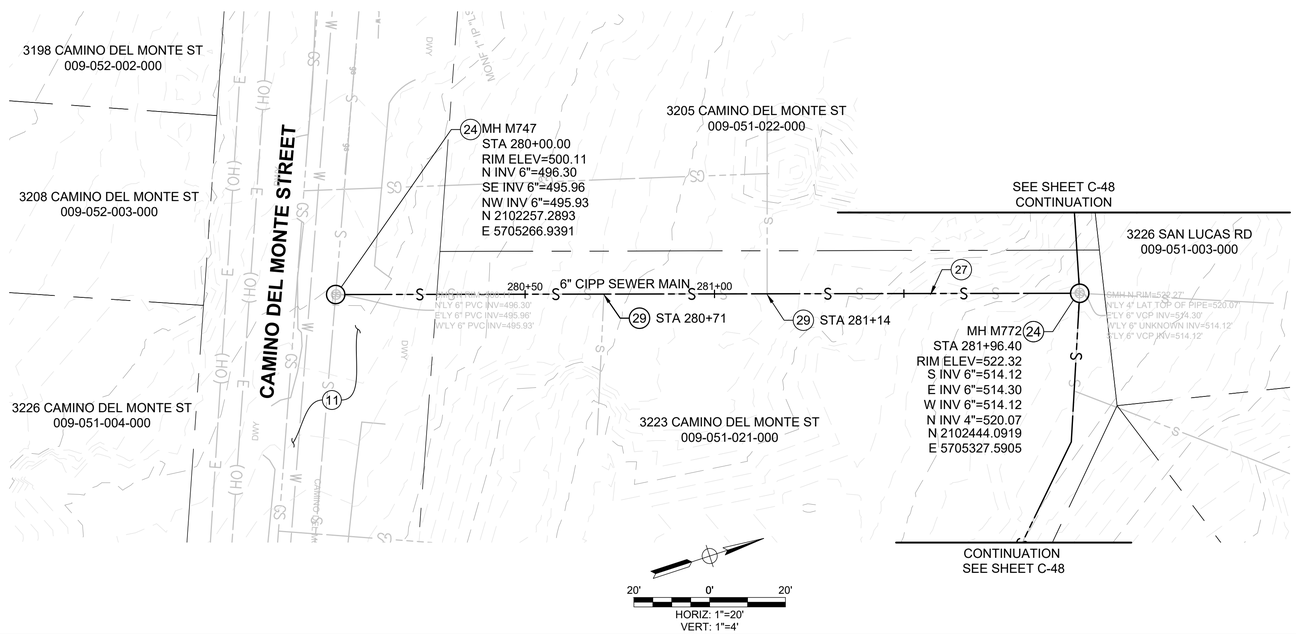
(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

(27) REHABILITATE EXISTING SANITARY SEWER BY UV-CURED-IN-PLACE PIPE (CIPP) LINING PER SPECIFICATIONS.

(29) RECONNECT SEWER LATERAL TO NEW CIPP WITH TOP HAT PER SPECIFICATIONS.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.



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Exp. 9-30-2026
CIVIL
STATE OF CALIFORNIA

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CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

CAMINO DEL MONTE STREET SEWER PLAN AND PROFILE STA 280+00 TO 282+00

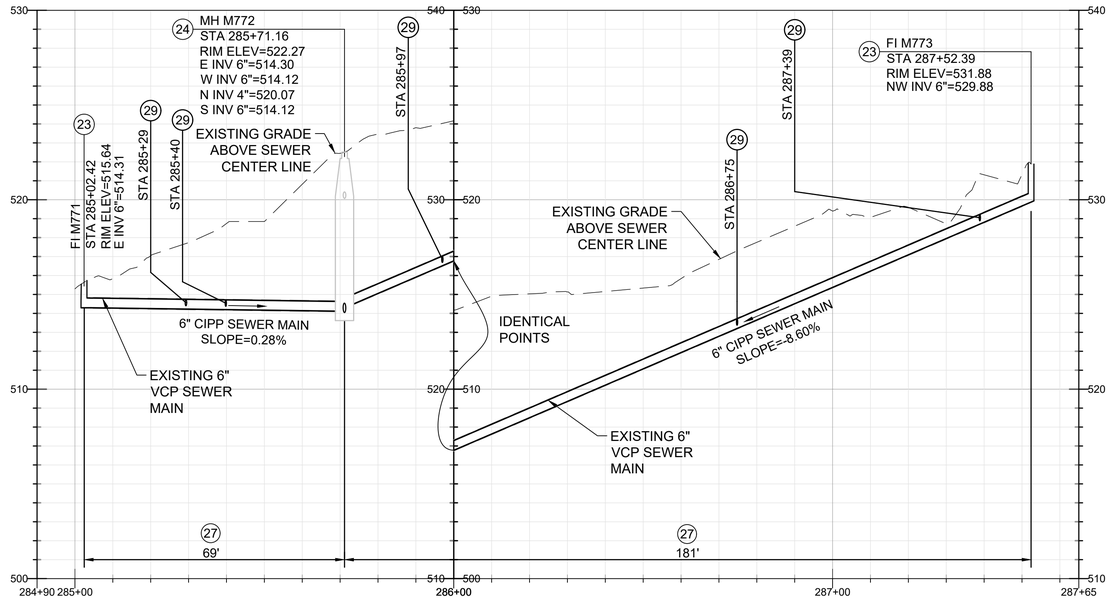
PROJECT NUMBER
CMAWD.21041

DRAWING NUMBER
C-47

SHEET NUMBER
54 OF **61**

Fri,02Feb,26 03:49:35 PM by: Jordyn Arreola C:\BuzProjects\CMAWD\Carmel Area WW\CMAWD.21041 Pescadero Sewer\2 Eng\CADD\ Sheets\Sewer PP - 7.dwg

DISTRICT TO CONFIRM VERTICAL ALIGNMENT AND FI DEPTHS. CCTV SHOWS NO VERTICAL BENDS WHERE SEWER IS SHALLOW.



CONSTRUCTION NOTES

(23) REHABILITATE OR REPLACE EXISTING CLEANOUT PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

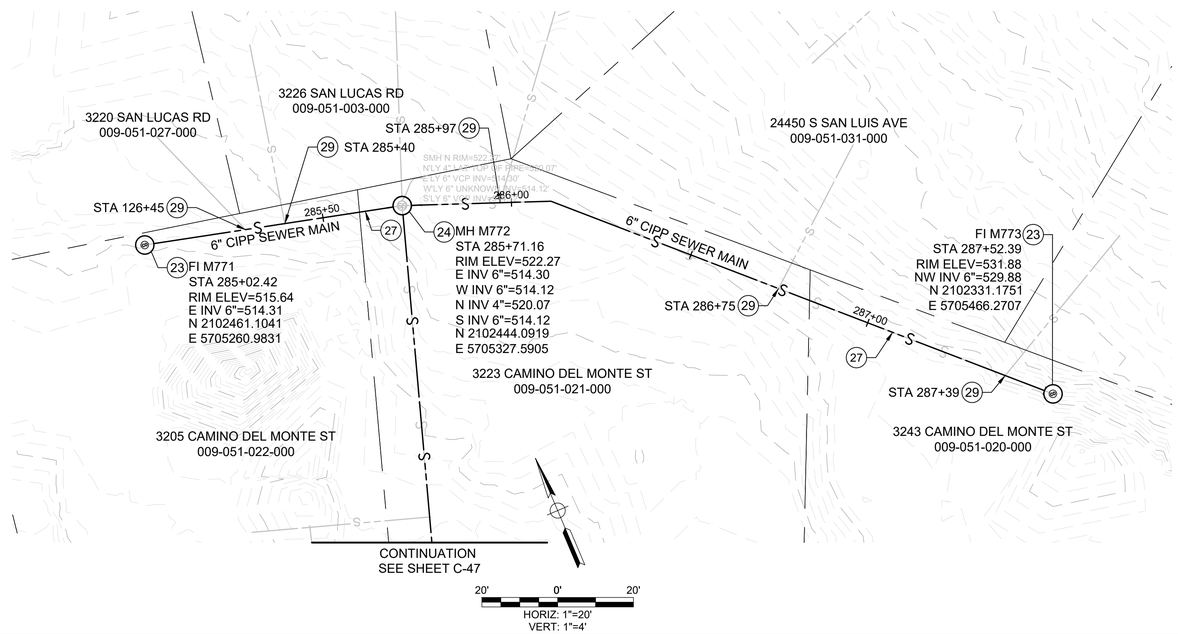
(24) REHABILITATE OR REPLACE EXISTING MANHOLE PER MANHOLE REHABILITATION SCHEDULE, SHEET G-6 AND G-7.

(27) REHABILITATE EXISTING SANITARY SEWER BY UV-CURED-IN-PLACE PIPE (CIPP) LINING PER SPECIFICATIONS.

(29) RECONNECT SEWER LATERAL TO NEW CIPP WITH TOP HAT PER SPECIFICATIONS.

GENERAL NOTES

1. EXISTING UTILITY LOCATIONS AND DEPTHS ARE APPROXIMATE.



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CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

CAMINO DEL MONTE STREET SEWER PLAN AND PROFILE STA 285+00 TO 287+65

PROJECT NUMBER **CMAWD.21041**
DRAWING NUMBER **C-48**
SHEET NUMBER **55** OF **61**

Fri,30 Feb,26 05:49:35 PM by: Jordyn Arreola C:\BuzProjects\CMAWD\Carmel Area WW\CMAWD.21041 Pescadero Sewer\2 Eng\CADD\2 Sheets\Sewer PP - 7.dwg

EXISTING SEWER REHABILITATION NOTES

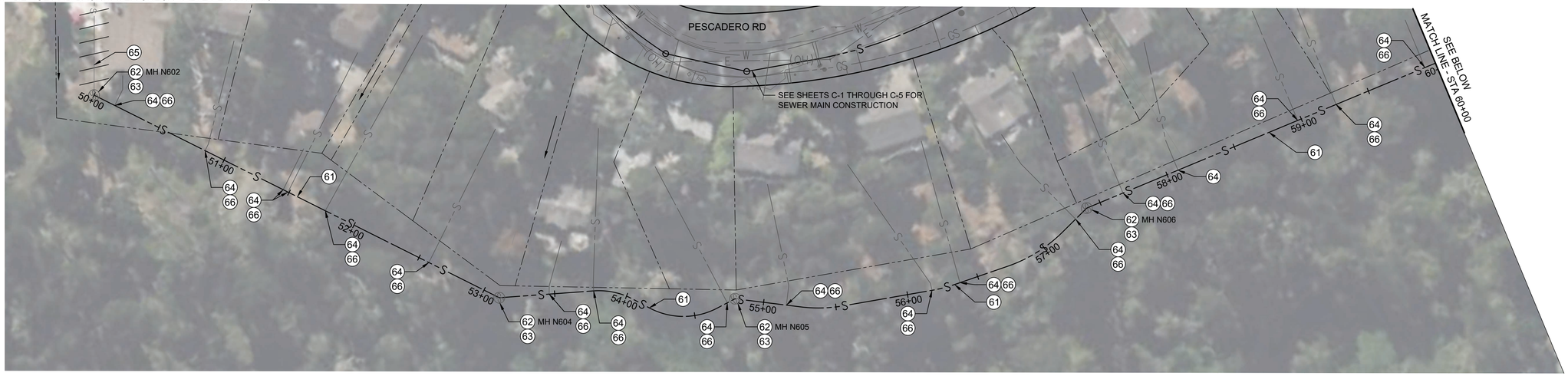
- (48) ENVIRONMENTALLY SENSITIVE AREA - POTENTIAL WETLANDS. COMPLY WITH ENVIRONMENTAL PROTECTION REQUIREMENTS.
- (61) INSTALL CONTINUOUS SLIP LINE WITH 4" HDPE DR17, IPS SEWER MAIN IN EXISTING ALIGNMENT PER SPECIFICATIONS.
- (62) PROTECT EXISTING MANHOLE IN PLACE.
- (63) PROVIDE 4" WYE AND RISER TO 6" BELOW TOP OF MANHOLE AND CAP RISER PER DETAIL 3, DRAWING C-50.
- (64) REINSTATE LATERALS PER SPECIFICATIONS.
- (65) ABANDON SEWER MAIN SEGMENT PER SPECIFICATIONS.
- (66) INSTALL BACKWATER OVERFLOW DEVICE AND BACKWATER CHECK VALVE PER DISTRICT STANDARD SS-2.

SITE ACCESS NOTES

1. NO VEHICLE ACCESS IS PERMITTED FOR EXISTING SEWER ABANDONMENT OUTSIDE PAVED ROADWAYS.
2. ALL MATERIALS AND EQUIPMENT REQUIRED FOR WORK OUTSIDE PAVED ROADWAYS SHALL BE HAND CARRIED.
3. AVAILABLE ACCESS ROUTES ARE SHOWN.

DISCUSS MH N602 WITH DISTRICT.

PERSONNEL ACCESS ROUTES →



PIPELINE REHABILITATION PLAN

30' 15' 0' 15' 30'

SCALE: 1" = 30'

PIPELINE REHABILITATION PLAN

30' 15' 0' 15' 30'

SCALE: 1" = 30'

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CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

EXISTING SEWER MAIN REHABILITATION PLAN - STA 50+00 TO STA 66+50

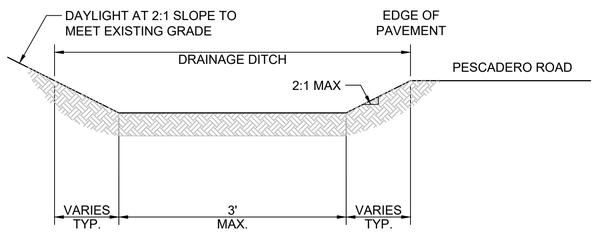
PROJECT NUMBER
CMAWD.21041

DRAWING NUMBER
C-49

SHEET NUMBER
56 OF 61

C:\Bur\Projects\CMAWD\Carmel Area WW\CMAWD.21041 Pescadero Sewer\2 Eng\CAD\2 Sheets\Sewer Rehab.dwg

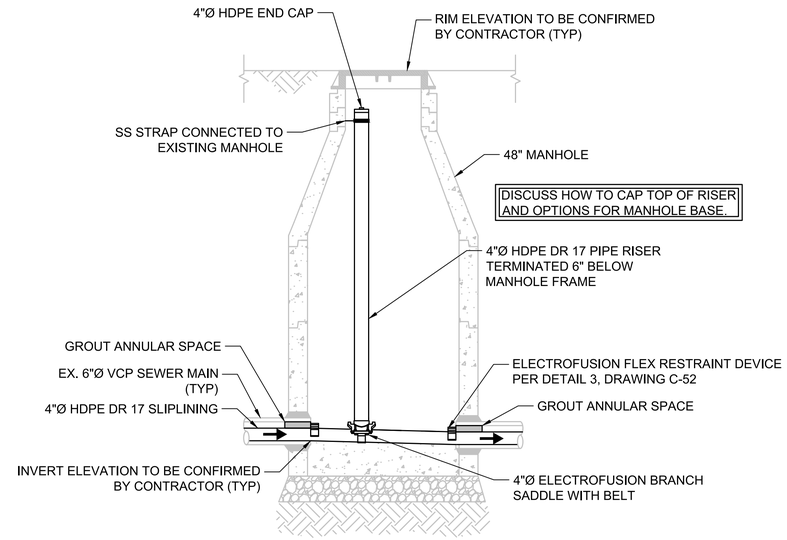
Fri 02 Feb 26 02:05:14 PM by: Jordyn Arreola



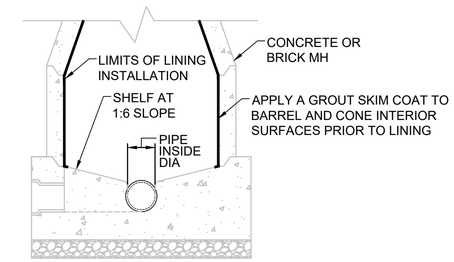
NOTES

1. CONTRACTOR TO REMOVE SEDIMENT AND VEGETATION TO RESTORE DRAINAGE CHANNEL TO ORIGINAL UTILITY.
2. CONTRACTOR TO COORDINATE WITH DISTRICT TO CONFIRM DEPTH AND LIMITS OF RESTORATION.

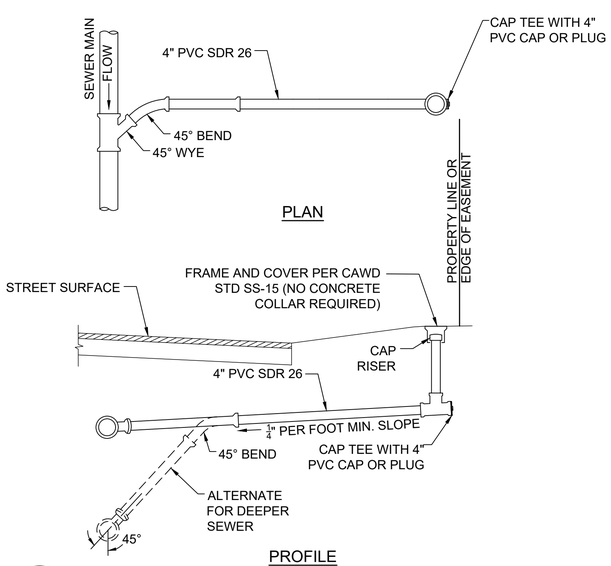
1 DRAINAGE DITCH RESTORATION DETAIL
C-1 THROUGH C-3 NOT TO SCALE



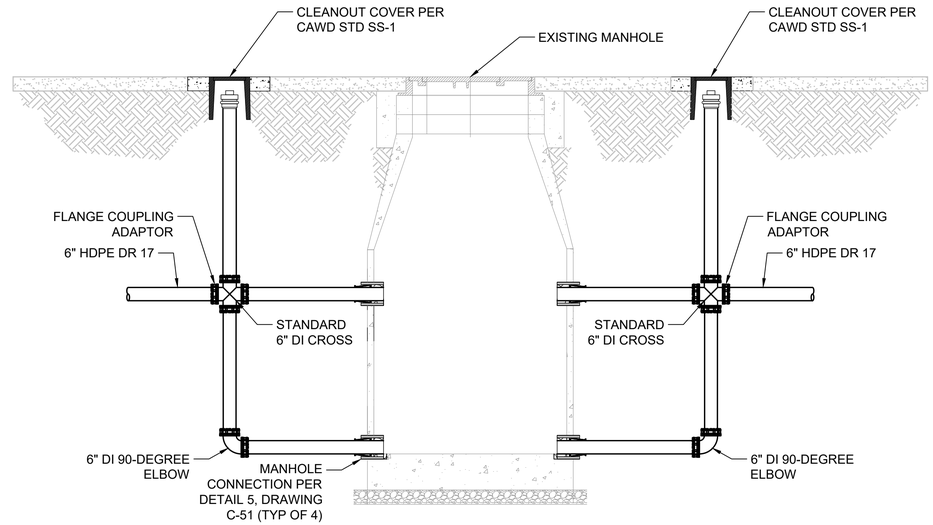
3 MANHOLE WITH INTERNAL CLEANOUT DETAIL
- NOT TO SCALE

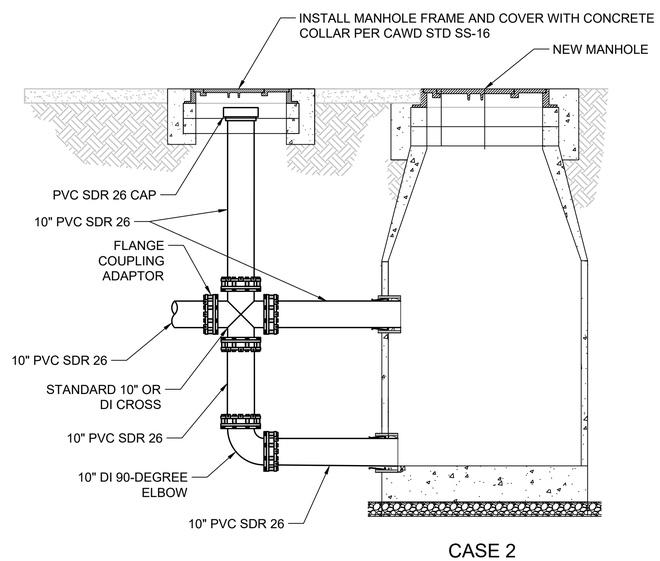


5 POLYURETHANE ULTRA-HIGH BUILD LINER DETAIL
- NOT TO SCALE



2 GRAVITY LATERAL DETAIL FOR FUTURE CONNECTION
C-1 THROUGH C-3 NOT TO SCALE





4 EXTERNAL DROP MANHOLE DETAILS
C-4 AND C-31 NOT TO SCALE

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R.C.E. 94046 EXP. 9 - 30 - 2026
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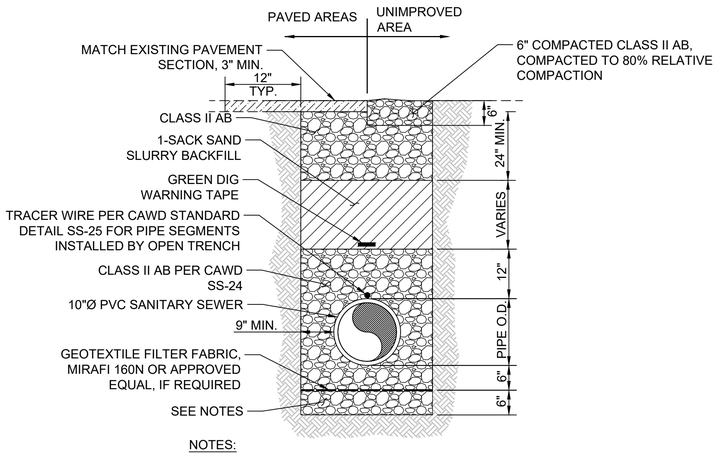
CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

CIVIL DETAILS 1

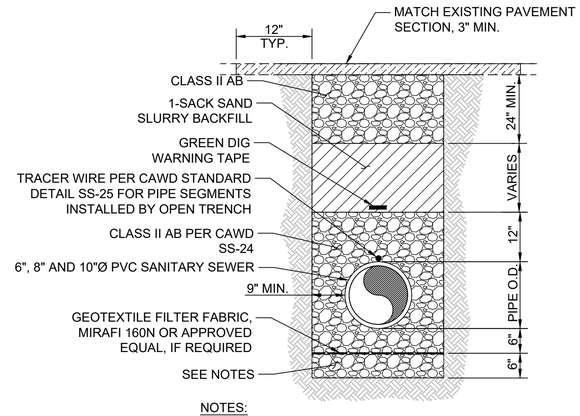
PROJECT NUMBER CMAWD.21041
DRAWING NUMBER C-50
SHEET NUMBER 57 OF 61

C:\Bur/Projects\CMAWD Carmel Area WW\CMAWD.21041 Pescadero Sewer\2 Eng\CAD\2 Sheets\Sewer Details.dwg
Fri 2/6/26 5:14:39 PM by: jordyn Arreola



NOTES:
1. FOR STABLE TRENCH SECTION, MATERIAL BELOW PIPE BEDDING SHALL BE UNDISTURBED SOIL OR COMPACTED TO 95% RELATIVE COMPACTION.
2. FOR UNSTABLE TRENCH SECTION, PROVIDE GEOTEXTILE FILTER FABRIC. MATERIAL BELOW GEOTEXTILE SHALL CONSIST OF ROCK BALLAST AS SHOWN.

1 - CITY OF CARMEL-BY-THE-SEA TRENCH DETAIL
NOT TO SCALE



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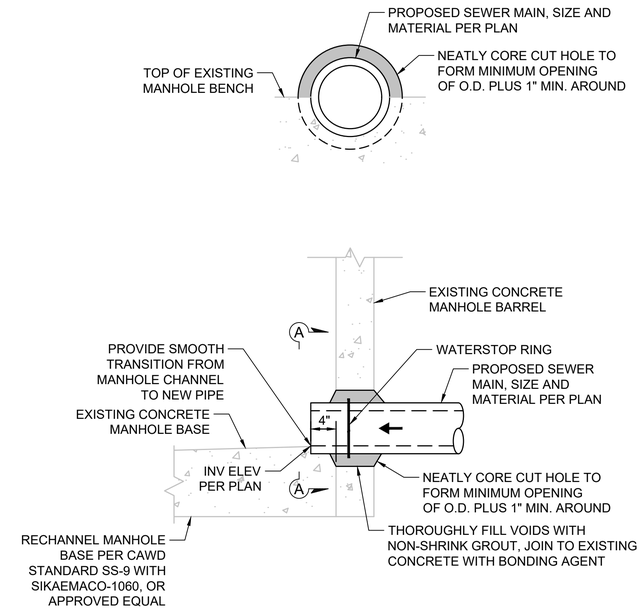
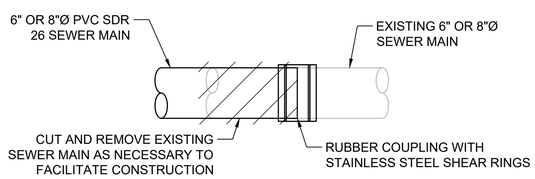
2. FOR UNSTABLE TRENCH SECTION, PROVIDE GEOTEXTILE FILTER FABRIC. MATERIAL BELOW GEOTEXTILE SHALL CONSIST OF ROCK BALLAST AS SHOWN.

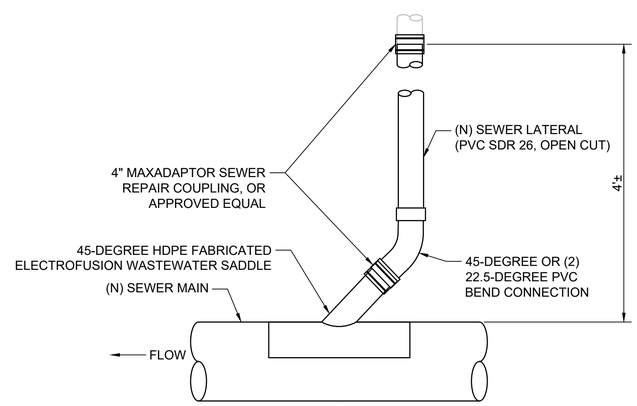
3 - COUNTY OF MONTEREY TRENCH DETAIL
NOT TO SCALE



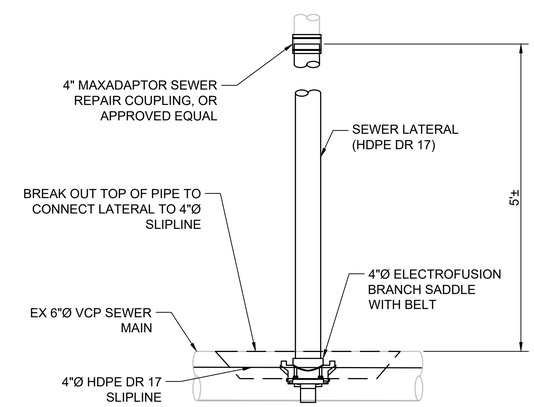
5 - MANHOLE CONNECTION DETAIL
NOT TO SCALE



2 - C-1 AND C-5 CONNECTION DETAIL
NOT TO SCALE



4 - HDPE SEWER MAIN LATERAL RECONNECTION DETAIL
NOT TO SCALE



6 - SLIPLINE LATERAL RECONNECTION DETAIL
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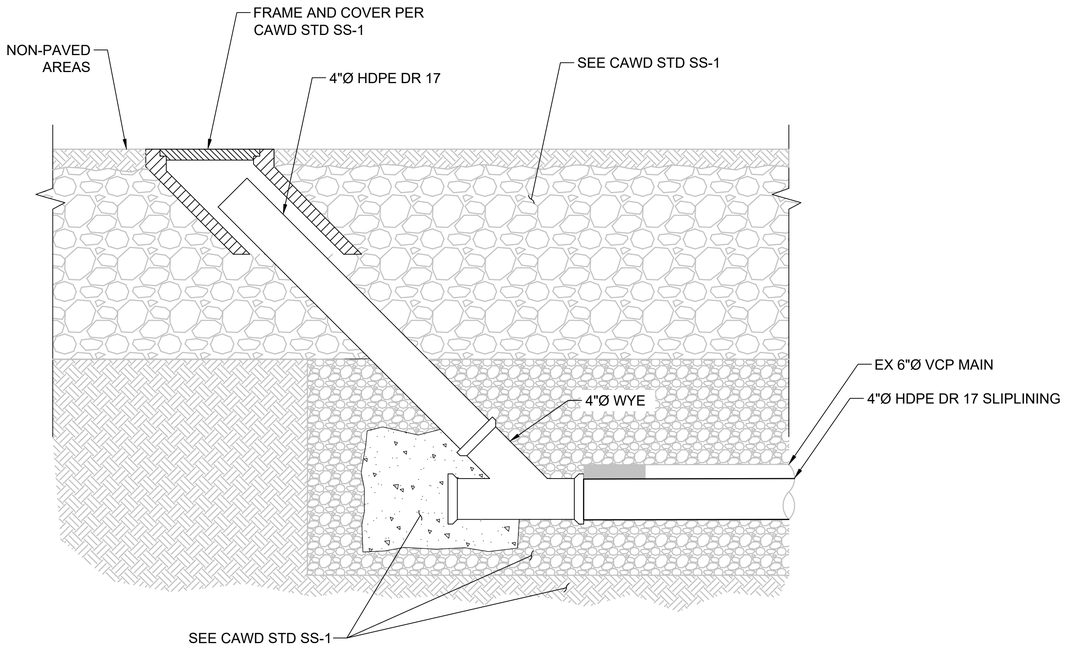
CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

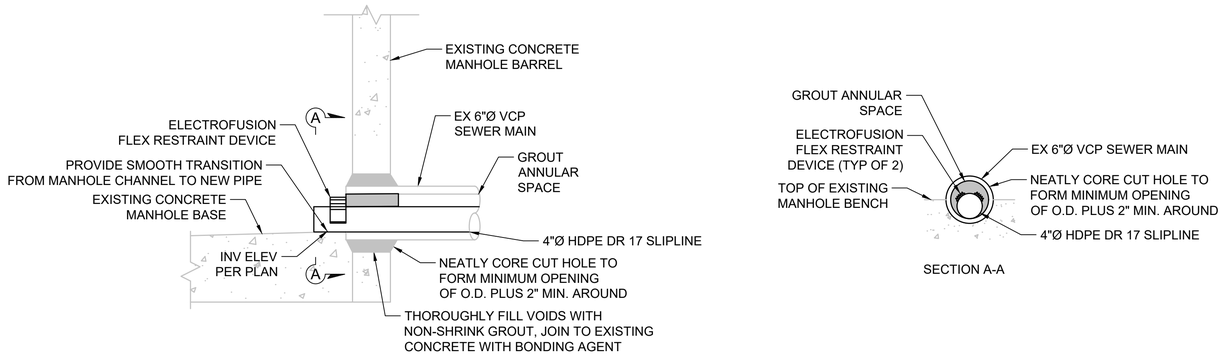
CIVIL DETAILS 2

PROJECT NUMBER: CMAWD.21041
DRAWING NUMBER: C-51
SHEET NUMBER: 58 OF 61

Fri,30 Feb,26 01:34:39 PM by: Jordyn Arreola C:\Bcs\Projects\CMAWD\Carmel Area WW\CMAWD.21041 Pescadero Sewer\2 Eng\CAD\2 Sheets\Sewer Details.dwg



1 / - 6" TO 4" CLEANOUT REPLACEMENT DETAIL
NOT TO SCALE



3 / - SLIPLINE MANHOLE CONNECTION DETAIL
NOT TO SCALE

2 / - MH M606 REHABILITATION DETAIL
NOT TO SCALE

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CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

CIVIL DETAILS 3

PROJECT NUMBER
CMAWD.21041

DRAWING NUMBER
C-52

SHEET NUMBER
59 OF 61

C:\Bsi\Projects\CMAWD Carmel Area WWD\CMAWD.21041 Pescadero Sewer\2 Eng\CAD\2 Sheets\Sewer Details.dwg
Fri 2/6/26 01:45:24 PM by: Jordyn Arreola

TO BE PROVIDED IN 90% DESIGN

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REV	DATE	BY	DESCRIPTION

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811 El Capitan Way, Suite 130
San Luis Obispo, CA 93401
805-692-6921 | www.mnsengineers.com

DESIGNED: JA
DRAWN: KD
CHECKED: NEP

JORDYN A. ARREOLA
PRINCIPAL ENGINEER
R.C.E. 94046 EXP. 9 - 30 - 2026

DATE

REGISTERED PROFESSIONAL ENGINEER
JORDYN A. ARREOLA
C94046
Exp. 9-30-2026
CIVIL
STATE OF CALIFORNIA

0 1/2 1 2
THIS BAR IS 2 INCHES AT FULL SCALE. IF NOT 2 INCHES, THEN SCALE ACCORDINGLY.

SCALE:
AS NOTED

CARMEL AREA WASTEWATER DISTRICT · SINCE 1908 ·

CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

TRAFFIC CONTROL SHEET LAYOUT

PROJECT NUMBER
CMAWD.21041
DRAWING NUMBER
T-1
SHEET NUMBER
60 OF **61**

Wed 18 Feb,26 09:54:00 AM by: Jordyn Arreola C:\Bcu\Projects\CMAWD\Carmel Area WW\CMAWD.21041\ Pescadero Sewer\2 Eng\CAD\2 Sheets\Traffic Control Sheets.dwg

TO BE PROVIDED IN 90% DESIGN

DIAL TOLL FREE
811
AT LEAST TWO DAYS
BEFORE YOU DIG

811
Know what's **below.**
Call before you dig.

100' 50' 0' 50' 100'
SCALE: 1" = 100'

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DATE

REGISTERED PROFESSIONAL ENGINEER
JORDYN A. ARREOLA
C94046
Exp. 9-30-2026
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SCALE:
AS NOTED

CARMEL AREA WASTEWATER DISTRICT
SINCE 1908

CARMEL WOODS AND PESCADERO ROAD SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT

TRAFFIC CONTROL NOTES

PROJECT NUMBER
CMAWD.21041

DRAWING NUMBER
T-2

SHEET NUMBER
61 OF **61**

Wed 18 Feb,26 09:54:00 AM by: Jordyn Arreola C:\Bcs\Projects\CMAWD\Carmel Area WW\CMAWD.21041 Pescadero Sewer\2 Eng\CAD\2 Sheets\Traffic Control Sheets.dwg

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Pescadero Rd Sewer
Construction Start Date	7/1/2026
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.80000
Precipitation (days)	27.6000
Location	36.5554640229293, -121.92140557404284
County	Monterey
City	Carmel-by-the-Sea
Air District	Monterey Bay ARD
Air Basin	North Central Coast
TAZ	3244
EDFZ	6
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.39

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Other Asphalt Surfaces	0.50000	Acre	0.50000	0.00000	0.00000	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-5	Use Advanced Engine Tiers
Construction	C-10-A	Water Exposed Surfaces

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.00376	7.97687	11.7216	0.02016	0.47805	0.28805	0.76609	0.44086	0.07585	0.51672	2,039.64	0.08966	0.12645	1.82366	2,054.99
Mit.	0.21044	2.26285	8.63920	0.01468	0.03386	0.28805	0.32191	0.03386	0.07585	0.10972	1,901.83	0.08966	0.12645	1.82366	1,943.58
% Reduced	79%	72%	26%	27%	93%	—	58%	92%	—	79%	7%	—	—	—	5%
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.00147	8.03301	11.6874	0.02016	0.47805	0.28805	0.76609	0.44086	0.07585	0.51672	2,033.20	0.08996	0.12201	0.04352	2,047.89
Mit.	0.20814	2.31899	8.52255	0.01462	0.03377	0.28805	0.32182	0.03377	0.07585	0.10963	1,873.06	0.08996	0.12201	0.04352	1,911.71
% Reduced	79%	71%	27%	27%	93%	—	58%	92%	—	79%	8%	—	—	—	7%
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.51060	4.21828	6.89351	0.01202	0.14894	0.10586	0.25480	0.13726	0.02664	0.16390	1,257.85	0.05515	0.03553	0.23274	1,270.05
Mit.	0.11001	0.65670	5.08241	0.00715	0.01551	0.10586	0.12137	0.01551	0.02664	0.04215	881.196	0.03987	0.03248	0.23274	892.104
% Reduced	78%	84%	26%	41%	90%	—	52%	89%	—	74%	30%	28%	9%	—	30%

Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.09319	0.76984	1.25806	0.00219	0.02718	0.01932	0.04650	0.02505	0.00486	0.02991	208.251	0.00913	0.00588	0.03853	210.271
Mit.	0.02008	0.11985	0.92754	0.00130	0.00283	0.01932	0.02215	0.00283	0.00486	0.00769	145.892	0.00660	0.00538	0.03853	147.698
% Reduced	78%	84%	26%	41%	90%	—	52%	89%	—	74%	30%	28%	9%	—	30%

2.2. Construction Emissions by Year

2.2.1. Total Construction Emissions by Year, Unmitigated

Includes both onsite and offsite emissions.

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.81658	6.69758	11.7216	0.02016	0.20619	0.28805	0.40560	0.18991	0.07585	0.22515	2,039.64	0.08966	0.12645	1.82366	2,054.99
2027	1.00376	7.97687	11.6522	0.02016	0.47805	0.28805	0.76609	0.44086	0.07585	0.51672	2,034.17	0.08912	0.12165	1.67529	2,049.09
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.81499	6.71999	11.6874	0.02016	0.20619	0.14325	0.34944	0.18991	0.03525	0.22515	2,033.20	0.08783	0.04186	0.01863	2,047.89
2027	1.00147	8.03301	11.6198	0.02016	0.47805	0.28805	0.76609	0.44086	0.07585	0.51672	2,027.86	0.08996	0.12201	0.04352	2,042.26
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.21794	1.77628	3.31896	0.00599	0.05726	0.06419	0.12145	0.05286	0.01640	0.06926	655.603	0.02929	0.02426	0.16137	663.728
2027	0.51060	4.21828	6.89351	0.01202	0.14894	0.10586	0.25480	0.13726	0.02664	0.16390	1,257.85	0.05515	0.03553	0.23274	1,270.05
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.03977	0.32417	0.60571	0.00109	0.01045	0.01171	0.02217	0.00965	0.00299	0.01264	108.543	0.00485	0.00402	0.02672	109.888
2027	0.09319	0.76984	1.25806	0.00219	0.02718	0.01932	0.04650	0.02505	0.00486	0.02991	208.251	0.00913	0.00588	0.03853	210.271

2.2.2. Onsite Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.74055	6.47278	10.9798	0.01923	0.20354	0.00000	0.20354	0.18726	0.00000	0.18726	1,786.03	0.07245	0.01449	0.00000	1,792.16
2027	0.92138	7.07929	10.9578	0.01923	0.46482	0.00000	0.46482	0.42764	0.00000	0.42764	1,785.89	0.07244	0.01449	0.00000	1,792.01
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.74055	6.47278	10.9798	0.01923	0.20354	0.00000	0.20354	0.18726	0.00000	0.18726	1,786.03	0.07245	0.01449	0.00000	1,792.16
2027	0.92138	7.07929	10.9578	0.01923	0.46482	0.00000	0.46482	0.42764	0.00000	0.42764	1,785.89	0.07244	0.01449	0.00000	1,792.01
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.19210	1.60741	3.06217	0.00523	0.05508	0.00000	0.05508	0.05068	0.00000	0.05068	504.585	0.02047	0.00409	0.00000	506.317
2027	0.46651	3.98865	6.46290	0.01099	0.14600	0.00000	0.14600	0.13432	0.00000	0.13432	1,039.23	0.04216	0.00843	0.00000	1,042.80
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.03506	0.29335	0.55885	0.00095	0.01005	0.00000	0.01005	0.00925	0.00000	0.00925	83.5399	0.00339	0.00068	0.00000	83.8266
2027	0.08514	0.72793	1.17948	0.00201	0.02664	0.00000	0.02664	0.02451	0.00000	0.02451	172.057	0.00698	0.00140	0.00000	172.647

2.2.3. Offsite Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.08890	0.92904	1.00415	0.00463	0.01323	0.28805	0.30127	0.01323	0.07585	0.08908	814.147	0.04554	0.11763	1.82366	852.163
2027	0.08239	0.89757	0.94977	0.00463	0.01323	0.28805	0.30127	0.01323	0.07585	0.08908	796.019	0.04518	0.11287	1.67529	832.458

Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.07444	0.24721	0.70755	0.00093	0.00265	0.14325	0.14590	0.00265	0.03525	0.03789	247.169	0.01538	0.02737	0.01863	255.729
2027	0.08009	0.95371	0.92013	0.00463	0.01323	0.28805	0.30127	0.01323	0.07585	0.08908	789.980	0.04602	0.11322	0.04352	824.914
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.02584	0.16887	0.25679	0.00076	0.00218	0.06419	0.06637	0.00218	0.01640	0.01858	151.018	0.00882	0.02017	0.16137	157.411
2027	0.04409	0.22963	0.43061	0.00103	0.00294	0.10586	0.10880	0.00294	0.02664	0.02958	218.616	0.01300	0.02710	0.23274	227.251
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.00472	0.03082	0.04686	0.00014	0.00040	0.01171	0.01211	0.00040	0.00299	0.00339	25.0028	0.00146	0.00334	0.02672	26.0611
2027	0.00805	0.04191	0.07859	0.00019	0.00054	0.01932	0.01986	0.00054	0.00486	0.00540	36.1944	0.00215	0.00449	0.03853	37.6240

2.2.4. Total Construction Emissions by Year, Mitigated

Includes both onsite and offsite emissions.

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.19208	1.46556	8.63920	0.01468	0.03386	0.28805	0.32191	0.03386	0.07585	0.10972	1,901.83	0.08966	0.12645	1.82366	1,943.58
2027	0.21044	2.26285	8.55219	0.01462	0.03377	0.28805	0.32182	0.03377	0.07585	0.10963	1,879.10	0.08912	0.12165	1.67529	1,919.26
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.17365	0.76309	8.04895	0.01059	0.02249	0.14325	0.16574	0.02249	0.03525	0.05773	1,292.95	0.05780	0.03586	0.01863	1,305.10
2027	0.20814	2.31899	8.52255	0.01462	0.03377	0.28805	0.32182	0.03377	0.07585	0.10963	1,873.06	0.08996	0.12201	0.04352	1,911.71
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.05914	0.34203	2.72097	0.00401	0.00884	0.06419	0.07303	0.00884	0.01640	0.02524	502.050	0.02306	0.02302	0.16137	509.647
2027	0.11001	0.65670	5.08241	0.00715	0.01551	0.10586	0.12137	0.01551	0.02664	0.04215	881.196	0.03987	0.03248	0.23274	892.104

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.01079	0.06242	0.49658	0.00073	0.00161	0.01171	0.01333	0.00161	0.00299	0.00461	83.1201	0.00382	0.00381	0.02672	84.3779
2027	0.02008	0.11985	0.92754	0.00130	0.00283	0.01932	0.02215	0.00283	0.00486	0.00769	145.892	0.00660	0.00538	0.03853	147.698

2.2.5. Onsite Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.10318	0.53652	7.63505	0.01005	0.02064	0.00000	0.02064	0.02064	0.00000	0.02064	1,087.68	0.04412	0.00882	0.00000	1,091.41
2027	0.12805	1.36528	7.60242	0.00999	0.02055	0.00000	0.02055	0.02055	0.00000	0.02055	1,083.08	0.04393	0.00879	0.00000	1,086.80
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.09921	0.51588	7.34139	0.00966	0.01984	0.00000	0.01984	0.01984	0.00000	0.01984	1,045.79	0.04242	0.00848	0.00000	1,049.37
2027	0.12805	1.36528	7.60242	0.00999	0.02055	0.00000	0.02055	0.02055	0.00000	0.02055	1,083.08	0.04393	0.00879	0.00000	1,086.80
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.03330	0.17316	2.46418	0.00324	0.00666	0.00000	0.00666	0.00666	0.00000	0.00666	351.032	0.01424	0.00285	0.00000	352.236
2027	0.06591	0.42707	4.65180	0.00612	0.01257	0.00000	0.01257	0.01257	0.00000	0.01257	662.580	0.02688	0.00538	0.00000	664.854
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.00608	0.03160	0.44971	0.00059	0.00122	0.00000	0.00122	0.00122	0.00000	0.00122	58.1173	0.00236	0.00047	0.00000	58.3168
2027	0.01203	0.07794	0.84895	0.00112	0.00229	0.00000	0.00229	0.00229	0.00000	0.00229	109.698	0.00445	0.00089	0.00000	110.074

2.2.6. Offsite Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e

Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.08890	0.92904	1.00415	0.00463	0.01323	0.28805	0.30127	0.01323	0.07585	0.08908	814.147	0.04554	0.11763	1.82366	852.163
2027	0.08239	0.89757	0.94977	0.00463	0.01323	0.28805	0.30127	0.01323	0.07585	0.08908	796.019	0.04518	0.11287	1.67529	832.458
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.07444	0.24721	0.70755	0.00093	0.00265	0.14325	0.14590	0.00265	0.03525	0.03789	247.169	0.01538	0.02737	0.01863	255.729
2027	0.08009	0.95371	0.92013	0.00463	0.01323	0.28805	0.30127	0.01323	0.07585	0.08908	789.980	0.04602	0.11322	0.04352	824.914
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.02584	0.16887	0.25679	0.00076	0.00218	0.06419	0.06637	0.00218	0.01640	0.01858	151.018	0.00882	0.02017	0.16137	157.411
2027	0.04409	0.22963	0.43061	0.00103	0.00294	0.10586	0.10880	0.00294	0.02664	0.02958	218.616	0.01300	0.02710	0.23274	227.251
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2026	0.00472	0.03082	0.04686	0.00014	0.00040	0.01171	0.01211	0.00040	0.00299	0.00339	25.0028	0.00146	0.00334	0.02672	26.0611
2027	0.00805	0.04191	0.07859	0.00019	0.00054	0.01932	0.01986	0.00054	0.00486	0.00540	36.1944	0.00215	0.00449	0.03853	37.6240

3. Construction Emissions Details

3.1. Site Preparation (2026)

3.1.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.31215	2.14718	6.36358	0.01005	0.10433	—	0.10433	0.09598	—	0.09598	1,087.68	0.04412	0.00882	—	1,091.41

Dust From Material Movement	—	—	—	—	—	0.00000	0.00000	—	0.00000	0.00000	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03848	0.26472	0.78455	0.00124	0.01286	—	0.01286	0.01183	—	0.01183	134.098	0.00544	0.00109	—	134.558
Dust From Material Movement	—	—	—	—	—	0.00000	0.00000	—	0.00000	0.00000	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00702	0.04831	0.14318	0.00023	0.00235	—	0.00235	0.00216	—	0.00216	22.2014	0.00090	0.00018	—	22.2776
Dust From Material Movement	—	—	—	—	—	0.00000	0.00000	—	0.00000	0.00000	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.1.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07281	0.04874	0.67611	0.00000	0.00000	0.10705	0.10705	0.00000	0.02509	0.02509	113.477	0.00652	0.00475	0.44281	115.499
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Hauling	0.01609	0.88031	0.32805	0.00463	0.01323	0.18099	0.19422	0.01323	0.05076	0.06399	700.670	0.03902	0.11288	1.38084	736.664
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00867	0.00705	0.07548	0.00000	0.00000	0.01296	0.01296	0.00000	0.00304	0.00304	13.2494	0.00089	0.00059	0.02356	13.4698
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00193	0.11220	0.04063	0.00057	0.00163	0.02201	0.02364	0.00163	0.00618	0.00781	86.4012	0.00481	0.01392	0.07346	90.7420
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00158	0.00129	0.01378	0.00000	0.00000	0.00237	0.00237	0.00000	0.00055	0.00055	2.19360	0.00015	0.00010	0.00390	2.23008
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00035	0.02048	0.00742	0.00010	0.00030	0.00402	0.00431	0.00030	0.00113	0.00143	14.3047	0.00080	0.00230	0.01216	15.0234

3.1.3. Onsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10318	0.53652	7.63505	0.01005	0.02064	—	0.02064	0.02064	—	0.02064	1,087.68	0.04412	0.00882	—	1,091.41
Dust From Material Movement	—	—	—	—	—	0.00000	0.00000	—	0.00000	0.00000	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.01272	0.06615	0.94131	0.00124	0.00254	—	0.00254	0.00254	—	0.00254	134.098	0.00544	0.00109	—	134.558
Dust From Material Movement	—	—	—	—	—	0.00000	0.00000	—	0.00000	0.00000	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00232	0.01207	0.17179	0.00023	0.00046	—	0.00046	0.00046	—	0.00046	22.2014	0.00090	0.00018	—	22.2776
Dust From Material Movement	—	—	—	—	—	0.00000	0.00000	—	0.00000	0.00000	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.1.4. Offsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07281	0.04874	0.67611	0.00000	0.00000	0.10705	0.10705	0.00000	0.02509	0.02509	113.477	0.00652	0.00475	0.44281	115.499
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.01609	0.88031	0.32805	0.00463	0.01323	0.18099	0.19422	0.01323	0.05076	0.06399	700.670	0.03902	0.11288	1.38084	736.664
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00867	0.00705	0.07548	0.00000	0.00000	0.01296	0.01296	0.00000	0.00304	0.00304	13.2494	0.00089	0.00059	0.02356	13.4698
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00193	0.11220	0.04063	0.00057	0.00163	0.02201	0.02364	0.00163	0.00618	0.00781	86.4012	0.00481	0.01392	0.07346	90.7420

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00158	0.00129	0.01378	0.00000	0.00000	0.00237	0.00237	0.00000	0.00055	0.00055	2.19360	0.00015	0.00010	0.00390	2.23008
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00035	0.02048	0.00742	0.00010	0.00030	0.00402	0.00431	0.00030	0.00113	0.00143	14.3047	0.00080	0.00230	0.01216	15.0234

3.2. Paving (2027)

3.2.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.90947	7.07929	7.36212	0.00999	0.46482	—	0.46482	0.42764	—	0.42764	1,083.08	0.04393	0.00879	—	1,086.80
Paving	0.01191	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.90947	7.07929	7.36212	0.00999	0.46482	—	0.46482	0.42764	—	0.42764	1,083.08	0.04393	0.00879	—	1,086.80
Paving	0.01191	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10963	0.85339	0.88749	0.00120	0.05603	—	0.05603	0.05155	—	0.05155	130.563	0.00530	0.00106	—	131.011
Paving	0.00144	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02001	0.15574	0.16197	0.00022	0.01023	—	0.01023	0.00941	—	0.00941	21.6163	0.00088	0.00018	—	21.6904
Paving	0.00026	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.2.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06629	0.04504	0.63054	0.00000	0.00000	0.10705	0.10705	0.00000	0.02509	0.02509	111.353	0.00616	0.00440	0.40794	113.226
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.01609	0.85253	0.31923	0.00463	0.01323	0.18099	0.19422	0.01323	0.05076	0.06399	684.665	0.03902	0.10847	1.26735	719.232
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06488	0.05754	0.59737	0.00000	0.00000	0.10705	0.10705	0.00000	0.02509	0.02509	104.976	0.00722	0.00475	0.01060	106.583
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.01521	0.89618	0.32276	0.00463	0.01323	0.18099	0.19422	0.01323	0.05076	0.06399	685.004	0.03880	0.10847	0.03291	718.331
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00778	0.00641	0.06882	0.00000	0.00000	0.01268	0.01268	0.00000	0.00297	0.00297	12.7140	0.00083	0.00057	0.02125	12.9267
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00189	0.10638	0.03867	0.00056	0.00159	0.02152	0.02311	0.00159	0.00604	0.00764	82.5522	0.00470	0.01308	0.06605	86.6323
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00142	0.00117	0.01256	0.00000	0.00000	0.00231	0.00231	0.00000	0.00054	0.00054	2.10495	0.00014	0.00009	0.00352	2.14016

Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00034	0.01942	0.00706	0.00010	0.00029	0.00393	0.00422	0.00029	0.00110	0.00139	13.6675	0.00078	0.00216	0.01094	14.3430

3.2.3. Onsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11614	1.36528	7.60242	0.00999	0.02055	—	0.02055	0.02055	—	0.02055	1,083.08	0.04393	0.00879	—	1,086.80
Paving	0.01191	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11614	1.36528	7.60242	0.00999	0.02055	—	0.02055	0.02055	—	0.02055	1,083.08	0.04393	0.00879	—	1,086.80
Paving	0.01191	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01400	0.16458	0.91646	0.00120	0.00248	—	0.00248	0.00248	—	0.00248	130.563	0.00530	0.00106	—	131.011
Paving	0.00144	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00256	0.03004	0.16725	0.00022	0.00045	—	0.00045	0.00045	—	0.00045	21.6163	0.00088	0.00018	—	21.6904
Paving	0.00026	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.2.4. Offsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06629	0.04504	0.63054	0.00000	0.00000	0.10705	0.10705	0.00000	0.02509	0.02509	111.353	0.00616	0.00440	0.40794	113.226
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.01609	0.85253	0.31923	0.00463	0.01323	0.18099	0.19422	0.01323	0.05076	0.06399	684.665	0.03902	0.10847	1.26735	719.232
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06488	0.05754	0.59737	0.00000	0.00000	0.10705	0.10705	0.00000	0.02509	0.02509	104.976	0.00722	0.00475	0.01060	106.583
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.01521	0.89618	0.32276	0.00463	0.01323	0.18099	0.19422	0.01323	0.05076	0.06399	685.004	0.03880	0.10847	0.03291	718.331
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00778	0.00641	0.06882	0.00000	0.00000	0.01268	0.01268	0.00000	0.00297	0.00297	12.7140	0.00083	0.00057	0.02125	12.9267
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00189	0.10638	0.03867	0.00056	0.00159	0.02152	0.02311	0.00159	0.00604	0.00764	82.5522	0.00470	0.01308	0.06605	86.6323
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00142	0.00117	0.01256	0.00000	0.00000	0.00231	0.00231	0.00000	0.00054	0.00054	2.10495	0.00014	0.00009	0.00352	2.14016
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00034	0.01942	0.00706	0.00010	0.00029	0.00393	0.00422	0.00029	0.00110	0.00139	13.6675	0.00078	0.00216	0.01094	14.3430

3.3. Trenching (2026)

3.3.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.74055	6.47278	10.9798	0.01923	0.20354	—	0.20354	0.18726	—	0.18726	1,786.03	0.07245	0.01449	—	1,792.16
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.74055	6.47278	10.9798	0.01923	0.20354	—	0.20354	0.18726	—	0.18726	1,786.03	0.07245	0.01449	—	1,792.16
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15362	1.34269	2.27762	0.00399	0.04222	—	0.04222	0.03884	—	0.03884	370.488	0.01503	0.00301	—	371.759
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02804	0.24504	0.41567	0.00073	0.00771	—	0.00771	0.00709	—	0.00709	61.3385	0.00249	0.00050	—	61.5490
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07281	0.04874	0.67611	0.00000	0.00000	0.10705	0.10705	0.00000	0.02509	0.02509	113.477	0.00652	0.00475	0.44281	115.499
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00322	0.17606	0.06561	0.00093	0.00265	0.03620	0.03884	0.00265	0.01015	0.01280	140.134	0.00780	0.02258	0.27617	147.333
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07140	0.06158	0.64119	0.00000	0.00000	0.10705	0.10705	0.00000	0.02509	0.02509	106.969	0.00757	0.00475	0.01146	108.585
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00304	0.18563	0.06636	0.00093	0.00265	0.03620	0.03884	0.00265	0.01015	0.01280	140.200	0.00780	0.02262	0.00716	147.143
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01459	0.01186	0.12700	0.00000	0.00000	0.02181	0.02181	0.00000	0.00511	0.00511	22.2927	0.00150	0.00099	0.03964	22.6635
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00065	0.03776	0.01367	0.00019	0.00055	0.00740	0.00795	0.00055	0.00208	0.00263	29.0747	0.00162	0.00468	0.02472	30.5354
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00266	0.00216	0.02318	0.00000	0.00000	0.00398	0.00398	0.00000	0.00093	0.00093	3.69081	0.00025	0.00016	0.00656	3.75220
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00012	0.00689	0.00250	0.00004	0.00010	0.00135	0.00145	0.00010	0.00038	0.00048	4.81365	0.00027	0.00078	0.00409	5.05548

3.3.3. Onsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09921	0.51588	7.34139	0.00966	0.01984	—	0.01984	0.01984	—	0.01984	1,045.79	0.04242	0.00848	—	1,049.37

Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09921	0.51588	7.34139	0.00966	0.01984	—	0.01984	0.01984	—	0.01984	1,045.79	0.04242	0.00848	—	1,049.37
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02058	0.10701	1.52287	0.00200	0.00412	—	0.00412	0.00412	—	0.00412	216.934	0.00880	0.00176	—	217.678
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00376	0.01953	0.27792	0.00037	0.00075	—	0.00075	0.00075	—	0.00075	35.9159	0.00146	0.00029	—	36.0391
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3.4. Offsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07281	0.04874	0.67611	0.00000	0.00000	0.10705	0.10705	0.00000	0.02509	0.02509	113.477	0.00652	0.00475	0.44281	115.499
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00322	0.17606	0.06561	0.00093	0.00265	0.03620	0.03884	0.00265	0.01015	0.01280	140.134	0.00780	0.02258	0.27617	147.333
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.07140	0.06158	0.64119	0.00000	0.00000	0.10705	0.10705	0.00000	0.02509	0.02509	106.969	0.00757	0.00475	0.01146	108.585
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00304	0.18563	0.06636	0.00093	0.00265	0.03620	0.03884	0.00265	0.01015	0.01280	140.200	0.00780	0.02262	0.00716	147.143
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01459	0.01186	0.12700	0.00000	0.00000	0.02181	0.02181	0.00000	0.00511	0.00511	22.2927	0.00150	0.00099	0.03964	22.6635
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00065	0.03776	0.01367	0.00019	0.00055	0.00740	0.00795	0.00055	0.00208	0.00263	29.0747	0.00162	0.00468	0.02472	30.5354
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00266	0.00216	0.02318	0.00000	0.00000	0.00398	0.00398	0.00000	0.00093	0.00093	3.69081	0.00025	0.00016	0.00656	3.75220
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00012	0.00689	0.00250	0.00004	0.00010	0.00135	0.00145	0.00010	0.00038	0.00048	4.81365	0.00027	0.00078	0.00409	5.05548

3.4. Trenching (2027)

3.4.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.69858	6.16197	10.9578	0.01923	0.17682	—	0.17682	0.16267	—	0.16267	1,785.89	0.07244	0.01449	—	1,792.01
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.69858	6.16197	10.9578	0.01923	0.17682	—	0.17682	0.16267	—	0.16267	1,785.89	0.07244	0.01449	—	1,792.01
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.35544	3.13525	5.57541	0.00978	0.08997	—	0.08997	0.08277	—	0.08277	908.670	0.03686	0.00737	—	911.788
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06487	0.57218	1.01751	0.00179	0.01642	—	0.01642	0.01511	—	0.01511	150.441	0.00610	0.00122	—	150.957
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.4.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06629	0.04504	0.63054	0.00000	0.00000	0.10705	0.10705	0.00000	0.02509	0.02509	111.353	0.00616	0.00440	0.40794	113.226
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00322	0.17051	0.06385	0.00093	0.00265	0.03620	0.03884	0.00265	0.01015	0.01280	136.933	0.00780	0.02169	0.25347	143.846
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06488	0.05754	0.59737	0.00000	0.00000	0.10705	0.10705	0.00000	0.02509	0.02509	104.976	0.00722	0.00475	0.01060	106.583
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00304	0.17924	0.06455	0.00093	0.00265	0.03620	0.03884	0.00265	0.01015	0.01280	137.001	0.00776	0.02169	0.00658	143.666
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03283	0.02704	0.29047	0.00000	0.00000	0.05350	0.05350	0.00000	0.01253	0.01253	53.6631	0.00349	0.00242	0.08968	54.5606
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00159	0.08981	0.03264	0.00047	0.00135	0.01816	0.01951	0.00135	0.00510	0.00645	69.6869	0.00397	0.01104	0.05576	73.1312

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00599	0.00493	0.05301	0.00000	0.00000	0.00976	0.00976	0.00000	0.00229	0.00229	8.88454	0.00058	0.00040	0.01485	9.03313
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00029	0.01639	0.00596	0.00009	0.00025	0.00331	0.00356	0.00025	0.00093	0.00118	11.5375	0.00066	0.00183	0.00923	12.1077

3.4.3. Onsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09921	0.51588	7.34139	0.00966	0.01984	—	0.01984	0.01984	—	0.01984	1,045.62	0.04241	0.00848	—	1,049.21
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09921	0.51588	7.34139	0.00966	0.01984	—	0.01984	0.01984	—	0.01984	1,045.62	0.04241	0.00848	—	1,049.21
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05048	0.26248	3.73535	0.00492	0.01010	—	0.01010	0.01010	—	0.01010	532.016	0.02158	0.00432	—	533.842
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00921	0.04790	0.68170	0.00090	0.00184	—	0.00184	0.00184	—	0.00184	88.0814	0.00357	0.00071	—	88.3837
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.4.4. Offsite - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06629	0.04504	0.63054	0.00000	0.00000	0.10705	0.10705	0.00000	0.02509	0.02509	111.353	0.00616	0.00440	0.40794	113.226
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00322	0.17051	0.06385	0.00093	0.00265	0.03620	0.03884	0.00265	0.01015	0.01280	136.933	0.00780	0.02169	0.25347	143.846
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06488	0.05754	0.59737	0.00000	0.00000	0.10705	0.10705	0.00000	0.02509	0.02509	104.976	0.00722	0.00475	0.01060	106.583
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00304	0.17924	0.06455	0.00093	0.00265	0.03620	0.03884	0.00265	0.01015	0.01280	137.001	0.00776	0.02169	0.00658	143.666
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03283	0.02704	0.29047	0.00000	0.00000	0.05350	0.05350	0.00000	0.01253	0.01253	53.6631	0.00349	0.00242	0.08968	54.5606
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00159	0.08981	0.03264	0.00047	0.00135	0.01816	0.01951	0.00135	0.00510	0.00645	69.6869	0.00397	0.01104	0.05576	73.1312
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00599	0.00493	0.05301	0.00000	0.00000	0.00976	0.00976	0.00000	0.00229	0.00229	8.88454	0.00058	0.00040	0.01485	9.03313
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00029	0.01639	0.00596	0.00009	0.00025	0.00331	0.00356	0.00025	0.00093	0.00118	11.5375	0.00066	0.00183	0.00923	12.1077

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Site Preparation	7/16/2026	9/16/2026	5.00000	45.0000	—
Paving	Paving	9/18/2027	11/18/2027	5.00000	44.0000	—
Trenching	Trenching	9/17/2026	9/17/2027	5.00000	262.000	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Excavators	Diesel	Average	1.000000	8.00000	150.000	0.41000
Site Preparation	Tractors/Loaders/Back hoes	Diesel	Average	1.000000	8.00000	150.000	0.37000
Paving	Pavers	Diesel	Average	1.000000	8.00000	100.0000	0.42000
Paving	Rollers	Diesel	Average	1.000000	8.00000	50.0000	0.38000
Paving	Tractors/Loaders/Back hoes	Diesel	Average	1.000000	8.00000	150.000	0.37000
Trenching	Generator Sets	Diesel	Average	2.00000	8.00000	49.9000	0.74000
Trenching	Excavators	Diesel	Average	1.000000	8.00000	150.000	0.38000
Trenching	Tractors/Loaders/Back hoes	Diesel	Average	1.000000	8.00000	150.000	0.37000

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

Site Preparation	Excavators	Diesel	Tier 4 Final	1.000000	8.00000	150.000	0.41000
Site Preparation	Tractors/Loaders/Back hoes	Diesel	Tier 4 Final	1.000000	8.00000	150.000	0.37000
Paving	Pavers	Diesel	Tier 4 Final	1.000000	8.00000	100.0000	0.42000
Paving	Rollers	Diesel	Tier 4 Final	1.000000	8.00000	50.0000	0.38000
Paving	Tractors/Loaders/Back hoes	Diesel	Tier 4 Final	1.000000	8.00000	150.000	0.37000
Trenching	Excavators	Diesel	Tier 4 Final	1.000000	8.00000	150.000	0.38000
Trenching	Tractors/Loaders/Back hoes	Diesel	Tier 4 Final	1.000000	8.00000	150.000	0.37000

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	Worker	16.0000	9.47000	LDA,LDT1,LDT2
Site Preparation	Vendor	—	6.03000	HHDT,MHDT
Site Preparation	Hauling	10.00000	20.0000	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Paving	Worker	16.0000	9.47000	LDA,LDT1,LDT2
Paving	Vendor	—	6.03000	HHDT,MHDT
Paving	Hauling	10.00000	20.0000	HHDT
Paving	Onsite truck	—	—	HHDT
Trenching	Worker	16.0000	9.47000	LDA,LDT1,LDT2
Trenching	Vendor	—	6.03000	HHDT,MHDT
Trenching	Hauling	2.00000	20.0000	HHDT
Trenching	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Site Preparation	Worker	16.0000	9.47000	LDA,LDT1,LDT2
Site Preparation	Vendor	—	6.03000	HHDT,MHDT
Site Preparation	Hauling	10.00000	20.0000	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Paving	Worker	16.0000	9.47000	LDA,LDT1,LDT2
Paving	Vendor	—	6.03000	HHDT,MHDT
Paving	Hauling	10.00000	20.0000	HHDT
Paving	Onsite truck	—	—	HHDT
Trenching	Worker	16.0000	9.47000	LDA,LDT1,LDT2
Trenching	Vendor	—	6.03000	HHDT,MHDT
Trenching	Hauling	2.00000	20.0000	HHDT
Trenching	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	—	—	0.00000	0.00000	0.00000
Paving	0.00000	0.00000	0.00000	0.00000	0.20000

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Phase Name	Land Use	Area Paved (acres)	% Asphalt
Paving	Other Asphalt Surfaces	0.20000	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2026	0.00000	203.983	0.03300	0.00400
2027	0.00000	203.983	0.03300	0.00400

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	6.20000	annual days of extreme heat
Extreme Precipitation	4.85000	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	39.4200	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	10.5663
AQ-PM	1.58058
AQ-DPM	47.0691
Drinking Water	38.7161
Lead Risk Housing	49.4518
Pesticides	0.00000
Toxic Releases	0.30008
Traffic	3.28750
Effect Indicators	—
CleanUp Sites	68.9436
Groundwater	47.4348
Haz Waste Facilities/Generators	0.00000
Impaired Water Bodies	12.4528
Solid Waste	0.00000
Sensitive Population	—
Asthma	23.0932
Cardio-vascular	5.82004
Low Birth Weights	—

Socioeconomic Factor Indicators	—
Education	0.00000
Housing	7.38910
Linguistic	0.00000
Poverty	18.1784
Unemployment	—

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	86.41088156
Employed	59.69459772
Median HI	80.36699602
Education	—
Bachelor's or higher	89.51623252
High school enrollment	100
Preschool enrollment	63.27473374
Transportation	—
Auto Access	36.49428975
Active commuting	87.60426023
Social	—
2-parent households	5.82574105
Voting	92.42910304
Neighborhood	—
Alcohol availability	57.96227384
Park access	81.35506224
Retail density	7.031951752

Supermarket access	75.4908251
Tree canopy	96.52252021
Housing	—
Homeownership	53.13743103
Housing habitability	51.67457975
Low-inc homeowner severe housing cost burden	73.88682151
Low-inc renter severe housing cost burden	29.35968177
Uncrowded housing	58.11625818
Health Outcomes	—
Insured adults	84.53740536
Arthritis	0.0
Asthma ER Admissions	98.1
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	73.2
Cognitively Disabled	58.3
Physically Disabled	38.4
Heart Attack ER Admissions	98.5
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	94.5
Physical Health Not Good	0.0
Stroke	0.0

Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	49.1
SLR Inundation Area	88.2
Children	20.9
Elderly	7.8
English Speaking	98.1
Foreign-born	8.5
Outdoor Workers	51.2
Climate Change Adaptive Capacity	—
Impervious Surface Cover	91.0
Traffic Density	9.7
Traffic Access	0.0
Other Indices	—
Hardship	17.5
Other Decision Support	—
2016 Voting	95.9

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	1.000000
Healthy Places Index Score for Project Location (b)	86.0000
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

8.1. Justifications

Screen	Justification
Construction: Construction Phases	Based on information provided.
Construction: Off-Road Equipment	Based on information provided
Construction: Trips and VMT	Based on info provided. 8 workers (16 trips)/day. Assumes 16 cy/truck capacity.
Construction: On-Road Fugitive Dust	paved travel assumed
Construction: Paving	based on info provided

8.4. Construction

8.4.1. Construction Phases

Phase Type	Phase Name	Model Parameter	Default Value	New Value
Site Preparation	Site Preparation	End Date	7/17/2026	9/16/2026
Site Preparation	Site Preparation	Work Days per Phase	1.000000	45.0000
Paving	Paving	Start Date	12/9/2026	9/18/2027
Paving	Paving	End Date	12/16/2026	11/18/2027
Paving	Paving	Work Days per Phase	5.00000	44.0000

8.4.2. Off-Road Equipment

Phase Name	Equipment Type	Model Parameter	Default Value	New Value
Site Preparation	Excavators	Horsepower	148.000	150.000
Site Preparation	Tractors/Loaders/Backhoes	Horsepower	84.0000	150.000
Paving	Pavers	Hours Per Day	7.00000	8.00000
Paving	Pavers	Horsepower	81.0000	100.0000
Paving	Rollers	Hours Per Day	7.00000	8.00000
Paving	Rollers	Horsepower	36.0000	50.0000
Paving	Tractors/Loaders/Backhoes	Hours Per Day	7.00000	8.00000
Paving	Tractors/Loaders/Backhoes	Horsepower	84.0000	150.000

8.4.6. Trips and VMT

Phase Name	Trip Type	Model Parameter	Default Value	New Value
Site Preparation	Worker	One-Way Trips per Day	5.00000	16.0000
Site Preparation	Hauling	One-Way Trips per Day	0.00000	10.00000
Paving	Worker	One-Way Trips per Day	7.50000	16.0000
Paving	Hauling	One-Way Trips per Day	0.00000	10.00000
Trenching	Worker	One-Way Trips per Day	10.00000	16.0000
Trenching	Hauling	One-Way Trips per Day	0.00000	2.00000

8.4.7. On-Road Fugitive Dust

Phase Name	Model Parameter	Units	Default Value	New Value
Site Preparation	Worker Trip Paved	%	52.0000	100.0000
Site Preparation	Vendor Trip Paved	%	52.0000	100.0000
Site Preparation	Hauling Trip Paved	%	52.0000	100.0000
Paving	Worker Trip Paved	%	52.0000	100.0000
Paving	Vendor Trip Paved	%	52.0000	100.0000

Paving	Hauling Trip Paved	%	52.0000	100.0000
Trenching	Worker Trip Paved	%	52.0000	100.0000
Trenching	Vendor Trip Paved	%	52.0000	100.0000
Trenching	Hauling Trip Paved	%	52.0000	100.0000

8.4.9. Paving

Phase Name	Land Use	Model Parameter	Units	Default Value	New Value
Paving	Other Asphalt Surfaces	Area Paved	acres	0.50000	0.20000

8.6. Measure Input Overrides

8.6.1. Construction Measure Inputs

Measure Number and Input Name	Construction Phase	Equipment Type	Model Parameter	Default Value	New Value
C-5 - Use Advanced Engine Tiers	Trenching	Generator Sets	Number Mitigated	1.000000	2.00000

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Appendix C
Sewer Odor Evaluation

Carmel Area Wastewater District

Pescadero Road Sewer Odor Evaluation - DRAFT

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Date: May 24, 2024

Prepared by: V&A consulting engineers

V&A Project No. 23-0305

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Abbreviations and Acronyms

Abbreviations/Acronyms	Definition
Avg.	Average
BOD	Biochemical Oxygen Demand
CAWD	Carmel Area Wastewater District
CFM	Cubic Feet Per Minute
DDA	Denise Duffy and Associates
dP	Differential Pressure
DS	Dissolved Sulfide
F	Degrees Fahrenheit
H_2S	Hydrogen Sulfide
in-w.c, in H_2O.	Inches of Water Column
Max.	Maximum
MH	Manhole
Min.	Minimum
MNS	MNS Engineers
ND	Non-detect
NH_2	Amines
NH_3	Ammonia
OCF	Odor Control Facility
ORP	Oxidation-Reduction Potential
ppb	Parts Per Billion
ppm	Parts Per Million
RSCs	Reduced Sulfur Compounds
VCP	Vitrified Clay Pipe
V&A	V&A Consulting Engineers, Inc.
VOCs	Volatile Organic Compounds

1 Introduction

V&A Consulting Engineers, Inc. (V&A) was retained to evaluate odor emissions along Pescadero Road in Carmel-by-the-Sea, California. Carmel Area Wastewater District (CAWD) is adding a sewer line on Pescadero Road to supplement or replace the approximately 1,600 foot, 6-inch VCP sewer line which is currently located in Pescadero Canyon to the west of homes on Pescadero Road. The purpose of this study is to evaluate odor conditions in the existing sewer and assess potential odor impacts from the project. V&A conducted a field study from April 24 to May 2, 2024 to monitor the differential pressure (dP) and H_2S gas at Manholes (MH) N601 and N611, which are at the upstream and downstream ends of the project segment. In addition, V&A collected wastewater and odor compound grab samples at the MHs. Figure 1-1 shows the locations of the monitoring equipment and grab samples.

Figure 1-1. Project Vicinity Map

2 Background

2.1 Odor Generation and Control

Odor causing compounds are often produced due to the biological decomposition of organic matter containing sulfur and nitrogen. In wastewater collection and treatment systems, odors are commonly generated when bacteria produce odor causing compounds as part of their metabolic processes due to anerobic conditions. Common factors that contribute to odor emissions include long hydraulic retention times, low flow velocities, sources of turbulence, pressurized headspaces, and wastewater chemistry (i.e. high temperature and Biological Oxygen Demand (BOD), low pH and dissolved oxygen). Common odor causing compounds in wastewater systems include hydrogen sulfide (H_2S) and other reduced sulfur compounds (RSCs), volatile organic compounds, and ammonia/amines.

Generally, most odor control systems involve preventing odor emissions by treating the odor causing compounds before they are released from the wastewater (commonly referred to as liquid phase odor control or chemical addition) or capturing and treating foul air from an odorous headspace (commonly referred to as vapor phase odor control. Liquid phase odor control is generally targeted to mitigating hydrogen sulfide release, while vapor phase odor control technologies can treat a variety of odor compounds. Often the most effective control strategy involves a combination of technologies designed to address the specific odor compounds observed and factors contributing to their release.

2.2 Ventilation Dynamics

Sewers naturally draw air in and force air out due to local flow conditions. Under certain conditions sewers can sometimes force large volumes of odorous air out to cause odor complaints. The basic cause is friction drag between the water and air. As wastewater flows through the sewer, friction between the wastewater surface and the headspace air causes air to be dragged in the direction of the flow. The only resistance to air movement in a sewer is friction between the air and the stationary walls of the sewer. Figure 2-1 presents sewer air velocity profiles for a gravity sewer flowing approximately half full. The profiles show the air velocity as a percent of the wastewater surface velocity.

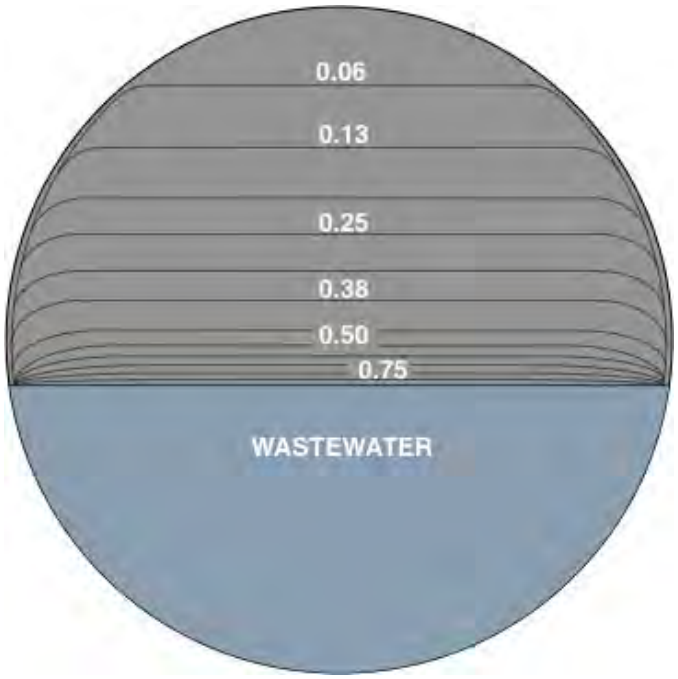

Figure 2-1. Sewer Air Velocity Profile

Just as the sewer has a limited wastewater capacity, the headspace has limited airflow capacity. The volume of air that moves through a sewer is directly proportional to the depth and velocity of the wastewater. Wastewater flowing at higher velocities will drag more air than at slower velocities. When the velocity of the wastewater decreases due to a flattening of sewer slopes or some other hydraulic constraint, the fast-moving air being pushed by the high velocity wastewater upstream cannot be supported by the slow-moving wastewater downstream, creating a positive pressure zone as shown in Figure 2-2. Alternating changes in slope can create alternating changes in air pressure which pulls air into the sewer and also pushes air out of the sewer.

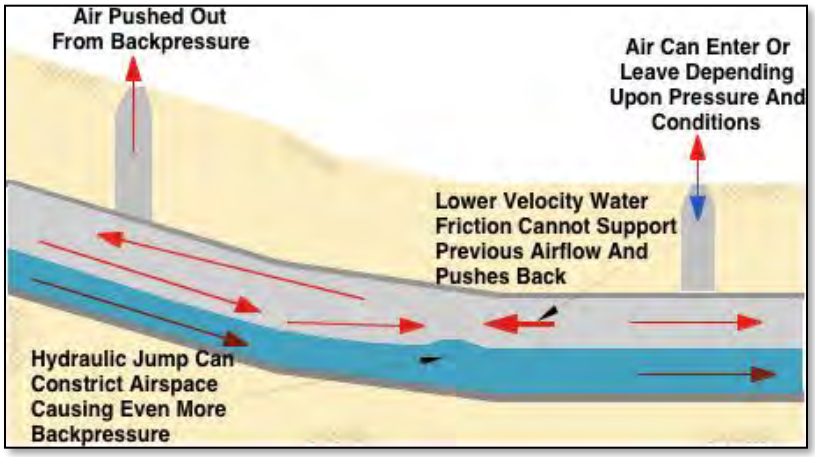

Figure 2-2. Ventilation Effect of Decreasing Slope

3 Monitoring Program

The monitoring program was conducted to collect data that would identify the potential for odor emissions. The program included continuous monitoring for gas phase hydrogen sulfide and differential air pressure of the sewer headspace at each monitoring location. By monitoring both parameters it is possible to identify discrete points of pressurization and odor emission.

Dissolved sulfide grab samples were also collected at each location. Sulfide generated by anaerobic conditions in wastewater exists in a dissolved ionic/aqueous form before it is released as gas phase hydrogen sulfide. By measuring the dissolved sulfide concentration in wastewater it is possible to identify the source and degree of anaerobic conditions contributing to sulfide formation and release. V&A also took grab samples of other odor compounds (mercaptans, ammonia, amine, H_2S) to further identify any potential odors.

V&A installed hydrogen sulfide gas and sewer headspace air pressure monitors on April 24, 2024 and retrieved the monitors on May 2, 2024. Dissolved sulfide and atmospheric odor compound grab sampling was conducted on each day.

3.1 Monitoring Locations

The monitoring locations were chosen based on discussions with Denise Duffy and Associates (DD&A), MNS Engineers (MNS), and CAWD. These locations are representative of current conditions in the sewer and likely conditions in the system following the sewer replacement project. The monitoring locations are shown on Figure 3-1 and are described below.

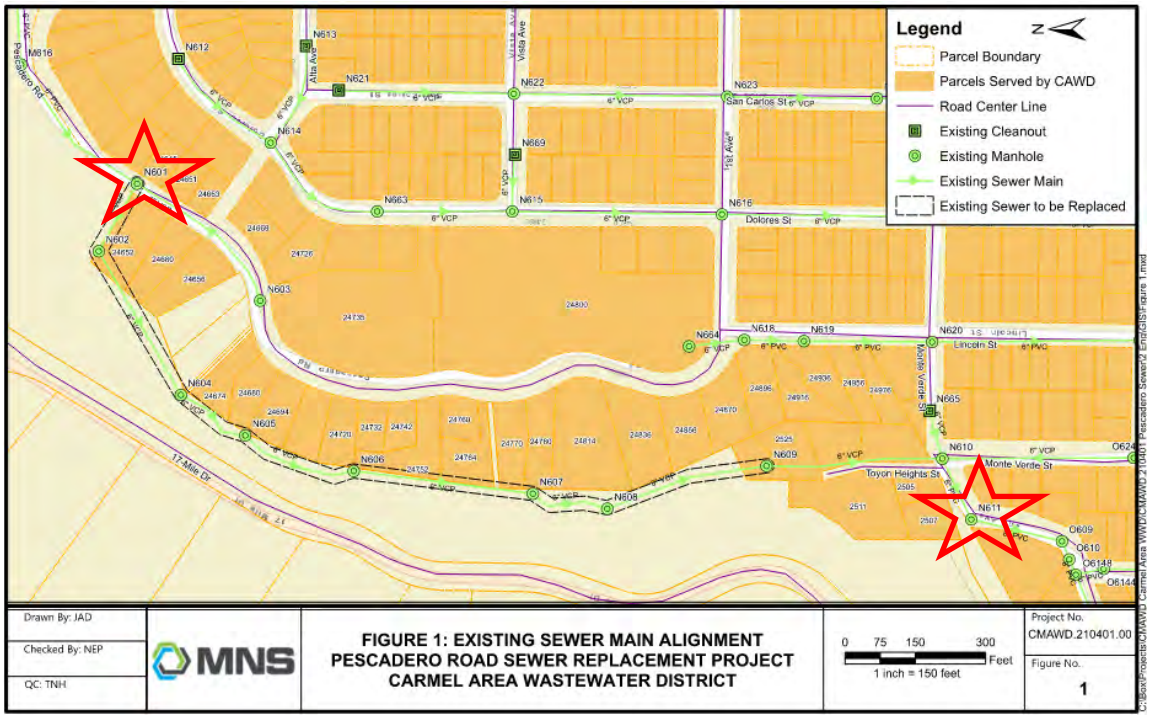

Figure 3-1, Monitoring Locations

3.1.1 Manhole No. N601

Manhole No. N601 (MH N601) is an existing manhole on the 6-inch VCP sewer located in Pescadero Road near address 24645. The existing sewer enters this manhole from the north and makes a 90-degree turn to the west within the manhole, taking the sewer alignment off Pescadero Road to Pescadero Canyon. It has a small tributary contributing flow from approximately 6 connections to the south of the manhole. Photo 3-1 shows MH N601 with the monitoring equipment installed.

Photo 3-1 MH N601 with Monitoring Equipment

3.1.2 Manhole No. N611

Manhole No. N611 (MH N611) is an existing manhole on the 8-inch PVC sewer located on the side of 2nd Ave. near address 2507. The existing sewer exits Pescadero Canyon and resumes a street alignment just upstream of this manhole. Photo 3-2 shows MH N611 with the monitoring equipment installed.

Photo 3-2 MH N611 with Monitoring Equipment

3.2 Methodology

3.2.1 Hydrogen Sulfide Gas (Continuous)

Gas phase H_2S was monitored in the collection system headspace using the Acrulog PPM hydrogen sulfide monitor capable of detecting H_2S concentrations in the range of 0 to 1,000 ppm. The instrument contains a passive hydrogen sulfide electrochemical diffusion type sensor. The units have an integrated data logger, which can record simultaneous air temperature, have an accuracy of 1% (Full Scale) and a resolution of 1 ppm (Photo 3-3).

Photo 3-3. Acrulog PPM

Hydrogen sulfide is one of the most common odor causing compounds in wastewater systems and has the potential to cause corrosion and damage infrastructure. The potential for odor and corrosion issues generally increases at higher hydrogen sulfide concentrations. Table 3-1 shows the relative odor and corrosion potential at various headspace hydrogen sulfide concentrations based on V&A's experience.

Table 3-1. Headspace Hydrogen Sulfide Odor and Corrosion Potentials

Average Hydrogen Sulfide (ppm)	Odor Potential	Biogenic Corrosion Potential
0 to 1 ppm	Negligible	Below Threshold
1 to 5 ppm	Low	Negligible
5 to 25 ppm	Moderate	Low to Moderate
25 to 50 ppm	High	Moderate to High
>50 ppm	Very High	High to Very High

3.2.2 Differential Pressure

Headspace differential air pressure was also monitored on a continuous basis. The differential air pressure of a sewer reflects the ventilation dynamics of the system; during periods of positive pressure differential the sewer has the ability to vent and release odors to the atmosphere, while periods of negative pressure indicate the sewer has the ability to draw air into the sewer. The differential pressure monitors record the pressure differential between the headspace inside the sewer and the atmospheric pressure outside. The monitor contains two small tubes, one that is vented to atmosphere and the other that is vented to the headspace. The pressure monitor is capable of detecting differential pressure in the range of +/- 2.0 inches water column (in-w.c.), with a resolution of 0.001 in-w.c. (Photo 3-4 and Photo 3-5). Table 3-2 characterizes the degree of pressurization and is based on V&A's experience.

Photo 3-4. Differential Pressure Monitor Installation

Photo 3-5. Acrulog Differential Pressure Monitor

Table 3-2. Differential Pressure Severity Characterization

Pressure Magnitude	Characterization/Degree of Pressurization
0.00 to 0.01 in-w.c.	Neutral
0.01 to 0.10 in-w.c.	Low
0.10 to 0.20 in-w.c.	Moderate
0.20 to 1.0 in-w.c.	High
> 1.0 in-w.c.	Very High

w.c.: water column.

3.2.3 Wastewater Characteristics

Wastewater dissolved sulfide grab samples were taken using Gastec™ capillary tubes for dissolved sulfide (DS) analysis, as shown in Photo 3-6. The detector tubes contain a reagent that reacts with the sulfide ion to produce a scaled reading of the dissolved sulfide concentration. The tubes provide a quick and repeatable method for accurately measuring dissolved sulfide. The tubes have a range from 0.5 mg/l to 120 mg/l dissolved bisulfide ion (HS^-).

While there are several wastewater characteristics that affect biological sulfide production (including BOD, pH, temperature, and sulfate concentration), they are only symptomatic factors of sulfide production and do not necessarily indicate an odor and corrosion problem. The most important parameter related to hydrogen sulfide gas production and release is the dissolved sulfide concentration itself.

Photo 3-6. Gastec Tubes

The amount of gas phase H_2S released from the wastewater (i.e. the observed concentration) will depend not only on the dissolved sulfide concentration but other factors such as wastewater temperature and pH, degree of turbulence, and ventilation. In an idealized condition, 1 mg/l of dissolved sulfide is capable of generating a gas phase H_2S concentration of over 100 ppm. Most wastewater systems will be observed to have concentrations ranging from 0 to 5 mg/l in main interceptors. Table 3-3 provides a general range of odor and corrosion potential due to sulfide release based on the overall system-wide average dissolved sulfide concentration observed in the wastewater system.

Table 3-3. Dissolved Sulfide Odor & Corrosion Potential Characterization

Average Dissolved Sulfide Concentration	Odor & Corrosion Potential
< 1 mg/l	Negligible to Moderate
1 to 5 mg/l	Moderate to High
> 5 mg/l	High to Very High

3.2.4 Odor Compound Grab Samples

Gastec detector tubes were also used to collect air grab samples from both manhole locations. The tubes sample for H_2S, reduced sulfur compounds (mercaptans, R-SH), ammonia NH_3, and other nitrogen-based odors (amines NH_2). A picture of the Gastec air pump and colorimetric tubes used in this sampling method is shown in Photo 3-7 and Photo 3-8.

Photo 3-7. Gas Phase Grab Sampling Pump with Colorimetric Tubes

Photo 3-8. Gas Phase Grab Sampling at MH N601

Table 3-4 shows generally accepted odor and recognition threshold concentrations for each of the odor compounds measured (above non-detectable limits) and the corresponding characteristic odor description. The detection threshold is defined as the concentration at which 50% of the population can first detect that an odor is present. The recognition threshold is defined as the concentration at which 50% of the population can identify the odor's character. The recognition threshold value is higher than the detection threshold since a sample will need to be more diluted to be below its detection threshold (no odor observed) compared to its recognition threshold (odor character can't be identified).

Table 3-4. Odor Compound Threshold Values and Characterization

Compound (ppb)	Detection Threshold (ppm)	Recognition Threshold (ppm)	Odor Description
Hydrogen Sulfide	0.0005	0.0047	Rotten Eggs
Mercaptan	0.0001 - 0.0005	0.001	Rotten Cabbage, Skunk, Garlic
Amines	0.0004 - 5	0.38	Fishy, Putrid
Ammonia	17	37	Irritating

Source: WEF Manual of Practice No. 25, 2nd Edition

4 Results and Analysis

4.1 Hydrogen Sulfide Monitoring

A summary of the monitoring results and location descriptions are presented in Table 4-1.

Figure 4-1 and **Error! Reference source not found.** show the H_2S monitoring data for MH N601 and MH N611, respectively. There was no H_2S detected in MH N601 at any point during the sampling period and MH N611 had only three positive H_2S readings, each at only 1 ppm and each lasting less than 5 minutes. Based on these results, the potential for odor from the Pescadero Road sewer is negligible.

Table 4-1. H_2S Concentrations Summary

Location	Avg. (ppm)	Min. (ppm)	Max. (ppm)
MH N601	0	0	0
MH N611	0	0	1

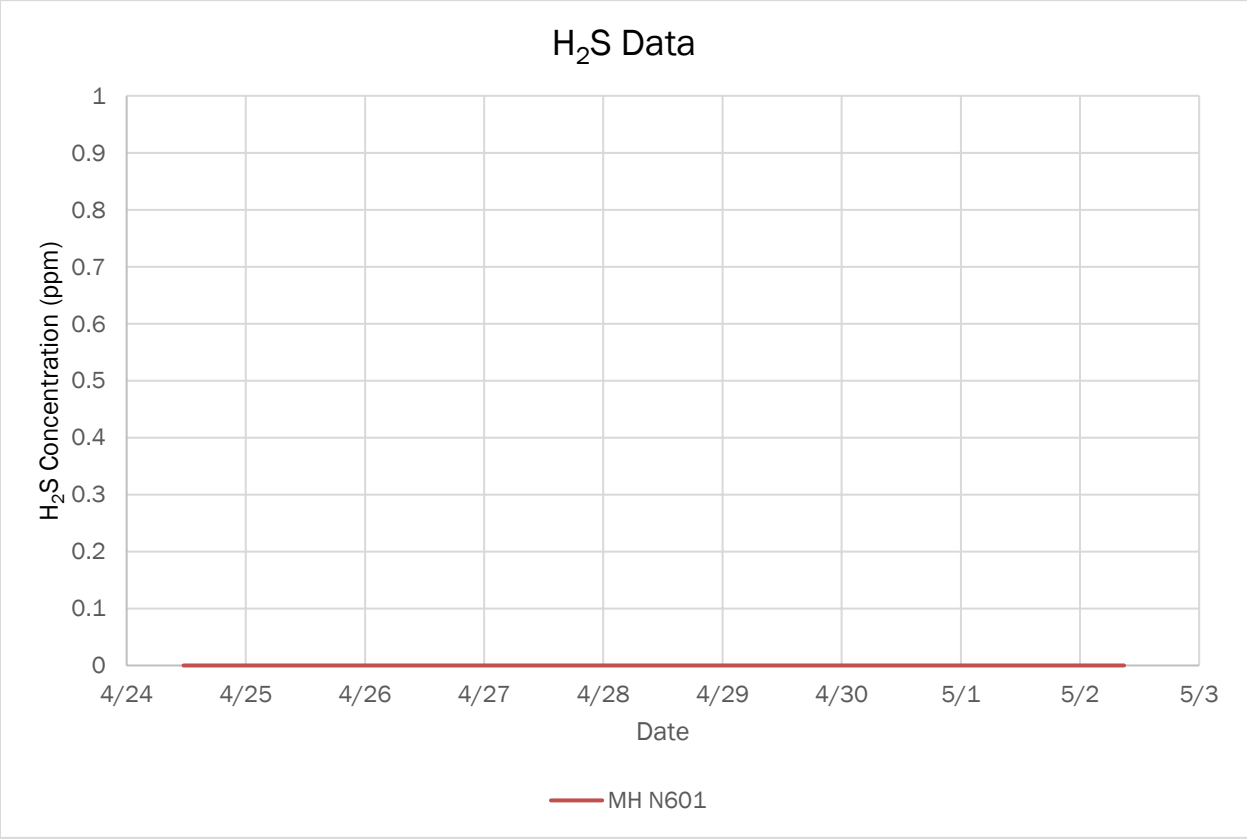

Figure 4-1. MH N601 H_2S Graph

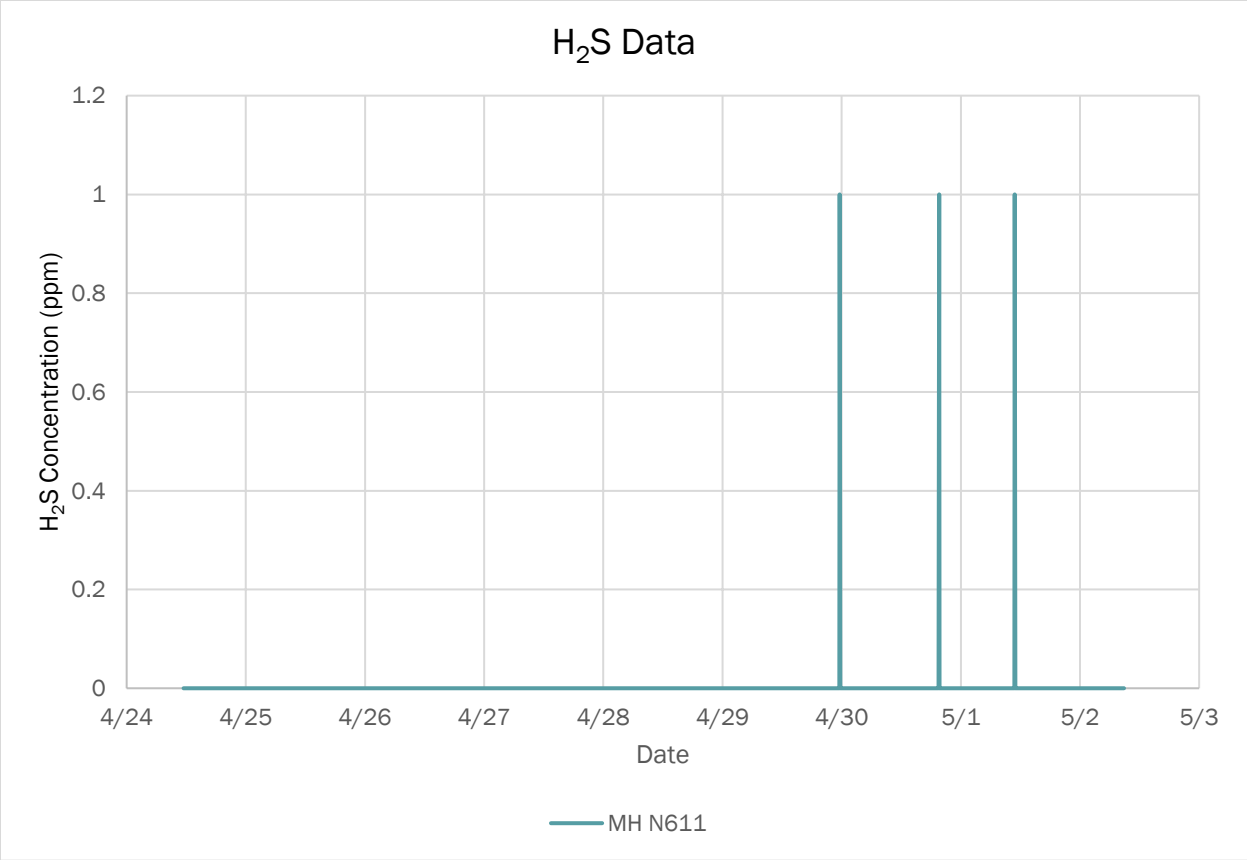

Figure 4-2 MH N611 H_2S Graph

4.2 Differential Pressure Monitoring

Differential pressure monitors were installed at both locations. In general, the manholes were at neutral pressure or under a slight vacuum most of the time. There were a few short durations of pressurization at both manholes, but based on the maximum pressure observed both manholes have a low degree of pressurization when pressurized.

Table 4-2. dP Summary

Location	Avg. (in w.c.)	Min. (in w.c.)	Max. (in w.c.)
MH N601	-0.012	-0.091	0.022
MH N611	-0.011	-0.059	0.054

Figure 4-3 and Figure 4-4 show the differential pressure data for both manholes.

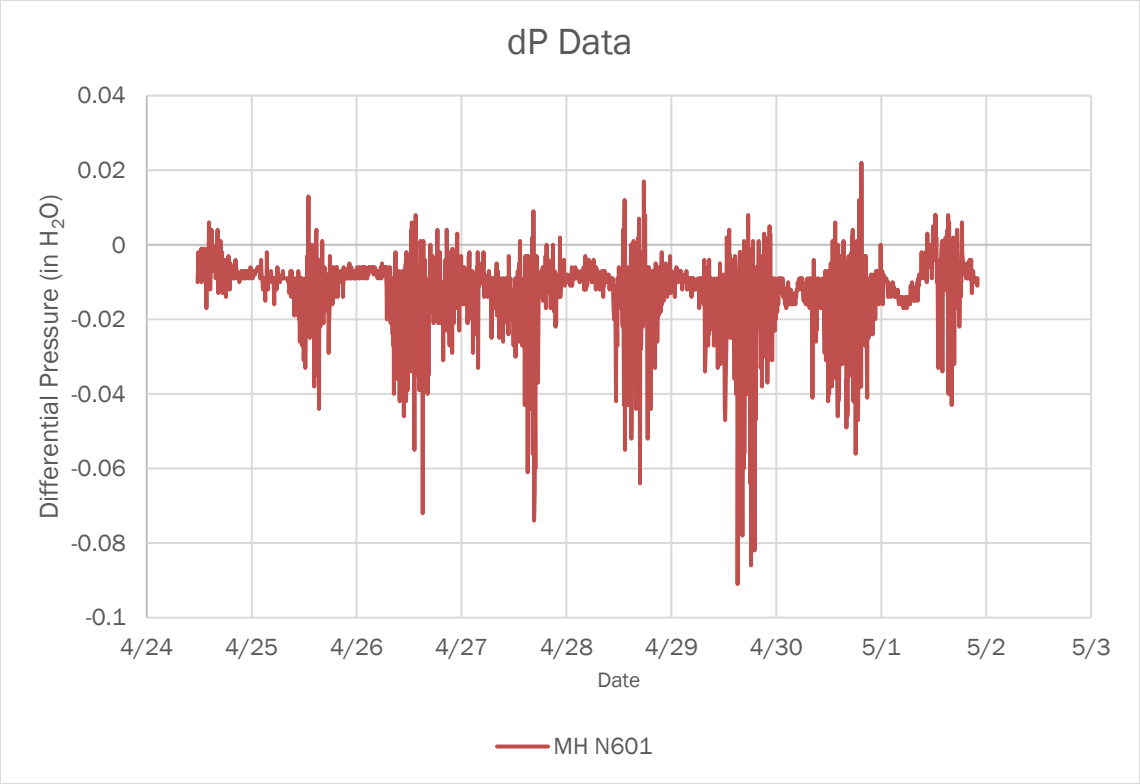

Figure 4-3. MH N601 Differential Pressure Graph

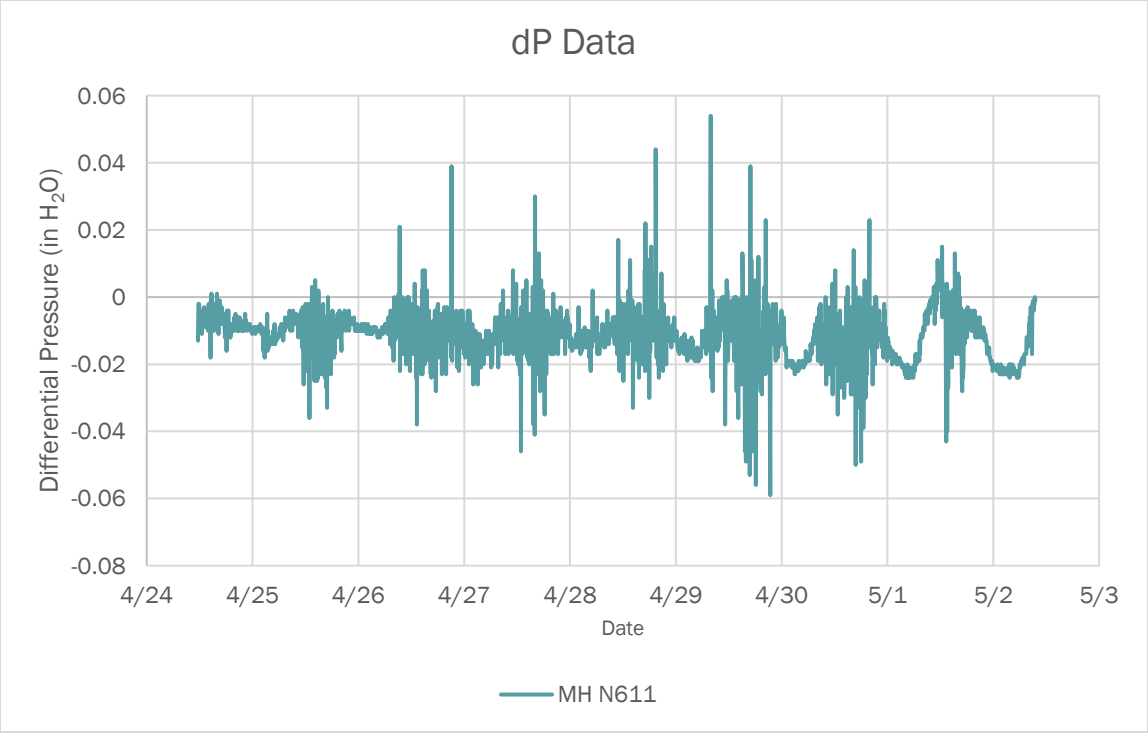

Figure 4-4 MH N611 Differential Pressure Graph

4.3 Dissolved Sulfide and Odor Compound Grab Sampling

Table 4-3 and Table 4-4 provide a summary of the dissolved sulfide (DS) and odor compound sampling conducted at both manholes. All compounds tested were below the detection limit of the sampling equipment. Based on these observations, the odor potential from the Pescadero Road sewer is negligible.

Table 4-3. Grab Samples at Monitors Install 4/24/2024

Parameter	MH N601	MH N611
H_2S (ppm)	ND	ND
Mercaptans (ppm)	ND	ND
Amine (ppm)	ND	ND
Ammonia (ppm)	ND	ND
Dissolved Sulfide (mg/l)	ND	ND
pH (pH units)	7.7	7.7
ORP (mV)	-13	-8
Wastewater Temperature (F)	64	64

ND – Non-detect

Table 4-4. Grab Samples at Monitors Removal 5/2/2024

Parameter	MH N601	MH N611
H_2S (ppm)	ND	ND
Mercaptans (ppm)	ND	ND
Amine (ppm)	ND	ND
Ammonia (ppm)	ND	ND
Dissolved Sulfide (mg/l)	ND	ND
pH (pH units)	7.8	7.1
ORP (mV)	-12	-6
Wastewater Temperature (F)	65	66

ND – Non-detect

5 Technology Evaluation

5.1 Vapor Phase Treatment

Ventilation dynamics, headspace pressurization, odor emissions, and in some cases, even corrosion can be effectively controlled by extracting and treating air from the collection system. There are many vapor phase odor treatment technologies and variations or combinations of technologies that are available to provide odor control for wastewater collection systems. Typically, chemical scrubbers are difficult to maintain and operate at remote locations within the collection system. Activated carbon adsorbers and biological treatment systems (biofilters, bioscrubbers) can be easily located within the collection system given sufficient land availability. Ultimately, the selection of the preferred odor control technology depends on the characteristic of the foul air stream and the collection system itself.

5.2 Liquid Phase (Chemical) Treatment

There are several chemical control options that may be used effectively to reduce or eliminate dissolved sulfide in wastewater collection systems. The majority of these chemicals are used for the treatment of sulfide-related odors and corrosion. Although chemicals have been used very effectively to control odors in many applications, a thorough evaluation of all odor control options must be performed before selecting chemical treatment due to the high cost of chemicals. Each sulfide generation situation is unique with site specific parameters which may or may not make specific chemical treatment feasible or economical.

5.3 Technology Comparison

Table 5-1 and Table 5-2 summarize the advantages and disadvantages of liquid phase vs vapor phase OCF as well as the benefits of the specific odor control technologies. Cost information is generic and meant to provide a relative comparison between the various alternatives in typical applications.

Table 5-1 Overview of Liquid Phase Sulfide Control Techniques

Odor/Corrosion Control System	Suitable Conditions	Advantages	Disadvantages	Capital Cost	O&M Cost
Liquid Phase/Chemical Addition	**H_2S as primary odor compound corrosion control required**	**Provides odor and corrosion control; low capital cost**	**May not address non-H_2S odor compounds; high life cycle cost**	**$-$$**	**$$-$$$$**
Nitrate Salts	- Long retention times - Complete sulfide removal and/or prevention required - Multiple sidestreams/ control points - Remote / residential dosing Sites	Can be used to prevent sulfide generation or oxidize sulfide in gravity sewers and force mains; safe to handle	Dosages and operating costs vary depending on use: prevention vs. removal; Slime layer acclimation	$-$$	$$-$$$$
Iron Salts	- Low Residence time between dose and control points 90% sulfide removal sufficient - Moderate to High velocity force mains	Economical for sulfide control in gravity sewers or force mains	Does not control non-H_2S odors; sulfide control to low concentration may be difficult; increased solids production.	$-$$	$$-$$$
pH Adjustment	- High dissolved sulfide concentrations and long retention time force mains - single control point applications	Prevents sulfide release; economical for high sulfide concentrations.	Sufficient mixing time required to prevent release from side streams. Sulfide may still be released downstream if elevated pH not maintained.	$-$$	$$$-$$$$

Table 5-2. Overview of Vapor Phase OCF Techniques

Odor/Corrosion Control System	Suitable Conditions	Advantages	Disadvantages	Capital Cost	O&M Cost
Vapor Phase/Air Treatment	**Headspace pressurization multiple odor causing compounds**	**Capable of broad spectrum odor control. Lower O&M costs.**	**May not effectively mitigate corrosion. Higher capital costs.**	**$$-$$$$**	**$-$$$**
Carbon Scrubber	Low H_2S concentrations complete odor removal required smaller remote sites	High H_2S/RSC/VOC removal efficiencies good odor removal performance low O&M requirements	Requires frequent media changeouts removal efficiency impacted by condensation/high humidity high life cycle cost	$$-$$$	$$-$$$
Biotrickling Filter	High H_2S /Low Odor Concentrations Moderate to High Airflow Volumes Small Footprint Requirements	High H_2S Removal Efficiency 10 year + Media Life No Chemicals Low Life Cycle Cost	Poor VOC Removal Efficiency Moderate RSC and Total Odor Removal Performance Moderate O&M Requirements	$$$-$$$$	$-$$
Biofilter	High H_2S and Odor Concentrations	High H_2S/RSC/VOC Removal Efficiencies Good Odor Removal Performance No Chemicals Low O&M Requirements Low Life Cycle Cost	3 to 5 year media life Large Footprint	$$-$$$	$-$$

6 Discussion

The data collected during the field investigation indicate a very low potential for odor emissions from the Pescadero Road sewer in either its current configuration or following the sewer replacement project.

The hydrogen sulfide data shows non-detectible or negligible concentrations within the collection system on Pescadero Road. All samples for other potentially odorous compounds were non-detectible. The differential pressures are generally neutral to slightly under vacuum with minor episodes of low pressurization, indicating a low potential for air release.

The replaced Pescadero Road sewer will begin and terminate at the same starting and ending elevations as the current sewer, and there will be no changes to the flow sources or configuration. Therefore, no significant changes in wastewater characteristics or pressure conditions are expected following the replacement project and no changes to current odor conditions are expected from the project.

7 Recommendations

7.1 Odor Mitigation

Based on the results of the monitoring study and analysis of the sewer system characteristics, no odor mitigation is recommended for the project. In the event that conditions change unexpectedly, passive carbon adsorbers could be used in the sewer manholes to prevent release of odorous compounds. A manhole insert adsorber is shown in Photo 7-1.

Photo 7-1. Manhole Insert Passive Carbon Adsorber

Passive manhole adsorbers are available from a number of wastewater equipment and activated carbon suppliers. Typical costs for manhole insert adsorbers range from $500 to $1,500 each.

7.2 Follow-Up Evaluation

Given the sensitivity of the Pescadero Road project and stakeholder interest, it is recommended that the odor monitoring be repeated at the project's conclusion and under peak potential H_2S conditions to validate odor conditions in the new configuration.

V&A Project No. 23-0305

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Appendix D
Biological Resources Report

Carmel Woods and Pescadero Road Sewer Main Rehabilitation Project Biological Resources Report

May 2026

Prepared for

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1. INTRODUCTION

Denise Duffy & Associates, Inc. (DD&A) was contracted by MNS Engineers, Inc. to prepare this Biological Resources Report for the Carmel Woods and Pescadero Road Sewer Main Rehabilitation Project (project or proposed project), located within the coastal zone in Monterey County (County), California (**Figures 1** and **2**). The project site is approximately 8.9 acres and is mostly developed with paved roads. The site lies mostly within unincorporated Monterey County; however, the southern portion of the project is within the limits of the City of Carmel-by-the-Sea (City). The project consists of two components: (1) the construction and operation of a new sewer main within the Pescadero Road and Monte Verde Street rights-of-way to replace an existing, deteriorated sewer main in the canyon below, and (2) the replacement and rehabilitation of approximately 14,850 linear feet (LF) of gravity sewer mains within the Carmel Woods neighborhood (**Figure 2**). A portion of the existing sewer main in the canyon would be abandoned in place while a majority of the existing sewer main in the canyon would be rehabilitated. The project proponent is the Carmel Area Wastewater District (CAWD).

To satisfy the reporting criteria of the County and other regulatory agencies, DD&A completed a biological assessment of the project site to determine if sensitive biological resources are present or have the potential to occur within and in the vicinity of the site. This report describes the existing biological resources within and adjacent to the project site, including any special-status species or sensitive habitats which occur or have the potential to occur within and adjacent to the site. This report also assesses the potential impacts to biological resources that may result from full buildout of the project, and recommends appropriate avoidance, minimization, and mitigation measures necessary to reduce those impacts to a less-than-significant level in accordance with the California Environmental Quality Act (CEQA). In addition, this report includes an overview of applicable federal, state, and local regulation, regulatory, and responsible agencies with jurisdiction over sensitive resources within the project site and the relevant permits for biological resources that could be required for the project.

1.1 Project Background

For the Pescadero Road area, CAWD is seeking to replace a damaged section of sewer main located in and parallel to Pescadero Road on the northwest side of the City to continue to provide reliable service to CAWD customers and minimize the potential for future sewer spills. The existing sewer main on the forested hillside of Pescadero Canyon has been damaged by tree falls and is in poor condition. Localized high points and other condition issues have caused several sewer spills, and maintenance crews have had difficulty accessing the sewer main for maintenance. Frequent maintenance is required due to its poor condition. The sewer infrastructure was installed approximately 80 years ago, and the pipeline was constructed of six-inch vitrified clay pipe (VCP). The sewer main crosses several properties along the existing alignment to be replaced including private residential properties and property owned by the Del Monte Forest Conservancy, designated as the "Pescadero Canyon Property." The ground surface in this area is steeply sloped from the east to the west, unstable, and currently inhabited by various plant and animal species, including Monterey pines (*Pinus radiata*) and coast live oaks (*Quercus agrifolia*).

Title:

Regional Map

Date 3/16/2026

Scale N/A

Project 2021.74

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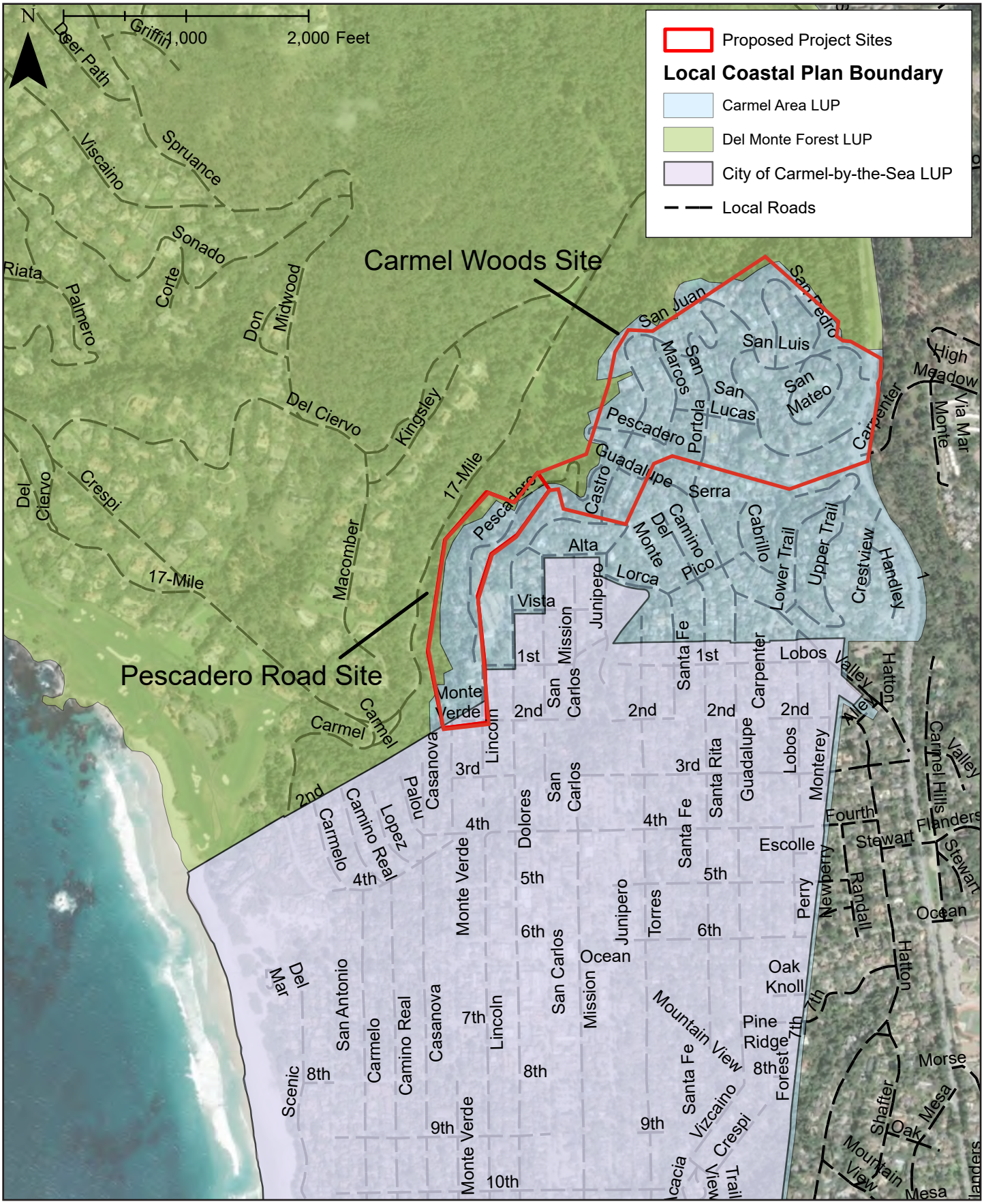
Figure

1



Title:	Date	3/16/2026	Monterey | San Jose	Figure
Project Location Map	Scale	N/A	Denise Duffy and Associates, Inc.	2
	Project	2021.74	Environmental Consultants Resource Planners	
			947 Cass Street, Suite 5 Monterey, CA 93940 (831) 373-4341	

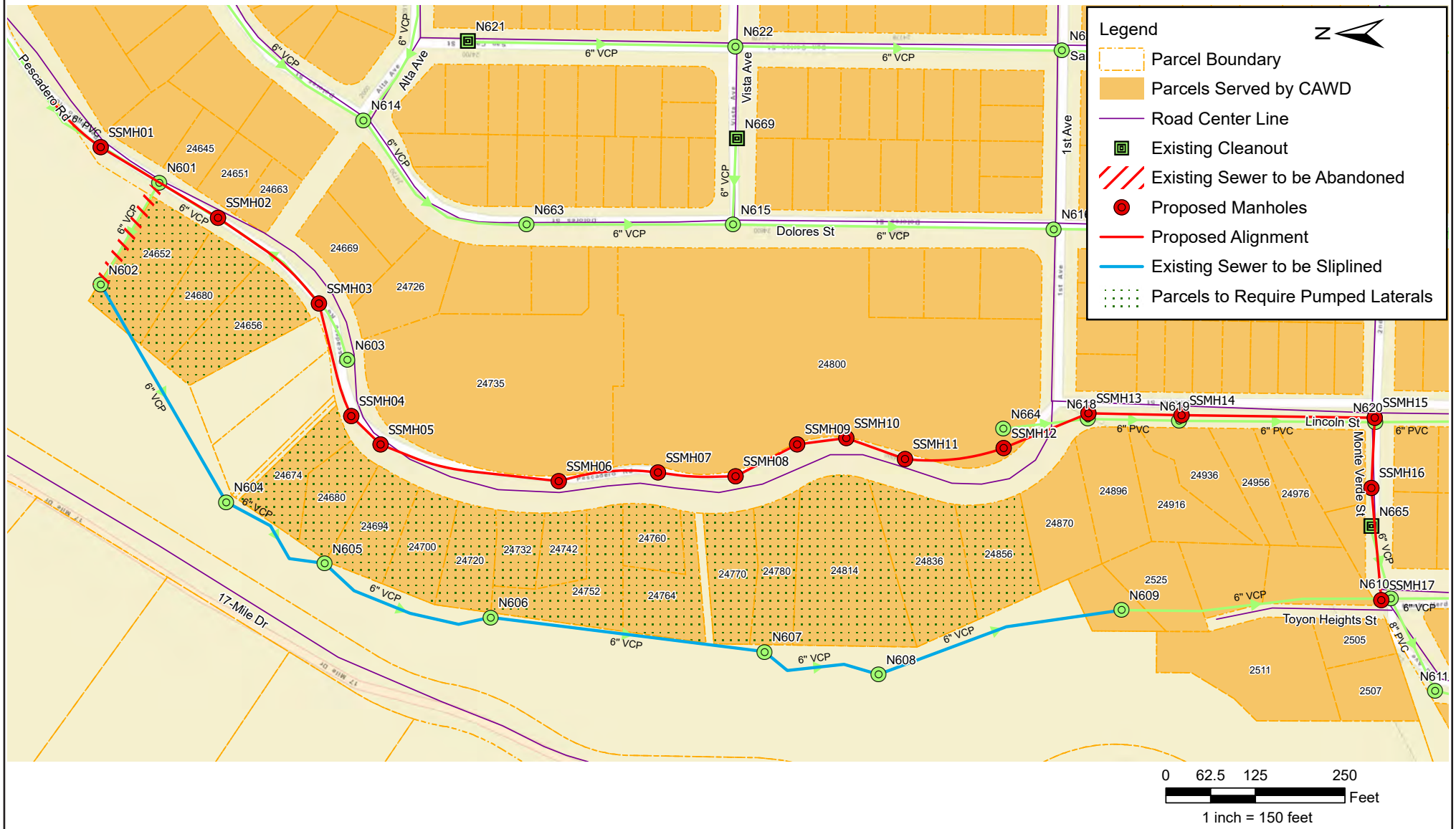
The existing sewer main runs upslope from, and parallel to, Pescadero Creek and associated riparian corridor within Pescadero Canyon. The sewer main conveys wastewater from approximately 275 parcels, primarily residential, within CAWD service area. Of these parcels, 19 are located along Pescadero Road and have service laterals directly connected to the sewer main to be replaced. Five manholes and approximately 1,600 LF of sewer main lie within the Pescadero Canyon Property.

In 2016, DD&A prepared a *Biological Alternatives Analysis for the Pescadero Road Sewer Main Replacement Project* (Alternatives Analysis) to compare and determine the biological constraints of two project alternatives. Alternative A proposed to replace the existing sewer main in place and would include a temporary 20-foot-wide access path that would be cleared and grubbed of all vegetation and graded to provide a drivable surface along the alignment. Alternative B proposed to abandon the existing sewer main in place and construct a new sewer main within Pescadero Road and Monte Verde Street. A modified version of Alternative B is currently proposed as it minimizes potential project impacts to biological resources and meets residential needs. Rather than fully abandon the sewer main within Pescadero Canyon, a portion of the existing sewer main in the canyon would be fully abandoned and the remaining alignment would be reinforced in place with a slip-line pipeline installation in the existing sewer main and connected to the existing sewer main in Toyon Heights, just north of Monte Verde Street.

For the Carmel Woods area, CAWD assessed the condition of the existing gravity sewer mains and manholes and identified various replacement and rehabilitation measures. Damaged VCP mains are recommended to be replaced with new polyvinyl chloride (PVC) or high-density polyethylene (HDPE) pipes in accordance with CAWD standards. For existing sewer mains with minimal defects, CAWD proposes to install an internal lining system. CAWD would either replace all manholes determined to be in poor condition with new pre-cast concrete manholes or rehabilitate existing manholes with a lining system. For existing manholes without substantial defects, various minor repairs are recommended to extend the life of the manhole.

1.2 Project Description

For the Pescadero Road area, the proposed project would consist of constructing a new sewer main in Pescadero Road and abandoning a portion of the existing sewer main in the hillside (**Figure 3**). The proposed alignment would reconfigure existing an upstream manhole and connect a new gravity sewer to an existing downstream manhole in Monte Vista Street with a new 10-inch PVC and HDPE gravity sewer. The existing sewer segment connecting the northern end of the Pescadero Canyon sewer main to the existing sewer main in Pescadero Road would be demolished and removed or abandoned in place (**Figure 3**). Flow direction along this segment would be reversed with installation of the new gravity sewer. Existing manholes within Lincoln Street between 1st Avenue and 2nd Avenue would be demolished, removed, and reconstructed in place. Between manhole N620 and N610, the proposed alignment would travel through the cul-de-sac on 2nd Avenue and continue to manhole N610 at the intersection of Monte Verde Street and 2nd Avenue.



0 62.5 125 250 Feet

1 inch = 150 feet

Source: MNS, February 2026

Title:

Proposed Pescadero Road Site Plan

Date	3/16/2026
Scale	N/A
Project	2021.74

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Figure

3

The new sewer would be constructed using open trench construction from existing manhole N616 to existing manhole N618. From here to approximately 8 LF before manhole N620, the new sewer would be installed with HDPE using pipe bursting in the existing horizontal and vertical alignment. From the new manhole at the intersection of Lincoln Street and 2nd Avenue, new PVC sewer main would be installed to the existing cleanout to the west end of 2nd Avenue by open trench construction. From the existing cleanout, where a new manhole is planned, to manhole N610, the new sewer would be installed with HDPE using pipe bursting in the existing horizontal and vertical alignment. In total, approximately 2,325 LF of new 10-inch sewer main and 13 manholes would be constructed.

Trench excavation depths are anticipated to range between 6 and 22 feet below grade. Pipeline trenches would be backfilled with crushed rock and/or Class II aggregate base and paved, except in unimproved areas. Manholes would be constructed of precast concrete or poured in place per CAWD standards. The project would reconfigure existing manhole N601 several feet upstream to a slightly higher elevation to minimize the manhole depth and reduce excavation costs in the area immediately downstream of this manhole where the gravity sewer main could reach depths of 22 feet below grade. In addition to the sewer improvements in the Pescadero area, the project will address drainage issues on the east side of Pescadero Road by re-establishing the drainage ditch through grading.

A portion of the existing sewer between N601 and N602 at the Pescadero Road site would be abandoned in place. Sewer mains would be filled with “one-sack” slurry or cellular concrete. This work would be completed using hand and power tools carried on foot from Pescadero Road. Hoses and cords from Pescadero Road would be required to convey concrete and power equipment, which would be laid on grade to accomplish this work. Provisions would be set in place to prevent any slurry or other materials from spilling from the sewer main and manholes to the surrounding areas. No wheeled or tracked equipment would be allowed outside the public right-of-way.

The Carmel Woods project component consists of the replacement or rehabilitation of approximately 14,850 LF of existing deteriorated 6-inch diameter VCP gravity sewer main with new PVC or HDPE sewer mains or installation of a lining system. The majority of the sewer mains would be replaced or rehabilitated along the existing alignments, where feasible. However, several segments would be realigned to improve ease of maintenance. **Figure 4** shows the Carmel Woods project area and recommended rehabilitation and replacement measures. The gravity sewer main is expected to be replaced using pipe-bursting construction for replacement where feasible or rehabilitated using a cured-in-place (CIPP) liner system or fold-and-form liner system to minimize open trench construction. Slip lining would also be used to convert some sewer main segments into sewer laterals (6-inch to 4-inch). Manholes in poor condition are recommended to be replaced with new pre-cast concrete manholes, or rehabilitated, per CAWD preference, in accordance with CAWD standards. For existing manholes without substantial defects, various minor repairs are recommended to extend the life of the manhole. In total, the Carmel Woods project component would replace approximately 2,425 LF of new 8-inch sewer main, 8,875 LF of new 6-inch sewer main, 550 LF of new 4-inch sewer lateral conversion, and 12 manholes would be replaced. Approximately 2,300 LF of the existing sewer main lining would be rehabilitated through CIPP and fold-and-form methods.

0 135 270 540 Feet

1 inch = 270 feet

Source: MNS, 2025

Title:

Proposed Carmel Woods Site Plan

Date	3/23/2026
Scale	N/A
Project	2021.74

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Figure

4

2. METHODS

2.1 Personnel and Survey Methods

As part of the biological analysis for the Alternatives Analysis, DD&A Senior Environmental Scientist Josh Harwayne and Assistant Environmental Scientist Shaelyn Hession conducted biological surveys of the project site on January 28 and February 11, 2016 (DD&A, 2016). Survey methods included walking the project site using aerial maps to identify general habitat types and potential sensitive habitats, assessing the potential presence of wetlands and other waters, conducting a focused survey for special-status plants or habitat for special-status plants, and conducting a reconnaissance-level habitat survey to identify any suitable special-status wildlife species occurring within the site. Additional surveys were conducted on June 27, 2022, by Josh Harwayne and DD&A Associate Environmental Scientist Liz Camilo, and March 4, 2026, by Assistant Environmental Scientist Jordan Smith, to confirm or update the results of 2016 surveys.

In 2016 surveys, the project site was evaluated for botanical resources following the applicable guidelines outlined in *Guidelines for Conducting and Reporting Botanical Inventories for Federally listed, Proposed and Candidate Plants* (U.S. Fish and Wildlife Service [USFWS], 2000), *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (California Department of Fish and Wildlife [CDFW], 2022), and California Native Plant Society (CNPS) *Botanical Survey Guidelines* (CNPS, 2001).

Data collected during the survey were used to assess the environmental conditions of the project site and its surroundings, evaluate environmental constraints within the project site and the local vicinity, and provide a basis for recommendations to minimize and avoid impacts to biological resources.

2.2 Data Sources

The Alternatives Analysis (DD&A, 2016) was reviewed to provide context and a general overview of the potential biological resources within the site. Much of the data in this report were adopted from the Alternatives Analysis and updated accordingly. Data sources utilized in the Alternatives Analysis and updated for this report include:

- Current agency status information from the USFWS and CDFW for species listed, proposed for listing, or candidates for listing as threatened or endangered under the federal Endangered Species Act (ESA) or the California Endangered Species Act (CESA), and those considered CDFW "species of special concern," including:
    - California Natural Diversity Database (CNDDB) occurrences report from the Mt. Carmel, Monterey, Soberanes Point, Seaside, and Marina quadrangles (**Appendix A**; CDFW, 2026); and
    - The USFWS Information for Planning and Consultation (IPaC) Resource List for the project site (**Appendix B**; USFWS, 2026a).
- The CNPS *Inventory of Rare and Endangered Vascular Plants of California* (CNPS, 2023);
- The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA-NRCS, 2026);
- The USFWS National Wetlands Inventory Wetlands Mapper (USFWS, 2026b);

- The National Hydrography Dataset (USGS, 2023) and
- eBird occurrences[1] (eBird, 2026).

From these resources, a list of special-status plant and wildlife species known or with the potential to occur in the vicinity of the project site was created (**Appendix C**). This list presents these species along with their legal status, habitat requirements, and a brief statement of the likelihood to occur within the project site.

2.2.1 Botany

Vegetation types identified in *A Manual of California Vegetation* (Sawyer et al., 2009) were utilized to determine if vegetation types identified as sensitive on CDFW's *California Natural Communities List* (CDFW, 2025) are present within the project parcel. Information regarding the distribution and habitats of local and state vascular plants was also reviewed (Howitt and Howell, 1964 and 1973; Munz and Keck, 1973; Baldwin et al., 2012; Matthews and Mitchell, 2015; Jepson Flora Project, 2026). All plants observed within the project site during the evaluation were identified by species or intraspecific taxon necessary to eliminate them as being special-status species using keys and descriptions in *The Jepson Manual: Vascular Plants of California, Edition 2* (Baldwin et al., 2012) and *The Plants of Monterey County an Illustrated Field Key* (Matthews and Mitchell, 2015). Scientific nomenclature for plant species identified within this document follows Baldwin, et. al, (2012); common names follow Matthews and Mitchell (2015). A full botanical inventory was not recorded for the project site but the dominant species within each habitat were noted. Dominant plant species are those which are more numerous than their competitors in an ecological community or make up more of the biomass; generally, the species that are most abundant. Most ecological communities are defined by their dominant species.

The California Invasive Plant Council (Cal-IPC) Inventory (Cal-IPC, 2026) was reviewed to determine if any invasive plant species are present within the project parcel.

2.2.2 Wildlife

The following literature and data sources were reviewed: CDFW reports on special-status wildlife (Remsen, 1978; Williams, 1986; Thelander, 1994; Thomson et. al, 2016); California Wildlife Habitat Relationships Program species-habitat models (Zeiner et al., 1988 and 1990); and general wildlife references (Stebbins, 1972, 1985, and 2003).

2.3 Definitions

2.3.1 Sensitive Habitats

Sensitive habitats include riparian corridors, wetlands, habitats for legally protected species, areas of high biological diversity, areas supporting rare or special-status wildlife habitat, and unusual or regionally restricted vegetation types. Vegetation types considered sensitive include those listed on CDFW's *California Natural Communities List* (i.e., those habitats that are rare or endangered within the borders of California) (CDFW, 2025), those that are occupied by species listed under the ESA or are critical habitat in accordance with the ESA, and those that are defined as Environmentally Sensitive Habitat Areas (ESHA)

[1] eBird is a citizen science platform for documenting avian observations. eBird data is reviewed by volunteer birding experts; however, most reviews are of rare or unusual observations only. Because the data is not verifiable, eBird occurrences are used in this document to supplement verifiable data provided in the CNDDB and other resources.

under the California Coastal Act. Specific habitats may also be identified as sensitive in city or county general plans or ordinances. Sensitive habitats are regulated under federal regulations (such as the Clean Water Act and Executive Order 11990 – Protection of Wetlands), state regulations (such as CEQA and the CDFW Streambed Alteration Program), or local ordinances or policies (such as city or county tree ordinances and general plan policies).

2.3.2 Special-Status Species

Special-status species are those plants and animals that have been formally listed or proposed for listing as endangered or threatened or are candidates for such listing under ESA or CESA. Listed species are afforded legal protection under the ESA and CESA. Species that meet the definition of rare or endangered under the CEQA Guidelines Section 15380 are also considered special-status species. Animals on the CDFW's list of "species of special concern" (most of which are species whose breeding populations in California may face extirpation if current population trends continue) meet this definition and are typically provided management consideration through the CEQA process, although they are not legally protected under the ESA or CESA. CDFW also includes some animal species that are not assigned any of the other status designations in the CNDDB "Special Animals" list; however, these species have no legal or protection status and are not analyzed in this document.

Plants listed as rare under the California Native Plant Protection Act (CNPPA) or included in CNPS California Rare Plant Ranks (CRPR; formerly known as CNPS Lists) 1A, 1B, 2A, and 2B are also treated as special-status species as they meet the definitions of Sections 2062 and 2067 of the CESA and in accordance with CEQA Guidelines Section 15380.[2] In general, the CDFW requires that plant species on CRPR 1A (plants presumed extirpated in California and either rare or extinct elsewhere), CRPR 1B (plants rare, threatened, or endangered in California and elsewhere), CRPR 2A (plants presumed extirpated in California, but more common elsewhere); and CRPR 2B (plants rare, threatened, or endangered in California, but more common elsewhere) of the CNPS Inventory of Rare and Endangered Vascular Plants of California (CNPS, 2026) be fully considered during the preparation of environmental documents relating to CEQA. CNPS CRPR 4 species (plants of limited distribution) may, but generally do not, meet the definitions of Sections 2062 and 2067 of CESA, and are not typically considered in environmental documents relating to CEQA. While other species (i.e., CRPR 3 or 4 species) are sometimes found in database searches or within the literature, these do not meet the definitions of Section 2062 and 2067 of CESA and are not analyzed in this document.

Raptors (e.g., eagles, hawks, and owls) and their nests are protected under California Fish and Game Code Section 3503.5. Section 3503.5 states that it is "unlawful to take, possess, or destroy the nest or eggs of any such bird except otherwise provided by this code or any regulation adopted pursuant thereto." In addition, protected species under Fish and Game Code Section 3511 (birds), Section 4700 (mammals), Section 5515 (fish), and Section 5050 (reptiles and amphibians) are also considered special-status animal species. Species with no formal special-status designation but thought by experts to be rare or in serious decline may also be considered special-status animal species in some cases, depending on project-specific analysis and relevant, localized conservation needs or precedence.

[2] CNPS initially created five CRPR to categorize degrees of concern; however, to better define and categorize rarity in California's flora, the CNPS Rare Plant Program and Rare Plant Program Committee have developed the new CRPR 2A and CRPR 2B.

2.4 Regulatory Setting

The following regulatory discussion describes the major federal, state, and local laws that may be applicable to the project.

2.4.1 Federal Regulations

Federal Endangered Species Act

Provisions of the ESA of 1973 (16 USC 1532 et seq., as amended) protect federally listed threatened or endangered species and their habitats from unlawful take. Listed species include those for which proposed and final rules have been published in the Federal Register. The ESA is administered by the USFWS or National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS). In general, NMFS is responsible for the protection of ESA-listed marine species and anadromous fish, whereas other listed species are under USFWS jurisdiction.

Section 9 of ESA prohibits the take of any fish or wildlife species listed under ESA as endangered or threatened. Take, as defined by ESA, is "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." Harm is defined as "any act that kills or injures the fish or wildlife…including significant habitat modification or degradation that significantly impairs essential behavioral patterns of fish or wildlife." In addition, Section 9 prohibits removing, digging up, and maliciously damaging or destroying federally listed plants on sites under federal jurisdiction. Section 9 does not prohibit take of federally listed plants on sites not under federal jurisdiction. If there is the potential for incidental take of a federally listed fish or wildlife species, take of listed species can be authorized through either the Section 7 consultation process for federal actions or a Section 10 incidental take permit process for non-federal actions. Federal agency actions include activities that are on federal land, conducted by a federal agency, funded by a federal agency, or authorized by a federal agency (including issuance of federal permits).

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 prohibits killing, possessing, or trading migratory birds except in accordance with regulation prescribed by the Secretary of the Interior. Most actions that result in permanent or temporary possession of a protected species constitute violations of the MBTA. The Service is responsible for overseeing compliance with the MBTA and implements Conventions (treaties) between the United States and four countries—Canada, Mexico, Japan, and Russia—for the protection of migratory birds. The Service maintains a list of migratory bird species that are protected under the MBTA.

Clean Water Act

The U.S. Army Corps of Engineers (ACOE) and U.S. Environmental Protection Agency (EPA) regulate discharge of dredged and fill material into waters of the U.S. under Section 404 of the Clean Water Act (CWA). Waters of the U.S. are defined broadly as waters susceptible to use in commerce (including waters subject to tides, interstate waters, and interstate wetlands) and other waters (such as interstate lakes, rivers, streams, mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds) (33 CFR 328.3). Potential wetland areas are identified as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soils conditions."

Under Section 401 of the CWA, any applicant receiving a Section 404 permit from the ACOE must also obtain a Section 401 Water Quality Certification from the Regional Water Quality Control Board (RWQCB). A Section 401 Water Quality Certification is issued when a project is demonstrated to comply with state water quality standards and other aquatic resource protection requirements.

2.4.2 State Regulations

California Endangered Species Act

The CESA was enacted in 1984. The California Code of Regulations (Title 14, §670.5) lists animal species considered endangered or threatened by the state. Section 2090 of CESA requires state agencies to comply with endangered species protection and recovery and to promote conservation of these species. Section 2080 of the Fish and Game Code prohibits "take" of any species that the commission determines to be an endangered species or a threatened species. “Take” is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." A Section 2081 Incidental Take Permit from the CDFW may be obtained to authorize “take” of any state listed species.

California Native Plant Protection Act

The CNPPA of 1977 directed CDFW to carry out the legislature’s intent to “preserve, protect and enhance rare and Endangered plants in the State.” The CNPPA prohibits importing rare and Endangered plants into California, taking rare and Endangered plants, and selling rare and Endangered plants. The CESA and CNPPA authorized the Fish and Game Commission to designate endangered, threatened, and rare species and to regulate the taking of these species (§2050-2098, Fish and Game Code). Plants listed as rare under the CNPPA are not protected under CESA; however, these plants may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research.

California Fish and Game Code

Birds. Section 3503 of the Fish and Game Code states that it is “unlawful to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.” Section 3503.5 prohibits the killing, possession, or destruction of any birds in the orders Falconiformes or Strigiformes (birds-of-prey). Section 3511 prohibits take or possession of fully protected birds. Section 3513 prohibits the take or possession of any migratory nongame birds designated under the federal Migratory Bird Treaty Act (MBTA). Section 3800 prohibits take of nongame birds.

Fully Protected Species. The classification of fully protected was the state's initial effort in the 1960s to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish (§5515), mammals (§4700), amphibians and reptiles (§5050), and birds (§3511). Most fully protected species have also been listed as threatened or endangered species under the more recent endangered species laws and regulations. Fully protected species may not be taken or possessed at any time and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.

Species of Special Concern. As noted above, the CDFW also maintains a list of wildlife “species of special concern.” Although these species have no legal status, the CDFW recommends considering these species

during analysis of project impacts to protect declining populations and avoid the need to list them as endangered in the future.

Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act of 1969 (Porter-Cologne) is California's statutory authority for the protection of water quality and applies to surface waters, wetlands, and groundwater, and to both point and nonpoint sources. Under Porter-Cologne, the State Water Resources Control Board (State Board) has the ultimate authority over State water rights and water quality policy. However, Porter-Cologne also establishes nine RWQCBs to oversee water quality on a day-to-day basis at the local/regional level. The API is located within Region 3 – Central Coast RWQCB. Porter-Cologne incorporates many provisions of the federal CWA, such as delegation to the State Board and RWQCBs of the National Pollutant Discharge Elimination System (NPDES) permitting program.

Under Porter-Cologne, the State must adopt water quality policies, plans, and objectives that protect the state's waters for the use and enjoyment of the people. Regional authority for planning, permitting, and enforcement is delegate to the nine RWQCBs. The regional boards are required to formulate and adopt water quality control plans for all areas in the region and establish water quality objectives in the plans. The Porter-Cologne sets forth the obligations of the State Board and RWQCBs to adopt and periodically update water quality control plans (basin plans). The act also requires waste dischargers to notify the RWQCBs of such activities through filing of Reports of Waste Discharge (RWD) and authorizes the State Board and RWQCBs to issue and enforce waste discharge requirements (WDRs), NPDES permits, Section 401 water quality certifications, or other approvals. The RWQCBs also have authority to issue waivers to RWD requirements and WDRs for broad categories of "low threat" discharge activities that have minimal potential for adverse water quality effects, when implemented according to prescribed terms and conditions.

The term "Waters of the State" is defined by Porter-Cologne as "any surface water or groundwater, including saline waters, within the boundaries of the state." The RWQCB protects all waters in its regulatory scope but has special responsibility for wetlands, riparian areas, and headwaters, including isolated wetlands, and waters that may not be regulated by the ACOE under Section 404 of the CWA. Waters of the State are regulated by the RWQCB under the State Water Quality Certification Program, which regulates discharges of fill and dredged material under Section 401 of the CWA and the Porter-Cologne.

California Coastal Act

The California Coastal Commission (CCC) was established by voter initiative in 1972 (Proposition 20) and later made permanent by the California State Legislature through adoption of the California Coastal Act (CCA) of 1976. The CCC, in partnership with coastal cities and counties, plans and regulates the use of land and water in the coastal zone. California's coastal zone generally extends 1,000 yards inland from the mean high tide line. In significant coastal estuarine habitat and recreational areas, it extends inland to the first major ridgeline or five miles from the mean high tide line, whichever is less. In developed urban areas, the boundary is generally less than 1,000 yards. Development activities, which are broadly defined by the CCA to include (among others) construction of buildings, divisions of land, and activities that change the intensity of use of land or public access to coastal waters, generally require a Coastal Development Permit (CDP) from either the CCC or the local government if a Local Coastal Program (LCP) has been certified. After certification of a LCP, coastal development permit authority is delegated to the appropriate local

government, but the CCC retains original permit jurisdiction over certain specified lands (such as tidelands and public trust lands). The Commission also has appellate authority over development approved by local governments in specified geographic areas as well as certain other developments. A CDP is required in addition to any other permit required from resource agencies, unless the project is exempt.

The CCC or the local government may designate areas of rare or unique biological value, such as wetland and riparian habitat and habitats for special-status species, as ESHA. Section 30107.5 of the CCA defines an "environmentally sensitive area" as any area in which plant or animal life or their habitat are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments. Development is restricted within the coastal zone and prohibited within designated ESHA, unless the development is coastal dependent and does not have a significant effect on the resources. Section 30240 of the CCA states that "environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas." This section also states that "development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas and shall be compatible with the continuance of those habitat and recreation areas."

The proposed project is located primarily in unincorporated Monterey County between Carmel-by-the-Sea and Del Monte Forest. A small portion of the Pescadero Road site, including areas of Lincoln Street and 2nd Avenue, is located within the City. The entirety of the project site is located within the coastal zone. The project site falls within the boundaries of three certified LCPs: the City-of Carmel-by-the-Sea General Plan , Carmel Area Land Use Plan (LUP), and the Del Monte Forest Area LUP.

However, according to Title 20, Zoning Ordinance for the County of Monterey, Chapter 20.70.120(G), Exemptions from Coastal Development Permits, the proposed project would be considered exempt from County coastal permit requirements. As stated in the ordinance: The installation, testing, and placement in service or the replacement of any necessary utility connection between an existing service facility and any development provided that the County may, where necessary, require reasonable conditions to mitigate any adverse impacts on coastal resources, including scenic resources. (See Coastal Commission's September 5, 1978 "Repair, Maintenance and Utility Hook-Up Exclusions from Permit Requirements" document for further detail on which public utility projects are exempt). Under this guidance from the CCC, for excluded activities related to transmission, distribution, and communication facilities, a coastal permit is not required to install, test, place in service, maintain, replace, modify, or relocate underground facilities provided that the work is limited to public road or railroad rights-of-way or public utility easements and provided that there is no removal of major vegetation and the site is restored as close as reasonably possible to its original condition.

A portion of the proposed project site is located within the City of Carmel's General Plan, which serves as the certified LCP for that area. This area does not contain any ESHA as defined but the General Plan. Under Title 17 Chapter 52, Permit Procedures, the proposed project would be considered exempt from the City's coastal permit requirements. The installation, testing, and placement in service or the replacement of any necessary utility connection between an existing service facility and any development which has been granted a valid coastal development permit; provided; however, that the City may, where necessary, require reasonable conditions to mitigate any adverse impacts on coastal resources, including scenic resources.

2.4.3 Local Regulations

1982 Monterey County General Plan

The 1982 Monterey County General Plan, instead of the 2010 Monterey County General Plan, regulates activities within the coastal zone in Monterey County.

Goal 7: To preserve the diversity and conserve the extent of the County's native vegetation.

Policy 7.1.1: Development shall be carefully planned in, or adjacent to, areas containing limited or threatened plant communities, and shall provide for the conservation and maintenance of the plant communities.

Policy 7.1.2: The County shall encourage the protection of limited or threatened plant communities through dedications of permanent conservation easements and other appropriate means.

Policy 7.2.1: Landowners and developers shall be encouraged to preserve the integrity of existing terrain and natural vegetation in visually sensitive areas such as hillsides and ridges.

Goal 9: To conserve the abundance and diversity of the County's wildlife.

Policy 9.2.1: Land use practices which could result in siltation and pollution of inland and marine waters shall be carefully managed in order to assure a clean and productive habitat.

Objective 10.1: Promote protection of the native plant and animal communities of the Pacific Ocean along the coast of Monterey County.

Goal 11: To conserve natural habitats for native plant and animal species and to promote preservation of rare and endangered plant and animal species.

Objective 11.2: Maintain and regularly update information regarding areas of particular environmental sensitivity or concern and coordinate these efforts with the appropriate resource agencies.

Monterey County Carmel Area Land Use Plan

The Monterey County Carmel Area LUP includes policies to protect sensitive biological resources, ESHA, and protected trees, that are appliable to the project, including:

2.3.3 General Policies

1. Development, including vegetation removal, excavation, grading, filling, and the construction of roads and structures, shall be avoided in critical and sensitive habitat areas, riparian corridors, wetlands, sites of known rare and endangered species of plants and animals, rookeries and major roosting and haul-out sites, and other wildlife breeding or nursery areas identified as critical. Resource-dependent uses, including nature education and research, hunting, fishing, and aquaculture, shall be allowed within environmentally sensitive habitats and only if such uses will not cause significant disruption of habitat values. Only small-scale development necessary to support the resource-dependent uses may be located in sensitive habitat areas if they cannot

feasibly be located elsewhere. Wetlands are defined as lands which may be covered periodically or permanently with shallow water and include saltwater marshes, fresh water marshes, open or closed brackish water marshes, swamps, mudflats and fens.

City of Carmel-by-the-Sea General Plan and Local Coastal Program

The City's General Plan includes goals and policies related to the preservation of biological resources. The following goals from the City's General Plan may apply to the proposed project:

The City of Carmel-by-the-Sea's General Plan is combined with the Local Coastal LUP and includes goals and policies to preserve coastal environmental resources, including ESHAs and urbanized forest. No ESHA or ESHA buffer zone as defined in the City's General Plan are located within the portion of the proposed project site that is located within the City's jurisdiction; however, trees under the jurisdiction of the City's General Plan are located within this portion of the proposed project site. The Coastal Resource Management Element (CRME) contains goals, objectives, and policies relevant to biological resources, including:

G5-4: Preserve and enhance the City's legacy of an urbanized forest of predominantly Monterey pine, coast live oak and Monterey Cypress. (LUP)

- **P5-183:** Promote the placement of utilities underground where feasible and with minimum detriment to the root system of trees. (LUP)

- **P5-103:** Identify and protect environmentally sensitive habitat areas against any significant disruption of habitat values. Only uses dependent upon those resources shall be allowed. For private lots of record within ESHA, establish a transfer of development rights program using credits of water, floor area, density or some other development parameter to relocate development to less sensitive areas. (LUP)

- **P5-104:** Preserve and protect wetlands. (LUP)

Del Monte Forest Area Land Use Plan

The Del Monte Forest Area LUP includes goals and policies related to the preservation of biological resources. The following policies from the Del Monte Forest Area LUP may apply to the proposed project:

8: Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values. Within environmentally sensitive habitat areas, new land uses shall be limited to those that are dependent on the resources therein. Land uses and development adjacent to environmentally sensitive habitat areas shall be compatible with long-term maintenance of the habitat area, and such land use and development shall be sited and designed to prevent impacts that would significantly degrade the habitat areas.

11: Contiguous areas of land in open space uses shall be maintained wherever possible to protect environmentally sensitive habitat areas and associated wildlife values. To this end, development of parcels immediately adjacent to environmentally sensitive habitat areas shall be planned to keep development intensity immediately adjacent to the sensitive

habitats as low as possible, consistent with other planning criteria (e.g., drainage design, roadway design, and public safety).

14: Near environmentally sensitive habitat areas, native vegetation removal, and land disturbance (grading, excavation, paving, etc.) shall be restricted to the minimum amount necessary to accommodate reasonable development. Development shall be sited and designed to prevent impacts that would significantly degrade those nearby areas and shall be compatible with the continuance of those habitat areas.

16: Prior to approval of development on existing legal lots of record, a biological report shall be prepared by a qualified biologist for the purpose of determining the presence of rare, endangered, and/or sensitive native plant and animal species and habitats and developing appropriate siting and design standards.

Monterey County Municipal Code

Section 21.64.260 of Monterey County's municipal code provides for the preservation of oaks and other protected trees. This code requires a permit from the County for the removal of trees in unincorporated areas designated as resource conservation, residential, commercial, or industrial. It also prohibits the removal of landmark trees, unless approved by the Director of Planning.

Carmel-by-the-Sea Municipal Code

Chapter 17.48.050 of the City's municipal code requires a permit for trees on private property for any alteration that would remove roots greater than two inches in diameter, and any tree on public property where pruning or root removal is proposed. Permit application requirements include the number, size, and species of tree roots to be removed. Section 17.48.110 also requires protection of trees during construction, including protection of tree roots from drying out during excavation, and any trimming cuts are required to conform to arboricultural standards.

3. RESULTS

3.1 Habitat Types

The project site is mostly developed with paved roads; however, a portion of the site consists of degraded Monterey pine forest habitat. The following sections provide an overview of these habitat types and their occurrence within the project site.

3.1.1 Developed

- *A Manual of California Vegetation* classification: None
- *California Natural Communities List*: Not listed

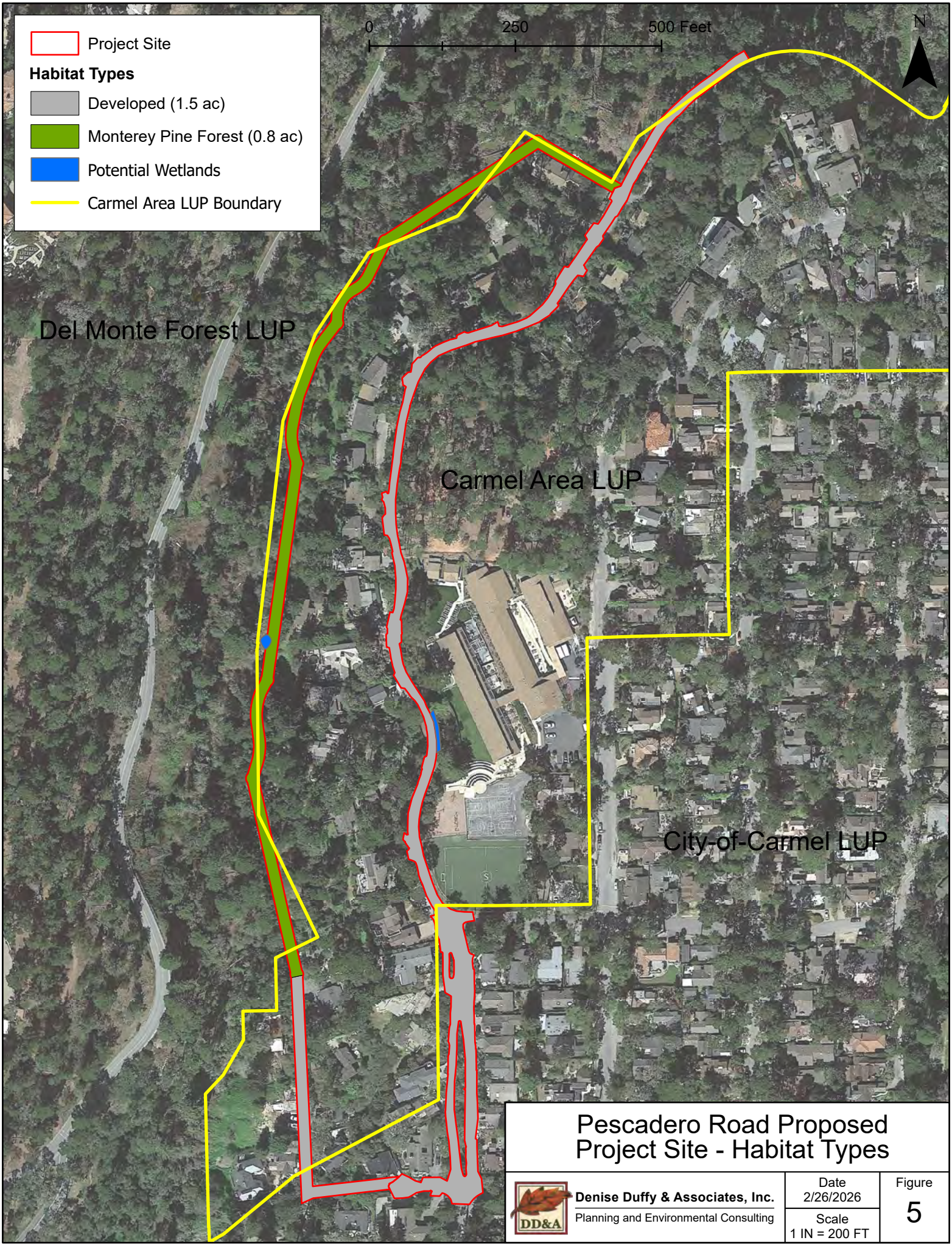
The project site is mostly developed with paved roads. A small section of developed habitat within the project site is landscaped. However, generally no vegetation is present within developed areas, and they are considered to have little to no biological value. Approximately 1.5 acres of developed areas occur within the Pescadero Road portion of the project site (**Figure 5**). The majority of the Carmel Woods portion of the proposed project is located within developed roadways and landscaped residential lots totaling approximately 6.5 acres of developed habitat (**Figure 6**).

3.1.2 Degraded Monterey Pine Forest

- *A Manual of California Vegetation* classification: Monterey pine forest *(Pinus radiata – Quercus agrifolia/Toxicodendron diversilobum* association)
- CDFW's *California Natural Communities List*: Sensitive

The degraded Monterey pine forest consists of a moderate- to closed-canopy natural community dominated by Monterey pine, but also supports coast live oak and poison oak (*Toxicodendron diversilobum*). Within the project site, degraded Monterey pine forest occurs throughout interspersed with the residential area. In addition to poison oak, the dominant species in the understory are horticultural species that likely escaped from adjacent properties and non-native grasses and forbs, including rattlesnake grass (*Briza maxima*), cape ivy (*Delairea odorata*), panic veldtgrass (*Ehrharta erecta*), Bermuda buttercup (*Oxalis per-caprae*), hedge-nettle (*Stachys sp.*). Approximately 0.8 acres of degraded Monterey pine forest is present within the Pescadero Road portion of the project site (**Figure 5**), and approximately 0.12 acres of degraded Monterey pine forest is located within the Carmel Woods portion (**Figure 6**). Two Monterey pine trees would be removed from a developed area to facilitate site access (Sheets C-2 and C-3 of **Appendix A**).

Due to relatively short life span of closed-cone pines, dead trees and trunks are characteristic of Monterey pine forests. These attract a wide variety of common wildlife, including mule deer (*Odocoileus hemionus*), raccoon (*Procyon lotor*), red-tailed hawk (*Buteo jamaicensis*), scrub jay (*Aphelocoma californica*), chestnut-backed chickadee (*Poecile rufescens*), and American robin (*Turdus migratorius*).



Pescadero Road Proposed Project Site - Habitat Types

Denise Duffy & Associates, Inc.
Planning and Environmental Consulting

Date	Figure
2/26/2026	5
Scale	
1 IN = 200 FT	

Path: C:\GIS\2021-74 Pescadero Sewer Replacement\2026 Revision\Pescadero Sewer Replacement 2026 Revised\Pescadero Sewer Replacement 2026 Revised.aprx

Carmel Woods Proposed Project Site - Habitat Types

Denise Duffy & Associates, Inc. Planning and Environmental Consulting	Date 3/26/2026 Scale 1 IN = 350 FT	Figure 6

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3.2 Sensitive Habitats

3.2.1 Degraded Monterey Pine Forest

The Monterey pine forest vegetation alliance occurring within the project site is considered sensitive under CDFW's *California Natural Communities List* (CDFW, 2025). Within the Carmel-by-the-Sea General Plan/LUP and Monterey County Carmel Area and Del Monte Forest LUPs, Monterey pine forest is considered ESHA under the CCA. The LUPs prohibit development within this habitat unless the development is coastal dependent and would not have a significant effect on the resource.

3.2.2 Potential Wetlands of the U.S. and/or State

Areas supporting hydrophytic vegetation and which may be considered wetlands of the U.S. and/or state were identified within and adjacent to the project site during biological surveys in 2016 and 2022 (**Figure 5**). Potential wetlands were identified within Pescadero Canyon adjacent to and just north of Manhole N607. Another potential wetland was identified within a roadside drainage ditch which directly abuts Pescadero Road near the Stevenson School. Impacts to these resources may be subject to the jurisdiction of the ACOE and/or the RWQCB under Sections 404 and/or 401 of the CWA. In addition, the wetlands within and adjacent to the project site may also be considered ESHA and, therefore, may be subject to the City's jurisdiction under the Carmel-by-the-Sea General Plan/LUP. Potential wetlands were not observed within the boundaries of the Del Monte Forest LUP.

3.3 Special-Status Species

Published occurrence data within the project site and surrounding quadrangles were evaluated to compile a table of special-status species known to occur in the vicinity of the project site (see *Section 2, Methods*). Each of these species was evaluated for their likelihood to occur within and immediately adjacent to the project site. The special-status species that are known to occur within the project site or that were determined to have a moderate or high potential to occur within the site are discussed below. All other species are assumed unlikely to occur or have a low potential to occur based on the species-specific reasons presented in **Appendix C** and, therefore, are unlikely to be impacted by the project and are not discussed further.

3.3.1 Special-Status Plants

Monterey Pine

Monterey pine is a CNPS List 1B species in the Pinaceae family. This evergreen tree occurs in closed-cone coniferous forests at elevations from 25 to 185 meters. Only four native stands of this species exist in the world. One stand is found on Guadalupe Island off Baja California. The other three stands are all within California at Ano Nuevo, Cambria, and the Monterey Peninsula. Monterey pines are introduced in many areas, including in New Zealand, where it is used as a plantation crop. Only one-half of the species' historical extent remains undeveloped on the Monterey Peninsula. Monterey pines are threatened by development, genetic contamination, pine pitch canker disease, and forest fragmentation, especially in the Del Monte Forest on the Monterey Peninsula.

Monterey pine individuals are present within the project site, which is located in one of the few remaining native stands of this species.

3.3.2 Special-Status Wildlife

Monterey Dusky-Footed Woodrat

The Monterey dusky-footed woodrat (*Neotoma macrotis luciana*, MDFW) is a CDFW species of special concern. This is a subspecies of the dusky-footed woodrat *(Neotoma macrotis)*, which is common to oak woodlands and other forest types throughout California. Dusky-footed woodrats are frequently found in forest habitats with moderate canopy cover and a moderate to dense understory, including riparian forests; however, they may also be found in chaparral communities. Relatively large nests are constructed of grass, leaves, sticks, and feathers and are built in protected spots, such as rocky outcrops or dense brambles of blackberry and/or poison oak. Typical food sources for this species include leaves, flowers, nuts, berries, and truffles. Dusky-footed woodrats may be a significant food source for small- to medium-sized predators. Populations of this species may be limited by the availability of nest material. Within suitable habitat, nests are often found in close proximity to each other.

Suitable habitat for MDFW is present within and adjacent to the project sites in the degraded Monterey pine forest habitat. The CNDDB does not report any occurrences of this species within the quadrangles reviewed; however, this species is known to occur throughout the region wherever suitable habitat occurs. Therefore, this species has a moderate potential to occur within the proposed project sites.

Raptors and Other Protected Avian Species

Raptors, their nests, and other nesting birds are protected under California Fish and Game Code and Migratory Bird Treaty Act. In addition, some avian species are protected as special-status species (see **Appendix C**). While the life histories of these species vary, overlapping nesting and foraging similarities allow for their concurrent discussion. Most raptors are breeding residents throughout most of the wooded portions of the state. Stands of live oak, riparian deciduous, or other forest habitats, as well as open grasslands, are used most frequently for nesting. Breeding occurs February through September, with peak activity May through July. Prey for these species include small birds, small mammals, and some reptiles and amphibians. Many raptor species hunt in open woodland and habitat edges.

Various species of raptors, including the white-tailed kite (*Elanus leucurus*), red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus),* American kestrel (*Falco sparverius*), great horned owl (*Bubo virginianus*), and turkey vulture (*Cathartes aura*), have a potential to nest within the large trees present within and adjacent to the project sites.

3.4 Protected Trees

Large native trees, including Monterey pine and coast live oak, occur within the project sites. For trees whose canopies fall over the road rights-of-way, tree trimming may be required to facilitate construction activities. Two Monterey pine trees would be removed to facilitate site access (Sheets C-2 and C-3 of **Appendix A**).

4. IMPACTS AND MITIGATION

Construction activities associated with the proposed project, including all ground disturbance (vegetation removal, grubbing, grading, trench excavation) in undeveloped areas and tree trimming and removal within the project sites could result in impacts to sensitive habitats and special-status wildlife species. Mitigation measures have been provided below to reduce these potential impacts to a less-than-significant level in accordance with CEQA.

4.1 Impact Thresholds

The following section describes potential impacts to sensitive biological resources that may result from the project. In accordance with Appendix G of CEQA Guidelines, an impact is considered to be significant and require mitigation if it would result in any of the following:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS;

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by CDFW or USFWS;

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling hydrological interruption, or other means;

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native nursery sites;

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

f) Conflict with the provisions of an adopted Habitat Conservation Plan (HCP), Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

4.2 Impacts and Recommendations

The following section describes potential impacts that may result from the project.

Impact BIO-1: *Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS.*

Vegetation removal and ground-disturbing activities, including trench excavation and backfilling, would be required in some areas for the installation of the new sewer mains and manholes. These activities are primarily limited to developed roadways and residential properties within both proposed project sites.

MDFW has the potential to occur within the degraded Monterey pine forest habitat located within and adjacent to the project sites. Ground-disturbing activities would be mostly limited to paved roads, but may

be required in vegetated, forest areas that could provide suitable habitat for this species. If present, construction activities may result in direct mortality of individuals and/or loss of habitat for these species, which would represent a potentially significant impact. However, these impacts would be reduced to a less-than-significant level with incorporation of **Mitigation Measures BIO-1** identified below.

Construction noise has the potential to result in potentially significant impacts to nesting birds in adjacent trees and vegetation as a result of nest abandonment and failure, which can result in injury, harm, or mortality. However, noise reduction measures will be implemented during construction activities in accordance with **Mitigation Measure NOI-1** identified in the Initial Study/Mitigated Negative Declaration (IS/MND) prepared for the proposed project. Therefore, with implementation of **Mitigation Measure NOI-1**, construction noise would be reduced to below 85 dBA Leq, which is below levels anticipated to result in injury, harm, or mortality to nesting birds. However, the proposed project would require the removal of two Monterey pine trees and trimming of other trees, which provide suitable habitat for nesting birds and, therefore, the removal and trimming of trees may result in potentially significant impacts to nesting birds if present. These impacts would be reduced to a less-than-significant level with incorporation of **Mitigation Measure BIO-2** identified below.

Mitigation Measure BIO-1: Construction Best Management Practices
The following best management practices will be implemented during all identified phases of construction (i.e., pre-, during, and post-) to reduce impacts to sensitive biological resources:

- CAWD will retain a qualified biologist to conduct an Employee Education Program for the construction crew prior to any construction activities (staging and mobilization) to aid workers in recognizing special-status species and sensitive habitats that may occur in the construction area. The qualified biologist will meet with the construction crew at the onset of construction at the project site to educate the construction crew on the following: 1) the appropriate access route(s) in and out of the construction area and review project boundaries; 2) the special-status species and sensitive habitats that may be present; 3) the specific mitigation measures that will be incorporated into the construction effort; 4) the general provisions and protections afforded by the USFWS and CDFW; and 6) the proper procedures if a special-status species is encountered within the project site. A fact sheet conveying this information will be provided to all personnel involved with construction. The qualified biologist shall perform additional trainings for any employees that are added to the construction crew after the onset of construction, prior to these employees being authorized to engage in construction activities. All employees will sign a form provided by the qualified biologist indicating that they have attended the training and understand the information presented. The form will be submitted to CAWD by the qualified biologist to document compliance.

- Protective fencing shall be placed prior to and during construction to keep construction equipment and personnel from impacting vegetation outside of work limits.

- Trees and vegetation not planned for removal or trimming shall be protected prior to and during construction to the maximum extent possible through the use of exclusionary fencing, such as hay bales for herbaceous and shrubby vegetation, and protective wood barriers for trees.

- Grading, excavating, and other activities that involve substantial soil disturbance will be planned and implemented in consultation with a qualified hydrologist, engineer, or erosion control specialist, and will utilize standard erosion control techniques to minimize erosion and sedimentation to native vegetation adjacent to the project site (pre-, during, and post-construction).

- Following construction, disturbed areas will be restored to pre-project contours to the maximum extent possible and revegetated using locally-occurring native species and native erosion control seed mix, per the recommendations of a qualified biologist.

- To protect against spills and fluids leaking from equipment, CAWD shall require that the construction contractor maintains an on-site spill plan and on-site spill containment measures that can be easily accessed.

- No firearms will be allowed on the project site at any time.

- All food-related and other trash will be disposed of in closed containers and removed from the project area at least once a week during the construction period, or more often if trash is attracting avian or mammalian predators. Construction personnel will not feed or otherwise attract wildlife to the area.

Mitigation Measure BIO-2: Nesting Bird Pre-Construction Surveys
Tree removal and tree trimming activities that may affect nesting raptors and other protected avian species can be timed to avoid the avian nesting season (February 1 through September 15). Specifically, tree removal and trimming activities can be scheduled between September 16 and January 31. If this is not possible, pre-construction surveys for protected avian species shall be conducted by a qualified biologist within 15 days prior to the commencement of construction activities in all trees planned for removal or trimming. If nesting birds are identified during pre-construction surveys, an appropriate buffer shall be imposed within which no construction activities or disturbance will take place (generally 300 feet in all directions). A qualified biologist shall be on-site during work re-initiation in the vicinity of the nest offset to ensure that the buffer is adequate and that the nest is not stressed and/or abandoned. No work shall proceed in the vicinity of an active nest until such time as all young are fledged, as determined by the qualified biologist, or until after September 1 (when young are assumed fledged).

Impact BIO-2: *Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by CDFW or USFWS, or a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling hydrological interruption, or other means*.

Sensitive habitats, including degraded Monterey pine forest and potential wetlands, are known to occur within and adjacent to the project site. Degraded Monterey pine forest is located within both proposed project sites; two Monterey pine trees are proposed for removal within this sensitive habitat type. However, the removal of two Monterey pine trees would not result in potentially significant impacts to the degraded Monterey pine forest habitat. Potential wetlands are located within the Pescadero Canyon area of the project site. However, no vehicles or heavy equipment would enter these areas. Construction equipment in these areas would be restricted to hoses and hand tools, which would be carried into the canyon by foot. Another

potential wetland is located directly adjacent to Pescadero Road near Stevenson School where drainage ditch maintenance is planned. Project plans include a 10-foot-wide buffer between the grading limits for the ditch maintenance and the potential wetland to avoid impacts to this potentially sensitive habitat. Therefore, maintenance of the drainage ditch along Pescadero Road would not result in any direct impacts to sensitive habitat.

While no project activities would directly impact these sensitive resources, indirect impacts could occur if construction equipment, staging activities, or personnel inadvertently encroach into adjacent sensitive habitat areas. Such encroachment could result in vegetation trampling, soil compaction, disturbance of wildlife, introduction of invasive species, and temporary degradation of habitat quality beyond the limits of planned disturbance. This potentially significant impact would be reduced to a less-than-significant level with implementation of **Mitigation Measure BIO-1** identified above and **Mitigation Measures BIO-3** and **BIO-4** identified below.

Impacts to sensitive habitats could occur if construction activities result in erosion and sedimentation to adjacent habitats. Additionally, impacts could occur if an accident during construction were to result in the release of hazardous materials into the environment. However, the proposed project includes provisions to prevent cement slurry and hazardous materials from spilling into adjacent sensitive habitats. In addition, implementation of standard erosion control measures would ensure avoidance of impacts to sensitive habitats within and adjacent to the project sites during construction. Therefore, implementation of project provisions and standard erosion control measures would reduce the risk of hazardous material spills or other pollution into sensitive habitats to a less-than-significant impact.

Mitigation Measure BIO-3: Environmentally Sensitive Area Fencing Plan
Disturbance of Monterey pine forest and other sensitive habitats (such as wetlands and riparian corridors), including the removal of native trees within these habitats, shall be avoided to the maximum extent possible. Prior to commencement of construction, high visibility fencing and/or flagging shall be installed, with the assistance of a qualified biologist, to indicate the limits of work and the boundaries of sensitive habitat areas to be avoided.

a) The limits of work shall be designated to avoid impacts to the surrounding Monterey pine forest and other sensitive habitats to the maximum extent possible and to maximize native tree and shrub retention.

No work-related activity including equipment staging, vehicular access, grading and/or vegetation removal shall be allowed outside the designated limits of work.

Mitigation Measure BIO-4: Protected Trees
Tree pruning shall be minimal but, when necessary, shall be performed in accordance with American National Safety Institute (ANSI) A300 Pruning Standards. Pruning may include the larger canopied trees that are obstructing access to the project site. Should the health and vigor of any tree decline, it shall be treated as appropriately recommended by a certified arborist or qualified forester. In general, trees shall be assessed then pruned only for safety (e.g., broken and cracked limbs shall be removed in high-traffic areas of concern). No more than 25% of the overall tree crown shall be pruned in one season.

Where alternative routes are not available, any subsurface construction related activities for the project shall avoid cutting major roots with a diameter of greater than or equal to two inches, unless necessary. All approved construction within the root zone shall conform to the following construction practices:

a) Hand trenching at point or line of grade cuts closest to the trunk to expose major roots two inches or more in diameter.

b) In cases where rock or unusually dense soil prevents hand trenching, mechanical trenching may be permitted provided that work inside the dripline is closely supervised to prevent tearing or other damage to major roots (greater than or equal to two inches).

c) Exposed major roots shall be cut with a saw to form a smooth surface and avoid tearing or jagged edges.

d) Absorbent tarp or heavy cloth fabric shall be placed over grade cuts where roots are exposed and secured with stakes and two to four inches of compost or wood chips spread over the tarp to prevent moisture loss. Care shall be taken that moisture levels beneath tarped areas remain comparable to surrounding areas until backfilling occurs. Some watering of these areas may be necessary to maintain moisture levels, and such measures shall remain in effect through all phases of construction, including all delays and other periods of inactivity.

Impact BIO-3: *Interfere substantially with the movement of any native resident of migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impeded the use of native wildlife nursery sites.*

The project sites are not located within any corridors for wildlife movement, and does not provide opportunities for local movement due to the project's location within existing development. There would be no impact to wildlife movement.

Impact BIO-4*: Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.*

The City's General Plan and LUP, the County's Carmel Area LUP, Del Monte Forest Area LUP, and General Plan, and City and County Municipal Codes include policies to protect biological resources such as the Monterey pine forest. The construction of the proposed project would occur primarily within paved and developed areas. The proposed project has been designed to avoid impacts to the extent feasible; however, constraints associated with surrounding residential development and the location of the existing failing sewer infrastructure make complete avoidance of tree removal or trimming unlikely. The removal of two Monterey pine trees would be required to facilitate access to the new sewer main within the degraded Monterey pine forest habitat. Removal of these trees is anticipated to require a tree removal permit from the County. Adherence to the conditions of the tree removal permit would be required, and, therefore, the proposed project would not conflict with any local policies or ordinances protecting biological resources. This would be a less-than-significant impact and no mitigation is required.

***Impact BIO-5**: Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.*

The project sites are not located within the boundaries of any adopted or approved habitat conservation plans, and, therefore, would not conflict with any adopted or approved habitat conservation plans. No impact would occur.

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APPENDIX A

California Natural Diversity Database Report

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Mt. Carmel (3612147) OR Monterey (3612158) OR Soberanes Point (3612148) OR Seaside (3612157) OR Marina (3612167))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Actinemys pallida southwestern pond turtle	ARAAD02032	Proposed Threatened	None	G2	SNR	SSC
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G3	S2	SSC
Allium hickmanii Hickman's onion	PMLIL02140	None	None	G2	S2	1B.2
Ambystoma californiense pop. 1 California tiger salamander - central California DPS	AAAAA01181	Threatened	Threatened	G3T3	S3	WL
Anarhynchus nivosus nivosus western snowy plover	ABNNB03031	Threatened	None	G3T3	S3	SSC
Anniella pulchra Northern California legless lizard	ARACC01020	None	None	G3	S2S3	SSC
Aphyllon robbinsii Robbins' broomrape	PDORO040Q0	None	None	G1	S1	1B.1
Arctostaphylos edmundsii Little Sur manzanita	PDERI04260	None	None	G2	S2	1B.2
Arctostaphylos hookeri ssp. hookeri Hooker's manzanita	PDERI040J1	None	None	G3T2	S2	1B.2
Arctostaphylos montereyensis Toro manzanita	PDERI040R0	None	None	G2?	S2?	1B.2
Arctostaphylos pajaroensis Pajaro manzanita	PDERI04100	None	None	G1	S1	1B.1
Arctostaphylos pumila sandmat manzanita	PDERI04180	None	None	G1	S1	1B.2
Astragalus tener var. titi coastal dunes milk-vetch	PDFAB0F8R2	Endangered	Endangered	G2T1	S1	1B.1
Athene cunicularia burrowing owl	ABNSB10010	None	Candidate Endangered	G4	S2	SSC
Bombus caliginosus obscure bumble bee	IIHYM24380	None	None	G2G3	S1S2	
Bombus occidentalis western bumble bee	IIHYM24252	None	Candidate Endangered	G3	S1	
Buteo regalis ferruginous hawk	ABNKC19120	None	None	G4	S3S4	WL
Castilleja ambigua var. insalutata pink Johnny-nip	PDSCR0D403	None	None	G5T2	S2	1B.1
Central Dune Scrub Central Dune Scrub	CTT21320CA	None	None	G2	S2.2	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Central Maritime Chaparral Central Maritime Chaparral	CTT37C20CA	None	None	G2	S2.2	
Centromadia parryi ssp. congdonii Congdon's tarplant	PDAST4R0P1	None	None	G3T2	S2	1B.1
Chorizanthe minutiflora Fort Ord spineflower	PDPGN04100	None	None	G1	S1	1B.2
Chorizanthe pungens var. pungens Monterey spineflower	PDPGN040M2	Threatened	None	G2T2	S2	1B.2
Clarkia jolonensis Jolon clarkia	PDONA050L0	None	None	G2	S2	1B.2
Coelus globosus globose dune beetle	IICOL4A010	None	None	G1G2	S1S2	
Collinsia multicolor San Francisco collinsia	PDSCR0H0B0	None	None	G2	S2	1B.2
Cordylanthus rigidus ssp. littoralis seaside bird's-beak	PDSCR0J0P2	None	Endangered	G5T2	S2	1B.1
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G4	S2	SSC
Coturnicops noveboracensis yellow rail	ABNME01010	None	None	G4	S2	SSC
Cypseloides niger black swift	ABNUA01010	None	None	G4	S3	SSC
Danaus plexippus plexippus pop. 1 monarch - California overwintering population	IILEPP2012	Proposed Threatened	None	G4T1T2Q	S2	
Delphinium californicum ssp. interius Hospital Canyon larkspur	PDRAN0B0A2	None	None	G3T3	S3	1B.2
Delphinium hutchinsoniae Hutchinson's larkspur	PDRAN0B0V0	None	None	G2	S2	1B.2
Dipodomys heermanni goldmani Salinas kangaroo rat	AMAFD03065	None	None	G4T2T3	S2S3	
Dipodomys venustus sanctiluciae Santa Lucia Mountain kangaroo rat	AMAFD03043	None	None	G2T3	S3	
Eremophila alpestris actia California horned lark	ABPAT02011	None	None	G5T4Q	S4	WL
Ericameria fasciculata Eastwood's goldenbush	PDAST3L080	None	None	G2	S2	1B.1
Eriogonum nortonii Pinnacles buckwheat	PDPGN08470	None	None	G2	S2	1B.3
Eryngium montereyense Fort Ord button-celery	PDAPI0Z150	None	None	G1	S1	1B.1
Erysimum ammophilum sand-loving wallflower	PDBRA16010	None	None	G2	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Erysimum menziesii Menzies' wallflower	PDBRA160R0	Endangered	Endangered	G1	S1	1B.1
Eucyclogobius newberryi tidewater goby	AFCQN04010	Endangered	None	G3	S3	SSC
Eumetopias jubatus Steller sea lion	AMAJC03010	Delisted	None	G3	S2	
Euphilotes enoptes smithi Smith's blue butterfly	IILEPG2026	Endangered	None	G5T2	S2	
Fritillaria liliacea fragrant fritillary	PMLIL0V0C0	None	None	G2	S2	1B.2
Gilia tenuiflora ssp. arenaria Monterey gilia	PDPLM041P2	Endangered	Threatened	G3G4T2	S2	1B.2
Hesperocyparis goveniana Gowen cypress	PGCUP04031	Threatened	None	G1	S1	1B.2
Hesperocyparis macrocarpa Monterey cypress	PGCUP04060	None	None	G1	S1	1B.2
Horkelia cuneata var. sericea Kellogg's horkelia	PDROS0W043	None	None	G4T1?	S1?	1B.1
Horkelia marinensis Point Reyes horkelia	PDROS0W0B0	None	None	G2	S2	1B.2
Hydrobates homochroa ashy storm-petrel	ABNDC04030	None	None	G2	S2	SSC
Lasiurus cinereus hoary bat	AMACC05032	None	None	G3G4	S4	
Lasthenia conjugens Contra Costa goldfields	PDAST5L040	Endangered	None	G1	S1	1B.1
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3T1	S2	FP
Lavinia exilicauda harengus Monterey hitch	AFCJB19013	None	None	G4T3	S3	SSC
Layia carnosa beach layia	PDAST5N010	Threatened	Endangered	G2	S2	1B.1
Linderiella occidentalis California linderiella	ICBRA06010	None	None	G2G3	S2S3	
Lupinus tidestromii Tidestrom's lupine	PDFAB2B3Y0	Endangered	Endangered	G1	S1	1B.1
Malacothamnus involucratus Carmel Valley bushmallow	PDMAL0Q0B1	None	None	G2Q	S2	1B.2
Malacothrix saxatilis var. arachnoidea Carmel Valley malacothrix	PDAST660C2	None	None	G5T2	S2	1B.2
Microseris paludosa marsh microseris	PDAST6E0D0	None	None	G2	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Microtus californicus halophilus Monterey vole	AMAFF11036	None	None	G5T1	S2	
Monardella sinuata ssp. nigrescens northern curly-leaved monardella	PDLAM18162	None	None	G3T2	S2	1B.2
Monolopia gracilens woodland woollythreads	PDAST6G010	None	None	G3	S3	1B.2
Monterey Cypress Forest Monterey Cypress Forest	CTT83150CA	None	None	G1	S1.2	
Monterey Pine Forest Monterey Pine Forest	CTT83130CA	None	None	G1	S1.1	
Monterey Pygmy Cypress Forest Monterey Pygmy Cypress Forest	CTT83162CA	None	None	G1	S1.1	
Northern Bishop Pine Forest Northern Bishop Pine Forest	CTT83121CA	None	None	G2	S2.2	
Northern Coastal Salt Marsh Northern Coastal Salt Marsh	CTT52110CA	None	None	G3	S3.2	
Oncorhynchus mykiss irideus pop. 9 steelhead - south-central California coast DPS	AFCHA0209H	Threatened	None	G5T2Q	S2	SSC
Pelecanus occidentalis californicus California brown pelican	ABNFC01021	Delisted	Delisted	G4T3T4	S3	
Phrynosoma blainvillii coast horned lizard	ARACF12100	None	None	G4	S4	SSC
Pinus radiata Monterey pine	PGPIN040V0	None	None	G1	S1	1B.1
Piperia yadonii Yadon's rein orchid	PMORC1X070	Endangered	None	G1	S1	1B.1
Plagiobothrys uncinatus hooked popcornflower	PDBOR0V170	None	None	G2	S2	1B.2
Potentilla hickmanii Hickman's cinquefoil	PDROS1B370	Endangered	Endangered	G1	S1	1B.1
Ramalina thrausta angel's hair lichen	NLLEC3S340	None	None	G5?	S2S3	2B.1
Rana boylii pop. 6 foothill yellow-legged frog - south coast DPS	AAABH01056	Endangered	Endangered	G3T1	S1	
Rana draytonii California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
Reithrodontomys megalotis distichlis Salinas harvest mouse	AMAFF02032	None	None	G5T1	S2	
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S3	
Rosa pinetorum pine rose	PDROS1J0W0	None	None	G1Q	S1	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Sidalcea malachroides maple-leaved checkerbloom	PDMAL110E0	None	None	G3	S3	4.2
Sorex ornatus salarius Monterey shrew	AMABA01105	None	None	G5T1T2	S1S2	SSC
Sorex vagrans paludivagus Monterey vagrant shrew	AMABA01072	None	None	G5T1	S2	
Stebbinsoseris decipiens Santa Cruz microseris	PDAST6E050	None	None	G2	S2	1B.2
Sulcaria spiralifera twisted horsehair lichen	NLT0042560	None	None	G3G4	S2	1B.2
Taricha torosa Coast Range newt	AAAAF02032	None	None	G4	S4	SSC
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Tortula californica California screw moss	NBMUS7L090	None	None	G2G3	S2?	1B.2
Trifolium buckwestiorum Santa Cruz clover	PDFAB402W0	None	None	G2	S2	1B.1
Trifolium hydrophilum saline clover	PDFAB400R5	None	None	G2	S2	1B.2
Trifolium polyodon Pacific Grove clover	PDFAB402H0	None	Rare	G1	S1	1B.1
Trifolium trichocalyx Monterey clover	PDFAB402J0	Endangered	Endangered	G1	S1	1B.1
Valley Needlegrass Grassland Valley Needlegrass Grassland	CTT42110CA	None	None	G3	S3.1	

Record Count: 95

APPENDIX B

IPaC Resource List

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Monterey County, California

Local office

Ventura Fish And Wildlife Office

(805) 644-1766
(805) 644-3958
FW8VenturaSection7@FWS.Gov

2493 Portola Road, Suite B
Ventura, CA 93003-7726

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS
California Condor Gymnogyps californianus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8193	Endangered
California Least Tern Sternula antillarum browni Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8104	Endangered
Least Bell's Vireo Vireo bellii pusillus Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/5945	Endangered
Western Snowy Plover Charadrius nivosus nivosus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8035	Threatened
Yellow-billed Cuckoo Coccyzus americanus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/3911	Threatened

NOT FOR CONSULTATION

Reptiles

NAME	STATUS
Southwestern Pond Turtle Actinemys pallida Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4768	Proposed Threatened

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened
California Tiger Salamander Ambystoma californiense There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2076	Threatened
Foothill Yellow-legged Frog Rana boylii There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/5133	Endangered
Western Spadefoot Spea hammondii No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5425	Proposed Threatened

Fishes

NAME	STATUS
Tidewater Goby Eucyclogobius newberryi Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/57	Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/9743	Proposed Threatened
Smith's Blue Butterfly Euphilotes enoptes smithi Wherever found There is **proposed** critical habitat for this species. https://ecos.fws.gov/ecp/species/4418	Endangered

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp Branchinecta lynchi Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened

NOT FOR CONSULTATION

Flowering Plants

NAME	STATUS
Clover Lupine Lupinus tidestromii Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4459	Endangered
Coastal Dunes Milk-vetch Astragalus tener var. titi Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7675	Endangered
Hickman's Potentilla Potentilla hickmanii Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6343	Endangered
Monterey Clover Trifolium trichocalyx Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4282	Endangered
Monterey Gilia Gilia tenuiflora ssp. arenaria Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/856	Endangered
Monterey Spineflower Chorizanthe pungens var. pungens Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/396	Threatened
Yadon's Piperia Piperia yadonii Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/4205	Endangered

Conifers and Cycads

NAME	STATUS
Gowen Cypress Cupressus goveniana ssp. goveniana Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8548	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

Additional information can be found using the following links:

NOT FOR CONSULTATION

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are Bald Eagles and/or Golden Eagles in your project area.

Measures for Proactively Minimizing Eagle Impacts
For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the National Bald Eagle Management Guidelines. You may employ the timing and activity-specific distance recommendations in this document when designing your project/activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to Bald Eagle Nesting and Sensitivity to Human Activity.

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

If disturbance or take of eagles cannot be avoided, an incidental take permit may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the Do I Need A Permit Tool. For assistance making this determination for golden eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

Ensure Your Eagle List is Accurate and Complete
If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

Review the FAQs
The FAQs below provide important additional information and resources.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Golden Eagle Aquila chrysaetos This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in

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week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season ( )
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

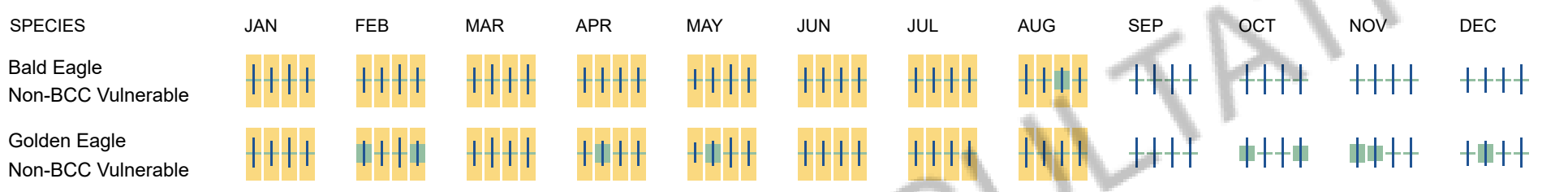
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

probability of presence breeding season | survey effort – no data



Bald & Golden Eagles FAQs

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are an eagle (Bald and Golden Eagle Protection Act requirements may apply).

Proper interpretation and use of your eagle report
On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort line or no data line (red horizontal) means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide you in knowing when to implement avoidance and minimization measures to eliminate or reduce potential impacts from your project activities or get the appropriate permits should presence be confirmed.

How do I know if eagles are breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If an eagle on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your “IPaC PROBABILITY OF PRESENCE SUMMARY” at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

Interpreting the Probability of Presence Graphs

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:
The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()

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Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Migratory birds

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

Measures for Proactively Minimizing Migratory Bird Impacts

Your IPaC Migratory Bird list showcases birds of concern, including Birds of Conservation Concern (BCC), in your project location. This is not a comprehensive list of all birds found in your project area. However, you can help proactively minimize significant impacts to all birds at your project location by implementing the measures in the Nationwide avoidance and minimization measures for birds document, and any other project-specific avoidance and minimization measures suggested at the link Measures for avoiding and minimizing impacts to birds for the birds of concern on your list below.

Ensure Your Migratory Bird List is Accurate and Complete

If your project area is in a poorly surveyed area, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles document, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

Review the FAQs
The FAQs below provide important additional information and resources.

NAME	BREEDING SEASON
Allen's Hummingbird Selasphorus sasin This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9637	Breeds Feb 1 to Jul 15
Ashy Storm-petrel Hydrobates homochroa This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/7237	Breeds May 1 to Jan 15
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31

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Belding's Savannah Sparrow Passerculus sandwichensis beldingi — Breeds Apr 1 to Aug 15

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8

Black Oystercatcher Haematopus bachmani — Breeds Apr 15 to Oct 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9591

Black Skimmer Rynchops niger — Breeds May 20 to Sep 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/5234

Black Swift Cypseloides niger — Breeds Jun 15 to Sep 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8878

Black Turnstone Arenaria melanocephala — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Brandt's Cormorant Urile penicillatus — Breeds Apr 15 to Sep 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Bullock's Oriole Icterus bullockii — Breeds Mar 21 to Jul 25

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

California Gull Larus californicus — Breeds Mar 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

California Thrasher Toxostoma redivivum — Breeds Jan 1 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Clark's Grebe Aechmophorus clarkii — Breeds Jun 1 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Common Yellowthroat Geothlypis trichas sinuosa — Breeds May 20 to Jul 31

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/2084

Elegant Tern Thalasseus elegans — Breeds Apr 5 to Aug 5

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8561

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Heermann's Gull Larus heermanni — Breeds Mar 15 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

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Lawrence's Goldfinch Spinus lawrencei — Breeds Mar 20 to Sep 20
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Long-eared Owl asio otus — Breeds Mar 1 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3631

Marbled Godwit Limosa fedoa — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9481

Northern Harrier Circus hudsonius — Breeds Apr 1 to Sep 15
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8350

Nuttall's Woodpecker Dryobates nuttallii — Breeds Apr 1 to Jul 20
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/9410

Oak Titmouse Baeolophus inornatus — Breeds Mar 15 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9656

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Red Knot Calidris canutus roselaari — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8880

Santa Barbara Song Sparrow Melospiza melodia graminea — Breeds Mar 1 to Sep 5
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/5513

Short-billed Dowitcher Limnodromus griseus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9480

Tricolored Blackbird Agelaius tricolor — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

Western Grebe Aechmophorus occidentalis — Breeds Jun 1 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/6743

Western Gull Larus occidentalis — Breeds Apr 21 to Aug 25
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

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Western Screech-owl Megascops kennicottii cardonensis This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 1 to Jun 30
Willet Tringa semipalmata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Wrentit Chamaea fasciata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 10

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

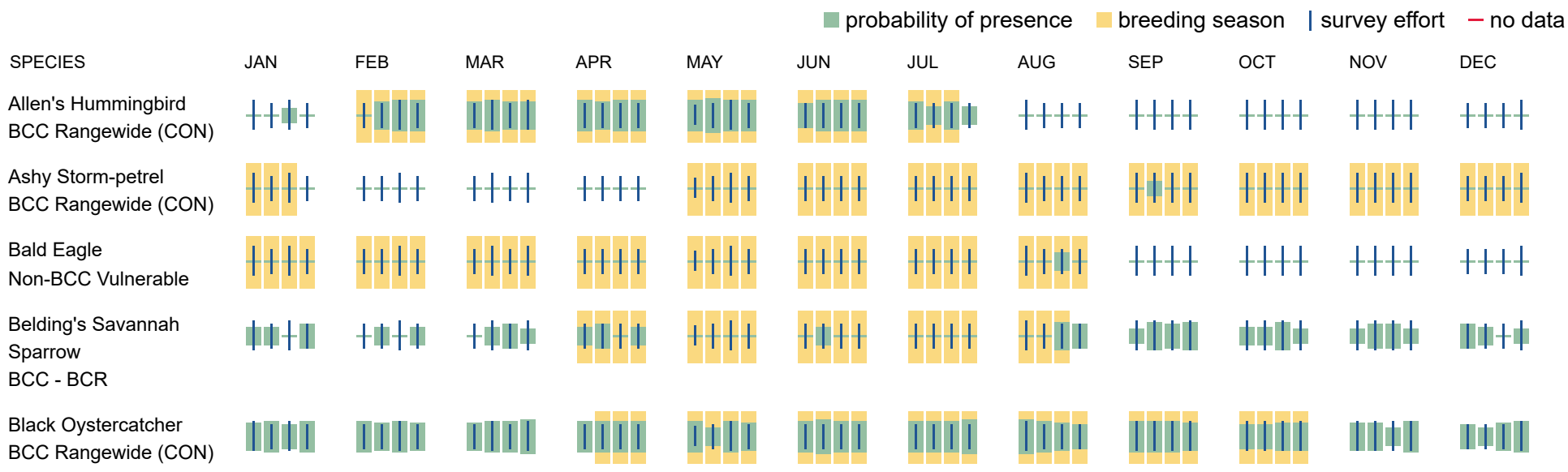
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



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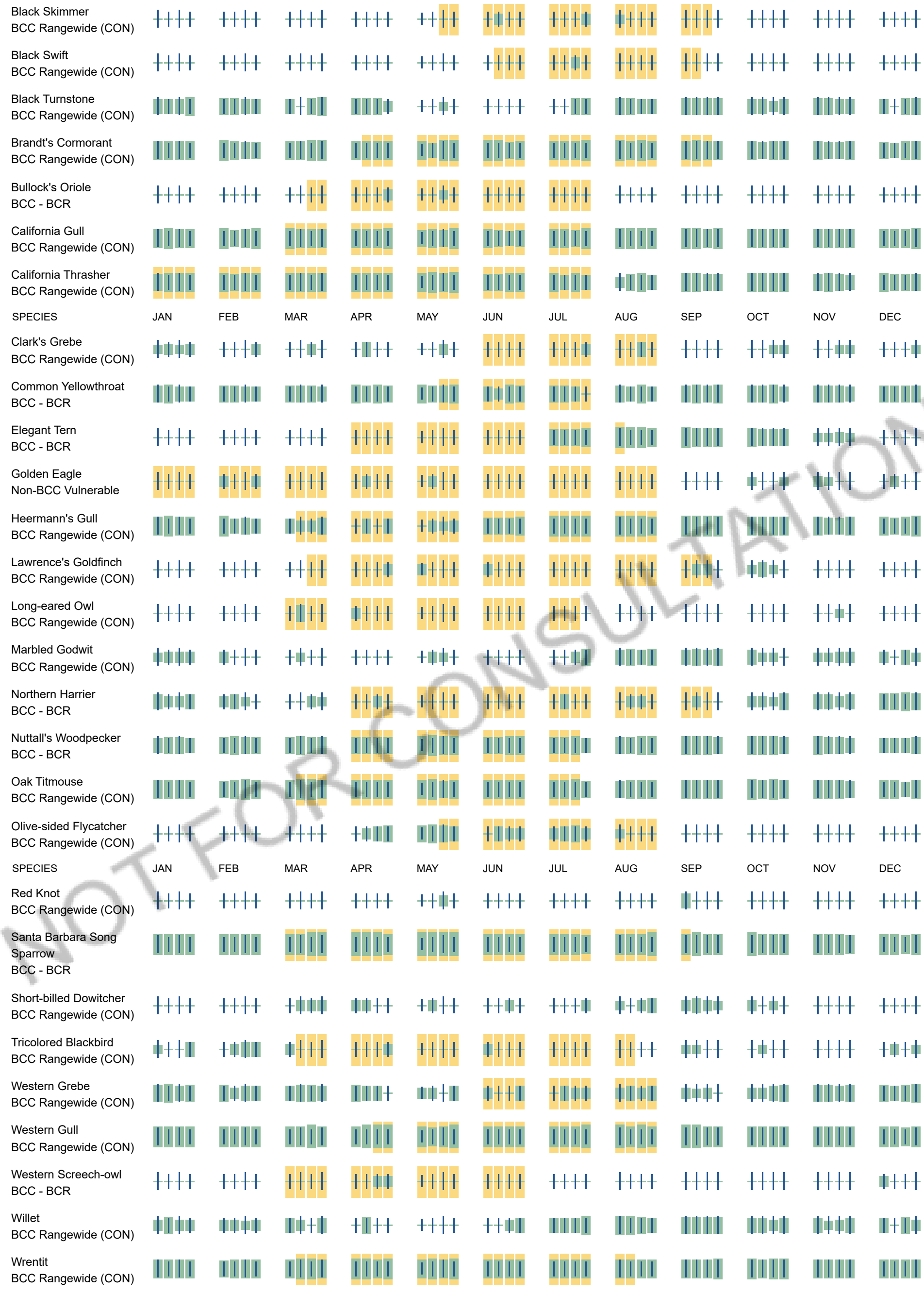

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Migratory Bird FAQs

Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Avoidance & Minimization Measures for Birds describes measures that can help avoid and minimize impacts to all birds at any location year-round. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is one of the most effective ways to minimize impacts. To see when birds are most likely to occur and breed in your project area, view the Probability of Presence Summary. Additional

measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location, such as those listed under the Endangered Species Act or the Bald and Golden Eagle Protection Act and those species marked as “Vulnerable”. See the FAQ “What are the levels of concern for migratory birds?” for more information on the levels of concern covered in the IPaC migratory bird species list.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) with which your project intersects. These species have been identified as warranting special attention because they are BCC species in that area, an eagle (Bald and Golden Eagle Protection Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, and to verify survey effort when no results present, please visit the Rapid Avian Information Locator (RAIL) Tool.

Why are subspecies showing up on my list?

Subspecies profiles are included on the list of species present in your project area because observations in the AKN for **the species** are being detected. If the species are present, that means that the subspecies may also be present. If a subspecies shows up on your list, you may need to rely on other resources to determine if that subspecies may be present (e.g. your local FWS field office, state surveys, your own surveys).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your “IPaC PROBABILITY OF PRESENCE SUMMARY” at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Bald and Golden Eagle Protection Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially BCC species. For more information on avoidance and minimization measures you can implement to help avoid and minimize migratory bird impacts, please see the FAQ “Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds”.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Proper interpretation and use of your migratory bird report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list does not represent all birds present in your project area. It is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide implementation of avoidance and minimization measures to eliminate or reduce potential impacts from your project activities, should presence be confirmed. To learn more about avoidance and minimization measures, visit the FAQ "Tell me about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

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Interpreting the Probability of Presence Graphs
Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:
The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

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Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

APPENDIX C

Special-Status Species Table

Special-Status Species Table
Mt. Carmel, Monterey, Soberanes Point, Seaside, and Marina Quadrangles

Species	Status (USFWS/CDFW/CNPS)	General Habitat	Potential Occurrence within Evaluation Area
MAMMALS			
Corynorhinus townsendii Townsend's big-eared bat	-- / CSC / --	Found primarily in rural settings from inland deserts to coastal redwoods, oak woodland of the inner Coast Ranges and Sierra foothills, and low to mid-elevation mixed coniferous-deciduous forests. Typically roost during the day in limestone caves, lava tubes, and mines, but can roost in buildings that offer suitable conditions. Night roosts are in more open settings and include bridges, rock crevices, and trees.	**Low** Limited night roost habitat may be present within the trees in the project sites. The CNDDB reports the nearest occurrence approximately 9 km from the evaluation area.
Neotoma macrotis luciana Monterey dusky-footed woodrat	-- / CSC / --	Forest and oak woodland habitats of moderate canopy with moderate to dense understory. Also occurs in chaparral habitats.	**Moderate** Suitable habitat is present within the project sites. The CNDDB does not report any occurrences of this species within the quadrangles reviewed; however, this species is known to occur throughout the region.
Sorex ornatus salarius Monterey shrew	-- / CSC / --	Mostly moist or riparian woodland habitats, and within chaparral, grassland, and emergent wetland habitats where there is a thick duff or downed logs.	**Unlikely** No suitable habitat within the project sites.
Taxidea taxus American badger	-- / CSC / --	Dry, open grasslands, fields, pastures savannas, and mountain meadows near timberline are preferred. The principal requirements seem to be sufficient food, friable soils, and relatively open, uncultivated grounds.	**Unlikely** No suitable habitat within the project sites.
BIRDS			
Agelaius tricolor Tricolored blackbird (nesting colony)	-- / ST&CSC / --	Nest in colonies in dense riparian vegetation, along rivers, lagoons, lakes, and ponds. Forages over grassland or aquatic habitats.	**Unlikely** No suitable habitat within the project sites.
Anarhynchus nivosus nivosus Western snowy plover (nesting)	FT / CSC / --	Sandy beaches on marine and estuarine shores, also salt pond levees and the shores of large alkali lakes. Requires sandy, gravelly or friable soil substrate for nesting.	**Unlikely** No suitable habitat within the project sites.
Aquila chrysaetos Golden eagle (nesting & wintering)	--/ CFP / --	Use rolling foot-hills, mountain terrain, wide arid plateaus deeply cut by streams and canyons, open mountain slopes, cliffs, and rocky outcrops. Nest in secluded cliffs with overhanging ledges as well as large trees.	**Unlikely** No suitable nesting habitat within the project sites.

Species	Status (USFWS/CDFW/CNPS)	General Habitat	Potential Occurrence within Evaluation Area
Athene cunicularia Burrowing owl (burrow sites & some wintering sites)	-- / CSC / --	Year-round resident of open, dry grassland and desert habitats, and in grass, forb and open shrub stages of pinyon-juniper and ponderosa pine habitats. Frequent open grasslands and shrublands with perches and burrows. Use rodent burrows (often California ground squirrel) for roosting and nesting cover. Pipes, culverts, and nest boxes may be substituted for burrows in areas where burrows are not available.	**Unlikely** No suitable habitat within the project sites.
Asio otus Long-eared owl (nesting)	-- / CSC / --	Frequents dense, riparian and live oak thickets near meadow edges, and nearby woodland and forest habitats. Also found in dense conifer stands at higher elevations.	**Low** Due to the urban nature of the project sites, only marginal nesting habitat may be present. The CNDDB does not report any occurrences of this species within the quadrangles evaluated; however, occurrences have been reported in eBird nearby in the City of Monterey.
Brachyramphus marmoratus Marbled murrelet	FT / SE / --	Occur year-round in marine subtidal and pelagic habitats from the Oregon border to Point Sal. Partial to coastlines with stands of mature redwood and Douglas-fir. Requires dense mature forests of redwood and/or Douglas-fir for breeding and nesting.	**Unlikely** No suitable habitat within the project sites.
Coccyzus americanus Yellow-billed Cuckoo	FT / SE / --	Inhabits extensive deciduous riparian thickets or forests with dense, low-level or understory foliage, slow-moving watercourses, backwaters, or seeps. Willow almost always a dominant component of the vegetation.	**Unlikely** No suitable habitat is present within the project sites
Coturnicops noveboracensis Yellow rail	-- / CSC / --	Wet meadows and coastal tidal marshes. Occurs year round in California, but in two primary seasonal roles: as a very local breeder in the northeastern interior and as a winter visitor (early Oct to mid-Apr) on the coast and in the Suisun Marsh region	**Unlikely** No suitable habitat within the project sites.
Cypseloides niger Black swift (nesting)	-- / CSC / --	Regularly nests in moist crevice or cave on sea cliffs above the surf, or on cliffs behind, or adjacent to, waterfalls in deep canyons. Forages widely over many habitats.	**Unlikely** No suitable habitat within the project sites.

Species	Status (USFWS/CDFW/CNPS)	General Habitat	Potential Occurrence within Evaluation Area
Elanus leucurus White-tailed kite	-- / CFP / --	The white-tailed kite is a CDFW fully protected species. This raptor species is a fairly common to uncommon, year-long resident in coastal and valley lowlands. This species generally utilizes herbaceous lowlands with variable tree growth and an associated high population density of voles. Nests are made of loosely piled sticks and twigs and lined with grass, straw, or rootlets. Nests are generally placed near the top of a dense oak, willow, or other tree stands (usually 6-20 meters [20-100 feet] above ground), and are often located near an open foraging area. Breeding occurs from February to October with peak activity occurring from May to August. This species preys mainly on voles and other small mammals, but also takes birds, insects, reptiles, and amphibians. Foraging occurs in undisturbed open grasslands, meadows, farmlands, and emergent wetlands.	**Moderate** Suitable nesting habitat is present within the survey area. The CNDDB does not report any occurrences of the species within the reviewed quadrangles; however, eBird has consistent observations of the species within the City of Carmel.
Gymnogyps californianus California condor	FE / SE /--	Roosting sites in isolated rocky cliffs, rugged chaparral, and pine covered mountains 2000-6000 feet above sea level. Foraging area removed from nesting/roosting site (includes rangeland and coastal area - up to 19 mile commute one way). Nest sites in cliffs, crevices, potholes.	**Unlikely** No suitable habitat within the project sites.
Haliaeetus leucocephalus Bald eagle (nesting & wintering)	-- / SE & CFP / --	Perches high in large, stoutly limbed trees, on snags or broken-topped trees, or on rocks near waters. Roosts communally in winter in dense, sheltered, remote conifer stands. Nests in large, old-growth, or dominant live tree with open branch work, especially ponderosa pine. Often chooses largest tree in a stand on which to build stick platform nest. Require large bodies of water, or free flowing rivers with abundant fish.	**Unlikely** No suitable habitat within the project sites.
Hydrobates homochroa Ashy storm-petrel (nesting colony)	-- / CSC / --	Tied to land only to nest, otherwise remains over open sea. Nests in natural cavities, sea caves, or rock crevices on offshore islands and prominent peninsulas of the mainland.	**Unlikely** No suitable habitat within the project sites.

Species	Status (USFWS/CDFW/CNPS)	General Habitat	Potential Occurrence within Evaluation Area
Laterallus jamaicensis coturniculus California black rail	-- / ST&CFP / --	Inhabits freshwater marshes, wet meadows & shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that does not fluctuate during the year & dense vegetation for nesting habitat.	**Unlikely** No suitable habitat within the project sites.
Riparia riparia Bank swallow (nesting)	-- / ST / --	Nest colonially in sand banks. Found near water; fields, marshes, streams, and lakes.	**Unlikely** No suitable habitat within the project sites.
Sterna antillarum browni California least tern	FE / SE / --	Prefers undisturbed nest sites on open, sandy/gravelly shores near shallow-water feeding areas in estuaries. Sea beaches, bays, large rivers, bars.	**Unlikely** No suitable habitat within the project sites.
Vireo bellii pusillus Least Bell's Vireo	FE / SE / --	Riparian areas and drainages. Breed in willow riparian forest supporting a dense, shrubby understory. Oak woodland with a willow riparian understory is also used in some areas, and individuals sometimes enter adjacent chaparral, coastal sage scrub, or desert scrub habitats to forage.	**Unlikely** No suitable habitat within the project sites. The project sites are likely outside the current range of this species.
REPTILES AND AMPHIBIANS			
Actinemys pallida Southwestern pond turtle	FC / CSC / --	Associated with permanent or nearly permanent water in a wide variety of habitats including streams, lakes, ponds, irrigation ditches, etc. Require basking sites such as partially submerged logs, rocks, mats of vegetation, or open banks. The range for this species is along the coast from Castroville to Baja California in Mexico, including the Salinas Valley to Soledad, the foothills west of the Central Valley to Lancaster, and the southern California mountain ranges.	**Unlikely** No suitable habitat within the project sites.
Ambystoma californiense pop. 1 California tiger salamander - central California DPS	FT / ST / --	Annual grassland and grassy understory of valley-foothill hardwood habitats in central and northern California. Need underground refuges and vernal pools or other seasonal water sources.	**Unlikely** No suitable habitat within the project sites.
Anniella pulchra Northern California legless lizard	-- / CSC / --	Requires moist, warm habitats with loose soil for burrowing and prostrate plant cover, often forages in leaf litter at plant bases; may be found on beaches, sandy washes, and in woodland, chaparral, and riparian areas.	**Low** Poor quality habitat is present within the project sites. The CNDDB reports a number of occurrences of this species within five miles of the project sites.

Species	Status (USFWS/CDFW/CNPS)	General Habitat	Potential Occurrence within Evaluation Area
Phrynosoma blainvillii Coast horned lizard	-- / CSC / --	Associated with open patches of sandy soils in washes, chaparral, scrub, and grasslands.	**Unlikely** No suitable habitat within the project sites.
Rana boylii pop. 6 Foothill yellow-legged frog - south coast DPS	FT / SE / --	Partly shaded, shallow streams and riffles with a rocky substrate in a variety of habitats, including hardwood, pine, and riparian forests, scrub, chaparral, and wet meadows. Rarely encountered far from permanent water.	**Unlikely** No suitable habitat within the project sites. The project sites are likely outside the current range of this species.
Rana draytonii California red-legged frog	FT / CSC / --	Lowlands and foothills in or near permanent or late-season sources of deep water with dense, shrubby, or emergent riparian vegetation. During late summer or fall adults are known to utilize a variety of upland habitats with leaf litter or mammal burrows.	**Low** No CNDDB records associated with Pescadero Canyon. The nearest CNDDB occurrence is approximately 1.5 miles away in the Lower Carmel Watershed. No suitable riparian habitat is present within the project sites.
Spea hammondii Western spadefoot	FC / CSC / --	Grasslands with shallow temporary pools are optimal habitats for the western spadefoot. Occur primarily in grassland habitats but can be found in valley and foothill woodlands. Vernal pools are essential for breeding and egg laying.	**Unlikely** No suitable habitat within the project sites.
Taricha torosa Coast Range newt	-- / CSC / --	Occurs mainly in valley-foothill hardwood, valley-foothill hardwood-conifer, coastal scrub, and mixed chaparral but is known to occur in grasslands and mixed conifer types. Seek cover under rocks and logs, in mammal burrows, rock fissures, or man-made structures such as wells. Breed in intermittent ponds, streams, lakes, and reservoirs.	**Low** Suitable upland habitat is present within the project sites; however, no suitable breeding habitat is present. The CNDDB reports only two occurrences of this species within the quadrangles reviewed, the nearest located approximately 3.7 miles southeast of the project sites within Roadrunner Pond at Palo Corona Regional Park.
FISH			
Eucyclogobius newberryi Tidewater goby	FE / CSC / --	Brackish water habitats, found in shallow lagoons and lower stream reaches. Tidewater gobies appear to be naturally absent (now and historically) from three large stretches of coastline where lagoons or estuaries are absent and steep topography or swift currents may prevent tidewater gobies from dispersing between adjacent localities. The southernmost large, natural gap occurs between the Salinas River in Monterey County and Arroyo del Oso in San Luis Obispo County.	**Not Present** No suitable habitat within the project sites.

Species	Status (USFWS/CDFW/CNPS)	General Habitat	Potential Occurrence within Evaluation Area
Lavinia exilicauda harengus Monterey hitch	-- / CSC / --	Found only within the Pajaro and Salinas River systems. Can occupy a wide variety of habitats, however, they are most abundant in lowland areas with large pools or small reservoirs that mimic such conditions. May be found in brackish water conditions within the Salinas River lagoon during the early summer months when the sandbar forms at the mouth of the river.	**Not Present** No suitable habitat within the project sites.
Oncorhynchus mykiss irideus pop. 9 Steelhead - south-central California coast DPS	FT / -- / --	Cold headwaters, creeks, and small to large rivers and lakes; anadromous in coastal streams.	**Not Present** No suitable habitat within the project sites.
NON VASCULAR PLANTS			
Ramalina thrausta Angel's hair lichen	-- / -- / 2B	North coast coniferous forest on dead twigs and other lichens. Epiphytic fructose lichen in the Ramalinaceae family. In northern CA it is usually found on dead twigs, and has been found on *Alnus rubra*, *Calocedrus decurrens*, *Pseudotsuga menziesii*, *Quercus garryana*, and *Rubus spectabilis*. In Sonoma County it grows on and among dangling mats of *R. menziesii* and *Usnea* spp.	**Low** Suitable habitat is present within the project sites. The CNDDB reports only one occurrence of this species within the quadrangles reviewed, located approximately 1.4 miles northwest of the project sites.
Sulcaria spiralifera Twisted horsehair lichen	-- / -- / 1B	California North Coast coniferous forest at elevations of 0–30 meters. Often found on conifers, including *Picea sitchensis*, *Pinus contorta* var. *contorta*, *Pseudotsuga menziesii*, *Abies grandis*, and *Tsuga heterophylla*. Fruticose lichen in the Parmeliaceae family.	**Unlikely** The project sites are outside the known elevation range of this species.
Tortula californica California screw moss	-- / -- / 1B	Valley and foothill grassland and chenopod scrub on sandy soils at elevations of 10-1460 meters. Moss in the Pottiaceae family.	**Unlikely** No suitable habitat within the project sites.
PLANTS			
Allium hickmanii Hickman's onion	-- / -- / 1B	Closed-cone coniferous forests, maritime chaparral, coastal prairie, coastal scrub, and valley and foothill grasslands at elevations of 5-200 meters. Bulbiferous perennial herb in the Alliaceae family; blooms March-May.	**Low** Suitable habitat is present within Monterey pine forest habitat. However, the Monterey pine forest within the project sites is highly degraded and disturbed. The CNDDB reports 15 occurrences of this species within the quadrangles reviewed, the nearest located approximately 0.2 miles north of the project sites.

Species	Status (USFWS/CDFW/CNPS)	General Habitat	Potential Occurrence within Evaluation Area
Aphyllon robbinsii Robbins' broomrape	-- / --/ 1B	Sandy or loose soils of coastal bluffs at elevations of less than 100 meters. Annual herb in the Orobanchaceae family; blooms April-June.	**Not Present** Evaluation area lacks the specialized habitat features to support the species and is outside the known elevation range.
Arctostaphylos edmundsii Little Sur manzanita	-- / -- / 1B	Coastal bluff scrub and chaparral on sandy soils at elevations of 30-105 meters. Evergreen shrub in the Ericaceae family; blooms November-April.	**Unlikely** No suitable habitat within the project sites.
Arctostaphylos hookeri ssp. *hookeri* Hooker's manzanita	-- / -- / 1B	Closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub on sandy soils at elevations of 85-536 meters. Evergreen shrub in the Ericaceae family; blooms January-June.	**Low** Marginal habitat is located within the few vegetated areas within the project sites; however, this habitat is highly disturbed and/or dominated by non-native understory. The CNDDB reports 17 occurrences of this species within the quadrangles reviewed, the nearest located approximately 0.5 miles north of the project sites.
Arctostaphylos montereyensis Toro manzanita	-- / -- / 1B	Maritime chaparral, cismontane woodland, and coastal scrub on sandy soils at elevations of 30-730 meters. Evergreen shrub in the Ericaceae family; blooms February-March.	**Unlikely** No suitable habitat within the project sites.
Arctostaphylos pajaroensis Pajaro manzanita	-- / -- / 1B	Chaparral on sandy soils at elevations of 30-760 meters. Evergreen shrub in the Ericaceae family; blooms December-March.	**Unlikely** No suitable habitat within the project sites.
Arctostaphylos pumila Sandmat manzanita	-- / -- / 1B	Openings of closed-cone coniferous forests, maritime chaparral, cismontane woodland, coastal dunes, and coastal scrub on sandy soils at elevations of 3-205 meters. Evergreen shrub in the Ericaceae family; blooms February-May.	**Unlikely** No suitable habitat is present within the project sites. The CNDDB reports 17 occurrences of this species within the quadrangles reviewed, including a large, non-specific occurrence that directly abuts the project sites to the south.
Astragalus tener var. *titi* Coastal dunes milk-vetch	FE / SE / 1B	Sandy soils in coastal bluff scrub, coastal dunes, coastal prairie (mesic); elevation 3-164 feet. Annual herb in the Fabaceae family; blooms March-May.	**Unlikely** No suitable habitat within the project sites.
Castilleja ambigua var. insalutata Pink Johnny-nip	-- / -- / 1B	Coastal prairie and coastal scrub at elevations of 0-100 meters. Annual herb in the Orobanchaceae family; blooms May-August.	**Unlikely** No suitable habitat within the project sites.

Species	Status (USFWS/CDFW/CNPS)	General Habitat	Potential Occurrence within Evaluation Area
Centromadia parryi ssp. *congdonii* Congdon's tarplant	-- / -- / 1B	Valley and foothill grassland on heavy clay, saline, or alkaline soils at elevations of 0-230 meters. Annual herb in the Asteraceae family; blooms May-November.	**Unlikely** No suitable habitat within the project sites.
Chorizanthe minutiflora Fort Ord spineflower	-- / -- / 1B	Sandy openings of maritime chaparral and coastal scrub at elevations of 55-150 meters. Only known occurrences on Fort Ord National Monument. Annual herb in the Polygonaceae family; blooms April-July.	**Unlikely** No suitable habitat within the project sites. The project sites are outside the known range of this species.
Chorizanthe pungens var. *pungens* Monterey spineflower	FT / -- / 1B	Maritime chaparral, cismontane woodland, coastal dunes, coastal scrub, and valley and foothill grassland on sandy soils at elevations of 3-450 meters. Annual herb in the Polygonaceae family; blooms April-July.	**Unlikely** No suitable habitat within the project sites.
Clarkia jolonensis Jolon clarkia	-- / -- / 1B	Cismontane woodland, chaparral, riparian woodland, and coastal scrub at elevations of 20-660 meters. Research indicates this species is likely extirpated from the Monterey Peninsula; extant occurrences are located in the eastern Santa Lucia Mountains. Annual herb in the Onagraceae family; blooms April-June.	**Unlikely** No suitable habitat within the project sites.
Collinsia multicolor San Francisco collinsia	-- / -- / 1B	Closed-cone coniferous forest and coastal scrub, sometimes on serpentinite soils, at elevations of 30-250 meters. Annual herb in the Plantaginaceae family; blooms March-May.	**Low** Suitable habitat is present within the project sites. The CNDDB reports only two occurrences of this species within the quadrangles reviewed, and the nearest a historic (1903) occurrence is located approximately 3.0 miles northwest of the project sites.
Cordylanthus rigidus ssp. *littoralis* Seaside bird's-beak	-- / SE / 1B	Closed-cone coniferous forests, maritime chaparral, cismontane woodlands, coastal dunes, and coastal scrub on sandy soils, often on disturbed sites, at elevations of 0-425 meters. Annual hemi-parasitic herb in the Orobanchaceae family; blooms April-October.	**Low** Suitable habitat is present within the project sites. The CNDDB reports 11 occurrences of this species within the quadrangles reviewed, most located within the former Fort Ord. The nearest CNDDB occurrence is a historic (1940) occurrence located approximately 3.2 miles north of the project sites.

Species	Status (USFWS/CDFW/CNPS)	General Habitat	Potential Occurrence within Evaluation Area
Delphinium californicum ssp. interius Hospital Canyon California larkspur	-- / -- / 1B	Openings in chaparral, coastal scrub, and mesic areas of cismontane woodland at elevations of 230-1095 meters. Perennial herb in the Ranunculaceae family; blooms April-June.	**Unlikely** No suitable habitat within the project sites. The project sites are outside the known elevation range of this species.
Delphinium hutchinsoniae Hutchinson's larkspur	-- / -- / 1B	Broadleaved upland forest, chaparral, coastal scrub, and coastal prairie at elevations of 0-427 meters. Perennial herb in the Ranunculaceae family; blooms March-June.	**Unlikely** No suitable habitat within the project sites.
Ericameria fasciculata Eastwood's goldenbush	-- / -- / 1B	Openings in closed-cone coniferous forest, maritime chaparral, coastal dunes, and coastal scrub on sandy soils at elevations of 30-275 meters. Evergreen shrub in the Asteraceae family; blooms July-October.	**Low** Marginal habitat is present within the project sites. The CNDDB reports 11 occurrences of this species within the quadrangles reviewed, including a large, non-specific occurrence that directly abuts the project sites to the south.
Eriogonum nortonii Pinnacles buckwheat	-- / -- / 1B	Chaparral and valley and foothill grassland on sandy soils, often on recent burns, at elevations of 300-975 meters. Annual herb in the Polygonaceae family; blooms May-September.	**Unlikely** No suitable habitat within the project sites. The project sites are outside the known elevation range of this species.
Eryngium montereyense Fort Ord button-celery	-- / -- / 1B	Vernally moist swales and vernal pools in valley and foothill grassland surrounded by maritime chaparral and coast live oak woodland on marine sedimentary substrate at elevations or 120-180 meters. Perennial herb in the Apiaceae family; blooms March-May.	**Unlikely** No suitable habitat within the project sites.
Erysimum ammophilum Sand-loving wallflower	-- / -- / 1B	Openings in maritime chaparral, coastal dunes, and coastal scrub on sandy soils at elevations of 0-60 meters. Perennial herb in the Brassicaceae family; blooms February-June.	**Unlikely** No suitable habitat within the project sites.
Erysimum menziesii Menzies' wallflower	FE / SE / 1B	Coastal dunes at elevations of 0-35 meters. Perennial herb in the Brassicaceae family; blooms March-September.	**Unlikely** No suitable habitat within the project sites.
Fritillaria liliacea Fragrant fritillary	-- / -- / 1B	Cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grassland, often serpentinite, at elevations of 3-410 meters. Bulbiferous perennial herb in the Liliaceae family; blooms February-April.	**Low** Poor quality habitat is present within the project sites. A portion of the project sites is included in a historic CNDDB occurrence from 1940. This is the only CNDDB occurrence of this species within the quadrangles reviewed, and the CNDDB considers it possibly extirpated.

Species	Status (USFWS/CDFW/CNPS)	General Habitat	Potential Occurrence within Evaluation Area
Gilia tenuiflora ssp. *arenaria* Monterey gilia	FE / ST / 1B	Openings in maritime chaparral, cismontane woodland, coastal dunes, and coastal scrub on sandy soils at elevations of 0-45 meters. Annual herb in the Polemoniaceae family; blooms April-June.	**Unlikely** No suitable habitat within the project sites.
Hesperocyparis goveniana Gowen cypress	FT / -- / 1B	Closed-cone coniferous forest and maritime chaparral at elevations of 30-300 meters. Evergreen tree in the Cupressaceae family. Natively occurring only at Point Lobos near Gibson Creek and the Huckleberry Hill Nature Preserve near Highway 68.	**Not Present** The project sites are outside the native range of this species; individuals outside the native range are of unknown genetic stock and are not considered special-status.
Hesperocyparis macrocarpa Monterey cypress	-- / -- / 1B	Closed-cone coniferous forest at elevations of 10-30 meters. Evergreen tree in the Cupressaceae family. Natively occurring only at Cypress Point in Pebble Beach and Point Lobos State Park; widely planted and naturalized elsewhere.	**Not Present** The project sites are outside the native range of this species; individuals outside the native range are of unknown genetic stock and are not considered special-status.
Horkelia cuneata ssp. sericea Kellogg's horkelia	-- / -- / 1B.1	Openings of closed-cone coniferous forests, maritime chaparral, coastal dunes, and coastal scrub on sandy or gravelly soils at elevations of 10-200 meters. Perennial herb in the Rosaceae family; blooms April-September.	**Low** Marginal habitat is present within the project sites. The CNDDB reports 15 occurrences of this species within the quadrangles reviewed, including a large, non-specific occurrence that directly abuts the project sites to the south.
Horkelia marinensis Point Reyes horkelia	-- / -- / 1B	Coastal dunes, coastal prairie, and coastal scrub on sandy soils at elevations of 5-350 meters. Perennial herb in the Rosaceae family; blooms May-September.	**Unlikely** No suitable habitat within the project sites.
Lasthenia conjugens Contra Costa goldfields	FE / -- / 1B	Mesic areas of valley and foothill grassland, alkaline playas, cismontane woodland, and vernal pools at elevations of 0-470 meters. Annual herb in the Asteraceae family; blooms March-June.	**Unlikely** No suitable habitat within the project sites.
Layia carnosa Beach layia	FE / SE / 1B	Coastal dunes and coastal scrub on sandy soils at elevations of 0-60 meters. Annual herb in the Asteraceae family; blooms March-July.	**Unlikely** No suitable habitat within the project sites.
Lupinus tidestromii Tidestrom's lupine	FE / SE / 1B	Coastal dunes at elevations of 0-100 meters. Perennial rhizomatous herb in the Fabaceae family; blooms April-June.	**Unlikely** No suitable habitat within the project sites.

Species	Status (USFWS/CDFW/CNPS)	General Habitat	Potential Occurrence within Evaluation Area
Malacothamnus involucratus Carmel Valley bushmallow	-- / -- / 1B	Chaparral, cismontane woodland, and coastal scrub at elevations of 30-1100 meters. Perennial deciduous shrub in the Malvaceae family; blooms May-October.	**Unlikely** No suitable habitat within the project sites.
Malacothrix saxatilis var. *arachnoidea* Carmel Valley malacothrix	-- / -- / 1B	Chaparral and coastal scrub on rocky soils at elevations of 25-1036 meters. Perennial rhizomatous herb in the Asteraceae family; blooms June-December.	**Unlikely** No suitable habitat within the project sites.
Microseris paludosa Marsh microseris	-- / -- /1B	Closed-cone coniferous forest, cismontane woodland, coastal scrub, and valley and foothill grassland, often in mesic areas, at elevations of 5-300 meters. Perennial herb in the Asteraceae family; blooms April-July.	**Unlikely** No suitable habitat within the project sites.
Monardella sinuata ssp. *nigrescens* Northern curly-leaved monardella	-- / -- /1B	Chaparral, coastal dunes, coastal scrub, and lower montane coniferous forest (ponderosa pine sandhills) on sandy soils at elevations of 0-300 meters. Annual herb in the Lamiaceae family; blooms April-September.	**Unlikely** No suitable habitat within the project sites.
Monolopia gracilens Woodland wollythreads	-- / -- / 1B	Openings of broadleaved upland forest, chaparral, cismontane woodland, North Coast coniferous forest, and valley and foothill grassland on serpentinite soils at elevations of 100-1200 meters. Annual herb in the Asteraceae family; blooms February-July.	**Unlikely** No suitable habitat within the project sites.
Pinus radiata Monterey pine	-- / -- / 1B	Closed-cone coniferous forest and cismontane woodland at elevations of 25-185 meters. Evergreen tree in the Pinaceae family. Only three native stands in CA at Año Nuevo, Cambria, and the Monterey Peninsula; introduced in many areas.	**Present** The project sites are within one of the native stands of this species.

Species	Status (USFWS/CDFW/CNPS)	General Habitat	Potential Occurrence within Evaluation Area
Piperia yadonii Yadon's rein orchid	FE / -- / 1B	Sandy soils in coastal bluff scrub, closed-cone coniferous forest, and maritime chaparral at elevations of 10-510 meters. Annual herb in the Orchidaceae family; blooms February-August.	**Low** Marginal habitat is located within the few vegetated areas within the project sites; however, this habitat is highly disturbed and/or dominated by non-native understory. The CNDDB reports 19 occurrences of this species within the quadrangles reviewed, many within Del Monte Forest. The nearest occurrence is reported approximately 0.2 miles north of the project sites.
Plagiobothrys uncinatus Hooked popcorn-flower	-- / -- / 1B	Chaparral, cismontane woodlands, and valley and foothill grasslands on sandy soils at elevations of 300-760 meters. Annual herb in the Boraginaceae family; blooms April-May.	**Unlikely** No suitable habitat within the project sites. The project sites are outside of the elevation range of this species.
Potentilla hickmanii Hickman's cinquefoil	FE / SE / 1B	Coastal bluff scrub, closed-cone coniferous forests, vernally mesic meadows and seeps, and freshwater marshes and swamps at elevations of 10-149 meters. Perennial herb in the Rosaceae family; blooms April-August.	**Low** Poor quality habitat located within the project sites. The CNDDB reports only two occurrences of this species within the quadrangles reviewed, the nearest located approximately 2.5 miles west of the project sites.
Rosa pinetorum Pine rose	-- / -- / 1B	Closed-cone coniferous forest at elevations of 2-300 meters. Perennial shrub in the Rosaceae family; blooms May-July. Possible hybrid of *R. spithamea*, *R. gymnocarpa*, or others; further study needed.	**Low** Marginal habitat is located within the few vegetated areas within the project sites; however, this habitat is highly disturbed and/or dominated by non-native understory. . The CNDDB reports 9 occurrences of this species within the quadrangles reviewed, the nearest located approximately 1.2 miles from the project sites.
Stebbinsoseris decipiens Santa Cruz microseris	-- / -- / 1B	Broadleaved upland forest, closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, and openings in valley and foothill grassland, sometimes on serpentinite, at elevations of 10-500 meters. Annual herb in the Asteraceae family; blooms April-May.	**Low** Suitable habitat is present within the project sites. The CNDDB reports only two occurrences of this species within the quadrangles reviewed, the nearest located approximately 5.2 miles from the project sites.
Trifolium buckwestiorum Santa Cruz clover	-- / -- / 1B	Gravelly margins of broadleaved upland forest, cismontane woodland, and coastal prairie at elevations of 105-610 meters. Annual herb in the Fabaceae family; blooms April-October.	**Unlikely** No suitable habitat within the project sites.
Trifolium hydrophilum Saline clover	-- / -- / 1B	Marshes and swamps, mesic and alkaline valley and foothill grassland, and vernal pools at elevations of 0-300 meters. Annual herb in the Fabaceae family; blooms April-June.	**Unlikely** No suitable habitat within the project sites.

Species	Status (USFWS/CDFW/CNPS)	General Habitat	Potential Occurrence within Evaluation Area
Trifolium polyodon Pacific Grove clover	-- / SR / 1B	Mesic areas of closed-cone coniferous forest, coastal prairie, meadows and seeps, and valley and foothill grassland at elevations of 5-120 meters. Annual herb in the Fabaceae family; blooms April-July.	**Unlikely** No suitable habitat within the project sites.
Trifolium trichocalyx Monterey clover	FE / SE / 1B	Sandy openings and burned areas of closed-cone coniferous forest at elevations of 30-240 meters. Annual herb in the Fabaceae family; blooms April-June.	**Unlikely** No suitable habitat within the project sites.
INVERTEBRATES			
Bombus crotchii Crotch's bumble bee	-- / SC / --	Occurs in open grassland and scrub at relatively warm and dry sites. Requires plants that bloom and provide adequate nectar and pollen throughout the colony's life cycle, which is from early February to late October. Generally nests underground, often in abandoned mammal burrows. Within California this species is known to occur in the Mediterranean, Pacific Coast, Western Desert, as well as Great Valley and adjacent foothill regions.	**Low** Marginal foraging and nesting habitats are present within the project sites. The CNDDB does not report any occurrences of this species within the quadrangles evaluated; however, the evaluation area is within the historic range for this species. The Xerces Bumble Bee Atlas reports occurrences that are showing the species expanding within its historic range.
Bombus occidentalis Western bumble bee	-- / SC / --	Occurs in open grassy areas, urban parks, urban gardens, chaparral, and meadows. This species generally nest underground. Western bumble bee populations are currently largely restricted to high elevation sites in the Sierra Nevada.	**Unlikely** Marginal foraging and nesting habitat is present within the evaluation area. The CNDDB reports a non-specific occurrence from 1972 that overlaps with the evaluation area attributed to "Carmel-By-The-Sea." The Xerces Bumble Bee atlas reports that this species is likely limited to the Sierra Nevada range.
Branchinecta lynchi Vernal pool fairy shrimp	FT / -- / --	Require ephemeral pools with no flow. Associated with vernal pool/grasslands from near Red Bluff (Shasta County), through the central valley, and into the South Coast Mountains Region. Require ephemeral pools with no flow.	**Not Present** No suitable habitat within the project sites.
Danaus plexippus Monarch butterfly (Overwintering)	FC / -- / --	Overwinters in coastal California, typically from mid-October to late February. Colonial roosts are generally found in Eucalyptus, pine, and acacia trees, often in canyons and drainages. Overwintering groves generally have more stable temperatures (i.e., less variation between day and night temperatures), less direct sunlight, less wind, and more moisture in the air than groves not used by monarch butterflies.	**Low** Suitable habitat is present within the project sites. The CNDDB reports several occurrences of this species within five miles of the project sites, including a 1984 occurrence located approximately 0.8 miles southeast of the project sites; however, overwintering populations of this species are closely monitored and have not been observed in the project sites.

Species	Status (USFWS/CDFW/CNPS)	General Habitat	Potential Occurrence within Evaluation Area
Euphilotes enoptes smithi Smith's blue butterfly	FE / -- / --	Most commonly associated with coastal dunes and coastal sage scrub plant communities in Monterey and Santa Cruz Counties. Plant hosts are *Eriogonum latifolium* and *E. parvifolium*.	**Not Present** No suitable habitat within the project sites.

STATUS DEFINITIONS

Federal

FE = listed as Endangered under the federal Endangered Species Act
FT = listed as Threatened under the federal Endangered Species Act
FC = Candidate for listing under the federal Endangered Species Act
-- = no listing

State

SE = listed as Endangered under the California Endangered Species Act
ST = listed as Threatened under the California Endangered Species Act
SC = Candidate for listing under California Endangered Species Act
SR = listed as Rare under the California Endangered Species Act
CFP = California Fully Protected Species
CSC = CDFW Species of Concern
-- = no listing

California Native Plant Society

1B = California Rare Plant Rank 1B species; plants rare, threatened, or endangered in California and elsewhere
2B = California Rare Plant Rank 2B species; plants rare, threatened, or endangered in California, but more common elsewhere
-- = no listing

POTENTIAL TO OCCUR

Present = known occurrence of species within the site and presence of suitable habitat conditions; or observed during field surveys
High = known occurrence of species in the immediate vicinity; presence of suitable habitat conditions
Moderate = known occurrence of species in the vicinity; presence of suitable habitat conditions
Low = species known to occur in the vicinity; presence of marginal habitat conditions
Unlikely = species not known to occur in the vicinity, no suitable habitat conditions
Not Present = species was not observed during surveys; or site lacks specialized habitat features to support the species

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Appendix E
Geotechnical Investigation

GEOTECHNICAL INVESTIGATION

PESCADERO ROAD
SEWER MAIN REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT
CARMEL AND CARMEL-BY-THE-SEA, CALIFORNIA

FOR
MNS ENGINEERS, INC.
SANTA BARBARA, CALIFORNIA

Pacific Crest
ENGINEERING INC

CONSULTING GEOTECHNICAL ENGINEERS

21113-M251-B 27
MARCH 2022
www.4pacific-crest.com

March 4, 2022 Project No. 21113-M251-B27

Mr. Nick Panofsky
MNS Engineers, Inc.
201 N. Calle Cesar Chavez, Suite 300
Santa Barbara, CA 93103

Subject: **Geotechnical Investigation – Design Phase**
Pescadero Road Sewer Main Replacement Project
Carmel Area Wastewater District
Carmel and Carmel-by-the-Sea, California

Dear Mr. Panofsky,

In accordance with your authorization, we have performed a geotechnical investigation for the proposed new sewer main project along a section of Pescadero Road, Lincoln Street, and 2nd Avenue in Carmel and Carmel-by-the-Sea, California.

The accompanying report presents our findings, conclusions and recommendations for the subject project. The conclusions and recommendations presented in this report are contingent upon our review of the plans during the design phase of the project, and our observation and testing during the construction phase of the project

If you have any questions concerning the information presented in this report, please call our office.

Very truly yours,

PACIFIC CREST ENGINEERING INC.

Elizabeth M. Mitchell, GE
Associate Geotechnical Engineer
GE 2718
Expires 12/31/22

Copies: 1 to Client (e-copy)

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GEOTECHNICAL INVESTIGATION REPORT
Pescadero Road Sewer Main Replacement Project
Carmel Area Wastewater District
Carmel and Carmel-by-the-Sea, California

I. INTRODUCTION

PURPOSE AND SCOPE

This report describes the geotechnical investigation and presents our conclusions and recommendations for Carmel Area Wastewater District's Pescadero Road Sewer Main Replacement Project, in Carmel and Carmel-by-the-Sea, California.

Our scope of services for this project has consisted of:

1. Site reconnaissance to observe the existing conditions.

2. Review of the following published maps:
   - Geologic Map of the Monterey Peninsula and Vicinity, Monterey County, California, Dibblee Jr., 1999.
   - Geologic Map of Monterey and Seaside 7.5-Minute Quadrangles, Monterey County, California, Clark, Dupré, Rosenberg, 1997.
   - Map Showing Liquefaction Susceptibility of Monterey County, California, Rosenberg, 2001.
   - Monterey County GIS Geologic Hazards Map Application accessed July 2021 from Monterey County website: https://montereyco.maps.arcgis.com/apps/webappviewer/index.html?id=80aadc38518a45889751e97546ca5c53.
   - U.S. Geological Survey (and the California Geologic Survey), 2018, Quaternary fault and fold database for the United States, accessed February 2022, from USGS website: https://www.usgs.gov/natural-hazards/earthquake-hazards/hazards.

3. The drilling and logging of six (6) test borings.

4. Laboratory analysis of retrieved soil samples.

5. Engineering analysis of the field and laboratory test results.

6. Preparation of this report documenting our investigation and presenting geotechnical recommendations for the design and construction of the project.

PROJECT LOCATION

The subject site is located along sections of Pescadero Road, Lincoln Street, and 2nd Avenue in Carmel and Carmel-by-the-Sea, California. The sections of Pescadero Road and Lincoln Street subject to the new sewer main alignment are roughly north-south trending. The section of 2nd Avenue subject to the

new sewer main alignment trends east-west. This section of 2nd Avenue traverses a moderately steep hillside. Please refer to the Regional Site Map, Figure No. 1, in Appendix A for the general vicinity of the project site, which is approximated by the following coordinates:

Latitude = 36.562771 degrees
Longitude = -121.923893 degrees

PROPOSED IMPROVEMENTS

It is our understanding that Carmel Area Wastewater District intends to install 2,200 linear feet of new sewer main along portions of Pescadero Road, Lincoln Street and 2nd Avenue in Carmel and Carmel-By-The-Sea. The new pipeline will extend from existing MH N601 at Pescadero Road, south to existing MH N610 at the western terminus of 2nd Avenue at the intersection of Monte Verde Street. The new sewer main will replace an existing 6" VCP sewer main that traverses the generally wooded area west of Pescadero Road. The existing main is to be abandoned in place.

The project is expected to include construction of a 10" PVC gravity sewer main and ten new manholes. It is our understanding that open cut trenching is currently planned to install the majority of the proposed main; approximately 90 feet of pipeline on 2nd Avenue between Station 21+00 west to MH N610 will be installed using an HDD trenchless method. The depth of the pipeline is expected to range from about 4 to 20 feet below existing road grade.

II. INVESTIGATION METHODS

FIELD INVESTIGATION

Six (6), 6-inch diameter test borings were drilled at the site on January 19, 2022. The approximate locations of the test borings are shown on the Regional Site Map, Figure No. 2, in Appendix A. The drilling method used was hydraulically operated continuous flight augers on a tractor mounted drill rig. A geologist from Pacific Crest Engineering Inc. was present during the drilling operations to log the soil encountered and to choose sampler type and locations.

Relatively undisturbed soil samples were obtained at various depths by driving a split spoon sampler 18 inches into the ground. This was achieved by dropping a 140-pound hammer a vertical height of 30 inches. The hammer was actuated with a wire winch. The number of blows required to drive the sampler each 6-inch increment and the total number of blows required to drive the last 12 inches was recorded by the field engineer. The outside diameter of the samplers used was 3 or 2 inches and is designated on the Boring Logs as "L" or "T", respectively.

The field blow counts in 6-inch increments are reported on the Boring Logs adjacent to each sample as well as the Standard Penetration Test data (SPT). All STP data has been normalized to a 2-inch O.D. sampler and is reported on the Boring Logs as SPT "N" values. The normalization method used was derived from the second edition of the Foundation Engineering Handbook (H.Y. Fang, 1991). The

method utilizes a Sampler Hammer Ratio which is dependent on the weight of the hammer, height of hammer drop, outside diameter of sampler, and inside diameter of sample.

The soils encountered in the borings were continuously logged in the field and visually described in accordance with the Unified Soil Classification System (ASTM D2488) as described in the Boring Log Explanation, Figures No. 3 and 4, in Appendix A. The soil classification was verified upon completion of laboratory testing in accordance with ASTM D2487.

Appendix A contains the site plan showing the locations of the test borings, our borings logs and an explanation of the soil classification system used. Stratification lines on the boring logs are approximate as the actual transition between soil types may be gradual.

LABORATORY TESTING

The laboratory testing program was developed to aid in evaluating the engineering properties of the materials encountered at the site. Laboratory tests performed include:

- Moisture Density relationships in accordance with ASTM D2937.
- Field penetrometer testing to approximate unconfined compressive strength.
- Gradation testing in accordance with ASTM D422.
- Atterberg Limits testing in accordance with ASTM D4318.
- Unconfined Compression testing in accordance with ASTM D2166.
- Corrosivity testing in accordance with California 643 (Minimum Resistivity), California 422 (Chlorides), California 417 (Sulfates) and California 643 (pH).

The results of the laboratory testing are presented on the boring logs opposite the sample tested and/or presented graphically in Appendix A.

III. FINDINGS AND ANALYSIS

GEOLOGIC SETTING

The surficial geology in the area of the project site is mapped as Unnamed Sandstone and Volcanic Rocks (Clark, Dupre,' Rosenberg, 1997). Monte Vista Coastal Terrace Deposits are mapped east of the project site. The Unnamed Sandstone is described as *"Marine; buff to light gray, poorly to well sorted arkosic sandstone, locally friable, locally conglomerate."* The Volcanic Rocks are described as *"Flows and flow breccias of basaltic andesite."* The terrace deposits are described as *"Semiconsolidated, moderately well sorted marine sand containing thin, discontinuous gravel-rich layers."* The materials encountered during our field investigation appear consistent with terrace deposits and sandstone.

SURFACE CONDITIONS

The new sewer main alignment will extend from existing MH N601 at Pescadero Road, south to existing MH N610 at the western terminus of 2nd Avenue at the intersection of Monte Verde Street. The

project area is completely paved. The road slopes gently to moderately from MH N601 to the Lincoln Street and the intersection with 2nd Avenue. The 2nd Avenue section slopes moderately downward to the west to Monte Verde Street. An abundance of public utilities exist within the project area.

The project site traverses through a residential neighborhood. Single-family homes are present on both sides of the streets.

SUBSURFACE CONDITIONS

Our subsurface exploration consisted of the advancement of six (6) test borings ranging in depth from 6½ feet to 21½ feet below ground surface. Boring locations that were near the existing sewer main were drilled outside of the existing trench (B-1 and B-6). The remaining four borings were drilled as close to the proposed sewer main alignment as possible. The soil profiles and classifications, laboratory test results and groundwater conditions encountered for each test boring are presented in the Logs of Test Borings, in Appendix A. The general subsurface conditions are described below.

Subsurface conditions encountered varied from boring to boring. Within B-1, the soils were typically finer grained materials comprised of clayey sand, lean clay, fat clay, and fat clay with sand. Fines content (clay and silt percentage) ranged from 26.3% to 97.2%. The sandy material, which was encountered in the upper 9½ feet, was described as fine to medium grained, sub-angular to sub-rounded shaped, and poorly graded. A few rounded to well-rounded sandstone gravels were observed at 2½ feet below ground surface. The density ranged from loose to medium dense. Consistency of the fine-grained (clay) strata, which was encountered from 9½ feet to the maximum explored depth of 21½ feet, ranged from stiff to very stiff. Fat clay, which is highly expansive, was encountered from 12 feet to 21½ feet.

Subsurface conditions encountered within B-2, B-3, and B-6 consisted of primarily granular materials comprised of clayey sand, silty sand, and sand with silt and gravel. The fines content ranged from 10.3% to 46.8%. These strata were typically fine to medium grained, sub-angular to sub-rounded shaped, and poorly graded. Gravels encountered within B-2 were described as sub-angular to well-rounded shaped and up to 3½ inches in diameter. Density within the sandy material ranged from loose to very dense.

Subsurface conditions within B-4 and B-5 consisted of granular material underlain by fine grained (clay) material at depth. The fines content ranged from 1.3% to 55.1%. The granular material was generally fine to medium grained, sub-angular to sub-rounded shaped, and poorly graded. The sand encountered within B-5 which extended from just below the pavement section to a depth of 9½ feet, was described as clean (1.3% fines) and had a density described as loose. This stratum was underlain by sandy clay which extended to a maximum explored depth of 11 feet. The clay exhibited intermediate plasticity, and the consistency was described as very hard. The granular strata within B-4 had densities ranging from medium dense to very dense. Fat clay was encountered within B-4 at a depth of 11½ feet and extended to the maximum explored depth of 15 feet. The consistency of the fat clay ranged from very stiff to hard.

Groundwater was not encountered in any of the borings to a maximum explored depth of 21½ feet. The groundwater conditions described in this report reflect the conditions encountered during our drilling investigation in January of 2022 at the specific locations drilled. It must be anticipated that perched and regional groundwater tables may vary with location and could fluctuate with variations in rainfall, runoff, irrigation, and other changes to the conditions existing at the time our measurements were made. We note that the borings were drilled in the winter of a drought year that was preceded by multiple below-average rain years. It should be anticipated that shallow groundwater conditions may develop and result in a significant rise in groundwater levels in the winter and spring months of non-drought years.

Please refer the Logs of Test Borings in Appendix A, for a more detailed description of the subsurface conditions encountered in each of our test borings at the subject site.

SOIL CORROSIVITY

To address the corrosivity potential at the subject site, testing was performed on four (4) samples of the on-site soils likely to come in contact with concrete and buried metallic structures. The results are summarized as follows:

Table No.1 - Corrosivity Test Summary

Sample	Approximate Sample Depth (ft)	Soil Resistivity	Chloride	Sulfate (water soluble)	pH
		Ohm-cm	mg/kg	mg/kg	
1-5	11	947	106	78	7.3
3-1-2	2	3,009	155	172	5.9
6-3-2	5	5,845	18	77	6.4

According to the Cal Trans Corrosion Guidelines, Version 3.2 (May 2021), a site may be considered corrosive to foundation elements if one or more of the following conditions exist:

- The soil resistivity is *less than* 1,100 ohm-cm
- Chloride concentration is *greater than* or equal to 500 mg/Kg (ppm)
- Sulfate concentration is *greater than* or equal to 1500 mg/Kg (ppm)
- The soil pH is 5.5 *or less*

Furthermore, According to Pacific Gas and Electric (PG&E) Electric & Gas Service Requirements (TD-7001M) 2020-2021, a site may be considered corrosive if one or more of the following conditions exist:

- The soil resistivity is less than 3,000 ohm-cm
- The soil pH is less than 4.5 or greater than 9

In comparing the test results to the threshold values provide above, we have determined that the majority of the soils likely to be in contact with concrete and buried metallic structures are non-corrosive. However, the resistivity value for sample 1-5 is below the Caltrans threshold of 1,100 Ohm-cm. Consequently, these soils are considered corrosive.

The corrosion potential for any imported select fill should also be tested for corrosivity. Please refer to Appendix A for a site plan that shows the corrosivity test boring locations (Figure 2), associated boring logs, and specific results of the corrosivity testing by the analytical laboratory (Figure 12).

FAULTING AND SEISMICITY

Faulting

Mapped faults which have the potential to generate earthquakes that could significantly affect the subject site are listed in Table No. 2. The fault distances are approximate distances based the U.S. Geological Survey and California Geological Survey, Quaternary fault and fold database, accessed February 28, 2022, from the USGS website (https://www.usgs.gov/natural-hazards/earthquake-hazards/hazards) and overlaid onto Google Earth.

Table No. 2 - Distance to Significant Faults

Fault Name	Distance (miles)	Direction
Cypress Point	1	West-Southwest
San Gregorio	4½	West-Southwest
Cachagua	10½	Southeast
Monterey Bay-Tularcitos	½	East-Northeast
Reliz	10	Northeast
Chupines	5	Northeast

Seismic Shaking and CBC Design Parameters

Due to the proximity of the site to active and potentially active faults, it is reasonable to assume the site will experience high intensity ground shaking during the lifetime of the project. Structures founded on thick, soft soil deposits are more likely to experience more destructive shaking, with higher amplitude and lower frequency, than structures founded on bedrock. Generally, shaking will be more intense closer to earthquake epicenters. Thick, soft soil deposits large distances from earthquake epicenters, however, may result in seismic accelerations significantly greater than expected in bedrock.

The following peak ground accelerations (PGA) were obtained for the project site from the online California Geologic Survey – PSHA Ground Motion Interpolator.

Table No. 3 – Site Specific Peak Ground Accelerations

Probability of Exceedance	PGA
2% in 50 Years	0.60g
10% in 50 Years	0.37g

The recommendations of this report are intended to reduce the potential for structural damage to an acceptable risk level, however strong seismic shaking could result in damage and the need for post-earthquake repairs. It should be assumed that exterior improvements such as pavements or sidewalks may need to be repaired or replaced following strong seismic shaking.

GEOTECHNICAL HAZARDS

A quantitative analysis of geotechnical hazards was beyond our scope of services for this project. In general, however, the geotechnical hazards associated with the project site include seismic shaking (discussed above), ground surface fault rupture, liquefaction, lateral spreading, landsliding, and expansive soils. A qualitative discussion of these hazards is presented below.

Ground Surface Fault Rupture

Pacific Crest Engineering Inc. has not performed a specific investigation for the presence of active faults at the project site. Based upon our review of the Monterey County GIS Hazard Maps, the project site is not mapped within a fault hazard zone.

Ground surface fault rupture typically occurs along the surficial traces of active faults during significant seismic events. Since the nearest known active, or potentially active fault trace is mapped approximately ½ mile from the site, it is our opinion that the potential for ground surface fault rupture to occur at the site may be considered low.

Liquefaction and Lateral Spreading

Based upon our review of the Monterey GIS Hazard Maps, the project site is not mapped within a liquefaction hazard zone.

Liquefaction tends to occur in loose, saturated fine-grained sands and coarse silt, or clays with low plasticity. Our borings generally encountered fine-grained sands with varying amounts of clay, silt, and gravel. In our opinion, these subsurface conditions corroborate the mapping of the project site as having a low potential for liquefaction to the depths explored.

Liquefaction induced lateral spreading occurs when a liquefied soil mass fails toward an open slope face or fails on an inclined topographic slope. Our analysis indicates that the site has a low potential for liquefaction, consequently the potential for lateral spreading is also considered low.

Landsliding

The subject site is not located within a mapped landslide zone. Pescadero Road along the proposed sewer alignment is relatively flat to gently sloping, and in our opinion is not subject to landsliding hazards. Based on the location of the proposed alignment and the materials encountered in our borings, it is our opinion that the proposed pipeline construction is not likely to pose an increased landslide risk to the downslope properties located adjacent to Pescadero Road.

Expansive Soils

The proposed pipeline alignment is underlain by highly variable and interbedded clayey sand and clay soils of low to high expansion potential. Expansive soils were noted at various depths within our borings, and it is possible that other expansive soils exist that our subsurface investigation did not detect. Expansive soils tend to heave during the rainy season and contract during the summer. This cyclical volume change within the soil will occur whenever the moisture content of the soil fluctuates, whether it occurs seasonally or otherwise. Seasonal moisture fluctuation and subsequent expansion and contraction of these types of soils typically occurs more so near the ground surface.

IV. DISCUSSION AND CONCLUSIONS

GENERAL

1. The results of our investigation indicate that from a geotechnical engineering perspective the proposed sewer main project is feasible from a geotechnical engineering standpoint, provided our recommendations are included in the design and construction of the project.

2. Pipeline design plans should be reviewed by Pacific Crest Engineering Inc. during their preparation and prior to contract bidding.

3. Pacific Crest Engineering Inc. should be notified at least four (4) working days prior to any site clearing and grading operations in order to observe the stripping and disposal of unsuitable materials, and to coordinate this work with the grading contractor. During this period, a pre-construction conference should be held on the site, with at least the client or their representative, the grading contractor, a City/County representative and one of our engineers present. At this meeting, the project specifications and the testing and inspection responsibilities will be outlined and discussed.

4. The validity of the findings, conclusions and recommendations contained in this report are dependent upon an adequate testing and observation program during the construction phase. Field observation and testing must therefore be provided by a representative of Pacific Crest Engineering Inc., to enable us to form an opinion as to whether the extent of work related to earthwork and/or foundation excavation complies with the project plans, specifications and our geotechnical recommendations. It is the responsibility of the owner, or their representative, to ensure that the information and recommendations provided by Pacific Crest Engineering, Inc. are called to the attention of the Contractor and subcontractors and that the necessary steps are taken to ensure that such recommendations are carried out in the field. Pacific Crest Engineering assumes no responsibility

for the future performance of work related to grading or foundation excavation that is performed without the full knowledge and direct observation of Pacific Crest Engineering Inc.

PRIMARY GEOTECHNICAL CONSIDERATIONS

5. The following section provides geotechnical considerations for the design and construction of the proposed pipeline and are intended for use in design of the project and preparation of the project plans and specifications. It is neither the intent nor within the scope of this investigation to recommend construction procedures or methods used by the Contractor. It is the responsibility of the Contractor to use sound construction procedures and methods of the industry in accordance with local, state, and federal safety standards.

6. Variations in soil conditions due to shallow bedrock, local grading, or seismic activity can occur and should be expected over segments of the proposed pipeline alignment. Therefore, subsurface conditions at some locations may differ from those observed or inferred from this investigation. The presence of pre-existing utilities and variable trench backfill therein could also impact the site conditions and construction operations.

7. Based upon the results of our investigation, it is our opinion that the primary geotechnical issues associated with the design and construction of the proposed project are the following:

a. *Collapsible/Caving Soils:* Loose sand materials were encountered within the upper 8 feet in B-1, the upper 3 feet in B-3, the upper 10 feet in B-5, and the upper 4 feet in B-6. There may be other zones of loose sand materials within the proposed pipeline alignment. In our opinion these materials are highly susceptible to collapse/caving when excavated. This condition may result in trench instability and collapse regardless of excavation depth. In order to reduce this risk, we recommend that all excavations be either sloped back to a stable gradient or shored. It must be understood that excavation safety and application of an appropriate shoring system(s) is the sole responsibility of the contractor. Refer to the Excavation and Shoring section of this report for additional recommendations.

b. *Expansive Soils:* High plasticity, potentially expansive soils have been identified within the proposed pipeline alignment. These materials should not be used as backfill beneath or around structures or as trench backfill.

c. *Excavation Conditions:* Very dense soil/bedrock conditions were encountered in B-2, B-3 and B-4. Variations in soil conditions across the proposed alignment are likely and should be expected during construction. The contractor should be aware of these conditions and employ the proper equipment to ensure excavation to the required depths.

   Where loose and/or very moist or saturated sands are encountered, trench wall instability is likely to necessitate shoring of trench walls for various portions of the pipeline. Any temporary sloping or shoring of trenches and excavations (including temporary dewatering, if required) will be the responsibility of the Contractor.

Shallow groundwater or saturated soil conditions could affect excavation conditions, compaction requirements, backfill specifications and bearing capacity.

d. *Strong Seismic Shaking:* The project site is located within a seismically active area and strong seismic shaking is expected to occur within the design lifetime of the project. Improvements should be designed and constructed in accordance with the most current AWWA Standards and the recommendations of this report to minimize reaction to seismic shaking. Improvements designed and built in accordance with applicable codes should have an increased potential for experiencing relatively minor damage which should be repairable, however strong seismic shaking could result in the need for post-earthquake repairs.

V. RECOMMENDATIONS

PIPELINE CONSTRUCTION AND UTILITIES

General

1. To prevent damage to existing utilities it is essential to identify their existence and location, including depth, prior to commencing with open cut or trenchless pipeline installation. General surface utility location methods, keyhole type vacuum excavations or other applicable methods should be used to locate utilities within the zone of influence and to verify their clearance from the pipe to be installed.

2. Where pipe is required to be installed along streets or other facilities by jacking, boring or tunneling methods (including HDD), it is the Contractor's responsibility to ensure construction shall be made in such a manner that will not interfere with the operation of the street or other facility, and shall not weaken or damage any embankment or nearby structure.

3. The pits or trenches excavated to facilitate jacking, boring or tunneling operations shall be backfilled immediately after the installation of the pipe has been completed.

4. Trenchless undercrossing operations will be the responsibility of the Contractor as to methods and job site safety and shall be performed by a Contractor with sufficient experience in trenchless pipeline installation. The Contractor shall furnish for the District Engineer's approval, a plan showing the proposed construction methods, including as applicable, boring methods, location of pits, design for the jacking head, jacking support or back stop, arrangement and position of augers, jacks, pipe guides, etc. The plan should include provisions for maintaining the boring alignment within construction specifications.

5. We recommend a program of measure and monitoring to mitigate potential heave be employed along portions of the alignment that are constructed using trenchless methodology. The monitoring program should include a preconstruction survey of all nearby structures, culverts, manholes and pavement. Nearby structures and utilities should be actively and continuously monitored throughout the trenchless pipeline operation. The monitoring program should be submitted for review and

approval by the District Engineer and should be in-place prior to commencing the trenchless pipeline operations.

Modulus of Subgrade Reaction

6. Vertical loading on a flexible pipe can cause the pipe to deform. The diameter of the pipe tends to decrease in the vertical direction and increase in the horizontal direction. The composite modulus of subgrade reaction (E'_c) is used in the design of buried flexible pipes to estimate the passive resistance developed by the soil when the pipe is vertically loaded. E'_c is a function of depth of cover, trench width, the diameter of the pipe, the modulus (E'_b) of the pipe zone material (the soil and bedding material directly surrounding the pipe), and the modulus (E'_n) of the native material adjacent to the trench walls.

7. The native soils encountered during our subsurface investigation generally consisted of loose to very dense granular soils with varying silt, clay and gravel content (SM, SC and SP) and stiff to very hard clay (CL, CI, and CH).

8. The following table provides preliminary values for the Modulus of Subgrade Reaction (E'_n) for the native material adjacent to the trench walls and the Modulus of Subgrade Reaction (E'_b) for the pipe backfill and bedding material.

Table No. 4 – Modulus of Subgrade Reaction (E'_n and E'_b) Values

Type of Soil	Modulus of Subgrade Reaction (E'_b,E'_n)[1] for open-cut trench installation
Expansive Clays and Silts (CH, MH, Liquid Limit >50)	Do not use as backfill
Clays and Silts (CL, CI, ML)	700 psi[2]
Sands (SP, SW, SC, SM)	900 psi[2]
(GW, GP)	1,000 psi[2]

[1]Jey Jeyapalan P. E., "Modulus of Soil Reaction (E') Values for Pipeline Design"
[2]The above values apply when the soil cover is between 0 and 5 feet. These values may be increased by 25 psi for every foot of soil cover above the pipe greater than 5 feet.

9. To determine E'_c for the buried pipe E'_n for the native soil and E'_b for the backfill material must be determined then combined using the following formula:

$$E'_c = S_c E'_b$$

The value of S_c is a function of E'_n/E'_b and B_d/D where B_d is the width of the trench at the pipeline and D is the diameter of the pipe.

Table No. 5 – S_c Values

E'_n/E'_b	S_c for B_d/D*					
	1.5	2.0	2.5	3.0	4.0	5.0
0.1	0.15	0.30	0.60	0.80	0.90	1.00
0.2	0.30	0.45	0.70	0.85	0.92	1.00
0.4	0.50	0.60	0.80	0.90	0.95	1.00
0.6	0.70	0.80	0.90	0.95	1.00	1.00
0.8	0.85	0.90	0.95	0.98	1.00	1.00
1.0	1.00	1.00	1.00	1.00	1.00	1.00
1.5	1.30	1.15	1.10	1.05	1.00	1.00
2.0	1.50	1.30	1.15	1.10	1.05	1.00
3.0	1.75	1.45	1.30	1.20	1.08	1.00
>=5.0	2.00	1.60	1.40	1.25	1.10	1.00

*Jey Jeyapalan P. E., "Modulus of Soil Reaction (E') Values for Pipeline Design"

Utility Trench Backfill

10. Utility trenches that are parallel to the sides of structures should be placed so that they do not extend below a line sloping down and away at a 2:1 (horizontal to vertical) slope from the bottom outside edge of all footings.

11. Utility pipes should be designed and constructed so that the top of pipe is a minimum of 24 inches below the finish subgrade elevation of any road or pavement areas. Any pipes within the top 24 inches of finish subgrade should be concrete encased, per design by the project civil engineer.

12. Trenches must be shored as required by the local agency and the State of California Division of Industrial Safety construction safety orders.

13. A representative from our firm should be present to observe the bottom of all trench excavations, prior to placement of utility pipes and conduits.

14. For the purpose of this section of the report, backfill is defined as material placed in a trench starting one foot above the pipe, and bedding is all material placed in a trench below the backfill.

15. Unless concrete bedding is required around utility pipes, free-draining clean sand should be used as bedding. Sand bedding should be compacted to at least 95 percent relative compaction. Clean sand is defined as 100 percent passing the #4 sieve, and less than 5 percent passing the #200 sieve.

16. Approved imported clean sand or predominately granular native soils should be used as utility trench backfill. Backfill in trenches located under and adjacent to structural fill, foundations, concrete slabs and pavements should be placed in horizontal layers no more than 8 inches thick. This includes areas such as roadways, sidewalks, equipment pads, and other hardscape areas. Each layer of trench backfill should be moisture conditioned and compacted to at least 95 percent relative compaction.

17. Jetting of the trench backfill is not recommended as it may result in an unsatisfactory degree of compaction.

18. A representative from our firm should be present to observe compaction of the sand bedding, in addition to any backfill planned above the bedding zone.

19. Utility trenches which carry "nested" conduits (stacked vertically) should be backfilled with CLSM to an elevation one foot above the nested conduit stack. The use of pea gravel or clean sand as backfill within a zone of nested conduits is not recommended.

20. Controlled low strength material (CLSM) is a flowable, self-compacting, cementitious material used in lieu of compacted soil. CLSM is a mixture of cement, pozzolan, coarse and fine aggregate and water mixed in accordance with ASTM C94. CLSM may be used as backfill provided it is in accordance with the following:

a. The CLSM should have a consistency such that the material flows easily into all openings. A stiffer mixture may be required on sloping ground. If a stiffer mixture is required, vibration should be performed to ensure that the CLSM fills all spaces and openings.

b. When fully cured the CLSM should be hand excavatable and have a minimum 28-day compressive strength of 50 psi and a maximum 28-day compressive strength of 150 psi.

c. Placement of backfill, pavement sections or concrete over the CLSM should not take place until the CLSM passes the ball drop test per ASTM 6024.

d. If the CLSM is not covered within 8 hours, a 6-inch cover of moist earth should be placed over the CLSM. If the air temperature is 50°F or less, the earth cover should be 18 inches thick.

e. CLSM shall not be placed when the air temperature is below 40°F unless the air temperature is 35°F or more and the temperature is rising.

21. Pipelines in trenches backfilled with CLSM have a tendency to float as the CLSM is placed. Pipe anchors and sequential backfilling can mitigate the potential for floating. If the sequential backfilling method is selected, the height to which the CLSM is placed is a function of the buoyant force and the amount of resistance provided by the anchoring system. Sequential backfilling requires the trench to remain open for a longer period of time.

TRENCHING, OPEN-CUT EXCAVATIONS AND SHORING

22. It is our opinion that open-cut excavations are feasible for the installation of the proposed pipeline. There may be some sections of the pipeline alignment where it may be feasible to slope the trench sides to provide a safe environment for pipe installations. Alternatively, excavations may be vertically cut and shored. All excavations should have either temporary sidewall slopes constructed in accordance with CAL-OSHA guidelines or be mechanically shored.

23. The "top" of any temporary cut slope should be set-back at least ten feet (measured horizontally) from any nearby structure or property line. Any excavation that cannot meet these side slope gradients will need to have a shoring system designed to support steeper sidewall gradients.

24. It must be understood that on-site safety is the *sole responsibility* of the contractor, and that the contractor shall designate a *competent person* (as defined by CAL-OSHA) to monitor the slope excavation prior to the start of each work day, and throughout the work day as conditions change. The competent person designated by the contractor shall determine if flatter slope gradients are more appropriate, or if shoring should be installed or modified to protect workers in the vicinity of the slope excavation. Refer to Title 8, California Code of Regulations, Sections 1539-1543. All excavations must be evaluated for stability prior to entry. The contractor must act in accordance with the project specifications, Cal/OSHA and/or any other applicable government regulation concerning excavation safety and shoring.

25. All excavations must meet the requirements of 29 CFR 1926.651 and 1926.652 or comparable OSHA approved state plan requirements.

26. The native soils encountered during our subsurface investigation along the pipeline alignment vary in composition and consistency in both the vertical and horizontal directions. The soils encountered generally consisted of loose to very dense sand (SM, SC, SP), and very stiff to hard clay (CL, CI & CH). Based on our field and laboratory investigations, we recommend that for sloping and benching purposes, the soils within the project site should be preliminarily classified as Type C soils in accordance with Cal/OSHA. The contractor's competent person must base their sloping and benching systems on the actual soil and groundwater conditions encountered in the field at the time of construction. Classification of bedrock, where encountered, will depend on the bedding angles, fracturing and competency of the rock when exposed.

27. It should be anticipated that the loose and/or saturated granular soils are susceptible to collapse and may have little to no stand-up time. Unsupported vertical cuts in collapsing soils can result in vertical wall failure and the undermining of adjacent pavements, utilities and structures. If collapsing soils are encountered during construction, continuous full-face shoring is recommended.

28. Should temporary shoring be required, the shoring wall system chosen by the designer should be designed using the geotechnical design criteria presented in the "Lateral Pressures" section of this report.

29. Excavation design and shoring systems should be submitted to the project engineers a minimum of three weeks prior to construction for a review to determine the conformance of the design with standard engineering practices and specific site conditions. The shoring submittal should include alternative systems that are contingent upon the actual soil and groundwater conditions encountered during construction. The contractor must be prepared to install the alternative shoring systems in a timely manner should the initial system not be appropriate for achieving the minimum safety and performance requirements. The actual shoring systems used should be modified during construction,

if necessary, and must be based on the actual soil and groundwater conditions encountered at the time of construction.

30. We anticipate that a braced excavation support system will be used for open-cut trenching in most areas. A braced excavation system could limit lateral deflection of the trench walls and limit settlement behind the shoring.

31. Shoring systems that do not positively buttress the excavation walls and allow trench side walls to move into the excavation may result in settlement and damage to adjacent pavement, utilities, and structures. To help create a positive buttress, we recommended that all voids behind the shoring system be completely filled with soil or gravel backfill while the shoring work is in progress. The following table provides a preliminary rough estimate of potential surface settlement for positively shored excavations.

TABLE No. 6 - Potential Surface Settlement of Passively Shored Excavations

Soil Type	Surface Settlement (% of Excavation Depth)	Lateral Zone of Disturbance (Multiples of Excavation Depth)
Stiff Clay	<1%H	2H
Sand	0.5%H	H

EXCAVATABILITY

32. Based on the findings of our investigation, we anticipate that excavations for the planned improvements may generally be excavated using appropriately sized, conventional excavation equipment. The contractor should anticipate loose to very dense sand with a varying silt and clay fraction, as well as very stiff to hard clays, within planned excavations.

33. Bedrock may also be present within the proposed alignment and specialty rock excavating equipment may be necessary if hard bedrock is encountered. It is the contractor's responsibility to independently assess the excavatability of the soil along the pipeline alignment, and to choose suitable equipment, shoring and/or excavation methods.

EXCAVATION DEWATERING

34. Although groundwater was not encountered during our subsurface investigation, perched groundwater conditions may be present in excavations during non-drought years. Actual groundwater levels at the time of construction may be higher than the groundwater conditions noted on January 19, 2022. It must be anticipated that perched and regional groundwater tables may vary with location and will fluctuate with variations in rainfall, runoff, irrigation and other changes to the conditions existing at the time our measurements were made. It should be anticipated that the groundwater table may develop during the rainy season and in the summers that follow above normal rainfall.

35. Pipeline construction should be performed in dry excavations. The design, construction and installation of the groundwater dewatering systems, if required, is the sole responsibility of the

Contractor. The groundwater dewatering systems should be based on the actual groundwater conditions encountered at the time of construction. Dewatering plans should be submitted to the District for review prior to execution.

GENERAL EARTHWORK

36. The earthwork anticipated for this project consists of clearing the proposed trenching areas of vegetation and pavement, excavation and backfilling of the trenches, and the restoration of disturbed pavement, sidewalk, and/or landscape areas.

37. The initial preparation of the site will consist of the removal of all surface and subsurface deleterious materials within planned improvement areas. This will include, as applicable, pavement, curbs, gutters, sidewalks, buried utilities, irrigation lines, trees, and shrubs. Tree removal should include the entire stump and root ball. Abandoned septic tanks and leaching lines, if found, will need to be completely removed. This materials must be removed from the site.

38. Any voids created by removal of tree and root balls, subsurface obstructions, septic tanks, and leach lines must be backfilled with properly compacted native soils that are free of organic and other deleterious materials or with approved imported fill.

39. Following the installation of the new sewer main, the trenches should be backfilled with either approved native soil or import fill. All native and import fill should be placed in maximum 8 inch lifts, before compaction.

40. Native or imported soil proposed for use as engineered fill should meet the following requirements:

a. free of organics, debris, and other deleterious materials,
b. free of "recycled" materials such as asphaltic concrete, concrete, brick, etc.,
c. granular in nature, well graded, and contain sufficient binder to allow utility trenches to stand open,
d. free of rocks in excess of 2 inches in size.

In addition to the above requirements, import fill should have a Plasticity Index between 4 and 12, and a minimum Resistance "R" Value of 30, and be non-expansive.

41. Excavated native soil may be re-used as engineered fill provided it meets the criteria provided above. *We recommend that the upper 2 feet of trench backfill beneath site improvements including pavements, sidewalks, gutters, etc. consist of approved non-expansive engineered fill or Class 2 aggregate base.*

42. Engineered fill should be placed in maximum 8 inch lifts.

43. All soil on the project should be compacted to the minimum compaction requirements outlined in the following table:

Table No. 7 - Minimum Compaction Requirements

Percent of Maximum Dry Density	Location
95%	• All aggregate base and subbase in pavement areas • The upper 8 inches of subgrade in pavement areas • All utility trench backfill in pavement areas
90%	All remaining native soil and fill material

44. The moisture conditioning procedure will depend on the time of year that the work is done, but should result in the native sandy soils being within 1 to 3 percent over their optimum moisture content at the time of compaction.

45. If earthwork is done during or soon after the rainy season, the on-site soils and other materials may be too wet in their existing condition to be used as engineered fill. These materials may require a diligent and active drying and/or mixing operation to reduce the moisture content to the levels required to obtain adequate compaction as an engineered fill. If the on-site soils or other materials are too dry, water may need to be added. In some cases the time and effort to dry the on-site soil may be considered excessive, and the import of aggregate base may be required.

46. The maximum dry density will be obtained from a laboratory compaction curve run in accordance with ASTM Procedure #D1557. This test will also establish the optimum moisture content of the material. Field density testing will be performed in accordance with ASTM Test #D6938 (nuclear method).

47. We recommend field density testing be performed in maximum 2 foot elevation differences. In general terms, we would recommend at least one compaction test per 200 linear feet of utility trench. This is a subjective value and may be changed by the Geotechnical Engineer based on a review of the final project layout and exposed field conditions.

48. Samples of any proposed imported fill planned for use on this project should be submitted to Pacific Crest Engineering Inc. for appropriate testing and approval not less than ten (10) working days before the anticipated jobsite delivery. This includes proposed import trench sand, drain rock and aggregate base materials. Imported fill material delivered to the project site without prior submittal of samples for appropriate testing and approval must be removed from the project site.

LATERAL PRESSURES

49. Vertical excavations may be temporarily shored with a variety of methods including sheet piling, soldier piers with lagging, braced shoring, or other techniques. Our borings indicate that the vertical excavations associated with the project will be excavated in a variety of divergent earth material

including silty sand, clayey sand, sand, and clay. Shoring methods may vary and will depend on the soil actually exposed along the trench sides. Shoring design and construction must be provided by the contractor and their shoring designer.

50. The following lateral earth pressure values are preliminary values to be used for the design of structures that will be retaining soil. These values are based on the predominately sandy soils encountered in our borings. Active earth pressure values may be used when walls are free to yield an amount sufficient to develop the active earth pressure condition (about ½% of height). When walls are restrained, use at-rest values.

TABLE No. 8 – Lateral Earth Pressures

Ultimate Static Lateral Earth Pressures Expressed as an Equivalent Fluid Density in a triangular distribution		
Backfill Slope (H:V)	Active Earth Pressure (psf/ft of depth)	At-Rest Earth Pressure (psf/ft of depth)
Level	45	75
3:1	48	98
2:1	60	108
For resisting passive earth pressure use 250 psf/ft of depth. Ignore passive pressure in the upper two feet of embedment.		

51. Any live or dead loads which will transmit a force to the wall, refer to the Surcharge Pressure Diagram, Figure No. 13 in Appendix A.

52. If applicable, traffic surcharges on retaining walls may be simulated by assuming that an additional 2 feet of soil (250 psf) exists on the grade behind the wall.

53. For flexible (yielding) retaining walls, the resultant seismic force on the wall is $10H^2$ where H is the height of the retained soil in feet. This force has been estimated using the Mononobe-Okabe method of analysis as modified by Whitman (1990), and assumes a yielding wall condition. For rigid (non-yielding) retaining walls, the resultant seismic force on the wall is $21H^2$. Note that the resultant seismic force should be assumed to act at a point 0.33H up from the base of the wall.

54. The above criteria are based on fully drained conditions. If the walls are not able to be fully drained, hydrostatic forces should be added to the wall, as appropriate.

PAVEMENT DESIGN

55. The design of pavement sections was beyond our scope of services for this project. To have the selected pavement sections perform to their greatest efficiency, it is very important that the following items be considered:

a. Properly scarify and moisture condition the upper 8 inches of the subgrade soil and compact it to a minimum of 95% of its maximum dry density, at a moisture content of 1 to 3% over the optimum moisture content for the soil.

b. Provide sufficient gradient to prevent ponding of water.

c. Use only quality materials of the type and thickness (minimum) specified. All aggregate base and subbase must meet Caltrans Standard Specifications for Class 2 materials and be angular in shape. All Class 2 aggregate base should be ¾ inch maximum in aggregate size.

d. Compact the base and subbase uniformly to a minimum of 95% of its maximum dry density.

e. Use ½ inch maximum, Type "A" medium graded asphaltic concrete. Place the asphaltic concrete only during periods of fair weather when the free air temperature is within prescribed limits by Cal Trans Specifications.

f. Maintenance should be undertaken on a routine basis.

EROSION CONTROL

56. The surface soils are classified as having a moderate potential for erosion. Therefore, the finished ground surface within landscape and vegetated areas should be planted with ground cover and continually maintained to minimize surface erosion. For specific and detailed recommendations regarding erosion control on and surrounding the project site, the project civil engineer or an erosion control specialist should be consulted.

PLAN REVIEW

57. We respectfully request an opportunity to review the project plans and specifications during preparation and before bidding to verify that the recommendations of this report have been included and to provide additional recommendations, if needed. These plan review services are also typically required by the reviewing agency. Misinterpretation of our recommendations or omission of our requirements from the project plans and specifications may result in changes to the project design during the construction phase, with the potential for additional costs and delays in order to bring the project into conformance with the requirements outlined within this report. Services performed for review of the project plans and specifications are considered "post-report" services and billed on a "time and materials" fee basis in accordance with our latest Standard Fee Schedule.

VI. LIMITATIONS AND UNIFORMITY OF CONDITIONS

1. This Geotechnical Investigation was prepared specifically for MNS Engineers, Inc. and for the specific project and location described in the body of this report. This report and the recommendations included herein should be utilized for this specific project and location exclusively. This Geotechnical Investigation should not be applied to nor utilized on any other project or project site. Please refer to

the ASFE "Important Information about Your Geotechnical Engineering Report" attached with this report.

2. The recommendations of this report are based upon the assumption that the soil conditions do not deviate from those disclosed in the borings. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that planned at the time, our firm should be notified so that supplemental recommendations can be provided.

3. This report is issued with the understanding that it is the responsibility of the owner, or his representative, to ensure that the information and recommendations contained herein are called to the attention of the Architects and Engineers for the project and incorporated into the plans, and that the necessary steps are taken to ensure that the Contractors and Subcontractors carry out such recommendations in the field.

4. The findings of this report are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they are due to natural process or the works of man, on this or adjacent properties. In addition, changes in applicable or appropriate standards occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated, wholly or partially, by changes outside of our control. This report should therefore be reviewed in light of future planned construction and then current applicable codes. This report should not be considered valid after a period of two (2) years without our review.

5. This report was prepared upon your request for our services in accordance with currently accepted standards of professional geotechnical engineering practice. No warranty as to the contents of this report is intended, and none shall be inferred from the statements or opinions expressed.

6. The scope of our services mutually agreed upon for this project did not include any environmental assessment or study for the presence of hazardous or toxic materials in the soil, surface water, groundwater, or air, on or below or around this site.

Important Information About Your

Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

The following information is provided to help you manage your risks.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely, on Your ASFE-Member Geotechncial Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you ASFE-member geotechnical engineer for more information.

ASFE
The Best People on Earth

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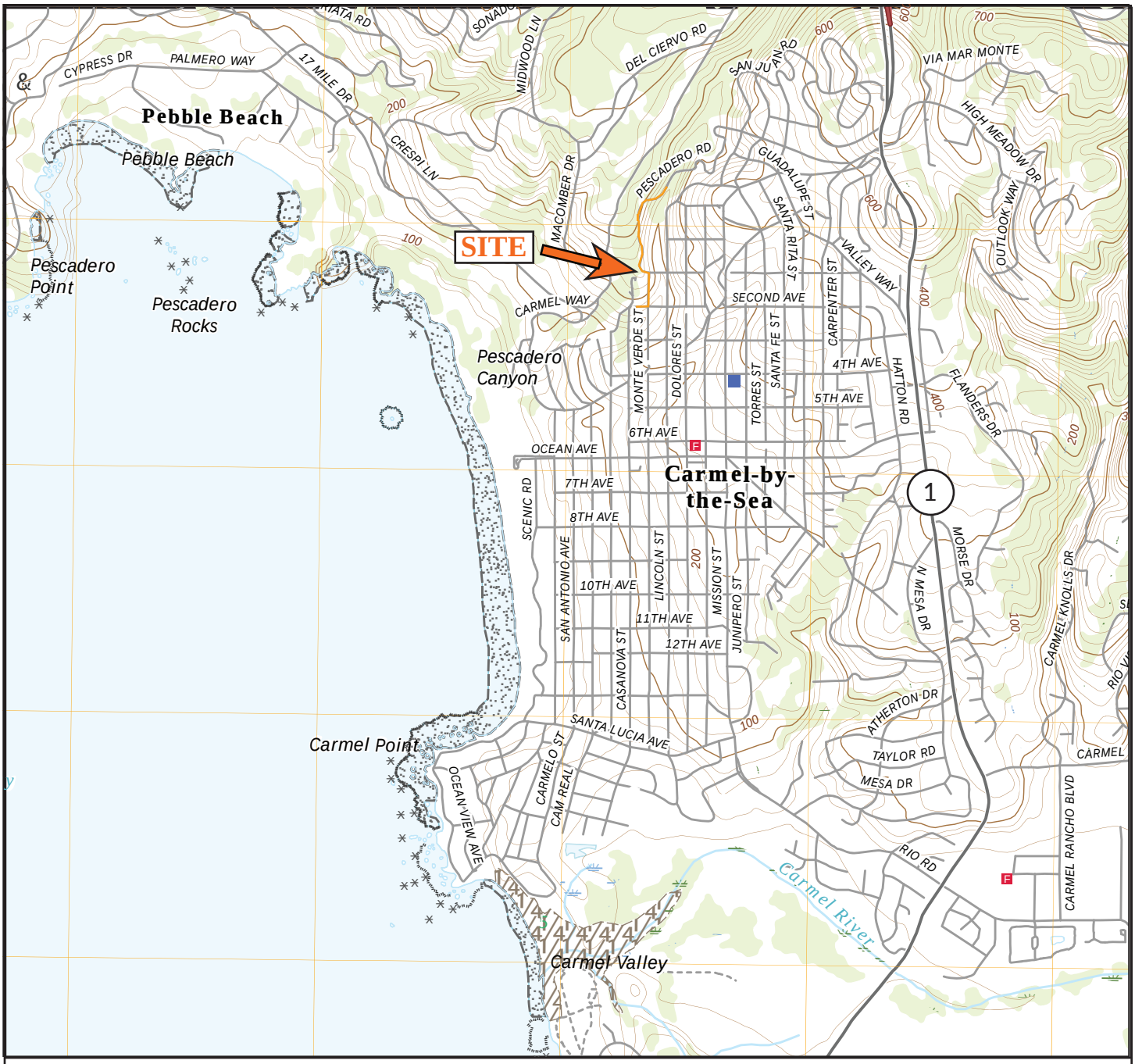
APPENDIX A

Regional Site Map
Site Map Showing Test Borings
Key to Soil Classification
Log of Test Borings
Atterberg Limits
Corrosivity Test Summary
Surcharge Pressure Diagram



0 2000 ft.

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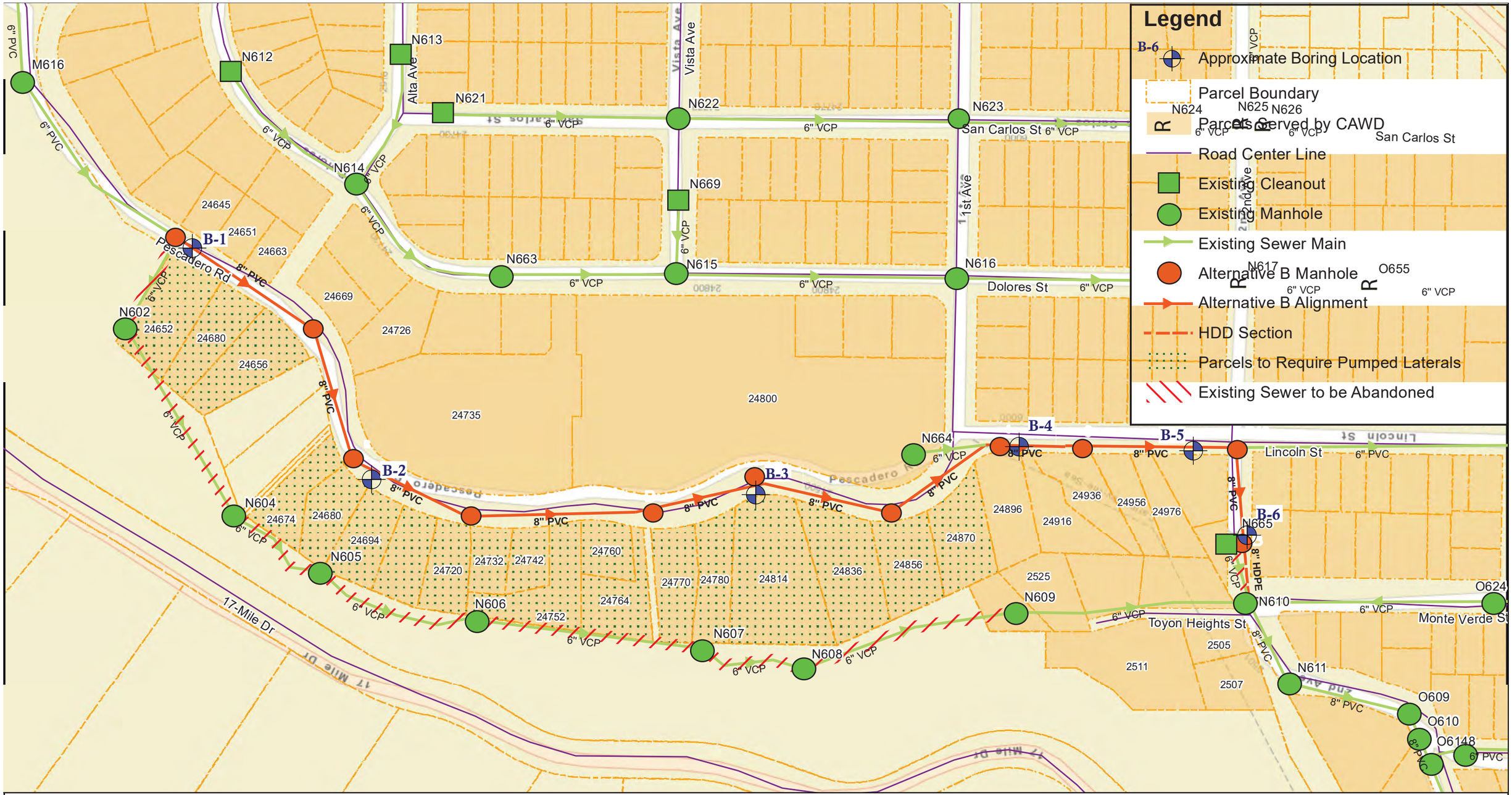
Base Map: United States Geological Survey
Monterey Quadrangle, California
Monterey County, 7.5 Minute Series, 2018

Pacific Crest ENGINEERING INC	**Regional Site Map** Pescadero Road Sewer Replacement Project Carmel and Carmel-by-the-Sea, California	Figure No. 1 Project No. 21113 Date: 3/4/22



Base Map: "FIGURE 3: ALTERNATIVE B - ROADWAY ALIGNMENT
PESCADERO ROAD SEWER REPLACEMENT PROJECT
CARMEL AREA WASTEWATER DISTRICT"
Prepared by MNS Engineerins Inc., 1" = 150 feet

N

0 150 300

Scale: 1 inch = 150 feet

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Site Map Showing Boring Locations
Pescadero Road Sewer Replacement Project
Carmel and Carmel-by-the-Sea, California

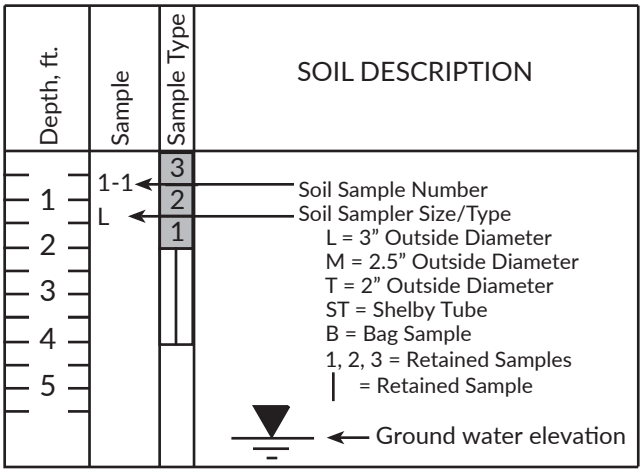
Figure No. 2
Project No. 21113
Date: 3/4/22

KEY TO SOIL CLASSIFICATION - FINE GRAINED SOILS (FGS)
UNIFIED SOIL CLASSIFICATION SYSTEM - ASTM D2487 (Modified)

MAJOR DIVISIONS		SYMBOL	FINES	COARSENESS	SAND/GRAVEL	GROUP NAME
SILT AND CLAY	*LL < 35% Low Plasticity	**CL** Lean Clay PI > 7 Plots Above A Line -OR- **ML** Silt PI > 4 Plots Below A Line	<30% plus No. 200	<15% plus No. 200		Lean Clay / Silt
				15-30% plus No. 200	% sand ≥ % gravel	Lean Clay with Sand / Silt with Sand
					% sand < % gravel	Lean Clay with Gravel / Silt with Gravel
			≥30% plus No. 200	% sand ≥ % gravel	< 15% gravel	Sandy Lean Clay / Sandy Silt
					≥ 15% gravel	Sandy Lean Clay with Gravel / Sandy Silt with Gravel
				% sand < % gravel	< 15% sand	Gravelly Lean Clay / Gravelly Silt
					≥ 15% sand	Gravelly Lean Clay with Sand / Gravelly Silt with Sand
		CL - ML 4 < PI < 7	<30% plus No. 200	<15% plus No. 200		Silty Clay
				15-30% plus No. 200	% sand ≥ % gravel	Silty Clay with Sand
					% sand < % gravel	Silty Clay with Gravel
			≥30% plus No. 200	% sand ≥ % gravel	< 15% gravel	Sandy Silty Clay
					≥15% gravel	Sandy Silty Clay with Gravel
				% sand < % gravel	< 15% sand	Gravelly Silty Clay
					≥ 15% sand	Gravelly Silty Clay with Sand
	35% ≤ *LL < 50% Intermediate Plasticity	**CI**	<30% plus No. 200	<15% plus No. 200		Clay
				15-30% plus No. 200	% sand ≥ % gravel	Clay with Sand
					% sand < % gravel	Clay with Gravel
			≥30% plus No. 200	% sand ≥ % gravel	< 15% gravel	Sandy Clay
					≥ 15% gravel	Sandy Clay with Gravel
				% sand < % gravel	< 15% sand	Gravelly Clay
					≥ 15% sand	Gravelly Clay with Sand
	*LL > 50% High Plasticity	**CH** Fat Clay Plots Above A Line -OR- **MH** Elastic Silt Plots Below A Line	<30% plus No. 200	<15% plus No. 200		Fat Clay or Elastic Silt
				15-30% plus No. 200	% sand ≥ % gravel	Fat Clay with Sand Elastic Silt with Sand
					% sand < % gravel	Fat Clay with Gravel / Elastic Silt with Gravel
			≥30% plus No. 200	% sand ≥ % gravel	< 15% gravel	Sandy Fat Clay / Sandy Elastic Silt
					≥ 15% gravel	Sandy Fat Clay with Gravel / Sandy Elastic Silt with Gravel
				% sand < % gravel	< 15% sand	Gravelly Fat Clay / Gravelly Elastic Silt
					≥ 15% sand	Gravelly Fat Clay with Sand / Gravelly Elastic Silt with Sand

* LL = Liquid Limit
* PI = Plasticity Index

BORING LOG EXPLANATION



MOISTURE

DESCRIPTION	CRITERIA
DRY	Absence of moisture, dusty, dry to the touch
MOIST	Damp, but no visible water
WET	Visible free water, usually soil is below the water table

CONSISTENCY

DESCRIPTION	UNCONFINED SHEAR STRENGTH (KSF)	STANDARD PENETRATION (BLOWS/FOOT)
VERY SOFT	< 0.25	< 2
SOFT	0.25 - 0.5	2 - 4
FIRM	0.5 - 1.0	5 - 8
STIFF	1.0 - 2.0	9 - 15
VERY STIFF	2.0 - 4.0	16 - 30
HARD	> 4.0	> 30

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Boring Log Explanation - FGS
Pescadero Road Sewer Replacement Project
Carmel and Carmel-by-the-Sea, California

Figure No. 3
Project No. 21113
Date: 3/4/22

KEY TO SOIL CLASSIFICATION - COARSE GRAINED SOILS
UNIFIED SOIL CLASSIFICATION SYSTEM - ASTM D2487 (Modified)

MAJOR DIVISIONS		FINES	GRADE/TYPE OF FINES	SYMBOL	GROUP NAME *
GRAVEL	More than 50% of coarse fraction is larger than No. 4 sieve size	<5%	Cu ≥ 4 and 1 ≤ Cc ≤ 3	GW	Well-Graded Gravel / Well-Graded Gravel with Sand
			Cu < 4 and/or 1 > Cc > 3	GP	Poorly Graded Gravel/Poorly Graded Gravel with Sand
		5-12%	ML or MH	GW - GM	Well-Graded Gravel with Silt / Well- Graded Gravel with Silt and Sand
				GP - GM	Poorly Graded Gravel with Silt / Poorly Graded Gravel with Silt and Sand
			CL, CI or CH	GW - GC	Well-Graded Gravel with Clay / Well-Graded Gravel with Clay and Sand
				GP - GC	Poorly Graded Gravel with Clay / Poorly Graded Gravel with Clay and Sand
		>12%	ML or MH	GM	Silty Gravel / Silty Gravel with Sand
			CL, CI or CH	GC	Clayey Gravel/Clayey Gravel with Sand
			CL - ML	GC - GM	Silty, Clayey Gravel/Silty, Clayey Gravel with Sand
SAND	50% or more of coarse fraction is smaller than No. 4 sieve size	<5%	Cu ≥ 6 and 1 ≤ Cc ≤ 3	SW	Well-Graded Sand / Well-Graded Sand with Gravel
			Cu < 6 and/or 1 > Cc > 3	SP	Poorly Graded Sand / Poorly Graded Sand with Gravel
		5-12%	ML or MH	SW - SM	Well-Graded Sand with Silt / Well- Graded Sand with Silt and Gravel
				SP - SM	Poorly Graded Sand with Silt / Poorly Graded Sand with Silt and Gravel
			CL, CI or CH	SW - SC	Well-Graded Sand with Clay / Well-Graded Sand with Clay and Gravel
				SP - SC	Poorly Graded Sand with Clay / Poorly Graded Sand with Clay and Gravel
		>12%	ML or MH	SM	Silty Sand / Silty Sand with Gravel
			CL, CI or CH	SC	Clayey Sand / Clayey Sand with Gravel
			CL - ML	SC - SM	Silty, Clayey Sand / Silty, Clayey Sand with Gravel

* The term "with sand" refers to materials containing 15% or greater sand particles within a gravel soil, while the term "with gravel" refers to materials containing 15% or greater gravel particles within a sand soil.

US STANDARD SIEVE SIZE: 3 inch | ¾ inch | No. 4 | No. 10 | No. 40 | No. 200 | 0.002 µm

	COARSE	FINE	COARSE	MEDIUM	FINE		
COBBLES AND BOULDERS	GRAVEL		SAND			SILT	CLAY

RELATIVE DENSITY

DESCRIPTION	STANDARD PENETRATION (BLOWS/FOOT)
VERY LOOSE	0 - 4
LOOSE	5 - 10
MEDIUM DENSE	11 - 30
DENSE	31 - 50
VERY DENSE	> 50

MOISTURE

DESCRIPTION	CRITERIA
DRY	Absence of moisture, dusty, dry to the touch
MOIST	Damp, but no visible water
WET	Visible free water, usually soil is below the water table

LOGGED BY CLA DATE DRILLED 1/19/22 BORING DIAMETER 6" SS BORING NO. 1

DRILL RIG CCD Tractor HAMMER TYPE Wireline - Downhole Hammer

Depth (feet)	Sample	Sample Type	Soil Description	USCS	Field Blow Counts	SPT "N" Value	Pocket Pen. (tsf)	Moisture Content (%)	Dry Density (pcf)	% Passing #200	Plasticity Index	Additional Lab Results
			AC: 2.5" AB: 0"									
1	1-1		**CLAYEY SAND:** Dark grayish brown (10YR 4/2), fine to medium grained, sub-angular to sub-rounded shaped, poorly graded, few rounded to well rounded sandstone gravels at 2½ feet, moist, loose	SC	7							
2	L	2			9			9.9	98.3			
		1			8	9		7.7	108.7			
3	1-2 T		Lack of gravels, moist, loose		1							
					2							
4					3	5		14.0				
	1-3 L		Increase in clay content, moist to slightly wet, loose		3							
5		2			5			10.4	99.2			
		1			10	8		12.9	116.7			
6												
7												
8	1-4 L		Mottled dark grayish brown (10YR 4/2) and yellowish brown (10YR 5/8), slight decrease in clay content, slight increase in coarseness of sand, moist, medium dense		10							
9		2			26			12.0	116.0			
		1			24	26		11.7	118.5	26.3		
10	1-5 T		**LEAN CLAY:** Light yellowish brown (2.5Y 6/4), yellowish brown (10YR 5/8), and greenish gray (GLEY1 5/5GY), silty, scattered rootlets, moist, stiff	CL	5							
					5							
11					8	13	3.0					
12	1-6 L		**FAT CLAY**: Mottled gray (5Y 6/1) and yellowish brown (10YR 5/6), fine to medium grained sand, moist, very stiff	CH	8							
13		2			14		3.5	35.9	81.9	97.2	53	
		1			21	25	3.0	36.4	82.7			Qu = 3063 psf
14			Increase in drilling resistance at 13 feet									
15												
16	1-7 T		Micaceous, moist, very stiff		6							
17					8							
					16	24		34.7				
18												
19												
20	1-8 L		**FAT CLAY WITH SAND:** Brown (10YR 4/3), medium to coarse grained sub-vertical sand lens, sand is sub-angular to sub-rounded shaped and poorly graded, moist, very stiff	CH	10							
21		2			15		3.25	28.4	84.5			Qu = 5516 psf
		1			23	27	+4.0	30.7	91.6	88.1	42	
22			Boring terminated at 21½ feet. No groundwater encountered.									
23												

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Log of Test Borings
Pescadero Road Sewer Replacement Project
Carmel and Carmel-by-the-Sea, California

Figure No. 5
Project No. 21113
Date: 3/4/22

LOGGED BY CLA DATE DRILLED 1/19/22 BORING DIAMETER 6" SS BORING NO. 2

DRILL RIG CCD Tractor HAMMER TYPE Wireline - Downhole Hammer

Depth (feet)	Sample	Sample Type	Soil Description	USCS	Field Blow Counts	SPT "N" Value	Pocket Pen. (tsf)	Moisture Content (%)	Dry Density (pcf)	% Passing #200	Plasticity Index	Additional Lab Results
			AC: 1" AB: 4"									
1	2-1 L		**SAND WITH SILT AND GRAVEL:** Pale brown (2.5Y 7/3), fine to medium grained, sub-angular to sub-rounded shaped, poorly graded, sub-angular to well rounded gravels and cobbles up to 3½ inches in diameter, trace roots, slightly moist to dry, medium dense, (DG)	SP	10							
2		2			14			1.7	111.6	10.3		
		1			23	19		5.3	106.0			
3	2-2 T		Lack of rootlets, decrease in gravel content, slightly moist to dry, medium dense		7 13							
4					14	27		3.2				
	2-3 L		No sample recovered		10							
5		1			50/3"	50/3"						
6												
7												
8	2-4 T		**SILTY SAND:** Light yellowish brown (2.5Y 6/4) and olive yellow (2.5Y 6/6 & 6/8), fine grained, poorly graded, thinly laminated, quartz rich, slightly moist, dense	SM	8							
9					15 23	38		9.3		21.9		
10												
11			Rocky drilling at 11 feet									
12	2-5 L		Very fine to fine grained, micaceous, slightly moist to dry, very dense		12							
13		2			21			11.5	105.9			
		1			50/6"	50/6"		15.9	101.2			
14												
15												
16	2-6 L		Slough		1							
17		2			1							
		1			1	1						
18	2-7 T		Well rounded quartzite cobble at 18 feet, slightly moist to dry, dense		14 15							
19					15	40		11.2		22.9		
			Boring terminated at 19 feet. No groundwater encountered.									
20												
21												
22												
23												

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Log of Test Borings
Pescadero Road Sewer Replacement Project
Carmel and Carmel-by-the-Sea, California

Figure No. 6
Project No. 21113
Date: 3/4/22

LOGGED BY CLA DATE DRILLED 1/19/22 BORING DIAMETER 6" SS BORING NO. 3

DRILL RIG CCD Tractor HAMMER TYPE Wireline - Downhole Hammer

Depth (feet)	Sample	Sample Type	Soil Description	USCS	Field Blow Counts	SPT "N" Value	Pocket Pen. (tsf)	Moisture Content (%)	Dry Density (pcf)	% Passing #200	Plasticity Index	Additional Lab Results
			AC: 2" AB: 4"									
1	3-1 L		**SILTY SAND:** Dark yellowish brown (10YR 4/4), very fine to medium grained, sub-angular to sub-rounded shaped, poorly graded, slightly cemented, few rootlets, slightly moist to dry, loose	SM	3							
2		B			7							
		1			10	9		4.2	88.3	22.6		
3	3-2 T		Few rounded to well rounded gravels up to ½ inch in diameter, dark gray (10YR 4/1), **LEAN CLAY** lens at 4 feet, slightly moist to dry, medium dense		8 15							
4					15	30		9.2				
	3-3 L		Trace coarse to very coarse grains, slightly moist to dry, very dense		7							
5		2			31			8.1	93.7			
		1			50/4"	50/4"		11.4	105.0	31.0		
6	3-4 T		Cementation increases with depth, slightly moist to dry, very dense		10 50/3"	50/3"		7.4		29.8		
7			Boring terminated at 6½ feet. No groundwater encountered.									
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												

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Log of Test Borings
Pescadero Road Sewer Replacement Project
Carmel and Carmel-by-the-Sea, California

Figure No. 7
Project No. 21113
Date: 3/4/22

LOGGED BY CLA DATE DRILLED 1/19/22 BORING DIAMETER 6" SS BORING NO. 4

DRILL RIG CCD Tractor HAMMER TYPE Wireline - Downhole Hammer

Depth (feet)	Sample	Sample Type	Soil Description	USCS	Field Blow Counts	SPT "N" Value	Pocket Pen. (tsf)	Moisture Content (%)	Dry Density (pcf)	% Passing #200	Plasticity Index	Additional Lab Results
			AC: 1½" AB: 4"									
1	4-1 L		**CLAYEY SAND:** Dark grayish brown (10YR 4/2) and brown (10YR 4/3), fine to medium grained, sub-angular to sub-rounded shaped, poorly graded, moist, medium dense	SC	8							
2		2			20			9.9	88.0			
		1	**SILTY SAND:** Brownish yellow (10YR 6/8) and yellow (10YR 8/6), very fine to fine grained, poorly graded, quartz rich, slightly to moderately cemented, slightly moist, very dense	SM	50/2"	50/2"		11.7	108.7			
3	4-2 T		Slightly moist, very dense		50/5"	50/5"		13.3				
4	4-3 L	2	Brownish yellow (10YR 6/8) and pale brown (10YR 7/3), micaceous, slightly moist, very dense		10			12.1	83.8			
5		1			50/2"	50/2"		21.1	94.8	28.4		
6												
7												
8	4-4 T		**CLAYEY SAND:** Light yellowish brown (10YR 6/4) and reddish yellow (7.5YR 6/8) and reddish yellow (7.5YR 6/8), very fine to fine grained, poorly graded, quartz rich, micaceous, clay appears to exhibit low plasticity, moist, dense	SC	9							
9					12							
					20	32		23.6				
10												
11												
12	4-5 L		**FAT CLAY:** Light olive brown (2.5Y 5/4 & 5/6), trace very fine to fine grained sand, scattered mica flakes, moist, very stiff	CH	9							
13		2			14		4.5	33.2	83.1			
		1			30	30	4.0	29.5	89.5		54	Qu = 5920 psf
14	4-6 T		Grayish brown (2.5Y 5/2) and strong brown (7.5YR 5/8), micaceous, moist, hard		9							
					13							
15					21	34	3.5	96.3			50	
			Boring terminated at 15 feet. No groundwater encountered.									
16												
17												
18												
19												
20												
21												
22												
23												

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Log of Test Borings
Pescadero Road Sewer Replacement Project
Carmel and Carmel-by-the-Sea, California

Figure No. 8
Project No. 21113
Date: 3/4/22

LOGGED BY CLA DATE DRILLED 1/19/22 BORING DIAMETER 6" SS BORING NO. 5

DRILL RIG CCD Tractor HAMMER TYPE Wireline - Downhole Hammer

Depth (feet)	Sample	Sample Type	Soil Description	USCS	Field Blow Counts	SPT "N" Value	Pocket Pen. (tsf)	Moisture Content (%)	Dry Density (pcf)	% Passing #200	Plasticity Index	Additional Lab Results
			AC: 2" AB: 5"									
1	5-1 L		**SAND:** Light gray (10YR 7/2) and very pale brown (10YR 7/4), fine to medium grained, sub-angular to sub-rounded shaped, poorly graded, clean, quartz rich, dry, loose	SP	6							
2		2			8			1.1	92.0			
		1			10	9		1.3	98.9			
3	5-2 T		Dry, loose		2							
					3							
4					5	8		1.4				
	5-3 L		Dry, loose		5							
5		2			6			1.5	95.1			
		1			8	7		1.1	95.2	1.3		
6												
7												
8	5-4 L		Yellowish brown (10YR 5/4) and very pale brown (10YR 7/4), dry, loose		2							
9		2			3			4.2	100.8			
		1			7	5		4.5	98.8			
10	5-5 T		**SANDY CLAY:** Yellowish red (5YR 4/6 & 5/6) and grayish brown (2.5Y 5/2), fine to medium grained with trace coarse grains, sub-angular to sub-rounded shaped, poorly graded, intermediate plasticity, moist, very hard	Cl	12							
					25							
11					37	62		20.9		55.1	26	
12			Boring terminated at 11 feet. No Groundwater encountered.									
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												

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Log of Test Borings
Pescadero Road Sewer Replacement Project
Carmel and Carmel-by-the-Sea, California

Figure No. 9
Project No. 21113
Date: 3/4/22

LOGGED BY CLA DATE DRILLED 1/19/22 BORING DIAMETER 6" SS BORING NO. 6

DRILL RIG CCD Tractor HAMMER TYPE Wireline - Downhole Hammer

Depth (feet)	Sample	Sample Type	Soil Description	USCS	Field Blow Counts	SPT "N" Value	Pocket Pen. (tsf)	Moisture Content (%)	Dry Density (pcf)	% Passing #200	Plasticity Index	Additional Lab Results
			AC: 3" AB: 5"									
1	6-1 L		**CLAYEY SAND:** Very dark grayish brown (10YR 3/2), fine to medium grained, sub-angular to sub-rounded shaped, poorly graded, tree root in the shoe, very moist, loose	SC	3							
2		2			5			12.1	93.9			
		1			6	6		9.9	96.5	25.3		
3	6-2 T		Tree root at 4 feet, trace very coarse grained sand, very moist, loose		4							
					3							
4					2	5		20.1				
	6-3 L		**CLAYEY SAND:** Dark gray (2.5Y 4/1) and light olive brown (2.5Y 5/4), fine to medium grained, sub-angular to sub-rounded shaped, poorly graded, quartz rich, clay exhibits low plasticity, moist, very stiff	SC	6							
5		2			8							
		1			15	18	3.5	18.0	102.5	46.8	20	Qu = 3309 psf
6												
7			Increase in drilling resistance at 7 feet, dense drilling, grinding									
8	6-4 T		Light brownish gray (2.5Y 6/2) and light olive brown (2.5Y 5/6), soil fines with depth, few roots and rootlets, moist, very stiff		4							
9					10							
					16	26	2.5	28.7				
10			Boring terminated at 9½ feet. No groundwater encountered.									
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												

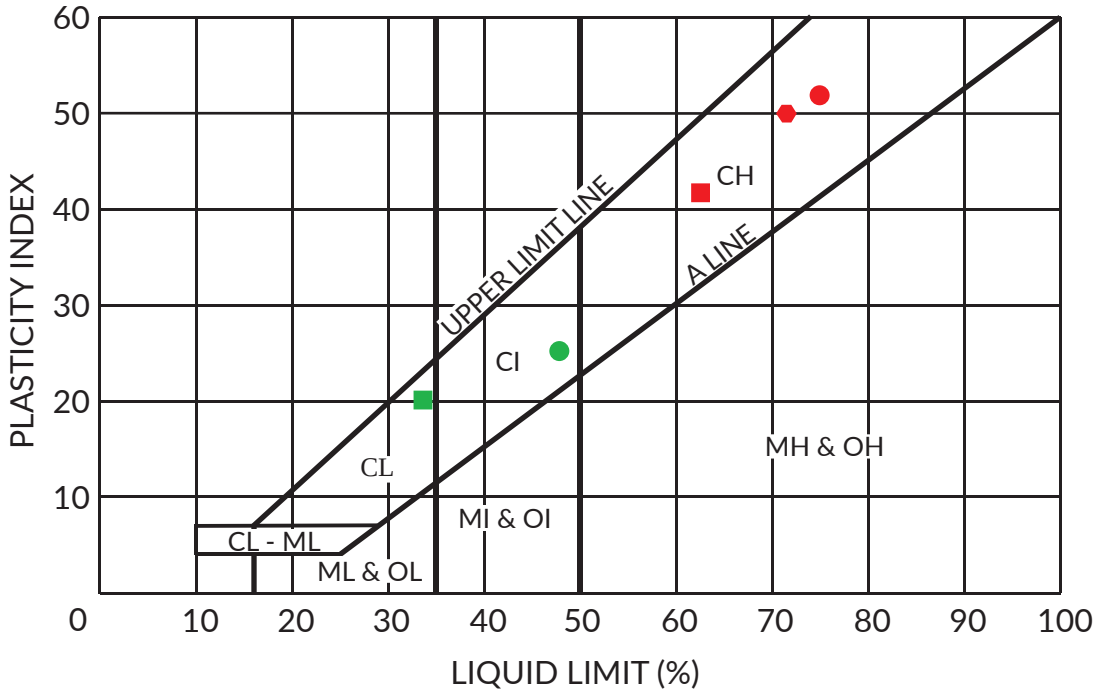
Pacific Crest ENGINEERING INC

Log of Test Borings
Pescadero Road Sewer Replacement Project
Carmel and Carmel-by-the-Sea, California

Figure No. 10
Project No. 21113
Date: 3/4/22

ATTERBERG LIMITS - ASTM D4318

PLASTICITY CHART



*This chart has been modified to include the intermediate classifications CI, MI and OI for clays and silts with liquid limits between 35 and 50.

SYMBOL	SAMPLE #	LL (%)	PL (%)	PI
●	1-6-2	75	22	53
■	1-8-2	62	20	42
▲	4-5-1	80	26	54
⬢	4-6	72	22	50
●	5-5	47	21	26
■	6-3-1	34	14	20

COOPER TESTING LABORATORY

Corrosivity Test Summary

CTL # 416-656 **Date:** 2/9/2022 **Tested By:** PJ **Checked:** PJ
Client: Pacific Crest Engineering **Project:** Pescadero **Proj. No:** 21113
Remarks:

Sample Location or ID			Resistivity @ 15.5 °C (Ohm-cm)			Chloride	Sulfate		pH	ORP	Moisture	Soil Visual Description
Boring	Sample, No.	Depth, ft.	As Rec.	Minimum	Saturated	mg/kg	mg/kg	%		(Redox)	At Test	
						Dry Wt.	Dry Wt.	Dry Wt.		mv	%	
			ASTM G57	Cal 643	ASTM G57	Cal 422-mod.	Cal 417-mod.	Cal 417-mod.	Cal 643	SM 2580B	ASTM D2216	
1-5	-	-	-	947	-	106	78	0.0078	7.3	-	3.7	Light Brown Sandy CLAY
3-1-2	-	-	-	3009	-	155	172	0.0172	5.9	-	4.1	Dark Brown Silty SAND, trace organics
6-3-2	-	-	-	5845	-	18	77	0.0077	6.4	-	1.3	Brown Silty SAND

Resistivity	Ohm-cm
Very Corrosive	0-1000
Corrosive	1,000-2,000
Fairly Corrosive	2,000-5,000
Mildly Corrosive	5,000-10,000
Negligible	>10,000

Chloride Concentration	mg/kg
Severe	>1,500
Positive	300-1,500
Negligible	0-300

Sulfate Concentration	mg/kg
Severe	>5,000
Considerable	2,000-5,000
Positive	1,000-2,000
Negligible	0-1,000

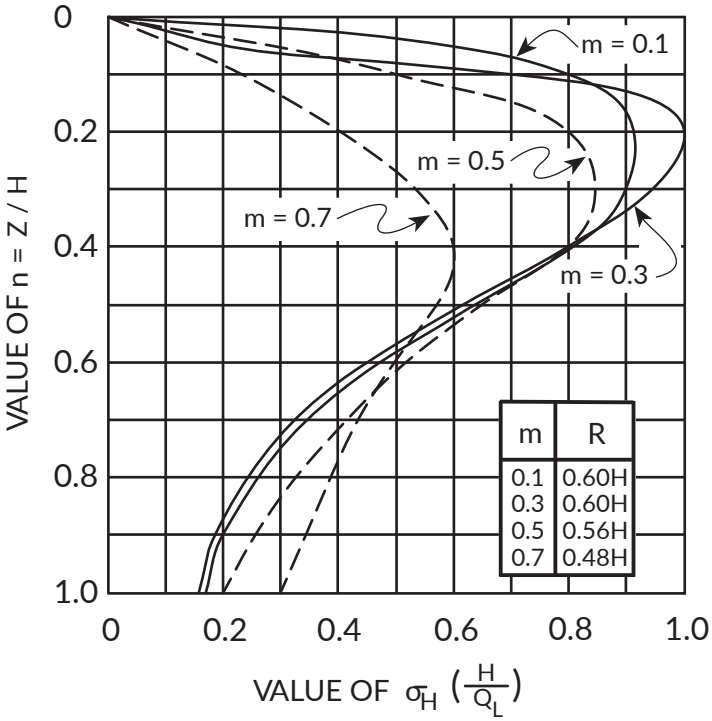
pH	
Potential for acid attack on concrete and steel	<5.5

Pacific Crest ENGINEERING INC

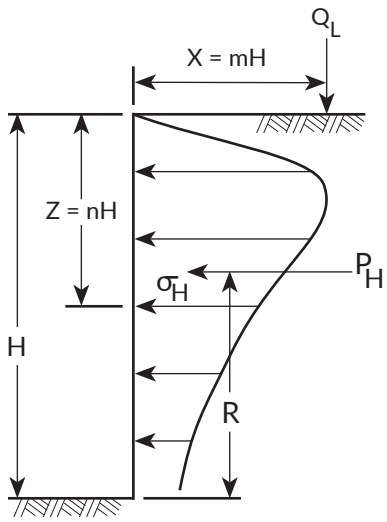
Corrosivity Test Summary
Pescadero Road Sewer Replacement Project
Carmel and Carmel-by-the-Sea, California

Figure No. 12
Project No. 21113
Date: 3/4/22

LINE LOAD



m	R
0.1	0.60H
0.3	0.60H
0.5	0.56H
0.7	0.48H



FOR m ≦ 0.4:

$$\sigma_H \left(\frac{H}{Q_L}\right) = \frac{0.20\,n}{(0.16 + n^2)^2}$$

$$P_H = 0.55 Q_L$$

FOR m > 0.4:

$$\sigma_H \left(\frac{H}{Q_L}\right) = \frac{1.28\,m^2 n}{(m^2 + n^2)^2}$$

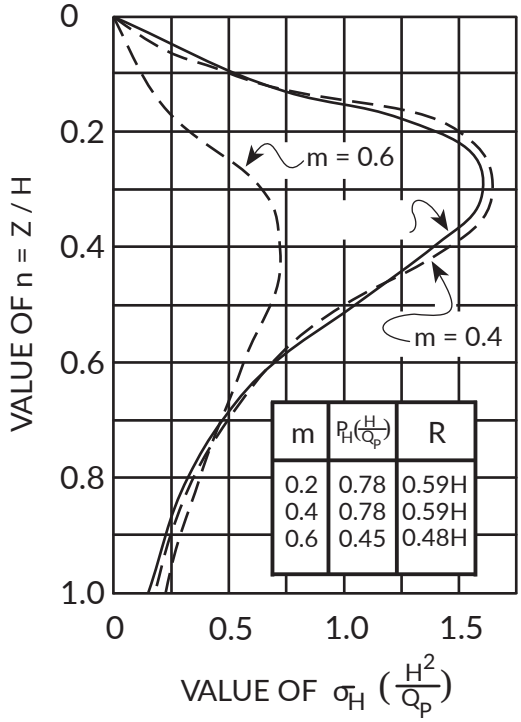
RESULTANT $P_H = \dfrac{0.64 Q_L}{(m^2 + 1)}$

PRESSURES FROM LINE LOAD Q_L

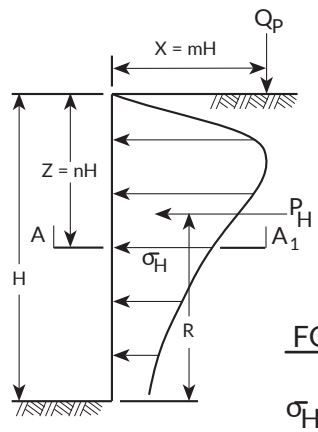
(BOUSSINESQ EQUATION MODIFIED BY

REFERENCE: Design Manual
NAVFAC DM-7.02
Figure 11
Page 7.2-74

POINT LOAD



m	$P_H\left(\frac{H}{Q_P}\right)$	R
0.2	0.78	0.59H
0.4	0.78	0.59H
0.6	0.45	0.48H



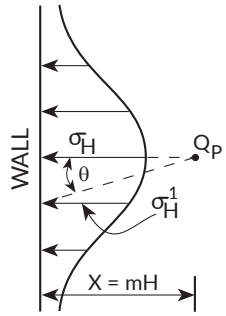
FOR m ≦ 0.4:

$$\sigma_H \left(\frac{H^2}{Q_P}\right) = \frac{0.28\,n^2}{(0.16 + n^2)^3}$$

FOR m > 0.4:

$$\sigma_H \left(\frac{H^2}{Q_P}\right) = \frac{1.77\,m^2 n^2}{(m^2 + n^2)^3}$$

$$\sigma_H^1 = \sigma_H \cos^2(1.1\,q)$$



SECTION $A\text{-}A_1$

PRESSURES FROM POINT LOAD Q_P

(BOUSSINESQ EQUATION MODIFIED

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