DRAFT
INITIAL STUDY / MITIGATED NEGATIVE DECLARATION

Lower Fawn Drive Sewer Rehabilitation Project
Unincorporated Community of Sleepy Hollow, CA

Prepared for
Ross Valley Sanitary District
2960 Kerner Boulevard
San Rafael, CA 94901

Prepared by

703 2nd Street
Suite 256
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May 2021

MITIGATED NEGATIVE DECLARATION

PROJECT TITLE

Lower Fawn Drive Sewer Rehabilitation Project

LEAD AGENCY/NAME AND ADDRESS

Ross Valley Sanitary District, 2960 Kerner Boulevard, San Rafael, CA 94901

PROJECT LOCATION

The Lower Fawn Drive Sewer Rehabilitation Project (Project) site is located in the Ross Valley Sanitary District's (RVSD's) service area in Marin County, in the unincorporated community of Sleepy Hollow. Sleepy Hollow has a land area of approximately 3 square miles and is situated in a series of small valleys created by streams. Sleepy Hollow is located between the unincorporated town of Fairfax to the north and the town of San Rafael to the south.

The Project site is specifically located at the intersection of Butterfield Road and Fawn Drive, continuing east toward to the intersection of Fawn Drive and Fawn Court, and then north on Fawn Drive, ending at approximately 250 Fawn Drive.

PROJECT DESCRIPTION

The RVSD Project entails the construction and rehabilitation, within the existing alignment, of approximately 1,550 linear ft of sanitary sewer mains and related appurtenances within the unincorporated community of Sleepy Hollow, located within the County of Marin. The Project site encompasses approximately 0.6 acres and the total area disturbed would be approximately 8,500 square ft. The Project would include rehabilitation of sanitary sewer mains in the lower section of Fawn Drive and involve: (1) replacing approximately 780 linear ft of 6-in. vitrified clay pipe (VCP) with 8-in. polyvinyl chloride (PVC) pipe via open cut methods and (2) replacing approximately 770 linear ft of existing 6-in. VCP with 8-in. high-density polyethylene (HDPE) pipe via pipe bursting methods. Work would also include the rehabilitation of four existing sanitary sewer manholes. Depth of excavation is projected to range from approximately 5 to 12 ft.

The primary objective of this Project is to provide needed capacity and correct defects downstream of improvements constructed in fall 2020 to relieve hydraulic and structural deficiencies and reduce groundwater infiltration with aging RVSD infrastructure. This portion

of the system was originally installed in the 1940s and contains numerous structural and operation and maintenance (O&M) defects, with several pipes currently assigned to a 3-month cleaning frequency.

Construction is expected to begin in late summer 2021 and is anticipated to be completed by October 2021. Work hours will generally be 8 a.m. to 5 p.m. for all work occurring along Fawn Drive.

MITIGATION MEASURES

Mitigation Measure BIO-1

Adequate measures shall be taken to avoid inadvertent take of bird nests protected under the federal Migratory Bird Treaty Act and State Fish and Game Code when in active use. This shall be accomplished by taking the following steps:

- If initial construction is proposed during the nesting season (March 1 to August 31), a focused survey for nesting raptors and other migratory birds shall be conducted by a qualified biologist within 7 days prior to the onset of construction in order to determine whether any active nests are present in the area of potential effect (APE) and surrounding area within 100 ft of proposed construction. The survey shall be re-conducted any time construction has been delayed or curtailed for more than 7 days during the nesting season.
- If no active nests are identified during the construction survey period, or development is initiated during the non-breeding season (September 1 to January 31), construction may proceed with no restrictions.
- If bird nests are found, an adequate setback shall be established around the nest location and construction activities restricted within this no-disturbance zone until the qualified biologist has confirmed that any young birds have fledged and are able to function outside the nest location. Required setback distances for the no-disturbance zone shall be based on input received from the California Department of Fish and Wildlife (CDFW), and may vary depending on species and sensitivity to disturbance. As necessary, the no-disturbance zone shall be delineated if construction is to be initiated elsewhere in the APE to make it clear that the area should not be disturbed.
- A report of findings shall be prepared by the qualified biologist and submitted to the RVSD or designated agent for review and approval prior to initiation of construction during the nesting season (March 1 to August 31). The report shall either confirm absence of any active nests or should confirm that any young are located within a designated no-disturbance zone and construction can proceed. No report of findings is

required if construction is initiated during the non-nesting season (September 1 to January 31) and continues uninterrupted according to the above criteria.

Mitigation Measure CUL-1

Prior to Project implementation, a Cultural and Tribal Monitoring Plan (Plan) will be prepared by a qualified archaeological consultant. The Plan will discuss the monitoring procedures, field methods, communication protocols, and inadvertent discovery actions to be taken in the event cultural resources are identified during monitoring and/or any Project activities. The Plan will be developed in coordination with the Federated Indians of Graton Rancheria (FIGR).

Monitoring is recommended in work areas where native soils will be disturbed.

Mitigation Measure CUL-2

Construction crews shall be trained in "basic archaeological identification" and have access to an Alert Sheet. The Alert Sheet shall photographically depict shell midden and associated indicators of prehistoric archaeological sites, and clearly outline the procedures in the event of new archaeological discovery. These procedures include temporary work stoppage (Stop Work Order) of all ground disturbance, short-term physical protection of artifacts and their context, and immediate advisement of the archaeological team and RVSD representatives. Any Stop Work Order will contain a description of the work to be stopped, special instructions or requests for the Contractor, suggestions for efficient mitigation, and a time estimate for the work stoppage. The archaeologist shall notify the FIGR, examine the findings and assess their significance, and offer recommendations for any procedures deemed appropriate to further investigate and/or mitigate adverse impacts to those cultural resources that have been encountered.

Mitigation Measure CUL-3

Upon discovery, the Coroner Division of the Marin County Sheriff's Office will be contacted for identification of human remains. The Coroner has 2 working days to examine the remains after being notified.

If the remains are Native American, the Coroner must notify the Native American Heritage Commission (NAHC) of the discovery within 24 hours. The NAHC will then identify and contact a Most Likely Descendant (MLD). The MLD may make recommendations to the owner, or representative, for the treatment or disposition, with proper dignity, of the remains and grave goods. Once proper consultation has occurred, a procedure that may include the preservation, excavation, analysis, and curation of artifacts and/or reburial of those remains and associated artifacts will be formulated and implemented.

If the remains are not Native American, the Coroner will consult with the archaeological research team and the lead agency to develop a procedure for the proper study, documentation, and ultimate disposition of the remains. If a determination can be made as to the likely identity—either as an individual or as a member of a group—of the remains, an attempt should be made to identify and contact any living descendants or representatives of the descendant community. As interested parties, these descendants may make recommendations to the owner, or representative, for the treatment or disposition, with proper dignity, of the remains and grave goods. Final disposition of any human remains or associated funerary objects will be determined in consultation between RVSD and FIGR.

FINDINGS

An Initial Study has been prepared to assess the proposed Project's potential effects on the environment and the significance of those effects. Based on the Initial Study, it has been determined that the proposed Project, with the mitigation measures described above incorporated, would not have any significant effects on the environment.

A copy of the Initial Study is attached. The materials related to the proposed Project are on file at the Ross Valley Sanitary District office, located at 2960 Kerner Boulevard, San Rafael, CA 94901, and are available online at www.rvsd.org.

5-24-2021

Steve Moore
General Manager

Date

CALIFORNIA ENVIRONMENTAL QUALITY ACT INITIAL STUDY

Integral Consulting Inc. (Integral) has completed the following document for this project in accordance with the California Environmental Quality Act (CEQA) [Pub. Resources Code, div. 13, § 21000 et seq.] and accompanying Guidelines [Cal. Code Regs., tit. 14, § 15000 et seq.].

PROJECT TITLE: Lower Fawn Drive Sewer Rehabilitation Project		
PROJECT ADDRESS: Fawn Drive between Butterfield Road and Fawn Court, continuing on Fawn Drive at Fawn Court to 250 Fawn Drive.	CITY: Unincorporated community of Sleepy Hollow	COUNTY: Marin
PROJECT SPONSOR: Ross Valley Sanitary District	CONTACT: Steve Moore	PHONE: (415) 259-2949 x217

LEAD AGENCY ADDRESS:	CONTACT:	PHONE:
2960 Kerner Blvd. San Rafael, CA 94901	Steve Moore	(415) 259-2949 x217

APPROVAL ACTION UNDER CONSIDERATION:
Implementation of sewer rehabilitation project.

Project Overview and Purpose

The Ross Valley Sanitary District (RVSD[1]) Lower Fawn Drive Sewer Rehabilitation Project (Project) entails the construction and rehabilitation, within the existing alignment, of approximately 1,550 linear ft of sanitary sewer mains and related appurtenances within the unincorporated community of Sleepy Hollow, located within the County of Marin. The Project site encompasses approximately 0.6 acres and the total area disturbed would be approximately 8,500 square ft. The Project would include rehabilitation of sanitary sewer mains in the lower section of Fawn Drive and involve: (1) replacing approximately 780 linear ft of 6-in. vitrified clay pipe (VCP) with 8-in. polyvinyl chloride (PVC) pipe via open cut methods and (2) replacing approximately 770 linear ft of existing 6-in. VCP with 8-in. high-density polyethylene (HDPE) pipe via pipe bursting methods. Work would also include the

[1] See Attachment A for a list of abbreviations and acronyms.

rehabilitation of four existing sanitary sewer manholes. Depth of excavation is projected to range from approximately 5 to 12 ft.

The primary objective of this Project is to provide needed capacity and correct defects downstream of improvements constructed in fall 2020 to relieve hydraulic and structural deficiencies and reduce groundwater infiltration with aging RVSD infrastructure. This portion of the system was originally installed in the 1940s and contains numerous structural and operation and maintenance (O&M) defects, with several pipes currently assigned to a 3-month cleaning frequency.

Project Location

The Project site is located in the RVSD's service area in Marin County (Attachment B, Figure 1), in the unincorporated community of Sleepy Hollow. Sleepy Hollow has a land area of approximately 3 square miles and is situated in a series of small valleys created by streams. Sleepy Hollow is located between the unincorporated town of Fairfax to the north and the town of San Rafael to the south.

The Project site is specifically located at the intersection of Butterfield Road and Fawn Drive, continuing east toward the intersection of Fawn Drive and Fawn Court, and then north on Fawn Drive, ending at approximately 250 Fawn Drive.

Site Setting

The Project site is located along Fawn Drive. Regional access to the Project site from the north and south is provided by U.S. Highway 101 (U.S. 101) and from the east by the Richmond-San Rafael Bridge (Interstate 580 [I-580]). The area west of U.S. 101 includes a mix of commercial, residential, and recreational uses.

Land uses surrounding the Project site are mainly comprised of single-family residential uses to the north, east, south, and west. Butterfield Road, located near the Project site (Butterfield Road and Fawn Drive) is a two-lane arterial street that connects the unincorporated community of Sleepy Hollow with Sir Francis Drake Boulevard. Sir Francis Drake Boulevard, located to the south of the Project site, is a major traffic artery linking U.S. 101 with communities in the Sleepy Hollow area. Several commercial businesses and the Hidden Valley Elementary School are located along Fawn Drive, adjacent to the Project site and approximately 0.1 mile to the north, respectively.

Site Background

The RVSD was established in 1899 and is located approximately 15 miles north of San Francisco. The service area is bounded on the east by the San Francisco Bay and on the west by the coastal hills. RVSD is one of three wastewater collection agencies that form the Central Marin Sanitation Agency. RVSD serves the wastewater collection needs of approximately 56,000 customers in Fairfax, San Anselmo, Ross, Larkspur, Bon Air, Sleepy Hollow, Kentfield, Kent Woodlands, Oak Manor, Greenbrae, and Murray Park.

Planning for the Project began in 2005 as part of RVSD's Sanitary Sewer Hydraulic Evaluation and Capacity Assurance Plan. Between 2008 and 2013, RVSD experienced an increase in the number and severity of sewer system overflows (SSOs). On May 13, 2013, the San Francisco Bay Regional Water Quality Control Board (Regional Water Board) issued cease and desist order (CDO) No. R2-2013-0020 in response to instances where SSOs reached waters of the state (Regional Water Board 2013). The CDO required RVSD to develop and implement an Infrastructure Asset Management Plan (IAMP). The IAMP presents projects to rehabilitate and replace RVSD's deficient wastewater facilities through the year 2020. The Project is one of the last remaining components to be completed under the IAMP.

Construction Methods

Two construction methods would be utilized for this Project:

- The open cut method relies on excavation of a trench from the surface. In many cases, open cut trenches are dug in previously disturbed soils within the footprint of an existing trench or roadway. The open cut method will be utilized on Fawn Drive starting at Butterfield Road to Fawn Court.

- Pipe bursting is a trenchless method and will not require open exposure from the surface along the entire segment. Pipe bursting uses equipment to burst the host pipe outward into the surrounding soil while simultaneously pulling the new pipeline in its place. The pipe bursting method will be utilized on Fawn Drive starting at Fawn Court to the end of the Project near 250 Fawn Drive.

Pipe bursting would be the primary method of construction, followed by open cut. Construction methods are further detailed below, and full constructions plans are provided in Attachment C.

Work Hours and Schedule

Construction is expected to begin in late summer 2021 and is anticipated to be completed by October 2021. Work hours will generally be 8 a.m. to 5 p.m. for all work occurring along Fawn Drive.

Construction Staging

Project site preparation would include the following general tasks: survey and excavation layout, and preparation of staging, ingress, and egress areas. Prior to construction, the selected Contractor would develop a staging operations plan that identifies construction equipment staging and support areas, Project site access, exclusion areas, excavation areas and stockpile areas, truck lanes, parking areas, and Project site office trailers. Construction staging would occur daily given the nature of the Project site.

Bypass Pumping

Bypass pumping during construction would be location-specific and based on Project site-specific requirements and constraints as outlined in a Contractor-supplied and RVSD-approved bypass plan. In general, bypass systems would be surface laid and follow the most direct route, excluding trespass onto private property.

Site Restoration

The Contractor would be required, at all times, to keep property on which work is in progress and the adjacent property free from the accumulation of waste material or rubbish caused by employees or by the work. Upon completion of the construction, the Contractor would be required to remove all surplus materials, temporary structures, rubbish, and waste materials resulting from their operation.

Permits and Project Approvals

Permits that will likely be required include, but are not necessarily limited to, the following:

- County of Marin Encroachment Permit.

The area of disturbance is expected to be well under 1 acre in total; therefore, a General Construction Stormwater Permit would not be required.

Overview of Control Measures

Numerous control measures would be incorporated into the Project's Contract Documents by RVSD to address environmental and public health and safety issues. Control measures are procedures known to reduce the potential for impacts based on regulatory agency requirements, standards in the industry, and construction/operating experiences of RVSD and the design engineer.

Regulatory agency requirements would be contained in permits obtained for the Project. The Contractor would be required to obtain encroachment permits from the County of Marin. These permits would contain specific requirements for traffic control and parking, emergency access, pavement restoration, noise control, and allowable work hours, and would provide for the safety of residents, pedestrians, and motorists. The Contractor would be required to comply with all conditions set forth in the encroachment permits and corresponding RVSD standards.

Coordination would be established and maintained with local residents and businesses along the alignment and a mechanism for monitoring construction activities and addressing any complaints would be implemented. Any damaged landscaped and/or hardscaped areas would be restored, and a series of best management practices (BMPs) would be enforced to maintain Project site appearance; control dust, erosion, and stormwater discharge; and provide noise attenuation if needed.

Full control measures that would be implemented for the Project are included in Attachment D and include measures for:

- Project site management, including tree protection
- Dust control
- Odor control
- Stormwater and erosion control
- Geotechnical
- Hazardous materials
- Safety
- Notifications
- Dewatering
- Noise
- Traffic management
- Ground movement monitoring
- Air quality.

Biological (Attachment E) and cultural resources (Far Western 2021[2]) technical reports have been completed, which identify measures that would be included in the Contract Documents to address potential impacts. Deep excavations would be needed in some areas to support the open cut construction methods. A variety of geotechnical and regulatory agency control measures would be included to provide for the constructability of the Project and its environmental compatibility, and to ensure the protection of workers' and the public's health and safety.

[2] The cultural resources technical report contains confidential information and is not provided in this document. Relevant information has been incorporated into the Initial Study.

References

Far Western. 2021. Archaeological Resources Inventory for the Lower Fawn Drive Segment of the Ross Valley Sanitary District Gravity Sewer Improvement Project, San Anselmo, Marin County, California. Far Western Anthropological Research Group, Inc. May.

Regional Water Board. 2013. Order No. R2-2013-0020. San Francisco Bay Regional Water Quality Control Board. May 13.

ENVIRONMENTAL IMPACT ANALYSIS:

1. Aesthetics

Project Activities Likely to Create an Impact:

- Staging of construction materials
- Generation of rubbish and debris/material storage
- Damage to hardscape and landscaped areas
- Transporting and handling of imported and exported materials
- Work crews accessing the Project site.

Description of Baseline Environmental Conditions:

Visual Character. The Project site is mainly located along Fawn Drive, just north of Sir Francis Drake Boulevard, within a residential neighborhood identified as Single Family Residential under the County of Marin General Plan (Marin County 2007). Fawn Drive is located at the intersection of Butterfield Road, the main arterial street that connects the unincorporated community of Sleepy Hollow with Sir Francis Drake Boulevard.

The overall visual character of the immediate area is dominated by view of surrounding single-family residential homes with landscaping. The visual character of the Project site is characterized by the following features:

- Fawn Drive. Fawn Drive is a two-lane road located on a hillside. It is flanked by grassy slopes and trees. The road is residential with no sidewalks, crosswalks, or traffic lights; Fawn Drive provides access to the surrounding neighborhood.
- Butterfield Road. Butterfield Road is a residential two-lane road that connects the unincorporated community of Sleepy Hollow with Sir Francis Drake Boulevard and has been developed with bike lanes, crosswalks, and limited sidewalks. It is flanked by trees and a shoulder.

The Project site is nearly level and does not have extensive views along the roadway. Fawn Drive serves predominantly residential traffic traveling from the neighborhood to outside locations within the community of Sleepy Hollow and the surrounding area via Butterfield Road. Viewer sensitivity for residents driving along Fawn Drive between their homes and Butterfield Drive is low due to the low number of viewers and limited area affected by the Project, as well as limited visibility of the area from Butterfield Drive. Viewer sensitivity for commuters driving along Butterfield Road would also be low due to the limited area affected by this portion of the Project and the short-term nature of construction activities.

Scenic Routes and Vistas. According to the California Department of Transportation (Caltrans) Scenic Highway inventory, portions of State Routes 1, 101, and 37 are considered eligible for listing as a scenic highway (Caltrans 2021). However, these roadways are not located near the Project site and there are no other scenic highway designations or scenic vistas in the Project vicinity. While the Marin Countywide Plan does not identify any official scenic vistas within the Sleepy Hollow area, Countywide Policy Des-4.1 “Preserve Visual Quality” emphasized the protection of scenic quality and view of the natural environment (Marin County 2007). Views of unique and natural resources such as ridgelines, upland greenbelts, and hillsides are not easily visible from the Project site. Some trees are located adjacent to the roadway at the Project site.

Light and Glare. Light pollution is defined as any adverse effect of artificial light, including sky glow, glare, light trespass, light clutter, decreased visibility at night, and energy waste. Existing sources of light and glare are generally from residences and from traffic on Lower Fawn Drive and Butterfield Road.

Analysis as to whether or not project activities would:

a. Have a substantial adverse effect on a scenic vista.

Impact Analysis:

There are no designated scenic vistas within the Project vicinity and the Project activities would not be visible from any designated scenic vista.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings and historic buildings within a State scenic highway.

Impact Analysis:

The Project site is not located on or near a state-designated scenic highway and would not result in damage to scenic resources within a state scenic highway. Though trees are located adjacent to the roadway at the Project site, all activities would be temporary, and no trees would be removed. Therefore, the Project would not result in an impact to scenic resources.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

c. 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 a 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?

Impact Analysis:

Currently, the Project site is a local roadway primarily used by locals and residents. Construction activities would be temporary and limited to daylight hours. Although the Project work would increase Project site activity, it would only temporarily degrade the existing visual quality of the Project site or the surroundings. With implementation of Control Measures listed in Attachment D under “Site Management Practices,” the impact of temporary construction activities would be less than significant.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

d. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

Impact Analysis:

Construction activities would be temporary and limited to daylight hours for all Project work occurring along Fawn Drive. Therefore, the Project would not have a less than significant impact on day or nighttime views.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

References Used:

1. Caltrans. 2021. Caltrans List of Designated Scenic Highways. Available at: https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways. California Department of Transportation.
2. Marin County. 2007. Marin Countywide Plan. Last amendment September 24, 2013. Available at: https://www.marincounty.org/-/media/files/departments/cd/planning/currentplanning/publications/county-wide-plan/cwp_2015_update_r.pdf?la=en. County of Marin, CA.

2. Agricultural and Forestry Resources

Project Activities Likely to Create an Impact:

No Project activities are likely to create an impact to agricultural and forestry resources.

Description of Baseline Environmental Conditions:

The Project is located within the town of San Anselmo, which is largely built out with residential and some commercial uses. According to the Protected Agricultural Lands Map (Map 2-20; Marin County 2007), no agricultural or forest lands exist within the town. In addition, the California Department of Conservation Farmland Mapping and Monitoring Program (FMMP) classifies the area as Urban and Built-up Land (California Department of Conservation 2016). The Project site does not contain any Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as defined by the FMMP.

Analysis as to whether or not project activities would:

a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.

Impact Analysis:

The Project site does not contain any Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as defined by the FMMP. The Project would not call for the conversion of land from agricultural to non-agricultural use. Additionally, the Project site is surrounded by lands that are already developed, approved for development, or designated as parkland area and, therefore, would not increase development pressure on agricultural lands by extending infrastructure into agricultural areas. Therefore, the Project would have no impact on agricultural resources.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

b. Conflict with existing zoning or agriculture use, or Williamson Act contract.

Impact Analysis:

The Project would not call for the conversion of any land from agricultural to non-agricultural use.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Codes section 51104(g))?

Impact Analysis:

The Project would not conflict with existing zoning or cause rezoning of forest land or timber.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

d. Result in the loss of forest land or conversion of forest land or conversion of forest land to non-forest use?

Impact Analysis:

The Project site does not contain forest land.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

Impact Analysis:

The Project site does not contain forest land nor is it zoned for agriculture.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

References Used:

1. California Department of Conservation. 2016. California Important Farmland Finder. Available at: https://maps.conservation.ca.gov/DLRP/CIFF/. California Department of Conservation, Farmland Mapping and Monitoring Program.
2. Marin County. 2007. Marin Countywide Plan. Last amendment September 24, 2013. Available at: https://www.marincounty.org/-/media/files/departments/cd/planning/currentplanning/publications/county-wide-plan/cwp_2015_update_r.pdf?la=en. County of Marin, CA.

3. Air Quality

Project Activities Likely to Create an Impact:

- Equipment used for construction activities
- Heavy duty trucks used for transporting materials and supplies to and from work areas
- Loading of media including soil and construction debris onto dump trucks
- Transporting and handling of imported backfill materials.

Description of Baseline Environmental Conditions:

The Project is located within the community of Sleepy Hollow in Marin County, part of the nine-county San Francisco Bay Area Air Basin (SFBAAB). Federal, state, and regional agencies regulate air quality in the SFBAAB. At the federal level, the U.S. Environmental Protection Agency (EPA) is responsible for overseeing

implementation of the federal Clean Air Act (CAA). The California Air Resources Board (CARB) is the state agency that regulates mobile sources throughout the state and oversees implementation of the state air quality laws and regulations, including the California CAA. The local air quality regulatory agency responsible for the SFBAAB is the Bay Area Air Quality Management District (BAAQMD).

Local Climate and Air Quality

The air quality in a given area depends on the sources of air pollution in the area, transport of pollutants to and from surrounding areas, and local and regional meteorological conditions, as well as the surrounding topography of the SFBAAB. Air quality is described by the concentration of various pollutants in the atmosphere. Units of concentration are generally expressed in parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$). The significance of a pollutant concentration is determined by comparing the concentration to an appropriate ambient air quality standard. The standards represent the allowable pollutant concentrations designed to ensure that the public health and welfare are protected, while including a reasonable margin of safety to protect the more sensitive individuals in the population.

Marin County is bounded on the west by the Pacific Ocean, on the east by San Pablo Bay, on the south by the Golden Gate, and on the north by the Petaluma Gap. Most of Marin's population lives in the eastern part of the county in small, sheltered valleys. Because of the wedge shape of the county, northeast Marin County is farther from the ocean than is the southeastern section. This extra distance from the ocean allows the marine air to be moderated by bayside conditions as it travels to northeastern Marin County. In southern Marin, the distance from the ocean is short and elevations are lower, resulting in higher incidence of maritime air in that area.

In the summer months, areas along the coast are usually subject to onshore movement of cool marine air. In the winter, proximity to the ocean keeps the coastal regions relatively warm, with temperatures varying little throughout the year. Coastal temperatures are usually in the high 50s in the winter and the low 60s in the summer. The warmest months are September and October. The eastern side of Marin County has warmer weather than the western side because of its distance from the ocean and because the hills that separate eastern Marin from western Marin occasionally block the flow of the marine air. The temperatures of cities next to the Bay are moderated by the cooling effect of the Bay in the summer and the warming effect of the Bay in the winter. For example, San Rafael experiences average maximum summer temperatures in the low 80s and average minimum winter temperatures in the low 40s. Inland towns such as Greenbrae experience average maximum temperatures that are two degrees cooler in the winter and two degrees warmer in the summer.

Air pollution potential is highest in eastern Marin County, where most of population is located in semi-sheltered valleys. In the southeast, the influence of marine air keeps pollution levels low. As development moves farther north, there is greater potential for air pollution to build up because the valleys are more sheltered from the sea breeze. While Marin County does not have many polluting industries, the air quality on its eastern side—especially along the U.S. 101 corridor—may be affected by emissions from increasing motor vehicle use within and through the county (BAAQMD 2017a).

Criteria Air Pollutants

The federal and California CAAs have established ambient air quality standards for common pollutants. The ambient air quality standards are intended to protect human health and welfare. At the federal level, national ambient air quality standards have been established for criteria pollutants. These criteria pollutants include carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), respirable particulate matter with a diameter less than 10 microns (PM10), fine particulate matter with a diameter less than 2.5 microns (PM2.5), sulfur dioxide (SO_2), and lead.

California has adopted ambient air quality standards that are, in general, more stringent than the national ambient air quality standards, and include other pollutants not regulated at the federal level (sulfates,

hydrogen sulfide, and vinyl chloride). State and national ambient air quality standards are shown in Table 1. Both the national and California ambient air quality standards have been adopted by BAAQMD.

Table 1. State and National Air Quality Standards and Summary of Measured Air Quality Exceedances in the Region (2017–2019)

	Primary Standard				
Pollutant/Averaging Period	State	National	Year	Maximum Concentration [a]	Days Exceeding State/National Standard [b]
Ozone 1-hour	0.09 ppm	none	2017	0.088	6/0
			2018	0.072	2/0
			2019	0.096	6/0
Ozone 8-hour	0.70 ppm	0.70 ppm	2017	0.063	6/6
			2018	0.053	3/3
			2019	0.08	9/9
Carbon Monoxide 1-hour	20 ppm	35 ppm	2017	2.6	0/0
			2018	2	0/0
			2019	1.4	0/0
Carbon Monoxide 8-hour	9 ppm	9 ppm	2017	1.6	0/0
			2018	1.6	0/0
			2019	0.9	0/0
Nitrogen Dioxide 1-hour	0.18 ppm	0.100 ppm	2017	0.053	0/1
			2018	0.055	0/0
			2019	0.05	0/0
Nitrogen Dioxide Annual	0.030 ppm	0.053 ppm	2017	0.001	0/0
			2018	0.009	0/0
			2019	0.008	0/0
Sulfur Dioxide 1-hour	none	0.075 ppm	2017	ND	0
			2018	ND	0
			2019	ND	0
Sulfur Dioxide 24-hour	0.04 ppm	none	2017	ND	0
			2018	ND	0/0
			2019	ND	0/0
Respirable Particulate Matter (PM10) 24-hour	50 $\mu g/m^3$	150 $\mu g/m^3$	2017	94	6/0
			2018	166	6/1
			2019	33	5/0
Respirable Particulate Matter (PM10) Annual	20 $\mu g/m^3$	none	2017	17.7	0/0
			2018	19	0/0
			2019	14.3	0/0

Table 1. State and National Air Quality Standards and Summary of Measured Air Quality Exceedances in the Region (2017–2019)

Pollutant/Averaging Period	Primary Standard		Year	Maximum Concentration [a]	Days Exceeding State/National Standard [b]
	State	National			
Fine Particulate Matter (PM2.5) 24-hour	None	35 µg/m^3	2017	74.7	0/18
			2018	167.6	0/18
			2019	19.5	0/1
Fine Particulate Matter (PM2.5) Annual	12 µg/m^3	12.0 µg/m^3	2017	9.7	0/0
			2018	11.1	0/0
			2019	6.4	0/0

Source: BAAQMD (2019)

Notes:

µg/m^3 = micrograms per cubic meter

ND = no data available

ppm = parts per million

[a] All pollutant concentrations were measured at the San Rafael monitoring station.

[b] Values from Ten-Year Bay Area Air Quality Summary table

Ambient concentrations of criteria pollutants are monitored in the SFBAAB by BAAQMD. The San Rafael station is the closest to the Project site and the only station in Marin County. Table 1 includes a summary of the monitored maximum concentrations and the number of occurrences of exceedances of the state/national ambient air quality standards for the 3-year period from 2017 through 2019.

Table 1 shows that over the last 3 years reported the state 1-hour and 8-hour O_3 standards were exceeded 14 times and 18 times, respectively. Over the 3-year period, the state 24-hour PM10 standards were exceeded 17 times and the 24-hour national PM2.5 standards were exceeded 37 times.

Toxic Air Contaminants

In addition to “criteria” air pollutants, there is another group of substances found in ambient air referred to as toxic air contaminants (TACs). These contaminants tend to be localized and are found in relatively low concentrations in ambient air. However, they can result in adverse chronic health effects including cancer. Sources of TACs include industrial processes such as petroleum refining and manufacturing, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. One of the TACs of greatest concern in California is diesel particulate matter, which is classified as a carcinogen (i.e., causes cancer). TACs are regulated at the local, state, and federal level.

Federal Air Quality Regulations

The federal CAA requires CARB, based on air quality monitoring data, to designate portions of the state where the national ambient air quality standards are not met as “nonattainment areas.” Because of the differences between the national and state ambient air quality standards, the designation of nonattainment areas is different under the federal and state legislation. Areas that meet the air quality standards are considered to be in attainment of the standards. Areas where there are no monitoring data available or insufficient data to classify an area are considered unclassified, which for regulatory purposes is treated as an attainment area.

The Bay Area as a whole does not meet national ambient air quality standards for O_3 and PM2.5. EPA has classified the region as marginal nonattainment for 8-hour O_3. In October 2009, EPA designated the Bay Area as nonattainment for 24-hour PM2.5 standard. The Bay Area is considered as attainment or unclassifiable with respect to the national air quality standards for all other pollutants. EPA requires states that have areas that are not in compliance with the national standards to prepare and submit air quality plans showing how the standards would be met. If the states cannot show how the standards would be met, then they must show progress toward meeting the standards. These plans are referred to as the State Implementation Plan (SIP). On January 9, 2013, EPA issued a final rule to determine that the San Francisco Bay Area has attained the national 24-hour PM2.5 air quality standard. This action suspends federal SIP planning requirements for the Bay Area. BAAQMD has permit authority over stationary sources, acts as the primary reviewing agency for environmental documents, and develops regulations that must be consistent with or more stringent than federal and state air quality laws and regulations.

California Air Quality Regulations

The California CAA outlines a program for areas in the state to attain the California ambient air quality standards by the earliest practical date. The California CAA set more stringent air quality standards for most of the pollutants covered under national standards, and additionally regulates other pollutants. If an area does not meet the California ambient air quality standards, CARB designates the area as a nonattainment area. With respect to the state air quality standards, the Bay Area is a nonattainment area for O_3 and particulate matter (PM10 and PM2.5), and either attainment or unclassified for other pollutants. The California CAA requires local air pollution control districts to prepare air quality attainment plans for pollutants, except for particulate matter, that are not in attainment with the state standards. These plans must provide for district-wide emission reductions of 5 percent per year averaged over consecutive 3-year periods or if not, provide for adoption of “all feasible measures on an expeditious schedule.”

Regional Air Quality Regulations and Planning

Air quality in the region is regulated by BAAQMD. BAAQMD regulates stationary sources (with respect to federal, state, and local regulations), monitors regional air pollutant levels (including measurement of TACs), develops air quality control strategies, and conducts public awareness programs.

The most recent air quality plan is the 2017 Clean Air Plan that was adopted by BAAQMD in April 2017 (BAAQMD 2017b). The 2017 Plan provides a regional strategy to protect public health and protect the climate. To protect public health, the plan describes how BAAQMD will continue making progress toward attaining all state and federal air quality standards and eliminating health risk disparities from exposure to air pollution among Bay Area communities. The 2017 Plan includes a wide range of control measures designed to decrease emissions of the air pollutants that are most harmful (such as particulate matter, O_3, and TACs) and to decrease emissions of carbon dioxide by reducing fossil fuel combustion. The 2017 Plan represents the Bay Area’s most recent assessment of the region’s strategy to attain the state and national O_3 and PM2.5 standards.

The BAAQMD has also developed CEQA Air Quality Guidelines that establish significance thresholds for evaluating new projects and plans and provides guidance for evaluating air quality impacts of projects and plans (BAAQMD 2017a). The Air Quality Guidelines provide procedures and significance thresholds for evaluating potential construction-related impacts during the environmental review process consistent with CEQA requirements. The Air Quality Guidelines also address operation-related impacts, but the Project is a construction activity with no substantial additional operational component as compared to existing operations.

In June 2010, BAAQMD adopted thresholds of significance to assist in the review of projects under CEQA. These thresholds were designed to establish the level at which BAAQMD believed air pollution emissions would cause significant environmental impacts under CEQA and were included in BAAQMD’s most recent CEQA Air Quality Guidelines (BAAQMD 2017a, updated May 2017).

Analysis as to whether or not project activities would:

a. Conflict with or obstruct implementation of the applicable air quality plan.

Impact Analysis:

The Project site is in an area currently designated as nonattainment for the state 1-hour and 8-hour O_3 standards, nonattainment for the state 24-hour and annual PM10 standards, and nonattainment for the state annual PM2.5 standard. It is also designated as nonattainment for the national 8-hour O_3 standard. To meet planning requirements related to these standards, BAAQMD has developed a regional air quality plan, the Bay Area 2017 Clean Air Plan. A significant impact would occur if a project conflicted with the plan by not being consistent with the population growth and vehicle miles traveled assumptions of the plan. As discussed in the Project Description, the Project involves the rehabilitation and replacement of deficient wastewater facilities; thus, the Project would not be considered growth-inducing. Construction activities associated with the Project would be short term and temporary, and there would be no long-term operational component to the Project that would generate new vehicle trips in the SFBAAB that would conflict with the plan. As a result, the Project would not conflict with or obstruct with implementation of the plan, and there would be no impact.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

Impact Analysis:

The Project would involve construction activities associated with the rehabilitation and replacement of sewer system components that would result in temporary increases in air pollutant emissions. These emissions would be generated primarily from construction equipment exhaust, earth disturbance, and construction worker and other construction-related vehicle trips to and from the Project construction areas. The overall Project activities would occur for approximately 4 months.

BAAQMD's approach to the CEQA analysis of construction impacts is two-fold. BAAQMD has identified thresholds of significance for exhaust emissions from construction-related activities. The guidelines specify the following significance thresholds for daily and annual criteria air pollutant emissions from project construction (BAAQMD 2017a):

- PM10 = 82 lb/day; 15 ton/year
- PM2.5 = 54 lb/day; 10 ton/year
- Reactive organic gases (ROG) = 54 lb/day; 10 ton/year
- Oxides of nitrogen (NOx) = 54 lb/day; 10 ton/year
- PM10 from fugitive dust: BMPs; if appropriate construction controls are implemented, fugitive dust emissions from construction activities would be considered less than significant. Control Measures listed in Attachment D are consistent with BAAQMD-recommended control methods for particulate emissions.

Emissions from construction activities were estimated with the Roadway Construction Emissions Model version 8.1.0 (RoadMod) developed by the Sacramento Metropolitan Air Quality Management District (SMAQMD) (SMAQMD 2016). RoadMod was developed to calculate emissions from road-related construction and linear projects. BAAQMD recommends using RoadMod for linear projects such as new

roadways, road widening, or pipeline installation (BAAQMD 2017a). Projected sewer line construction information, including the size of disturbed areas, and number and types of construction equipment and vehicles, along with the anticipated length of their use for the different sewer construction methods, were used with RoadMod to calculate Project exhaust and fugitive dust emissions. Project emissions for the sewer rehabilitation were developed based on information provided by the Project Engineer and Construction Manager, including Project activities and scheduling, off-road equipment use, and projected haul truck and vendor truck trips. Details of the emission calculations are included in Attachment F.

Table 2 provides a summary of the average annual and daily criteria pollutant emissions from Project construction activities, along with a comparison to the BAAQMD significance thresholds and conformity with *de minimis* emission thresholds.

Table 2. Annual and Average Daily Emissions from Project Activities

Pollutant	Annual Emissions (ton/year)	Thresholds (ton/year)	Average Daily Emissions (lb/day)[a]	Thresholds (lb/day)	Above Threshold?
ROG	0.11	10	2.8	54	No
CO	0.68	NA	18.4	NA	No
SO_2[a]	- [b]	NA	- [b]	NA	No
NOx	0.93	10	24.52	54	No
PM10[c]	0.04	15	0.87	82	No
PM2.5[c]	0.03	10	0.69	54	No

Source of input parameters: Phil Benedetti, Associate Engineer (RVSD) and Justin Seufert, Construction Manager (PSOMAS), March 2021.

Notes:
NA = not applicable

[a] SO_2 emissions are expected to be negligible due to use of ultra-low sulfur diesel fuel.
[b] Average daily emissions calculated from annual emissions and 88 (22 days per month x 4 months) working days for construction activities.
[c] PM10 and PM2.5 represent total emission values including exhaust and fugitive dust.

The Project's estimated annual emissions would be well below 10 percent of the SFBAAB's annual emissions. Therefore, the Project emissions would be below the ***de minimis*** level and less than 10 percent of the emissions inventory for nonattainment pollutants in the SFBAAB; further general conformity analysis is not required.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

b. Result in 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.

Impact Analysis:

As noted above, Project activities that have the potential to impact air quality can be characterized as construction activities because of the short duration of the Project and use of construction equipment. As

demonstrated above, estimated emissions for the Project are below significance thresholds listed in the BAAQMD guidelines.

Since emissions from gasoline- and diesel-fueled vehicles and equipment are below significance thresholds, and fugitive dust emissions would be controlled with BMPs, the Project would not result in a violation of an air quality standard or contribute significantly to an existing or projected air quality violation.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

c. Expose sensitive receptors to substantial pollutant concentrations.

Impact Analysis:

Sensitive receptors are locations where an identifiable subset of the general population (children, asthmatics, the elderly, and the chronically ill) that is at greater risk than the general population to the effects of air pollutants are likely to be exposed. These locations include residences, schools, playgrounds, childcare centers, retirement homes, hospitals, and medical clinics. The Project is mostly within residential areas and there are several sensitive receptors, including residences and an elementary school approximately 0.1 mile to the north of the Project site. These sensitive receptors would be exposed to short-term emissions of TACs while construction takes place.

The primary concern for nearby sensitive receptors would be exposure to diesel emissions from diesel-powered construction equipment associated with Project construction activities and diesel trucks while at the Project site. Diesel particulate matter (DPM) is designated as a TAC by CARB for the cancer risk associated with long-term (i.e., 30 years) exposure to DPM. Given that construction would occur for a limited amount of time (less than 1 year) and the Project would only be utilizing a limited number of diesel-fueled equipment and trucks, DPM emissions would be very low and localized exposure to DPM would be minimal. In addition, the amount of onsite diesel-generated PM2.5 exhaust for this Project is estimated to be 0.03 ton/year. The estimated PM2.5 exhaust emissions are several orders of magnitude below the BAAQMD threshold of 10 tons/year.

The Project is not expected to expose sensitive receptors to substantial pollutant concentrations for the following reasons:

- Minor amounts of soil excavations would occur on a daily basis.
- A limited number of construction vehicles or equipment would operate at any time.
- The Project activities are short-term and would last 4 months or less.
- Combustion emissions from vehicles and equipment are below the significance thresholds from the BAAQMD guidelines.
- Control Measures, listed under “Dust Control” and “Air Quality” in Attachment D, would be implemented such as minimizing idle times, to control emissions and exposures.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

d. Result in other emissions (such as those leading to odors adversely affecting a substantial number of people.

Impact Analysis:

During construction, there would be sources of odor from the Project activities. During sewage bypass pumping, odors can disperse from open manholes or access openings in the sewers. However, Control Measures listed in Attachment D would serve to minimize dispersal of odor and provide for control, as well as to address odor complaints if received.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

References Used:

1. BAAQMD. 2017a. California Environmental Quality Act Air Quality Guidelines. Available at: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Bay Area Air Quality Management District. May.
2. BAAQMD. 2017b. Spare the Air Cool the Climate: A Blueprint for Clean Air and Climate Protection in the Bay Area. Bay Area Air Quality Management District. April.
3. BAAQMD. 2019. Annual Bay Area Air Quality Summaries. Available at: http://www.baaqmd.gov/about-air-quality/air-quality-summaries. Bay Area Air Quality Management District.
4. SMAQMD. 2016. Roadway Construction Emissions Model Version 8.1.0 (May 2016). Available at: http://www.airquality.org/Businesses/CEQA-Land-Use-Planning/CEQA-Guidance-Tools. Sacramento Metropolitan Air Quality Management District. May.

4. Biological Resources

Project Activities Likely to Create an Impact:

- Equipment used for construction activities
- Project site restoration, including backfill of all excavated areas with imported clean soil.

Description of Baseline Environmental Conditions:

Biological resources associated with the area of potential effect (APE) were identified through a review of available background information and a field reconnaissance survey. Available documentation was reviewed to provide information on general resources in the Sleepy Hollow area, presence of sensitive natural communities, and the distribution and habitat requirements of special-status species, which have been recorded from or are suspected to occur in the Project vicinity. The literature review included: the occurrence records of the California Natural Diversity Database (CNDDB) of the California Department of Fish and Wildlife (CDFW); the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants; and a record of federally listed and candidate species from the U.S. Fish and Wildlife Service (USFWS) for the Project site vicinity. Carolyn Huynh, a biologist/environmental scientist with Integral, conducted a field

reconnaissance on April 14, 2021, to determine the vegetation and wildlife resources in the vicinity of the Project site as well as confirm the absence of any sensitive resources such as potential jurisdictional wetlands and potential suitability of the APE to support populations of special-status species. The CNDDB, USFWS, and CNPS species list are contained in Attachment E.

The APE consists largely of road right-of-ways that have been developed with roadways, roadside ditches, planted trees, and adjacent landscaping. Vegetation near the Sleepy Hollow Creek corridor consisted of coastal redwood (*Sequoia sempervirens)*, paper birch (*Betula papyrifera*), sorrels (*oxalis sp*.), Herb robert (*Geranium robertianum*), and three-cornered garlic (*Allium triquetrum*).

Landscaping along the roadway frontages consists of native and non-native trees, shrubs, and groundcovers. Native tree species growing along the roadway frontages include coast live oak (*Quercus agrifolia*), service berry (*Amelanchier alnifolia*), and California bay (*Umbellularia californica*) of various sizes and conditions. Non-native tree species growing along the roadway frontages include English oak (*Quercus robur*), Deodar cedar (*Cedrus deodara*), and blackwood acacia (*Acacia melanoxylon)*. Shrubs and groundcover are generally non-native ornamental species such as Chinese photinia (*Photinia serratifolia*), Dichotomanthes tristaniicarpa (*Dichotomanthes tristaniicarpa*), crimson bottlebrush (*Callistemon citrinus*), and glossy privet (*Ligustrum lucidum*).

Most of the APE provides very little in terms of wildlife habitat given its developed condition as roadway and adjacent residential frontages. The limited vegetation cover, intensity of human disturbance and activity, and risk of vehicle strikes limits its foraging and dispersal habitat.

The Sleepy Hollow Creek channel does provide a movement corridor for terrestrial and aquatic species where the creek intersects with Fawn Drive (along Fawn Drive between the intersection of Butterfield Road and Fawn Court). Perennial and seasonal flows in the Sleepy Hollow Creek allow for movement of the federally threatened steelhead trout (*Oncorhynchus mykiss)*. Sleepy Hollow Creek is designated as critical habitat for this species by the USFWS. Surface water was present within creek channel at the time of the Project site visit, although deep pools were absent along the segment near the APE. The creek corridors may serve as a movement corridor for other fish species, and possibly western pond turtle (*Actinemys marmorata*), aquatic garter snake (*Thamnophis atratus*), amphibians such as Pacific chorus frog (*Pseudacris regilla*) and western toad (*Anaxyrus boreas*), and a number of aquatic invertebrates when surface water is present.

Species typical of residential development utilize the mature trees and well-developed landscape for foraging, perching, and possibly nesting substrate. These species include American robin (*Turdus migratorius*), California towhee (*Melozone crissalis*), Golden-crowned sparrow (*Zonotrichia atricapilla*), and lesser goldfinch (*Spinus psaltria*), among others. Common mammals include naturalized pest species such as house mouse (*Mus musculus*), Norway rat (*Rattus norvegicus*), and raccoon (*Procyon lotor*). The introduced marsupial Virginia opossum (*Didelphis virginiana*) is also common throughout east Marin, including the San Anselmo area. There was no evidence of any bird nesting observed in the trees and other landscaping along the APE during the field reconnaissance.

Special-Status Species

Special-status species are plants and animals that are legally protected under the state and/or federal Endangered Species Acts or other regulations, as well as other species that are considered rare enough by the scientific community and trustee agencies to warrant special consideration, particularly with regard to protection of isolated populations, nesting or denning locations, communal roosts, and other essential

habitat. Species with legal protection under the Endangered Species Acts[3] often represent major constraints to development, particularly when they are wide-ranging or highly sensitive to habitat disturbance and where proposed development would result in a "take"[4] of these species.

A record search conducted by the CNDDB, together with review of lists from the USFWS and CNPS, indicates that occurrences of numerous plant and animal species with special status have been recorded or are suspected to occur within the Kentfield area of Marin County. Figures 2 and 3 (Attachment B) show the known occurrences of special-status plants and animals, respectively, as mapped by the CNDDB in an approximately 2-mile radius of the APE. The attached lists from the CNDDB, USFWS, and CNPS (see Attachment E) show the broad list of special-status plants and animals known from a wide range of habitat types found in Marin County, none of which contain suitable habitat any longer within the APE due to the extent of past and ongoing development and disturbance. The following provides a summary of the plant and animal species suspected to occur in the surrounding area away from the APE where natural habitat remains.

Plant Species

Based on the review of CNDDB data, the USFWS species list, and the CNPS Inventory (see Attachment E), a total of 40 special-status plant species are suspected to possibly occur in the vicinity of the APE. Table E-1 in Attachment E provides a summary of each of these species, their status, typical habitat characteristics, and conclusion regarding absence from the APE. These species have varied status, and most are considered rare (list 1B) by CNPS in its electronic Inventory of Rare and Endangered Plants of California. However, suitable habitat for special-status plant species known from the surrounding area is absent and none is expected to occur in the APE due to past development and ongoing disturbance observed during the field reconnaissance. The APE has been completely disturbed by past grading, installation of pavement, ornamental landscaping, and existing sewer line facilities, which precludes the possibility of presence of any special-status plant species in the APE.

Animal Species

Based on the review of CNDDB data and the USFWS species list (see Attachment E), a total of 16 mammals, birds, reptiles, amphibians, fish, and invertebrate species are known or suspected to occur in the vicinity of the APE. Table E-2 in Attachment E provides a summary of each of these species, their status, typical habitat characteristics, and conclusion regarding absence from the APE. Suitable habitat for all of these species is absent from the limits of construction disturbance within the APE. This includes absence of coastal salt marsh and open water habitat for many of the fish, mammal, and bird species known from the Baylands; forest and woodland habitat necessary to support the federally threatened northern spotted owl (*Strix occidentalis caurina*); and suitable nesting habitat for special-status bird species.

No evidence of any bird nesting was observed during the field reconnaissance survey. The intensity of human activity limits the likelihood that any special-status bird species listed in Table E-2, including northern spotted owl, nest in or near the APE. But there is a possibility that new nests of more common bird species could be established in the future in advance of Project activities. Nests in active use by both special-status

[3] The federal Endangered Species Act (FESA) of 1973 declares that all federal departments and agencies shall utilize their authority to conserve endangered and threatened plant and animal species. The California Endangered Species Act (CESA) of 1984 parallels the policies of FESA and pertains to native California species.

[4] "Take" as defined by the FESA means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect" a threatened or endangered species. "Harm" is further defined by USFWS to include the killing or harming of wildlife due to significant obstruction of essential behavior patterns (i.e., breeding, feeding, or sheltering) through significant habitat modification or degradation. CDFW also considers the loss of listed species habitat as take, although this policy lacks statutory authority and case law support under the CESA.

and more common bird species are protected under the federal Migratory Bird Treaty Act and State Fish and Game code.

Jurisdictional Waters

Although definitions vary, wetlands are generally considered to be areas that are periodically or permanently inundated by surface or groundwater, and support vegetation adapted to life in saturated soil. Wetlands are recognized as important features on a regional and national level due to their inherent value to fish and wildlife, use as storage areas for storm and floodwaters, and water recharge, filtration and purification functions. Jurisdiction of the U.S. Army Corps of Engineers (Corps) is established through provisions of Section 404 of the Clean Water Act (CWA), which prohibits the discharge of dredged or fill material into "waters of the U.S." without a permit. The Regional Water Board jurisdiction is established through Section 401 of the CWA, which requires certification or waiver to control discharges in water quality whenever a Corps permit is required under Section 404 of the CWA, and State waters as regulated under the Porter-Cologne Act. Jurisdictional authority of the CDFW over wetland areas is established under Sections 1600–1607 of the State Fish and Wildlife Code, which pertains to activities that would disrupt the natural flow or alter the channel, bed, or bank of any lake, river, or stream.

Based on a review of the National Wetland Inventory mapping and the observations made during the field reconnaissance survey, the Sleepy Hollow Creek corridor is a potential jurisdictional wetland or regulated "other waters of the U.S." near the vicinity of the APE.

Analysis as to whether or not project activities would:

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.

Impact Analysis:

Special status species were evaluated using the CNDDB (2021), USFWS species list (2021), and the CNPS Inventory (2021). CNDDB records (Attachment E) include federal special-status species, state special-status species, CDFW special-status species, and California rare plant species. CNDDB shows records for 40 special-status plant species or communities within the quad, including three federally endangered species (Marin western flax, two-fork clover, and white-rayed pentachaeta) and one threatened species (Santa Cruz tarplant). However, none of the 39 special-status plant species/communities is found on the Project site.

CNDDB shows records for 16 special-status animals within the San Rafael quad including three federally endangered species (Tidewater goby, California least tern, California clapper rail) and five threatened species (Delta smelt, Green sea turtle, California red-legged frog, Northern spotted owl, and Western snowy plover).

None of the federally listed species is found on the Project site, as there are no suitable habitats. The California Ridgway's Rail is only found in salt marshes. The California least tern and Western snowy plover are found along the costal shoreline and bay and the Pacific Ocean. The Northern spotted owl is found in dense forest and woodlands. The San Bruno elfin butterfly is found on north-facing slopes where host plants are present. The California freshwater shrimp is found in the following ranges: tributary streams in the lower Russian River drainage; coastal streams flowing westward directly into the Pacific Ocean; streams draining into Tomales Bay; and streams flowing southward into northern San Pablo Bay. None of these habitats occurs on the Project site.

There was no evidence of any bird nesting within the APE observed during the field reconnaissance survey. Although the limited habitat values and extent of ongoing disturbance generally precludes the potential for nesting birds in the APE, there remains a remote possibility that new bird nests could be established in the trees and other vegetation in and near the APE. If construction were initiated during the bird nesting season (March 1–August 31), construction-related disturbance could result in abandonment of the nests if any are

present in the immediate vicinity. If construction-related noise and disturbance resulted in destruction or abandonment of a nest in active use and loss of any eggs or young in the nest, this would be a significant adverse impact and violation of the federal Migratory Bird Treaty Act and State Fish and Game Code sections. Mitigation Measure BIO-1 would serve to avoid this potential for violation of federal and state regulations by conducting a preconstruction survey and implementing appropriate construction restrictions if any active nests are encountered until any young birds have successfully fledged. With implementation of Mitigation Measure BIO-1, impacts to biological resources would be less than significant.

Mitigation Measure BIO-1

Adequate measures shall be taken to avoid inadvertent take of bird nests protected under the federal Migratory Bird Treaty Act and State Fish and Game Code when in active use. This shall be accomplished by taking the following steps:

- If initial construction is proposed during the nesting season (March 1 to August 31), a focused survey for nesting raptors and other migratory birds shall be conducted by a qualified biologist within 7 days prior to the onset of construction in order to determine whether any active nests are present in the APE and surrounding area within 100 ft of proposed construction. The survey shall be re-conducted any time construction has been delayed or curtailed for more than 7 days during the nesting season.
- If no active nests are identified during the construction survey period, or development is initiated during the non-breeding season (September 1 to January 31), construction may proceed with no restrictions.
- If bird nests are found, an adequate setback shall be established around the nest location and construction activities restricted within this no-disturbance zone until the qualified biologist has confirmed that any young birds have fledged and are able to function outside the nest location. Required setback distances for the no-disturbance zone shall be based on input received from the CDFW, and may vary depending on species and sensitivity to disturbance. As necessary, the no-disturbance zone shall be delineated if construction is to be initiated elsewhere in the APE to make it clear that the area should not be disturbed.
- A report of findings shall be prepared by the qualified biologist and submitted to the RVSD or designated agent for review and approval prior to initiation of construction during the nesting season (March 1 to August 31). The report shall either confirm absence of any active nests or confirm that any young are located within a designated no-disturbance zone and construction can proceed. No report of findings is required if construction is initiated during the non-breeding season (September 1 to January 31) and continues uninterrupted according to the above criteria.

Conclusion:

☐ Potentially Significant Impact

☒ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☐ No Impact

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

Impact Analysis:

The Project activities would not have significant adverse effects of any riparian habitat or other sensitive natural communities. The Sleepy Hollow Creek passes underneath Fawn Drive where the sewer line

rehabilitation and replacement would occur. Construction would be limited to the right-of-way and no disturbance to the active channel would occur. BMPs and Control Measures listed in Attachment D would be used to prevent any construction-generated sediment or other debris from entering the storm drain systems in the roadways, eventually entering the creek. These measures would include temporary installation of filter fabric over storm drain inlets, use of fiber rolls, and other methods to contain and control construction-generated sediments.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

c. Have a substantial adverse effect on state or federally protected wetlands as (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

Impact Analysis:

The Project would not have significant adverse effects on state or federally protected wetlands. See 4b.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

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.

Impact Analysis:

The Project activities would not have any significant adverse impacts on wildlife movement opportunities or adversely impact native wildlife nursery sites. Wildlife in the vicinity of the APE are already acclimated to human activity, and construction-related disturbance would not cause any significant impacts on wildlife movement in the surrounding area. Species common to the area would continue to utilize the surrounding area, even during construction.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

e. Conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

Impact Analysis:

The Project would not conflict with policies in the Marin Countywide Plan (Marin County 2007), which addresses the protection of sensitive biological and wetland resources, including creeks, trees, threatened and endangered species habitat, riparian vegetation, and other resources.

The County of Marin Ordinance No. 3577 establishes regulations for the preservation and protection of native trees in the unincorporated areas of Marin County by limiting tree removal. A tree removal permit would be required in the following instances[5]:

- More than two (2) "Protected Trees" are being removed from a developed lot in a 12-month period.
- The tree qualifies as a "Heritage Tree."
- The tree is a "Protected Tree" or "Heritage Tree" and is located in a Stream Conservation Area or a Wetland Conservation Area.
- Any removal of "Protected Trees" on a vacant lot.
- The trees proposed for removal do not qualify for an exemption under Section 22.62.040 of the Marin County Code.

Under this Project, no trees would be removed. As described in Attachment D, the Contractor shall exercise due diligence and implement necessary precautions to avoid needlessly damaging or destroying trees, shrubs, or other landscaping in the Project limits. Any required pruning of existing trees would be completed by a certified arborist. No major conflicts with local plans and policies are anticipated, and potential impact would be less than significant.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

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 Analysis:

No habitat conservation plans have been prepared addressing the APE, and the Project would therefore not conflict with any adopted habitat conservation plans.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

[5] County of Marin – Tree Removal Permit Fact Sheet, https://www.marincounty.org/-/media/files/departments/cd/planning/currentplanning/publications/factsheets/treeremoval_fs.pdf

☐ Less Than Significant Impact

☒ No Impact

References Used:

1. CDFW. 2021. California Natural Diversity Database. Available at: https://wildlife.ca.gov/Data/CNDDB. California Department of Fish and Wildlife, Wildlife & Habitat Data Analysis Branch.
2. CNPS. 2021. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Available at: http://www.rareplants.cnps.org. California Native Plant Society, Rare Plant Program.
3. Marin County. 2007. Marin Countywide Plan. Last amendment September 24, 2013. Available at: https://www.marincounty.org/-/media/files/departments/cd/planning/currentplanning/publications/county-wide-plan/cwp_2015_update_r.pdf?la=en. County of Marin, CA.
4. USFWS. 2021. Information for Planning and Consultation (IPaC) Resource List. Available at: https://ecos.fws.gov/ipac/. U.S. Fish and Wildlife Service.

5. Cultural Resources

Project Activities Likely to Create an Impact:

- Ground-disturbing activities (excavation of soil)

The Project entails the construction and rehabilitation of sewer lines located within the existing alignment of approximately 1,500 lineal ft of sanitary sewer mains and related appurtenances.

The Project construction pipe bursting method has a minimal potential impact; however, open cut has a high potential to impact near-surface and buried cultural sites. Potential impacts to buried, subsurface archaeological and cultural sites could occur during work along Fawn Drive.

Impacts from pipe bursting are limited to the soils immediately surrounding the existing pipeline, while open cut would displace soils immediately surrounding the pipe as well as all soils above it. While the affected soil in both cases would be solely or primarily backfill from the initial installation of the existing pipeline, and thus should not contain an intact archaeological deposit, the open cut method may encounter native soils if the new trench does not exactly correspond with the depth or width of the original trench.

In addition, as backfill could still contain previously displaced cultural materials, any methods disturbing adjacent soils have the potential to affect human remains and associated funerary objects or disturbed cultural materials.

Impacts from open cut and from excavation of insertion and receiving pits have the ability to be monitored. Impacts along trenchless segments—the soils surrounding a host pipe in pipe bursting cannot be monitored. However, soils removed can be observed out of context, if necessary.

Description of Baseline Environmental Conditions:

An Archaeological Resources Inventory report for the Project was prepared by Far Western Anthropological Research Group, Inc. (Far Western) in May 2021. Because the report contains confidential information about the locations and characteristics of archaeological sites and tribal cultural resources, the technical report is not included in this Initial Study for public review, but can be made available to agencies and other professionals for review as necessary.

The archaeological study includes a cultural resources records search, consultation with the Federated Indians of Graton Rancheria (FIGR), outreach with a local historical society, buried and subsurface site sensitivity analyses, and a pedestrian survey of the Project site.

The records search identified one previously recorded cultural resource within the Project site, the Fawn Drive Bridge. No archaeological resources have been previously identified within 0.25-mile radius of the Project site. A pedestrian survey encompassed 100 percent of the Project site. Ground visibility was generally very poor due to the Project being within a developed residential area that included substantial paving, landscaping, and other vegetation growth.

Regulatory Background

Cultural resources include precontact (prehistoric/Native American) and historic-era archaeological sites and objects, as well as extant historic structures, buildings, and locations of important historic events or sites of traditional and/or cultural importance to various groups. Archaeological resources may be determined significant under national, state, or local criteria. The Project requires approval by local and state agencies, thereby mandating that it adheres to CEQA and its implementing guidelines and regulations in 14 CCR §15000 et seq.

California Register of Historical Resources

The California Register of Historical Resources is designed to "identify, evaluate, register and protect California's historical resources. The Register is the authoritative guide to the state's significant historical and archeological resources" (California Office of Historic Preservation 2020).

A resource may be eligible for listing in the California Register of Historical Resources if it:

1. Is associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States;

2. Is associated with the lives of persons important to local, California, or national history;

3. Embodies the distinctive characteristics of a type, period, region, or method of construction or represents the work of a master or possesses high artistic values; or

4. Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation. (California Office of Historic Preservation 2020).

The eligibility of archaeological sites is usually evaluated under Criterion 4—their potential to yield information important to prehistory or history. Criterion 3 is most often applied to built environment resources (e.g., buildings, fences, and landscape features). Whether or not a site is considered important is determined by the capacity of the site to address pertinent local and regional research themes. Public Resources Code Section 21084.1 stipulates that any resource listed in or eligible for listing in the California Register of Historical Resources is presumed to be historically or culturally significant.

Analysis as to whether or not project activities would:

a. Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5.

Impact Analysis:

An archaeological feature's significance is determined by its potential eligibility to be listed on the California Register of Historical Resources (California Register). The California Register is a listing of properties that are important to the history of California and our nation. To be eligible for listing on the California Register, a property must typically be 50 years of age or older; it must possess historical significance; and it must possess integrity of location, design, setting, materials, workmanship, feeling, and association. Historical

significance is the importance of a property to the history, architecture, archaeology, engineering, or cultural aspects of a community.

The records search identified one previously recorded cultural resource within the Project site, the Fawn Drive Bridge. No archaeological resources have been previously identified within 0.25-mile radius of the Project. While no archaeological resources have been identified in the Project site, desktop buried and subsurface site sensitivity analyses found that most of the Project site is sensitive for precontact/Native American archaeological sites/deposits. Additionally, very sparse redeposited shell midden was observed outside the Project area during the field survey; it was noted within surface spoils of the adjacent residential landscaping irrigation line. The Fawn Drive Bridge within the Project site is discussed below.

The Fawn Drive Bridge is a 64-foot-long two lane bridge constructed as single 13-foot span earth-filled reinforced concrete bridge with solid concrete rails. Constructed circa the 1930s, the bridge crosses Sleepy Hollow Creek on Fawn Drive. This bridge is not listed by Caltrans as a local agency historic bridge; as it most likely does not qualify for consideration due its limited 13-foot span. This structure has not been evaluated for the National or California Registers (Pursell 1979a).

The Fawn Drive Bridge is part of the roadway that crosses over Sleepy Hollow Creek. Project activities that include ground disturbance would occur within the existing alignments of the sanitary sewer mains that are located within the roadway only. There are no proposed project-related modifications or changes to the bridge or bridge elements and the roadway will be returned to its existing current condition thus impacts to the bridge are expected to be less than significant.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

b. Cause a substantial adverse change in the significance of an archeological resource pursuant to §15064.5.

Impact Analysis:

The following investigations were conducted as part of this archaeological resources evaluation:

1. A systematic review of relevant archival documents on file at the Northwest Information Center at Sonoma State University in Rohnert Park

2. Consultation with members of the local Native American community (FIGR) and correspondence with historical societies

3. A pedestrian survey encompassing 100% of the Project site

4. A buried site sensitivity analysis of the Project site under consideration.

The records search identified one previously recorded cultural resource within the Project's ADI, the Fawn Drive Bridge. No archaeological resources have been previously identified within 0.25-mile radius of the Project. While no archaeological resources have been identified in the ADI, desktop buried site sensitivity analyses found that most of the Project site is sensitive for archaeological sites/deposits.

As the Project site includes areas that are located beneath paved, active streets, the presence of archaeological sites could thus not be completely ruled out within the scope of this study. The buried site

sensitivity analysis performed for the Project site identified a likelihood that buried archaeological sites may be present below the surface in the Project site. Over half of the Project site was determined to be sensitive for buried archaeological sites.

Due to the overall very poor surface visibility and buried and subsurface site sensitivity, monitoring is recommended in areas where native soils will be disturbed. With the implementation of Mitigation Measures CUL-1 and CUL-2, impacts to cultural resources would be less than significant.

Mitigation Measure CUL-1

Prior to project implementation a Cultural and Tribal Monitoring Plan (Plan) will be prepared by a qualified archaeological consultant. The Plan will discuss the monitoring procedures, field methods, communication protocols, and inadvertent discovery actions to be taken in the event cultural resources are identified during monitoring and/or any project activities. The Plan will be developed in coordination with FIGR.

Monitoring is recommended in work areas where native soils will be disturbed.

Mitigation Measure CUL-2

Construction crews shall be trained in “basic archaeological identification” and have access to an Alert Sheet. The Alert Sheet shall photographically depict shell midden and associated indicators of prehistoric archaeological sites, and clearly outline the procedures in the event of new archaeological discovery. These procedures include temporary work stoppage (Stop Work Order) of all ground disturbance, short-term physical protection of artifacts and their context, and immediate advisement of the archaeological team and RVSD representatives. Any Stop Work Order will contain a description of the work to be stopped, special instructions or requests for the Contractor, suggestions for efficient mitigation, and a time estimate for the work stoppage. The archaeologist shall notify the FIGR, examine the findings and assess their significance, and offer recommendations for any procedures deemed appropriate to further investigate and/or mitigate adverse impacts to those cultural resources that have been encountered.

Conclusion:

☐ Potentially Significant Impact

☒ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☐ No Impact

c. Disturb any human remains, including those interred outside of formal cemeteries.

Impact Analysis:

In California, discovery of human remains during construction activities is regulated by the California Health and Safety Code. Per California Health and Safety Code §7050.5 and California Public Resources Code §5097.98, the following procedures will be followed in the event that human remains and associated cemetery/grave items are encountered. Associated cemetery/grave items are any items (e.g., clothing, funerary gifts, etc.) that are buried with the individual, as well as any cemetery furniture, architecture, fencing, or other features associated with the cemetery itself. This definition applies to both prehistoric and historic period cemeteries. The term “grave” also extends to cremation pits containing (non-intact) human remains. There is a potential to discover human remains during any phases of the Modified Project that involve excavation in the project soils. With implementation of Mitigation Measure CUL-3, impacts to cultural and tribal cultural resources would be less than significant.

Mitigation Measure CUL-3

Upon discovery, the Coroner Division of the Marin County Sheriff's Office will be contacted for identification of human remains. The Coroner has 2 working days to examine the remains after being notified.

If the remains are Native American, the Coroner must notify the Native American Heritage Commission (NAHC) of the discovery within 24 hours. The NAHC will then identify and contact a Most Likely Descendant (MLD). The MLD may make recommendations to the owner, or representative, for the treatment or disposition, with proper dignity, of the remains and grave goods. Once proper consultation has occurred, a procedure that may include the preservation, excavation, analysis, and curation of artifacts and/or reburial of those remains and associated artifacts will be formulated and implemented.

If the remains are not Native American, the Coroner will consult with the archaeological research team and the lead agency to develop a procedure for the proper study, documentation, and ultimate disposition of the remains. If a determination can be made as to the likely identity—either as an individual or as a member of a group—of the remains, an attempt should be made to identify and contact any living descendants or representatives of the descendant community. As interested parties, these descendants may make recommendations to the owner, or representative, for the treatment or disposition, with proper dignity, of the remains and grave goods. Final disposition of any human remains or associated funerary objects will be determined in consultation between RVSD and FIGR.

Conclusion:

☐ Potentially Significant Impact

☒ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☐ No Impact

References Used:

1. Far Western. 2021. Archaeological Resources Inventory for the Lower Fawn Drive Segment of the Ross Valley Sanitary District Gravity Sewer Improvement Project, San Anselmo, Marin County, California. Far Western Anthropological Research Group, Inc. May.

6. Energy

Project Activities Likely to Create an Impact:

- Equipment used for construction activities
- Heavy duty trucks used for transporting materials and supplies to and from work areas
- Offsite transport and disposal of excavated soil and debris to appropriate facility.

Description of Baseline Environmental Conditions:

Current energy use within the Project site is predominately for residential and non-residential purposes. There would be no electrical use needed to operate equipment at the Project site for construction purposes.

Assembly Bill (AB) 32, the Global Warming Solutions Act, addresses greenhouse gas emissions and associated energy use across the State and throughout different sectors of California's economy, with the goal of reducing emissions to 1990 levels by 2020 and 40 percent below 1990 levels by 2030. CARB is tasked with the implementation of AB 32 through the development of a Scoping Plan, which is to be updated

every five years. CARB produced its second update to the Scoping Plan in 2017 (CARB 2017). Locally, the Marin County Climate Action Plan provides emissions reduction goals and measures for unincorporated Marin County, with the overall target of reducing emissions to 30 percent below 2005 levels by 2030 and drawdown GHG emissions below zero by 2045 (Marin County 2020). Efficient energy use is a key component to achieving these emission reduction goals.

Analysis as to whether or not project activities would:

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

Impact Analysis:

This impact analysis focuses on the fuel for equipment and transport vehicles necessary to implement the Project. Fuel consumption associated with vehicle trips generated by the Project would not be considered inefficient, wasteful, or unnecessary in comparison to other similar projects in the region. The Project would not directly use electricity for construction-related operations. The construction activities would not create long-term energy demands as there are no operational related components to the Project.

Construction equipment fleet turnover and increasingly stringent state and federal regulations on engine efficiency, combined with state regulations limiting engine idling times, would further reduce the amount of transportation fuel demand during Project implementation. All off-road equipment would be required to comply with CCR Title 13 Section 2485, which requires off-road construction equipment operators to reduce idling of engines to less than 5 minutes and to replace or retrofit older off-road equipment fleets to meet specific particulate matter and nitrogen oxide emission standards based on fleet averages. With implementation of Control Measures listed in Attachment D under “Dust Control,” the impact of temporary construction activities would be less than significant.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

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

Impact Analysis:

The Project would use small amounts of energy during construction, including the use of equipment and trucks associated with employees driving to and from the Project site and from material deliveries. These activities would be short-term. The Project aims to relieve hydraulic and structural deficiencies and reduce groundwater infiltration with aging RVSD infrastructure. Implementation of this Project would reduce O&M needed below current conditions. The Project would not conflict with renewable energy or energy efficient plans, including goals set forth in AB 32, the objectives of the 2017 CARB Scoping Plan, the goals and policies contained in Marin County’s Countywide Plan and Climate Action Plan. Therefore, the Project would not conflict with or obstruct state or local plans for renewable energy or energy efficiency.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

References Used:

1. CARB. 2017. California's 2017 Climate Change Scoping Plan. Available at: https://ww2.arb.ca.gov/sites/default/files/classic//cc/scopingplan/scoping_plan_2017.pdf. California Air Resources Board. November.
2. Marin County. 2020. Marin County Unincorporated Area – Climate Action Plan 2030 (Public Review Draft). Available at: https://www.marincounty.org/-/media/files/departments/cd/planning/sustainability/climate-and-adaptation/draft-climate-action-plan-2030.pdf?la=en. County of Marin. October.

7. Geology and Soils

Project Activities Likely to Create an Impact:

- Excavating of soil and fill/debris
- Loading of soil and fill/debris onto dump trucks
- Transporting and handling of imported backfill materials.

Description of Baseline Environmental Conditions:

Geotechnical studies were not prepared for the Project. However, geologic information from the Marin Countywide Plan were used to supplement this section. Geotechnical Control Measures included in Attachment D would be implemented. Unstable soils are not expected at the Project location and thus it is not likely that construction activities would create Project-related impacts.

Regional Geology and Topography

The Project site is located within the Coast Range Geomorphic Province of California. The regional bedrock geology consists of complexly folded, faulted, sheared, and altered sedimentary, igneous, and metamorphic rock of the Franciscan Complex. Bedrock is characterized by a diverse assemblage of greenstone, sandstone, shale, chert, and melange, with lesser amounts of conglomerate, calc-silicate rock, schist, and other metamorphic rocks.

The regional topography is characterized by northwest-southeast-trending mountain ridges and intervening valleys that were formed by movement between the North American and the Pacific Plates. Continued deformation and erosion during the late Tertiary and Quaternary Ages (the last several million years) formed the prominent coastal ridges and the inland depression that is now the San Francisco Bay. The more recent seismic activity within the Coast Range Geomorphic Province is concentrated along the San Andreas Fault zone, a complex group of generally north-to-northwest-trending faults.

The Project site is located in the seismically active San Francisco Bay Area region. The town of San Anselmo is not included on "Table 4 Cities and Counties Affected by Alquist-Priolo Earthquake Fault Zones as of January 2010" in *Special Publication 42, Fault-Rupture Hazard Zones in California*, indicating that the Project site property is not located within an Earthquake Fault Zone (CGS 2010). No active faults were identified onsite or in the Project vicinity by the Principal Faults Zones Under Alquist-Priolo Earthquake Fault Zoning Act 1974-2007 issued by the California Division of Mines and Geology in 2007 (Bryant and Hart 2007). Therefore, there would be no Project impacts related to rupture of a known earthquake fault as delineated by the State Geologist or other substantial evidence of a known fault.

Sleepy Hollow is generally underlain by soil types such as Quaternary sands, sandstones and mudstones, some Upper Tertiary sandstones, mudstones and limestones, some Lower Tertiary mudstones and sandstones, and Franciscan melange and serpentinite (Marin County 2007).

Geologic Hazards

Although there are no active faults or rift zones onsite (Marin County 2007), the Project is located near several active faults, and is in an area subject to strong ground shaking from earthquakes along the San Andreas Fault 6 miles to the west and the Hayward Fault 10 miles to the east.

Geological hazards identified in the Marin Countywide Plan include seismic shaking amplification and liquefaction. As indicated on the seismic shaking amplification hazards map in the Marin Countywide Plan (Marin County 2007, Map 2-9), soil types at the Project site include some Quaternary sands, sandstones, and mudstones; some Upper Tertiary sandstones, mudstones, and limestones; some Lower Tertiary mudstones and sandstones; Franciscan melange and serpentinite ("Soil Type C"); and quaternary muds, sands, gravels, silts, and muds ("Soil Type D") in San Anselmo, near the Project site. Soil Type D would be subject to significant seismic shaking amplification, whereas Soil Type C would be subject to less significant seismic shaking amplification (Marin County 2007). In addition, the Liquefaction Susceptibility Hazards Map indicates the Project site is not mapped within a zone of high susceptibility to liquefaction (Marin County 2007, Map 2-11).

Within the Project site, surface conditions generally consist of asphalt-paved roadways. The Project site is located within relatively densely populated suburban areas with neighboring properties generally consisting of residential land use. There are overhead power lines along the shoulder of some of the streets, and numerous underground utilities exist and are often located within several feet of the proposed alignments.

Groundwater

The Project includes maximum excavations of 12 ft for construction of various improvements. A search was performed on GeoTracker to identify studies performed in the vicinity of the Project site. One study approximately 1 mile south of the Project location on Butterfield Road and Arroyo Avenue identified the water table ranging from 10 to 12 ft below ground surface (bgs; TEC 2010). Because Sleepy Hollow Creek intersects a segment of the Project site, groundwater could be encountered during construction activities. The Control Measures presented in Attachment D under "Dewatering" would be implemented if groundwater were encountered.

Analysis as to whether or not project activities would:

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? Refer to Division of Mines and Geology Special Publication 42.

   ii) Strong seismic ground shaking?

   iii) Seismic-related ground failure, including liquefaction?

   iv) Landslides?

Impact Analysis:

Although there are no active faults in the Project site, the Project site is located near several active faults and is in an area subject to strong ground shaking from earthquakes along the active San Andreas and Hayward faults. Therefore, there is a possibility that the Project site may experience ground shaking from periodic minor earthquakes and possibly a major earthquake.

The potential for seismically induced landslides in the slopes above the Project site is not a concern. The Project site is located in a valley, with slopes flanking the town on the east and west. However, there are no identified deep-seated slide areas on or above the Project site, and there is not a potential for seismically

induced landslides in the slopes above the Project site. Construction activities would not increase the potential for seismically induced landslides or attract additional population to a potentially hazardous area.

Excavation depths would l approach approximately 12 ft in the Project site. Strong seismic ground shaking can result in damage to the pipelines and related improvements. Liquefaction can result in flood failure, lateral spreading, ground movement, settlement, and other related effects. Buried pipelines and manholes embedded within liquefied soils may also experience uplift due to buoyancy. Control Measures outlined in Attachment D have been included in the Project to address these issues, should they arise. Therefore, potential impacts related to ground shaking, ground failure, and associated physical hazards are less than significant.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

b. Result in substantial soil erosion or the loss of topsoil.

Impact Analysis:

Project construction would involve soil excavation, primarily for areas of open cut excavation and for the insertion and receiving pits. Although the construction activities are limited in extent and duration, these activities could still cause sediment and other pollutants to leave the Project site and enter local drainage systems, and possibly nearby streams. Proper implementation of the Control Measures listed in Attachment D would prevent significant soil erosion from occurring and the loss of topsoil would be considered a less-than-significant impact.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

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.

Impact Analysis:

The ground shaking accompanying major earthquakes has primary and secondary effects. Primary effects of ground shaking are those that directly affect buildings and other structures. Secondary effects of ground shaking can cause various types of soil movements, such as landslides, settlement, and liquefaction. Liquefaction is a response to severe ground shaking that can occur in loose, uniform soils that are saturated with water.

The soils on the Project site and in the watershed above the Project site are made up of surface soils. The Project site is expected to be underlain by Soil Types C and D, as indicated above under “Geologic Hazards.”

The primary geologic hazards that could affect the proposed development include strong seismic ground shaking and liquefaction. The Liquefaction Susceptibility Hazards Map indicates the Project site is mapped within a zone of low susceptibility to liquefaction (Marin County 2007, Map 2-11). Project improvements should include flexible connections and new structures should be designed to resist seismic loads to account for uplift and buoyancy effects associated with liquefaction. Proper implementation of geotechnical consideration would be considered a less-than-significant impact.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

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

Impact Analysis:

Expansive soils are not an issue with this Project as construction activities would not increase the potential for additional population or call for the construction of new properties. Fill materials used for pipe backfill would consist of non-expansive materials.

Conclusion:

☐ 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 waste water disposal systems where sewers are not available for the disposal of water.

Impact Analysis:

Project activities aim to rehabilitate deficient wastewater facilities by replacing existing sewer pipes, installing new pipes, constructing new manholes, and making spot repairs on existing sewer lines. This infrastructure is currently in place. Because RVSD is not constructing a new system, the soils would adequately support the Project needs.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

f. Directly or indirectly destroy a unique paleontological resource or site or unique geological feature.

Impact Analysis:

The Project activities would not destroy a unique geological feature.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

References Used:

1. Bryant, W.A., and E.W. Hart. 2007. Fault-Rupture Hazard Zones in California, Alquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Fault Zone Maps. Special Publication 42. Interim Revision 2007. California Department of Conservations, Sacramento, CA.
2. CGS. 2010. Table 4. Cities and Counties Affected by Alquist-Priolo Earthquake Fault Zones as of January 2010. Available at: http://www.trpa.org/documents/rseis/3.7%20Geo%20soils/3.7_CGS%202010_Cities%20and%20Counties.pdf. California Geological Survey.
3. Marin County. 2007. Marin Countywide Plan. Last amendment September 24, 2013. Available at: https://www.marincounty.org/-/media/files/departments/cd/planning/currentplanning/publications/county-wide-plan/cwp_2015_update_r.pdf?la=en. County of Marin, CA.
4. TEC. 2010. Soil and Groundwater Investigation Report, Fire Station #20, 150 Butterfield Rd., San Anselmo, California. File #21-0241. Available at: https://documents.geotracker.waterboards.ca.gov/esi/uploads/geo_report/3126252532/T0604100228.PDF. Tamalpais Environmental Consultants, Fairfax, CA.

8. Greenhouse Gas Emissions

Project Activities Likely to Create an Impact:

- Excavation/removal of soil and debris using appropriate construction equipment in select areas
- Offsite transport and disposal of excavated soil and debris to appropriate facility
- Project site restoration, including backfill of all excavated areas with imported clean soil.

Description of Baseline Environmental Conditions:

Gases that trap heat in the atmosphere are called greenhouse gases (GHGs). The process of heat being trapped in the atmosphere is similar to the effect greenhouses have in raising the internal temperature, hence the name “greenhouse gas.” Both natural processes and human activities emit GHGs. The accumulation of GHGs in the atmosphere regulates the Earth’s temperature; however, emissions from human activities—such as fossil fuel–based electricity production and the use of motor vehicles—have elevated the concentration of GHGs in the atmosphere. GHGs are not monitored in the same manner as air quality pollutants, so there are no background data to characterize the baseline conditions of a given area in terms of GHG levels.

GHGs from fossil fuel combustion include carbon dioxide (CO_2), methane, and nitrous oxide. CO_2 is the most common reference gas for climate change. To account for warming potential, GHGs are often quantified and reported as CO_2 equivalents (CO_2e), based on their warming potential relative to CO_2.

Assembly Bill 32, the Global Warming Solutions Act, addresses greenhouse gas emissions and associated energy use across the State and throughout different sectors of California's economy, with the goal of reducing emissions to 1990 levels by 2020 and 40 percent below 1990 levels by 2030. CARB is tasked with the implementation of AB 32 through the development of a Scoping Plan, which is to be updated every five years. CARB produced its second update to the Scoping Plan in 2017 (CARB 2017). Locally, the Marin County Climate Action Plan provides emissions reduction goals and measures for unincorporated Marin County, with the overall target of reducing emissions to 30 percent below 2005 levels by 2030 and drawdown GHG emissions below zero by 2045 (Marin County 2020).

Short-term construction projects are not recognized in Table 3-1 of the Air Quality Guidelines, which provide land use type screening-level sizes for criteria air pollutants, precursors, and GHG (BAAQMD 2017a). BMPs identified in the Air Quality Guidelines for reducing GHG emissions during construction can include the following (BAAQMD 2017a):

1. Use alternative-fueled (e.g., biodiesel, electric) construction vehicles/equipment for at least 15 percent of the fleet. (The Project is a small-scale construction project with limited vehicle and equipment needs. While the chosen Contractor may have alternative-fueled vehicles and equipment, requiring 15 percent of the fleet to be alternative-fueled would have an unnecessary cost burden with no measurable benefit.)
2. Use local building materials of at least 10 percent. (Construction materials use such as aggregate base and asphalt will be limited for the Project but all will be obtained locally.)
3. Recycle or reuse at least 50 percent of construction waste or demolition materials. (The generation of construction waste will also be limited.)

Analysis as to whether or not project activities would:

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

Impact Analysis:

Project activities would result in direct GHG emissions from fuel combustion in construction equipment and vehicles. The number of Project-related vehicles would be relatively small and the Project duration would be relatively short. GHG emissions were calculated using the RoadMod emissions estimator model, as described above in Section 3, Air Quality. The estimated GHG emissions are shown in the table below.

Table 4. Maximum Annual Emission from Project Activities

Pollutant	Maximum Annual Emissions (MT/year)	Threshold[a] (MT/year)	Above Threshold?
CO_2e	201.67	1,100	No

[a] Based on the threshold of significance for operations-related GHG emissions (BAAQMD 2017a)

The Guidelines (BAAQMD 2017a) present an emissions threshold for GHGs from a land use operations project of 1,100 CO_2e maximum annual emissions (MT/year), but do not report an adopted threshold of significance for construction-related GHG emissions. However, based on the small scale of this construction Project, it is estimated that the maximum annual emissions (201.67 MT/year) that could be generated during

construction are approximately one-fifth of the BAAQMD's threshold of significance for operations-related GHG emissions of 1,100 CO_2e MT/year. As a comparison, SMAQMD's threshold of significance for construction-related GHG emissions is 1,100 MT/year (SMAQMD 2015). The Marin Climate and Energy Partnership website (http://www.marinclimate.org/) was reviewed, but also contains no thresholds of significance. The Marin County Interim Community Greenhouse Gas Emissions Assessment (Marin Climate & Energy Partnership 2019) establishes a target of reducing GHG emissions in the unincorporated portions of the County. The estimated GHG emissions for unincorporated County of Marin in 2015 were over 450,000 MT. Within unincorporated Marin County, the transportation and agricultural sectors account for more than half the GHG emissions reported, followed by the residential sector. As the construction-related Project emissions would comprise less than 1 percent of the residential emissions for all of the unincorporated towns in Marin County, the level of Project-related increase is less than significant.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Impact Analysis:

The Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Measures contained in the 2017 Clean Air Plan (BAAQMD 2017b) to reduce overall emissions from construction equipment, already accounted for in the regional planning emissions budget, would also control GHG emissions. Thus, the Project would not conflict with GHG plans, policies, or regulations, and impacts would be less than significant.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

References Used:

1. BAAQMD. 2017a. California Environmental Quality Act Air Quality Guidelines. Available at: http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Bay Area Air Quality Management District. May.
2. BAAQMD. 2017b. Spare the Air Cool the Climate: A Blueprint for Clean Air and Climate Protection in the Bay Area. Bay Area Air Quality Management District. April.
3. Marin Climate & Energy Partnership. 2019. County of Marin Interim Community Greenhouse Gas Emissions Inventory. Available at: https://www.marincounty.org/-/media/files/departments/cd/planning/sustainability/climate-and-adaptation/county-of-marin_inventory-report_2019.pdf. Marin Climate & Energy Partnership. September.

4. SMAQMD. 2015. Thresholds of Significance Table. Available at: https://files.ceqanet.opr.ca.gov/123569-2/attachment/UL9obk_yjl5aUBxUrjyQ9P3HVyfSLoCEnhvRpgSHGIQmRUgvfjw0ZXCcdqPM73lOOUtFc8Rl7yl_48800. Sacramento Metropolitan Air Quality Management District.

5. CARB. 2017. California's 2017 Climate Change Scoping Plan. Available at: https://ww2.arb.ca.gov/sites/default/files/classic//cc/scopingplan/scoping_plan_2017.pdf. California Air Resources Board. November.

6. Marin County. 2020. Marin County Unincorporated Area – Climate Action Plan 2030 (Public Review Draft). Available at: https://www.marincounty.org/-/media/files/departments/cd/planning/sustainability/climate-and-adaptation/draft-climate-action-plan-2030.pdf?la=en. County of Marin. October.

9. Hazards and Hazardous Materials

Project Activities Likely to Create an Impact:

- Excavation and stockpiling of debris using appropriate construction equipment in select areas
- Storage and staging of construction equipment.

This resource category addresses health and safety issues related to construction activities at the Project site. Health and safety issues apply to construction workers and members of the public who would be exposed to hazardous materials and physical conditions associated with the presence of construction equipment and excavations in the area of sensitive land uses. Construction activities are generally located within local roadways and the surrounding areas are predominantly residential.

Description of Baseline Environmental Conditions:

Hazardous materials are not expected to be encountered during construction activities. There are a variety of state and federal regulations that apply to construction projects for protection of health and safety. RVSD also has standard specifications to address these issues based on other successfully completed projects. Control Measures in Attachment D have been established to manage the unexpected discovery of hazardous materials during Project implementation. The use of hazardous materials would be limited during construction activities and would include such traditional materials as gasoline, diesel, oil, paint, resin, and epoxy concrete.

Several regulatory agency databases were consulted regarding the presence of hazardous materials release sites within the Project site, including the State Water Resources Control Board (SWRCB) GeoTracker website and the Department of Toxic Substances Control (DTSC) Cortese List. No sites on the SWRCB GeoTracker website (SWRCB 2021) or the Cortese List (DTSC 2021) are located in the Project site. If hazardous materials are encountered during Project work, Control Measures listed in Attachment D under "Hazardous Materials" would be implemented.

Analysis as to whether or not project activities would:

a. Create a significant hazard to the public or the environment throughout the routine transport, use or disposal of hazardous materials.

Impact Analysis:

Construction activities would not create a significant hazard to the public or environment. Control Measures in Attachment D have been established to manage the unexpected discovery of hazardous materials during Project implementation.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

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.

Impact Analysis:

Construction activities would not create a significant hazard to the public or environment. The primary objective of the Project is to relieve hydraulic and structural deficiencies in the Project site. These improvements help address the problem of SSOs in the RVSD service area. SSOs can expose the public to raw sewage, and overflows can reach local streams with adverse water quality impacts. Thus, the impact related to public health and environmental hazards is beneficial.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ Beneficial Impact

☐ No Impact

c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school.

Impact Analysis:

The use of hazardous materials would be limited during construction activities and would include such traditional materials as gasoline, diesel, oil, paint, resin, and epoxy concrete. In addition to the Control Measures listed in Attachment D, which address hazards and hazardous materials, the impact is less than significant.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

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

Impact Analysis:

The Project site is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

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.

Impact Analysis:

The Project is not located within an airport land use plan or within 2 miles of a public airport or public use airport. The Project is not within the vicinity of a private airstrip. Thus, the Project would not result in a safety hazard for people residing or working in the vicinity of the Project site.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

f. 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?

Impact Analysis:

See 8e above.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

Impact Analysis:

The Project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. Project activities and movement related to such activities would be conducted in a manner that would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; therefore, there would be no impacts with an adopted emergency response plan or emergency evacuation plan.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

h. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

Impact Analysis:

No development is planned for this Project and, therefore, no impacts are expected.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

References Used:

1. DTSC. 2021. Hazardous Waste and Substances Site List (Cortese). Available at: https://www.envirostor.dtsc.ca.gov/public/search?cmd=search&reporttype=CORTESE&site_type=CSITES,OPEN,FUDS,CLOSE&status=ACT,BKLG,COM,COLUR&reporttitle=HAZARDOUS+WASTE+AND+SUBSTANCES+SITE+LIST+(CORTESE). Department of Toxic Substances Control.
2. SWRCB. 2021. GeoTracker. Available at: https://geotracker.waterboards.ca.gov/map/. State Water Resources Control Board.

10. Hydrology and Water Quality

Project Activities Likely to Create an Impact:

- Excavation of soil and fill/debris
- Generation of rubbish and debris material
- Project site restoration, including backfill of all excavated areas with imported clean soil.

The Project does not propose any discharges to receiving waters other than discharges associated with stormwater runoff.

Construction and grading within the Project site would require temporary disturbance of surface soils. During the construction period, grading and excavation activities would result in exposure of soil to runoff, potentially causing erosion and entrainment of sediment in the runoff. Excavated areas on the Project site would be exposed to runoff and, if not managed properly, the runoff could cause erosion and increased sedimentation in downstream culverts and the Bay. The accumulation of sediment could result in blockage of flows, potentially resulting in increased localized ponding or flooding.

The potential for chemical releases is present at most construction sites. Once released, substances such as fuels and lubricants could be transported to nearby surface waters in stormwater runoff, wash water, and dust control water, potentially reducing the quality of the receiving waters. Control Measures listed in Attachment D would serve to minimize the exposure of soil to runoff and chemical releases.

Description of Baseline Environmental Conditions:

Regional Hydrology

The Project is located within the Corte Madera Creek Watershed, a 28-square-mile area of eastern Marin County. The Corte Madera Creek is a major waterway in Marin County, reaching from the San Francisco Bay to the town of Fairfax and beyond. The Corte Madera Creek watershed ranges in elevation from sea level to 2,571 ft at the East Peak of Mount Tamalpais. The watershed encompasses the towns of Larkspur, Corte Madera, Kentfield, Ross, San Anselmo, and Fairfax. The watershed includes Corte Madera Creek mainstem and major tributaries of Fairfax Creek, San Anselmo Creek, Sleepy Hollow Creek, Tamalpais Creek, and Larkspur Creek. Larkspur and Tamalpais creeks drain directly into the estuary/tidal portion. Ross Creek drains the northern slope of Mt. Tamalpais with Phoenix Lake on the lower reach of the creek; San Anselmo Creek and its tributaries drain the northwestern portion of the watershed. Ross Creek and San Anselmo Creek join to form Corte Madera Creek, which continues through more than a mile of concrete-lined channel past the confluences of Larkspur and Tamalpais creeks and into the tidal salt marsh at the mouth, near Kentfield, and then into San Francisco Bay near Corte Madera.

Flood Hazard

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map for Marin County provides coverage for the Project site. The FEMA Flood Map indicates that the Project site is in an area of minimal flood hazard (FEMA 2009).

Groundwater

The Project is located within the Central Basin of San Francisco Bay. The basin is not used for municipal drinking water or for major agricultural use. As discussed in Section 7 (Geology and Soils), studies performed in the vicinity of the Project site found that groundwater occurs from 10 to 12 ft bgs. Given the Project's proximity to the Sleepy Hollow Creek, groundwater may be encountered during excavation activities along the Project alignments. With the implementation of Control Measures listed in Attachment D, any potentially significant impacts to groundwater would be less than significant.

Analysis as to whether or not project activities would:

a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality.

Impact Analysis:

The Project is one of a series of RVSD projects that are included in its IAMP (V.W. Housen & Associates 2013). The IAMP includes projects to rehabilitate and replace RVSD's deficient wastewater facilities through the year 2020. The IAMP is in response to Regional Water Board CDO No. R2-2013-0020 (Regional Water Board 2013). The primary objective of this Project is to provide needed capacity and correct defects downstream of improvements constructed in fall 2020 to relieve hydraulic and structural deficiencies and reduce groundwater infiltration with aging RVSD infrastructure. This portion of the system was originally installed in the 1940s and contains numerous structural and O&M defects, with several pipes currently assigned to a 3-month cleaning frequency. Construction of the Project helps ensure compliance with the Regional Water Board order and is a beneficial impact.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ Beneficial 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.

Impact Analysis:

The Project does not propose the use of groundwater and therefore no long-term extraction of groundwater at the Project site is expected. There may be short-term dewatering of shallow groundwater associated with soil removal and filling activities. Short-term dewatering activities would not be expected to have any significant long-term effect on groundwater resources because any pumping activities would be of limited duration. Therefore, with the implementation of Control Measures listed in Attachment D, the Project would have a less-than-significant impact.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

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; or

iv. impede or redirect flood flows.

Impact Analysis:

The Project involves the rehabilitation and replacement of sewer lines within existing easement areas of the RVSD without altering the existing drainage pattern of the area. No significant changes in runoff rates and volumes from the Project site are anticipated and work areas will be returned to pre-Project conditions. Existing drainage patterns would not be significantly affected.

It is not expected that construction activities would increase discharge, and water from dewatering activities would be properly disposed of by the Contractor. There is no impact-related runoff capacity for this Project, and a less-than-significant level of impact related to additional sources of polluted runoff with proper implementation of Control Measures listed in Attachment D.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

In a flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

Impact Analysis:

Tsunamis (seismic sea waves) are long-period waves that are typically caused by underwater seismic disturbances, volcanic eruptions, or submerged landslides. Low-lying coastal areas such as tidal flats, marshlands, and former bay margins that have been artificially filled but are still at or near sea level are generally the most susceptible to tsunami inundation. A seiche is caused by the oscillation of the surface of an enclosed body of water, such as San Francisco Bay, due to an earthquake or large wind event.

In 2009, the California Geological Survey, California Emergency Management Agency, and the Tsunami Research Center at the University of California completed the state's official tsunami inundation maps. The Project limits are not within the tsunami inundation zone (CalEMA, CGS, and USC 2009).

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

d. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Impact Analysis:

See 9a and 9b above.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

References Used:

1. CalEMA, CGS, and USC. 2009. Tsunami Inundation Map for Emergency Planning, San Rafael Quadrangle, San Quentin Quadrangle. California Emergency Management Agency, California Geological Society, and the University of Southern California. July 1.
2. FEMA. 2009. FEMA Flood Map Service Center. Available at: https://msc.fema.gov/portal/search?AddressQuery=fawn%20drive%2C%20san%20anselmo#searchresultsanchor. Federal Emergency Management Agency.

3. Regional Water Board. 2013. Order No. R2-2013-0020. San Francisco Bay Regional Water Quality Control Board. May 13.

4. V.W. Housen & Associates. 2013. Sanitary District No. 1 of Marin County, Infrastructure Asset Management Plan. V.W. Housen & Associates. October 1.

11. Land Use and Planning

Project Activities Likely to Create an Impact:

None.

Description of Baseline Environmental Conditions:

The Project site is currently zoned for single family residential and is located within the RVSD's service area. The Project is a high-priority wastewater collection system improvement consistent with RVSD's responsibility to provide high-quality wastewater collection and disposal service for the local community, which is protective of public health and the environment.

Analysis as to whether or not project activities would:

a. Physically divide an established community.

Impact Analysis:

No land use changes are proposed; thus, implementation of the Project would not physically divide an established community.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

Impact Analysis:

The sewer replacement Project would occur predominantly within the County of Marin's existing right-of-way and the Project would remain consistent with the existing Project site land use and surrounding land use designations, requiring no further change or amendment to the zoning assigned by the County. Therefore, the Project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

References Used:

1. Marin County. 2007. Marin Countywide Plan. Last amendment September 24, 2013. Available at: https://www.marincounty.org/-/media/files/departments/cd/planning/currentplanning/publications/county-wide-plan/cwp_2015_update_r.pdf?la=en. County of Marin, CA.

12. Mineral Resources

Project Activities Likely to Create an Impact:

There are currently no significant mineral deposits or active mining operations within the community of Sleepy Hollow.

Description of Baseline Environmental Conditions:

The Project site is not located in one of the eight sites in Marin County that have been designated by the California Division of Mines and Geology (CDMG) as having significant mineral resources for the North Bay region (Marin County 2005). The CDMG has classified urbanizing lands within the North San Francisco Bay Production-Consumption Region according to presence or absence of sand, gravel, or stone deposits that are suitable as sources of aggregate. The Project site is located in an area that has been classified as Mineral Resource Zone 1 (MRZ-1; Marin County 2005). Areas that are classified MRZ-1 are “areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence” (CDMG 1987).

Analysis as to whether or not project activities would:

a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.

Impact Analysis:

No mineral extraction activities exist on the Project site and mineral extraction is not included as a part of the Project.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

Impact Analysis:

See 11a.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

References Used:

1. CDMG. 1987. Mineral Land Classification: Aggregate Materials in the San Francisco-Monterey Bay Area: North San Francisco Bay Production Consumption Region. California Department of Conservation, Division of Mines and Geology.
2. Marin County. 2005. Marin Countywide Plan - Geology, Mineral Resources and Hazardous Materials Technical Background Report. Available at: https://www.marincounty.org/~/media/files/departments/cd/planning/currentplanning/publications/county-wide-plan/background-reports/geology_background_report.pdf. County of Marin, CA.

13. Noise

Project Activities Likely to Create an Impact:

The Project activities could potentially cause temporary noise impacts associated with the upgrade and replacement of existing sewer lines primarily related to Project-generated traffic noise and operational noise from onsite construction equipment.

Description of Baseline Environmental Conditions:

The existing noise environment is dominated by traffic noise along Fawn Drive. Sensitive receptors at the Project site include the adjacent residences.

Local Noise Regulations

The Project site is within the community of Sleepy Hollow and is subject to the following noise regulations of Marin County.

The County of Marin, Title 6, Chapter 6.70, Section 6.70.030 Enumerated noises establishes allowable hours of operation for construction-related activities:

a. Hours for construction activities and other work undertaken in connection with building, plumbing, electrical, and other permits issued by the community development agency shall be limited to the following:
    i. Monday through Friday: 7 a.m. to 6 p.m.
    ii. Saturday: 9 a.m. to 5 p.m.
    iii. Prohibited on Sundays and Holidays (New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day.)
b. Loud noise-generating construction-related equipment (e.g., backhoes, generators, jackhammers) can be maintained, operated, or serviced at a construction site for permits administered by the community development agency from 8 a.m. to 5 p.m. Monday through Friday only.
c. Special exceptions to these limitations may occur for:
    i. Emergency work as defined in Section 22.130.030 of this code provided written notice is given to the community development director within 48 hours of commencing work
    ii. Construction projects of city, county, state, other public agency, or other public utility
    iii. When written permission of the community development director has been obtained, for showing of sufficient cause

iv. Minor jobs (e.g., painting, hand sanding, sweeping) with minimal/no noise impacts on surrounding properties

v. Modifications required by the review authority as a discretionary permit condition of approval.

The noise levels provided in Section 3.10 (Noise) of the Marin Countywide Plan contain benchmarks for allowable noise exposure from stationary sources.

Level	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7a.m.)
Hourly L_{eq}, dB	50	45
Maximum Level, dB	70	65
Maximum Level, dB (Impulsive Noise)	65	60

Notes:
L_{eq} = Equivalent Sound Pressure Level. It is the constant sound energy that would produce the same noise level as actual sources that are fluctuating during the specified time period (1 hour).
dB = decibels; the standard measure of pressure exerted by sound

As a condition of permit approval for projects generating significant construction noise impacts during the construction phase, construction management for any project shall develop a construction noise reduction plan and designate a disturbance coordinator at the construction site to implement the provisions of the plan.

Analysis as to whether or not project activities would result in:

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.

Impact Analysis:

An encroachment permit will be required before the start of Project activities and the Contractor will be required to comply with all conditions set forth in the permit and RVSD standards. Construction activities necessary to complete the Project could generate a considerable amount of noise in the immediate Project vicinity. Noise from vehicles, earth-moving operations, and heavy equipment would result in elevated ambient and intermittent noise levels. Noise impacts from construction depend on the noise generated by various pieces of equipment, timing and duration of noise-generating activities, the distance between construction noise sources and noise-sensitive receptors, and the noise environment in which the Project would be constructed. Noise generated during the construction period would vary on a day-to-day basis, depending on the specific activities being undertaken at any given time.

Construction noise may result in a temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project. However, this impact would be considered less than significant with the implementation of the Control Measures listed in Attachment D under “Noise.”

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

b. Generation of excessive groundbourne vibration or groundbourne noise levels.

Impact Analysis:

Construction activities likely to create groundbourne vibration or groundbourne noise levels include pipe bursting and backfill operations. With the implementation of Control Measures listed under "Ground Movement Monitoring" in Attachment D, this impact would be considered less than significant.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

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 Analysis:

The Project site is not within any airport land use plan or within 2 miles of any airport or airstrip. Therefore, the Project would not impact, or be impacted by, an airport land use.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

References Used:

1. County of Marin. Municipal Code, Title 06 – Public Peace, Safety and Morals, Chapter 6.70 Loud and Unnecessary Noises. Marin County, CA.
2. Marin County. 2007. Marin Countywide Plan. Last amendment September 24, 2013. Available at: https://www.marincounty.org/-/media/files/departments/cd/planning/currentplanning/publications/county-wide-plan/cwp_2015_update_r.pdf?la=en. County of Marin, CA.

14. Population and Housing

Project Activities Likely to Create an Impact:

None.

Description of Baseline Environmental Conditions:

The primary objective of the Project is to rehabilitate and replace existing sewer pipes. Improvements would be made along Fawn Drive, a local access road and right-of-way. Although the sewer line is being upsized,

the primary purpose is to prevent sewer overflows. The Project would not generate additional capacity to accommodate new population growth under the proposed design.

Analysis as to whether or not project activities would:

a. Induce substantial unplanned population growth in area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).

Impact Analysis:

The construction activities would not induce population growth. Activities are aimed toward relieving hydraulic and structural deficiencies in existing pipes.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere.

Impact Analysis:

Replacing the sewer line with similar infrastructure within largely the same Project footprint would not involve the construction, displacement, or demolition of any existing housing structures.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

15. Public Services

Project Activities Likely to Create an Impact:

The Project will have no public service impacts.

Description of Baseline Environmental Conditions:

The Project is in an area that is currently served by fire, police, and paramedic services; schools; and other public facilities. It is not anticipated that the soil removal and filing activities would increase the number of police and fire protection–related calls received from the area or the level of regulatory oversight that must be provided as a result of the work. Overall, the Project would not create additional demand for public services in the town of San Anselmo. Therefore, the Project would have no impact on public services.

Analysis as to whether or not project activities would:

a. Result in substantial adverse physical impacts associated with the provision of new or physically altered government 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 following public services:

- Fire protection
- Police protection
- Schools
- Parks
- Other public facilities?

Implementing the Project would not create new housing or other structures and, therefore, would not require additional public services (including fire or police protection facilities, schools, or parks). The updated sewer line ensures necessary system reliability to continue meeting peak utility demands.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

16. Recreation

Project Activities Likely to Create an Impact:

The primary objective of the Project is to relieve hydraulic and structural deficiencies in a portion of RVSD's collection system. Improvements would be made along Fawn Drive, a local access road and public right-of-way. The Project would have no impacts related to recreation and would not increase the use of local parks or involve construction of new facilities.

Description of Baseline Environmental Conditions:

There are no public recreational facilities near the Project location.

Analysis as to whether or not project activities would:

a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

Impact Analysis:

The Project does not include the development of any new residential uses or include other land development that would directly induce additional population growth affecting existing recreational facilities or opportunities. Employment opportunities from the construction phase of the Project would not induce any additional population growth within the community of Sleepy Hollow or Marin County. Therefore, the Project would not cause physical deterioration of existing recreational facilities from increased usage or result in the need for new or expanded recreational facilities.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

b. Include recreational facilities or require construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

Impact Analysis:

See 15a.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

17. Transportation

Project Activities Likely to Create an Impact:

The Project could impact transportation and traffic by the following activities:

- Empty dump trucks accessing the Project site to load soil and debris excavated as part of the Project
- Loaded dump trucks transporting excavated soil and debris from the Project site to appropriate disposal facilities
- Loaded dump trucks accessing the Project site to deliver imported materials to backfill excavations
- Empty dump trucks leaving the Project site after delivering backfill materials
- Transport of Project-related construction equipment, materials, etc.
- Worker travel to and from the Project site.

All areas of the Project site would require flow bypassing and traffic control measures (Attachment D) during construction activities. Excavated soils would be hauled away and replaced with suitable material from offsite on a continuous basis.

Description of Baseline Environmental Conditions:

The Project site is bound to the west by Butterfield Road, which connects the community of Sleepy Hollow to Sir Francis Drake Boulevard, a major east-west road in Marin County.

According to the Marin Countywide Plan, travel through and around Sleepy Hollow is affected by countywide development and travel patterns on Sir Francis Drake Boulevard (Marin County 2007). Bottlenecks on Sir Francis Drake Boulevard can push through traffic on Butterfield Road. Roadways affected include:

- Fawn Drive: Fawn Drive is a one-lane road located on a hillside. It is flanked by grassy slopes and trees. The road is residential with no sidewalks, crosswalks, or traffic lights. Fawn Drive provides access to the surrounding neighborhood.
- Butterfield Road: Butterfield Road is a residential two-lane road that connects the unincorporated community of Sleepy Hollow with Sir Francis Drake Boulevard. It has been developed with bike lanes, crosswalks, and limited sidewalks.

Analysis as to whether or not project activities would:

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

Impact Analysis:

The Project is a standard construction activity requiring equipment, materials, removal and offsite transport of construction debris and workers, and import of clean fill. The added number of vehicle trips would be minimal and by themselves not overload traffic flow. However, the intrusion of construction equipment and vehicles into the local street system of this residential area, especially along Fawn Drive, can result in traffic circulation and safety impacts. The Contractor will prepare a traffic control plan (TCP) and submit it to RVSD and the County of Marin for review and approval at least 3 weeks prior to start of construction. The TCP will include, at minimum, the measures listed in Attachment D to minimize traffic flow overload.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

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

Impact Analysis:

The Project does not include the development of any new residential uses or include other land development that would directly induce additional population growth or affect the existing “vehicle miles traveled” by residents or visitors within the area. Replacement and rehabilitation of sewer lines would have no impact on vehicle miles traveled and therefore is presumed to result in a less-than-significant transportation impact consistent with CEQA Guidelines Section 15054.3(b)(2).

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

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

Impact Analysis:

No hazards due to design features would occur through implementation of the Project. The Contractor will place temporary signs 1 month in advance of work notifying residents of these lane closures and flaggers will be present during the lane closures. With the implementation of the TCP prepared by the Contractor and the Control Measures in Attachment D, no elements of the Project design would introduce hazards to the road system.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

d. Result in inadequate emergency access.

Impact Analysis:

RVSD staff would ensure that access to the Project site would be maintained and controlled throughout Project implementation. In addition, the Project does not prescribe activities involving transportation of massive amounts of material and the high frequency of truck trips usually associated with such activities.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

References Used:

1. Marin County. 2007. Marin Countywide Plan. Last amendment September 24, 2013. Available at: https://www.marincounty.org/-/media/files/departments/cd/planning/currentplanning/publications/county-wide-plan/cwp_2015_update_r.pdf?la=en. County of Marin, CA.

18. Tribal Cultural Resources

Project Activities Likely to Create an Impact:

- Ground-disturbing activities (excavation of soil)

The Project entails the construction and rehabilitation of sewer lines located within the existing alignment of approximately 1,500 lineal ft of sanitary sewer mains and related appurtenances.

The Project construction pipe bursting method has a minimal potential impact; however, open cut has a high potential to impact near-surface and buried cultural sites. Potential impacts to buried, subsurface archaeological and cultural sites could occur during work along Fawn Drive.

Impacts from pipe bursting are limited to the soils immediately surrounding the existing pipeline, while open cut would displace soils immediately surrounding the pipe as well as all soils above it. While the affected soil in both cases would be solely or primarily backfill from the initial installation of the existing pipeline, and thus should not contain an intact archaeological deposit, the open cut method may encounter native soils if the new trench does not exactly correspond with the depth or width of the original trench.

In addition, as backfill could still contain previously displaced cultural materials, any methods disturbing adjacent soils have the potential to affect human remains and associated funerary objects or disturbed cultural materials.

Impacts from open cut and from excavation of insertion and receiving pits have the ability to be monitored. Impacts along trenchless segments—the soils surrounding a host pipe in pipe bursting cannot be monitored. However, soils removed can be observed out of context, if necessary.

Description of Baseline Environmental Conditions:

An Archaeological Resources Inventory report for the Project was prepared by Far Western in May 2021. Because the report contains confidential information about the locations and characteristics of archaeological sites and tribal cultural resources, the technical report is not included in this Initial Study for public review, but can be made available to agencies and other professionals for review as necessary.

The archaeological study includes a cultural resources records search, consultation with the FIGR, outreach with a local historical society, buried and subsurface site sensitivity analyses, and a pedestrian survey of the Project site.

Ethnographic Context

Encroachment of European settlement culminated in a series of acts and bills removing land and political status from tribal governments. As a result, native Californians were left landless and legally powerless, often making their way as itinerant farm workers or commercial fishermen. Legal land entitlement remained out of reach until 1920, when the Bureau of Indian Affairs purchased a 15.45-acre tract of land in Graton to create a “village home” for dispersed people of Marshall, Bodega, Tomales, and Sebastopol (FIGR 2019). This home consolidated neighboring, traditionally interactive groups into a single entity—Graton Rancheria—thus establishing them, temporarily, as a federally recognized tribe of American Indians.

In 1958, Congress passed the California Rancheria Act, terminating all 41 Rancherias, extinguishing the recognition of their residents as American Indians, and removing the land from Federal Trust. As with many other California tribes, federal recognition for the Coast Miwok was not restored until decades later, after tribal members raised money to travel to Washington to campaign for restoration of federal status and rights. For the Graton Rancheria, campaigning began in 1990, with recognition restored in 1997, and a tribal constitution ratified by the Bureau of Indian affairs in 2002, allowing the tribe to re-establish a land base, provide funding for cultural preservation, and establish tribally owned businesses capable of achieving self-sufficiency (FIGR 2019).

Today, the Graton Rancheria community encompasses a federation of Coast Miwok and Southern Pomo groups recognized as a tribe by the United States Congress. The Miwok of west Marin County have, through the years, been referred to as Marshall Indians, Marin Miwok, Tomales, Tomales Bay, and Hookooeko. The tribe opened the Graton Resort and Casino in 2013, which now funds various programs and services for its tribal membership, including environmental and cultural preservation, elder care, childcare, housing, legal support, emergency financial support, education, and employment. Graton Rancheria has developed a Tribal Heritage Preservation Office program with a designated Tribal Heritage Preservation Officer (THPO) and Sacred Site Protection Committee responsible for protecting the tribe’s tribal cultural resources.

Regulatory Background

Cultural resources include precontact (prehistoric/Native American) and historic-era archaeological sites and objects, as well as extant historic structures, buildings, and locations of important historic events or sites of traditional and/or cultural importance to various groups. The Project requires approval by local and state agencies, thereby mandating that it adheres to CEQA and its implementing guidelines and regulations in 14 CCR §15000 et seq. In addition, Assembly Bill 52 (AB 52) establishes the requirements of Tribal Cultural Resources and Native American consultation under CEQA.

Assembly Bill 52

AB 52 established a consultation process with all California Native American tribes identified by the NAHC as having cultural ties to an area and created a new class of resources under CEQA known as tribal cultural resources.

Pursuant to CEQA Section 21080.3.1(d), within 14 days of a determination that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency is required to contact the Native American tribes that are culturally or traditionally affiliated with the geographic area in which the Project is located. Notified tribes have 30 days to request consultation with the lead agency to discuss potential impacts on tribal cultural resources and measures for addressing those impacts.

AB 52 consultation occurred between the FIGR and RVSD. This consultation is discussed in detail below.

Analysis as to whether or not project activities would:

Cause substantial adverse change in the significance of a tribal cultural resource, defined in Public Resource Code Section 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:

a. 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)?

b. 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 © 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 significant of the resource to a California Native American Tribe.

Impact Analysis:

On March 31, 2021, Integral provided FIGR with a description of the Project and requested comments on the identification, presence, and significance of tribal cultural resources in the Project site and Project vicinity. On April 21, 2021, representatives from FIGR, RVSD, Integral, and Far Western participated in an online, remote-access meeting to discuss the Project details, schedule, and potential mitigation measures. It was agreed by all parties that due to the cultural sensitivity and potential for encountering resources along the creek and in proximity to noted redeposited shell midden (outside the Project site), cultural and tribal mitigation measures would be developed through collaboration between FIGR and RVSD. These measures would ensure the avoidance and appropriate treatment of resources should such archaeological deposits be identified during the project's ground-disturbing activities. It was agreed by all parties that Native American and archaeological monitoring would occur during Project-related, ground-disturbing activities due to the cultural sensitivity of the area.

Due to the overall very poor surface visibility and buried and subsurface site sensitivity, monitoring is recommended in areas where native soils will be disturbed. With the implementation of Mitigation Measures CUL-1 and CUL-2, impacts to tribal cultural resources would be less than significant.

Conclusion:

☐ Potentially Significant Impact

☒ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☐ No Impact

References Used:

1. Far Western. 2021. Archaeological Resources Inventory for the Lower Fawn Drive Segment of the Ross Valley Sanitary District Gravity Sewer Improvement Project, San Anselmo, Marin County, California. Far Western Anthropological Research Group, Inc. May.

2. FIGR. 2019. Federated Indians of Graton Rancheria Coast Miwok and Southern Pomo. www.gratonrancheria.com/home/. Accessed August 2019. Federated Indians of Graton Rancheria, Rohnert Park, CA.

19. Utilities and Service Systems

Project Activities Likely to Create an Impact:

The construction activities would not significantly increase the requirement of water or wastewater services for the Project site.

Description of Baseline Environmental Conditions:

The Project is in an area where water service is provided by the Marin Municipal Water District, sewer facilities are managed by Sanitary District No. 1, wastewater treatment service is provided at the Central Marin Wastewater Treatment Plant, and local solid waste disposal is provided by Marin Sanitary Service at the Novato Landfill.

The Project site is currently owned by the County of Marin. The sewer piping is operated and maintained by the Sanitary District No. 1. The Sanitary District No. 1 provides collection service to the Project site. Wastewater would not be generated by the soil removal and filling activities.

The soil removal and filling activities would not significantly increase the consumption of water on the Project site. A temporary increase of water consumption may occur associated with water truck use for dust suppression during soil removal and filling activities.

The Project would not require the construction of new public wastewater or stormwater drainage facilities.

Analysis as to whether or not project activities would:

a. Require or result in the relocation or construction of new or expanded water, or wastewater treatment or storm water drainage, electrical power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects.

Impact Analysis:

The Project would not result in the construction of new wastewater or wastewater-treatment facilities, or the expansion of existing facilities; therefore, there would be no impact on the existing wastewater network.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

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

Impact Analysis:

The construction activities would not significantly increase the consumption of water on the Project site. A temporary increase of water consumption may occur associated with water truck use for dust suppression during construction activities.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

c. Result in determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the projects projected demand in addition to the providers existing commitments.

Impact Analysis:

Wastewater would not be generated by the construction activities; therefore, there would be no impact on the existing wastewater network.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

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.

Impact Analysis:

The construction would not significantly increase solid waste disposal needs at the Project site. A temporary increase of solid waste disposal may occur associated with Project site debris from soil removal and filling activities. Since landfill approval would take place before the planned soil removal, there would be no impact associated with permitted capacity.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

Impact Analysis:

The removed soil and other wastes would be properly disposed of at a designated facility following the applicable state and federal regulations. See Attachment D.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

20. Wildfire

Project Activities Likely to Create an Impact:

None.

Description of Baseline Environmental Conditions:

The Project is located in a residential area along Fawn Drive near Butterfield Road, a residential two-lane road that connects the unincorporated community of Sleepy Hollow with Sir Francis Drake Boulevard. The Project is not located in a State Responsibility Area for Fire Protection and is classified as a moderate fire risk area (Marin GeoHub 2020).

Analysis as to whether or not project activities would:

a. If located in or near State responsibility area or lands classified as very high fire hazard severity zones, would the project:

i. Substantially impair an adopted emergency response plan or emergency evacuation plan?

Impact Analysis:

The Project is not located in a State Responsibility Fire Area and is not classified a as very high fire severity zone. There would be no impact associated with the adopted emergency response plan or emergency evacuation plan.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

ii. 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?

Impact Analysis:

Heavy equipment used during Project construction has the potential to start a fire on surrounding open space areas near the Project site. However, implementation of Control Measures for "Site Management Practices" in Attachment D would reduce the potential for construction-related wildland fires by providing a clearing, reducing fire fuels, and removing fire-sustaining litter. In addition, during construction fire extinguishers would be required for all heavy equipment.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

iii. 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?

Impact Analysis:

The Project does not involve installing or maintaining infrastructure that would exacerbate fire risk.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☐ Less Than Significant Impact

☒ No Impact

iv. 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 Analysis:

The Project would not expose people or structures to significant risks. All activities associated with the sewer rehabilitation Project would occur without altering the existing drainage pattern of the area.

Conclusion:

☐ Potentially Significant Impact

☐ Less Than Significant with Mitigation Incorporated

☒ Less Than Significant Impact

☐ No Impact

References Used:

1. Marin GeoHub. 2020. Fire Hazard Severity Zone. Last updated November 2020. Available at: https://gisopendata.marincounty.org/datasets/0683285b35354c18a93de194a8e3b70d_70?geometry=-122.726%2C37.951%2C-122.399%2C37.999. County of Marin, CA.

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Cristal Reagh, Assistant Scientist

Mandatory Findings of Significance

Based on evidence provided in this Initial Study, Integral makes the following findings:

a. The project ☐ has ☒ does not have the potential substantially to 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 short-term disturbance of the Project site during the construction activities would not impact the adjacent habitat. There are no identified special-status species on the Project site. Based on the information presented within the Biological Resources section, there would be a less-than-significant potential to 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, or reduce the number or restrict the range of a rare or endangered plant or animal. There was no evidence of any bird nesting within the APE observed during the field reconnaissance survey; however, there remains a remote possibility that new bird nests could be established in the trees and other vegetation in and near the APE. With implementation of the Mitigation Measure BIO-1, impacts to biological resources would be less than significant.

While no archaeological resources have been identified in the ADI, desktop buried site sensitivity analyses found that most of the Project site is sensitive for archaeological sites/deposits. In particular, the analyses found the potential to encounter subsurface precontact sites to be either “High” or “Highest” within most of the ADI. Furthermore, consultation with Graton Rancheria highlighted the Project site as sensitive for precontact archaeological resources due to its location crossing a creek, where precontact Native American archaeological sites are most commonly encountered.

Based on the information within the Cultural Resources and Tribal Cultural Resources sections, Mitigation Measures CUL-1, CUL-2 and CUL-3 will be implemented. With implementation of the mitigation measures, impacts to Native American or historic archaeological resources due to subsurface excavation would be less than significant.

b. The project ☐ has ☒ does not have impacts that are individually limited but cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual 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 Project activities are limited in aerial extent and duration, would result in the construction of no new structures/buildings, and would return the ground surface in outdoor areas to pre-Project conditions. Therefore, the cumulative impact from Project activities is less than significant.

c. The project ☐ has ☒ does not have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly.

Worker and public health and safety were discussed in various sections of this Initial Study, including air quality, geology and soils, hazards and hazardous materials, noise and vibration, transportation/traffic, and utilities and service systems. In all instances, specific control measures have been included as necessary in the Project to reduce impacts to worker and public health and safety to less-than-significant levels. It should be noted that the Project will replace infrastructure that is past its useful life, improve maintenance operations and safety, and reduce SSOs. Thus, the impact related to public health and environmental hazards is beneficial.

Determination of Appropriate Environmental Document:

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.

Certification:

5-24-2021

Steve Moore
General Manager

Date

Attachment A

Abbreviations and Acronyms

ATTACHMENT A
ABBREVIATIONS AND ACRONYMS

ADI	areas of direct impact
APE	area of potential effect
BAAQMD	Bay Area Air Quality Management District
bgs	below ground surface
BMP	best management practice
CAA	Clean Air Act
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CDMG	California Division of Mines and Geology
CDO	cease and desist order
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
dB	decibel(s)
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
EIR	environmental impact report
EPA	U.S. Environmental Protection Agency
Far Western	Far Western Anthropological Research Group, Inc.
FEMA	Federal Emergency Management Agency
FESA	federal Endangered Species Act
FIGR	Federated Indians of Graton Rancheria
FMMP	Farmland Mapping and Monitoring Program
GHG	greenhouse gas
HDPE	high-density polyethylene
I-580	Interstate 580

IAMP	Infrastructure Asset Management Plan
Integral	Integral Consulting Inc.
L_{eq}	Equivalent Sound Pressure Level
MLD	Most Likely Descendant
MRZ	Mineral Resource Zone
MT/year	maximum annual emissions
NAHC	Native American Heritage Commission
NO_2	nitrogen dioxide
NOx	oxides of nitrogen
O_3	ozone
O&M	operation and maintenance
PM2.5	fine particulate matter with a diameter less than 2.5 microns
PM10	respirable particulate matter with a diameter less than 10 microns
ppm	parts per million
Project	Lower Fawn Drive Sewer Rehabilitation Project
PVC	polyvinyl chloride
RoadMod	Roadway Construction Emissions Model
ROG	reactive organic gases
RVSD	Ross Valley Sanitary District
Regional Water Board	San Francisco Bay Regional Water Quality Control Board
SFBAAB	San Francisco Bay Area Air Basin
SIP	State Implementation Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO_2	sulfur dioxide
SSO	sewer system overflow
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TCP	traffic control plan
THPO	Tribal Heritage Preservation Officer
U.S. 101	U.S. Highway 101
USFWS	U.S. Fish and Wildlife Service
$\mu g/m^3$	micrograms per cubic meter
VCP	vitrified clay pipe

Attachment B

Figures

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DRAFT

Figure 1.
Location Map
Lower Fawn Drive Sewer Rehabilitation Project
San Anselmo, Marin County, California

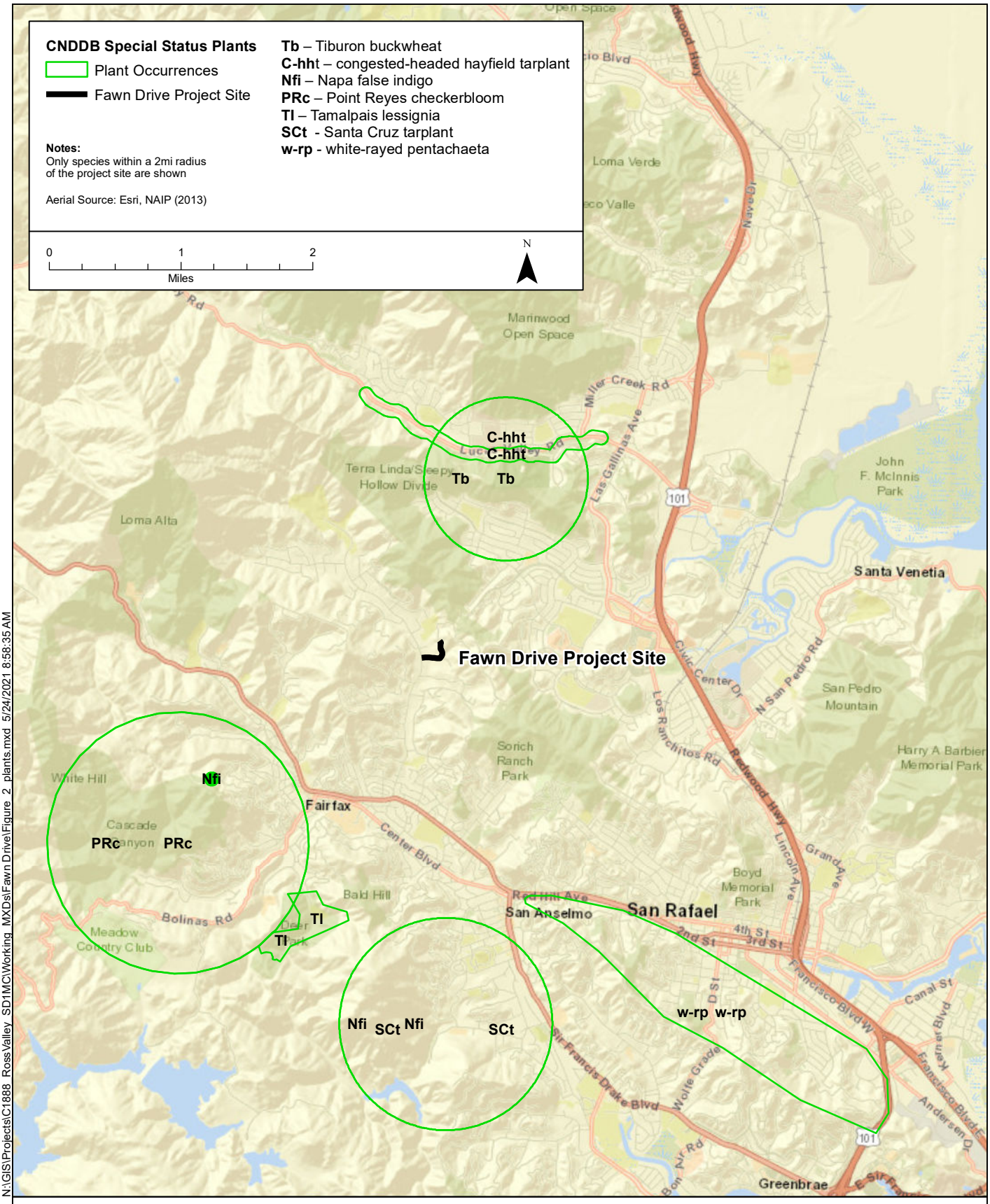

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Figure 2.
Special-Status Plants and Sensitive Natural Communities
Lower Fawn Drive Sewer Rehabilitation Project
San Anselmo, Marin County, California

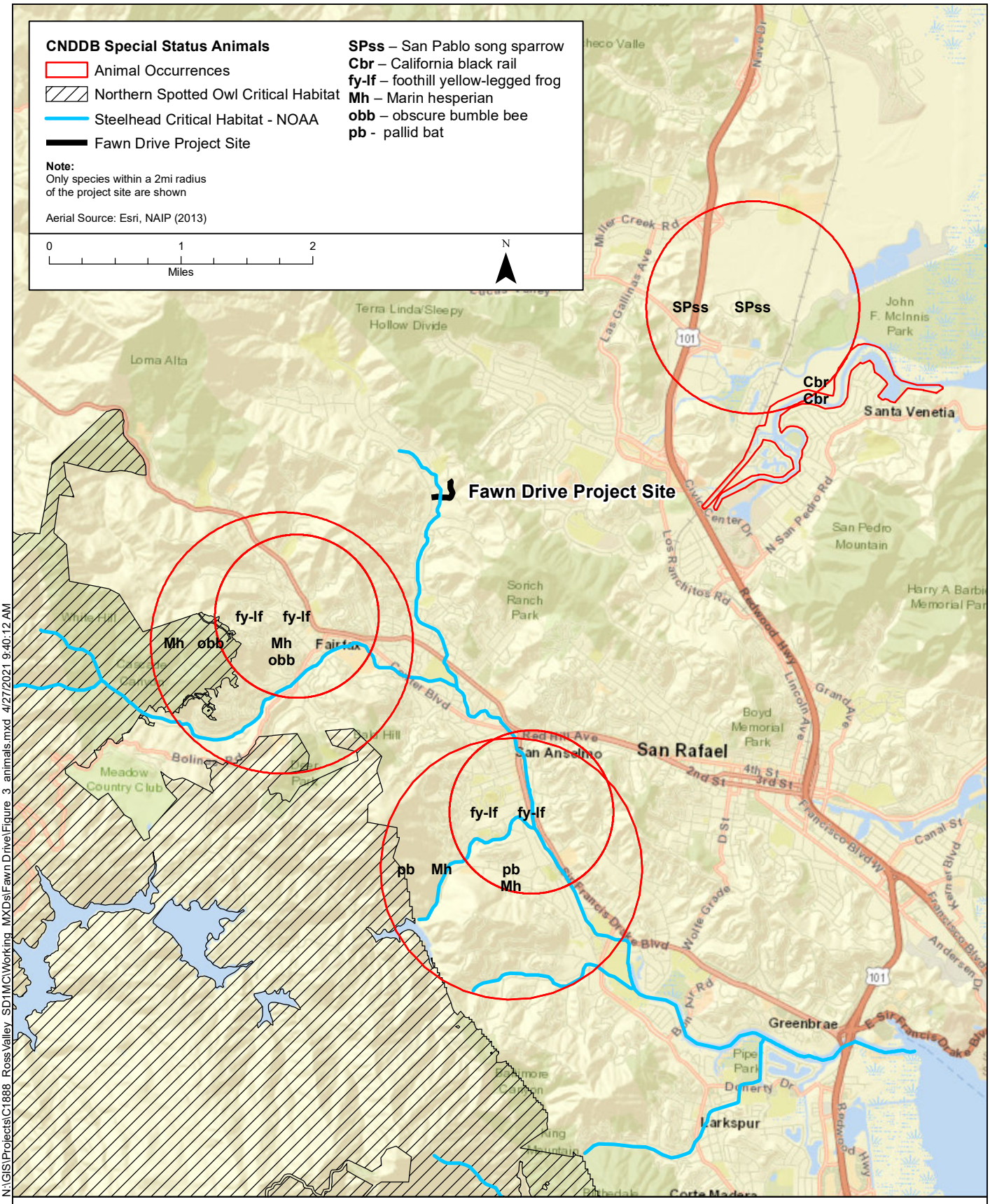

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Figure 3.
Special-Status Animals and Critical Habitat
Lower Fawn Drive Sewer Rehabilitation Project
San Anselmo, Marin County, California

Attachment C

Construction Plans

INDEX OF DRAWINGS

SHT #	DWG #	DESCRIPTION
1	T-01	TITLE SHEET
2	N-01	NOTES, LEGENDS AND ABBREVIATIONS
3	K-01	KEY MAP
		PLAN AND PROFILE PLANS
4	PP-01	BUTTERFIELD RD; STA 44+00 TO 47+50
5	PP-02	BUTTERFIELD RD; STA 47+50 TO 51+50
6	PP-03	BUTTERFIELD RD; STA 51+50 TO 54+50
7	PP-04	BUTTERFIELD RD; STA 54+50 TO 58+00
8	PP-05	BUTTERFIELD RD; STA 58+00 TO END
9	PP-06	FAWN DR; STA 10+00 TO 13+00
10	PP-07	FAWN DR; STA 13+00 TO 17+00
11	PP-08	FAWN DR; STA 17+00 TO 20+00
12	PP-09	FAWN DR; STA 20+00 TO 23+00
13	PP-10	FAWN DR; STA 23+00 TO END
		CONSTRUCTION DETAILS
14	D-01	CONSTRUCTION DETAILS

ROSS VALLEY SANITARY DISTRICT

MARIN COUNTY, CALIFORNIA

PLANS

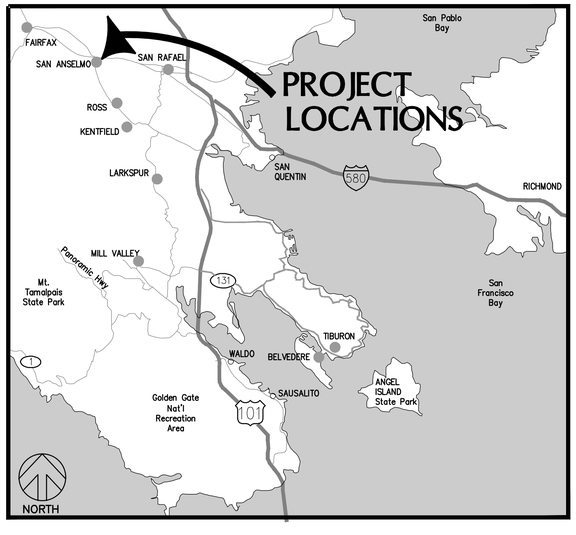
FOR THE CONSTRUCTION OF

BUTTERFIELD/ARROYO-KENRICK GRAVITY SEWER IMPROVEMENTS PROJECT

DATUM

HORIZONTAL DATUM IS NAD 83, CALIFORNIA COORDINATE SYSTEM ZONE 3, ITRF 2011

VERTICAL DATUM IS NAVD 88



VICINITY MAP

BOARD OF DIRECTORS
MARY SYLLA – PRESIDENT
MICHAEL BOORSTEIN– SECRETARY
THOMAS GAFFNEY– TREASURER
PAMELA MEIGS – ALTERNATE SECRETARY
DOUG KELLY – ALTERNATE TREASURER

GENERAL MANAGER
STEVE MOORE, P.E.

DESIGN ENGINEER
KOUROSH IRANPOUR, P.E.

3/17/2021
DATE

811 Know what's **below.** **Call** before you dig.

Prepared By:
Harris & Associates
1401 Willow Pass Rd, Suite 500 Concord, CA 94520
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REGISTERED PROFESSIONAL ENGINEER
KOUROSH IRANPOUR
No. 7838
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CIVIL
STATE OF CALIFORNIA

NO.	BY	DATE	REVISION

ROSS VALLEY SANITARY DISTRICT
BUTTERFIELD/ARROYO-KENRICK GRAVITY SEWER IMPROVEMENTS PROJECT

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DESIGNED BY	KJC/STK
DRAWN BY	STK
CHECKED BY	DCW/KI
DATE ISSUED	MARCH 17, 2021
JOB NO.	120-0743.001
DWG NO.	**T-01**
SHEET	01 OF 14

GENERAL NOTES

1. CONTRACTOR IS RESPONSIBLE FOR PREPARING & SUBMITTING A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) TO THE ENGINEER FOR APPROVAL FOR ALL CONSTRUCTION ACTIVITIES PRIOR TO THE BEGINNING OF WORK, AND REVISED TO REMAIN CURRENT THROUGHOUT THE PROJECT.
2. CONTRACTOR TO PROVIDE 7 DAY NOTICE AND 24 HOUR NOTICE TO PROPERTY OWNERS AND RESIDENTS PRIOR TO COMMENCING CONSTRUCTION WORK. NOTIFICATION TO BE BY LETTER AND SHALL BE APPROVED BY THE ENGINEER.
3. IF SAW CUTTING AND/OR TRENCH EXCAVATION ACTIVITIES RESULT IN A WIDTH OF LESS THAN 4 FEET OF EXISTING PAVEMENT REMAINING BETWEEN THE PROPOSED EDGE OF TRENCH AND EXISTING EDGE OF PAVEMENT OR LIP OF GUTTER, THE CONTRACTOR SHALL REMOVE THIS REMNANT "SLIVER" OF PAVEMENT ENTIRELY AND RESTORE IT TO ITS ORIGINAL FULL WIDTH DURING SURFACE RESTORATION. THIS PAVING WORK SHALL BE CONSIDERED INCIDENTAL AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED. SEE ENCROACHMENT PERMIT FOR ADDITIONAL REQUIREMENTS.
4. CONTRACTOR SHALL PROTECT ALL UTILITY POLES DURING CONSTRUCTION. ANY SPECIAL BRACING AND/OR SHORING REQUIRED BY THE WORK AND/OR BY THE UTILITY OWNER(S) SHALL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.
5. CONTRACTOR SHALL PROTECT EXISTING WATER UTILITIES AND EXCAVATION AND BACKFILL SHALL BE IN ACCORDANCE WITH DISTRICT AND MMWD REQUIREMENTS.
6. CONTRACTOR SHALL RESTORE ALL FACILITIES OUTSIDE LIMITS OF WORK DAMAGED BY CONSTRUCTION OPERATIONS TO THEIR ORIGINAL CONDITION AT NO ADDITIONAL COST. NO MATERIAL MAY BE STORED IN PUBLIC RIGHT OF WAY.
7. EXISTING UTILITIES IN THE PROJECT AREA MAY BE IN FRAGILE CONDITION. THE CONTRACTOR SHALL EXERCISE NECESSARY CAUTION WHEN WORKING NEAR EXISTING UTILITIES. WORK IN THE VICINITY OF ALL UTILITIES SHALL BE PER CALIFORNIA GOVERNMENT CODE SECTION 4216.
8. THE PLANS DO NOT SHOW ALL OF THE UTILITIES. THE CONTRACTOR SHALL VERIFY ALIGNMENT AND ELEVATION OF EXISTING UTILITIES AFFECTING THE WORK PRIOR TO CONSTRUCTION BY POTHOLING. PRIOR TO ANY DIGGING, CALL U.S.A. AT 811 A MINIMUM OF 48 HOURS IN ADVANCE OF EXCAVATION. IN ADDITION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ANY ADDITIONAL UTILITY COMPANIES TO DETERMINE THE LOCATION OF EXISTING UTILITIES. CONTACT AND THE COORDINATION WITH U.S.A. AND U.S.A. MARKINGS SHALL NOT RELIEVE THE CONTRACTOR FROM THEIR RESPONSIBILITY FOR UTILITY VERIFICATION AND PROTECTION.
9. TYPICAL DETAILS REFERENCED ON THESE DRAWINGS ARE FROM THE RVSD STANDARD SPECIFICATIONS AND DRAWINGS DATED JUNE 2020, "UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN" DATED JULY 2018, OR STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD PLANS DATED MAY 2010.
10. UNLESS OTHERWISE NOTED, EXISTING SANITARY SEWER LINES ARE TO BE REHABILITATED IN THE SAME LOCATION. EXISTING PIPES ARE TO HAVE UNIFORM GRADE BETWEEN MANHOLES. CONTRACTOR SHALL LOCATE LINES PRIOR TO BEGINNING WORK.
11. ALL STREET MARKINGS AFFECTED BY CONSTRUCTION SHALL BE REPLACED AT THEIR EXISTING LOCATIONS AT NO ADDITIONAL COST, THIS INCLUDES DAMAGE OF STREET MARKINGS ON ANY STREET WITHIN CITY AND TOWN LIMITS.
12. ALL PAVEMENT SHALL BE SAWCUT FULL DEPTH FOR PIPE TRENCH AND FOR PAVEMENT REMOVAL, PER RVSD STD DWG SD–14.
13. RECONNECT ALL ACTIVE SANITARY SEWER SERVICE LATERALS TO REHABILITATED OR RELOCATED SANITARY SEWER MAINS. DRAWINGS DO NOT SHOW ALL LATERALS AND WHERE SHOWN ARE APPROXIMATELY LOCATED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL SERVICE CONNECTIONS AND DYE TESTING TO DETERMINING IF SERVICES ARE ACTIVE AS PART OF THE WORK.
14. EXISTING UTILITY CROSSINGS AS SHOWN ON THE PROFILES ARE APPROXIMATE. VERIFICATION OF HORIZONTAL AND VERTICAL EXISTING UTILITY ALIGNMENTS SHALL BE THE RESPONSIBILITY OF CONTRACTOR.
15. TRAFFIC CONTROL DURING CONSTRUCTION SHALL BE THE CONTRACTORS RESPONSIBILITY AND SHALL BE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND THE REQUIREMENT OF THE COUNTY AND THE CITY/TOWN WITH JURISDICTION AND ENCROACHMENT PERMITS. THE CONTRACTOR SHALL SUBMIT A WRITTEN TRAFFIC CONTROL & SIGNING PLAN (INCLUDING STREET CLOSURE DETAILS) TO THE ENGINEER WITHIN TEN (10) WORKING DAYS AFTER AWARD OF CONTRACT. ALL LANES SHALL BE OPEN TO TRAFFIC DURING NON–WORK HOURS.
16. THE CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS BARRICADES, FLAGMEN AND OTHER DEVICES TO PROVIDE VEHICULAR AND PEDESTRIAN SAFETY.
17. CONTRACTOR SHALL PROTECT ALL UTILITY STRUCTURES, AND SURVEY MONUMENTS WITHIN THE WORK AREAS. THE CONTRACTOR SHALL REVIEW THE WORK SITES PRIOR TO SUBMISSION OF BIDS.
18. THE FOLLOWING UTILITY COMPANIES AND AGENCIES, BUT NOT LIMITED TO, ARE KNOWN TO HAVE SUBSTRUCTURES OR OTHER FACILITIES WITHIN THE AREA OF PROPOSED WORK:

MARIN MUNICIPAL WATER DISTRICT	(415) 945–1530
PG&E (NORTH BAY DIVISION)	(415) 257–3405
COMCAST	(707) 207–1376
AT&T	(707) 575–2077

19. THE CONTRACTOR SHALL BYPASS PUMP ALL MAIN–LINE SANITARY SEWER FLOW DURING REHABILITATION OR CCTV ACTIVITIES IF NECESSARY TO ASSESS PIPE CONDITION. ADDITIONAL LATERAL PUMPING (OR OTHER METHOD APPROVED BY THE ENGINEER) NECESSARY TO PREVENT SEWER SPILLAGE INTO SURROUNDING PROPERTIES FROM LATERAL SERVICES SHALL BE CONSIDERED INCIDENTAL TO THE WORK REQUIREMENTS.
20. DIMENSIONS SHOWN ON PLANS ARE HORIZONTAL MEASUREMENTS.
21. HORIZONTAL AND VERTICAL DIMENSIONS PROVIDED ON THE DRAWINGS ARE BASED ON DESIGN SURVEY METHODS. FIELD MEASUREMENTS MAY VARY FROM THOSE ON THE DRAWINGS. ADJUSTMENTS TO LINE AND GRADE MAY BE MADE BY THE ENGINEER DURING CONSTRUCTION. PAYMENT WILL BE BASED ON QUANTITIES INSTALLED.
22. RIGHT OF WAY LINES ARE SHOWN AT APPROXIMATE LOCATIONS.
23. IT SHALL BE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY LOCATIONS, ELEVATIONS, ETC. OF EXISTING FACILITIES AND TO IMMEDIATELY NOTIFY THE ENGINEER OF ANY FIELD CONFLICTS OR OMISSIONS.
24. FOR OPEN TRENCH INSTALLATIONS, IF A NEW SEWER MAIN CROSSES UNDER AN EXISTING WATER LINE WITH LESS THAN 1 FOOT OF CLEARANCE, THE CONTRACTOR SHALL INSTALL A CONTINUOUS SLEEVE AROUND THE SEWER MAIN FOR A DISTANCE OF 4 FEET CLEAR TO EACH SIDE OF THE EXISTING WATER LINE. IF A NEW SEWER MAIN CROSSES ABOVE AN EXISTING WATER MAIN WITH LESS THAN 1 FOOT OF CLEARANCE, THE CONTRACTOR SHALL INSTALL A CONTINUES HDPE SLEEVE AROUND THE SEWER MAIN FOR A DISTANCE OF 10 FEET CLEAR TO EACH SIDE OF THE EXISTING WATER LINE, PER RVSD STD DWG SD–22.
25. NEW SEWER MAINS CROSSING UNDER OR ABOVE EXISTING WATER LINES WITH LESS THAN 4 INCHES OF CLEARANCE ARE PROHIBITED.
26. THE CONTRACTOR SHALL MAINTAIN ACCESS TO RESIDENCES AND BUSINESSES ALONG THE STREETS TO BE REPAIRED THROUGHOUT THE LIFE OF THE CONTRACT.
27. CONTRACTOR TO COORDINATE WITH ALL PROPERTY OWNERS FOR EASEMENT WORK A MINIMUM OF 30 DAYS PRIOR TO START OF SAID WORK. ADDITIONAL WRITTEN NOTICES SHALL BE PROVIDED 2 WEEKS AND 72 HOURS PRIOR TO CONSTRUCTION, AND PHONE OR IN–PERSON CONTACT SHALL BE MADE THE DAY OF CONSTRUCTION.
28. FOR ALL OPEN TRENCH INSTALLATIONS, THE CONTRACTOR SHALL INSTALL NEW TRENCH DAMS AT 300 FT ON CENTER. TRENCH DAMS SHALL BE PER RVSD STD DWG SD–17.
29. PEDESTRIAN, PUBLIC, AND WHEELCHAIR ACCESSES SHALL BE MAINTAINED DURING THE CONSTRUCTION TO THE SATISFACTION OF THE DISTRICT AND AGENCY HAVING JURISDICTION IN THE RIGHT–OF–WAY IN ACCORDANCE WITH THE ENCROACHMENT PERMITS AND CALTRANS STANDARD SPECIFICATIONS. NOTE, GUIDANCE PROVIDED IN THE CALTRANS TEMPORARY PEDESTRIAN FACILITIES HANDBOOK 2014.

ABBREVIATIONS

AB, ASB	AGGREGATE SUBBASE
ABD	ABANDONED
AC	ASPHALT CONCRETE
ADJ	ADJUSTABLE
APPROX	APPROXIMATE
AVE	AVENUE
BC	BEGIN CURVE
BM	BLUE MARKER
BOC	BACK OF CURB
BSW	BACK OF SIDEWALK
C&G	CURB & GUTTER
CATV	CABLE TV
CB	CATCH BASIN
CCTV	CLOSED CIRCUIT TELEVISION
CIP	CAST IRON PIPE
CIPP	CURED–IN–PLACE PIPE
CL, ℄	CENTERLINE
CLR	CLEARANCE
CLSM	CONTROLLED LOW STRENGTH MATERIAL
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
CON'T	CONTINUED
CP	CONTROL POINT
D, DIA	DIAMETER
DI	DRAIN INLET
DL	DETECTOR LOOP
DR	DIMENSION RATIO
DWY	DRIVEWAY
DWG	DRAWING
E	EASTING, ELECTRIC
E (OH)	ELECTRIC OVERHEAD
EC	EDGE OF CONCRETE
EC	END OF CURVE
EG	EXISTING GRADE
EL OR ELEV	ELEVATION
ELEC	ELECTRIC
EP, EOP	EDGE OF PAVEMENT
EOS	EDGE OF SHOULDER
ETW	EDGE OF TRAVELED WAY
EXIST, EX	EXISTING
FC, FOC	FACE OF CURB
FD	FOUND
FG	FINISHED GRADE
FH	FIRE HYDRANT
FL, ℄	FLOWLINE
FOB	FACE OF BERM
FY	FISCAL YEAR
G	GAS
GA	GAUGE
GB	GRADE BREAK
GM	GAS METER
GRND	GROUND
GTP	GALVANIZED THREADED PIPE
GTR	GUTTER
GV	GAS VALVE
>	GREATER THAN
H, HORIZ	HORIZONTAL
HDD	HORIZONTAL DIRECTIONAL DRILLING
HDPE	HIGH DENSITY POLYETHYLENE
HH	HANDHOLE
HMA	HOT MIX ASPHALT
HV	HIGH VOLTAGE
ID	INNER DIAMETER
IN	INCH
INV	INVERT
IPB	IRRIGATION PULL BOX
JP	JOINT UTILITY POLE
LAT	LATERAL
LDCC	LOW DENSITY CELLULAR CONCRETE
LF	LINEAR FOOT
LH	LAMPHOLE
LIP	LIP OF GUTTER
MAGN	"MAG" NAIL
MAX	MAXIMUM
MAGNW	"MAG" NAIL & WASHER
MAGNS	"MAG" NAIL & SHINER
MBGR	METAL BEAM GUARD RAIL
MH	MANHOLE
MIN	MINIMUM
MMWD	MARIN MUNICIPAL WATER DISTRICT
MNFR	MANUFACTURER
MON	MONUMENT
N	NORTHING
N.I.C.	NOT IN CONTRACT
NO	NUMBER
O.C.	OFF CENTER
OD	OUTSIDE DIAMETER
OH	OVERHEAD
OG	ORIGINAL GRADE
PB	PIPE BURST
PCC	PORTLAND CEMENT CONCRETE
PCC	POINT OF COMPOUND CURVE
PK	"PK" NAIL
PL	PLASTIC
PLS#	PROFESSIONAL LAND SURVEYOR #
PP	POWER POLE, PLAN AND PROFILE
PROP	PROPOSED
PVC	POLYVINYL CHLORIDE
R	RADIUS
RD	ROAD
R+C	REBAR & CAP
RCE#	REGISTERED CIVIL ENGINEER #
REQ'D	REQUIRED
RET	RETAINING
R/R	REMOVE & REPLACE
RS	ROADWAY STABILIZATION
R/W	RIGHT–OF–WAY
RVSD	ROSS VALLEY SANITARY DISTRICT
S	SLOPE
SD	STORM DRAIN, STANDARD DRAWING
SDCB	STORM DRAIN CATCH BASIN
SDMH	STORM DRAIN MANHOLE
SDR	STANDARD DIMENSION RATIO
SDWK	SIDEWALK
SF	SQUARE FEET
SHT	SHEET
SL	STREET LIGHT
SS	SANITARY SEWER
SSCO	SANITARY SEWER CLEANOUT
SSLH	SANITARY SEWER LAMPHOLE
SSMH	SANITARY SEWER MANHOLE
STA	STATION
STD	STANDARD
STL	STEEL
T	TELEPHONE, TOTAL
TBA	TO BE ABANDONED
TC	TOP OF CURB
TEL	TELEPHONE
TMH	TELEPHONE MANHOLE
TOE	TOE OF SLOPE, TOE OF CURB, TOE OF WALL
TOP	TOP OF PIPE
TYP	TYPICAL
TV	TELEVISION
UNK	UNKNOWN
UT	UNKNOWN UTILITY
VCP	VITRIFIED CLAY PIPE
VG	VALLEY GUTTER
W, WAT	WATER
W/	WITH
WM	WATER METER
WSP	WELDED STEEL PIPE
WV	WATER VALVE
W.W.M.	WELDED WIRE MESH
100D	100 PENNY

LEGEND

EXISTING	REHABILITATE OR NEW	DESCRIPTION
SS — CO — SSMH	6" SS — CO	SANITARY SEWER WITH SIZE, FLOW DIRECTION, CO, MH
	24" SS	PIPE BURST SEWER MAIN OR LATERAL WITH SIZE, FLOW DIRECTION
12"SD — SDMH — DI		STORM DRAIN WITH SIZE, FLOW DIRECTION, MH, DI
SS	SS	ABANDON/REMOVE EX PIPE, SSMH
185		HOUSE NUMBER
CATV		CABLE TV LINE
W — WV		WATER MAIN, METER & WATER VALVE
G — GV		GAS LINE
T		TELEPHONE LINE OR DUCT
		APPROXIMATE RIGHT OF WAY OR PROPERTY LINE

EXISTING	REHABILITATE OR NEW	DESCRIPTION
MON		MONUMENT
E		ELECTRIC
OH		ELECTRIC OVERHEAD
		GUY WIRE
PP — JP		FIRE HYDRANT
		JOINT/POWER POLE
		EDGE OF PAVEMENT
DWY	DWY	SIDEWALK, CURB AND GUTTER AND DRIVEWAY
#		APPROX BORING LOCATIONS (SEE APPENDIX B OF PROJECT SPECS FOR BORING LOGS)

UTILITY CROSSINGS IN PROFILE	DESCRIPTION
EX 6" UTL DEPTH UNKNOWN	DEPTH KNOWN, SIZE KNOWN
EX UTL DEPTH ± 2.5'	DEPTH KNOWN, SIZE UNKNOWN
EX 6" UTL DEPTH ± 2.5'	DEPTH UNKNOWN, SIZE KNOWN OR UNKNOWN

GENERAL NOTES CON'T

30. BICYCLE PATHS AND LANES SHALL BE MAINTAINED DURING THE CONSTRUCTION TO THE SATISFACTION OF THE DISTRICT AND AGENCY HAVING JURISDICTION IN THE RIGHT–OF–WAY IN ACCORDANCE WITH THE ENCROACHMENT PERMITS AND MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION.
31. CONTRACTOR SHALL RESTORE SITES TO EQUAL TO OR BETTER THAN EXISTING CONDITIONS.
32. ANY DAMAGE TO THE EXISTING FACILITIES INCLUDING, BUT NOT LIMITED TO, TREES, LANDSCAPING, IRRIGATION, FENCES, WALLS, SIDEWALK, AND OTHER PAVEMENT SURFACES SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE. CONTRACTOR SHALL RESTORE ANY AND ALL PAVEMENT AND OTHER FACILITIES OUTSIDE LIMITS OF WORK AFFECTED BY THE CONSTRUCTION OPERATIONS AT NO ADDITIONAL COST.
33. BIDDERS SHOULD NOTE PRESENCE OF OVERHEAD UTILITIES IN THE WORK AREA. ALL OVERHEAD UTILITIES MAY NOT BE SHOWN AND IF SHOWN, MAY BE IN THEIR APPROXIMATE ALIGNMENT. AS PART OF THEIR PRE–BID INSPECTION, BIDDERS SHALL NOTE THE TYPE AND LOCATION OF OVERHEAD UTILITIES IN THE PROPOSED WORK AREA. BIDDER'S PRICE SHALL INCLUDE PROVISIONS FOR WORKING IN AREAS WHERE OVERHEAD UTILITIES EXIST AT THE TIME OF BIDDING, WHETHER SHOWN ON THE PLANS OR NOT, AND NO ADDITIONAL COMPENSATION IS ALLOWED.
34. REFER TO SPECIFICATIONS FOR WORK HOUR AND WORK SEQUENCE RESTRICTIONS.
35. WHEN AN ABANDONED GAS LINE IS EXPOSED, CONTRACTOR TO COORDINATE WITH PG&E TO VERIFY THAT IT IS DEACTIVATED.
36. UNLESS OTHERWISE NOTED ON THE PLANS OR SPECIFICATIONS, ALL EXPOSED CONCRETE WORK (I.E. SIDEWALKS, CURB AND GUTTER, VALLEY GUTTERS, ETC) SHALL CONFORM TO THE LATEST EDITION OF THE MARIN COUNTY STANDARD DRAWINGS. CONNECTION BETWEEN NEW AND EXISTING CONCRETE SHALL BE PER DETAIL 1/D–01
37. DURING NON WORKING HOURS, A TEMPORARY CONNECTION SHALL BE MADE FROM THE EXISTING SEWER TO THE NEW SEWER. LATERALS AND SEWERS CROSSING THE TRENCH SHALL BE TEMPORARILY RECONNECTED UNTIL THEY CAN BE PERMANENTLY CONNECTED TO THE NEW SEWER.

REGISTERED PROFESSIONAL ENGINEER · KOUROSH IRANPOUR · No. C67336 · Exp. 06–30–21 · CIVIL · STATE OF CALIFORNIA

NO.	BY	DATE	REVISION

NOTES, LEGEND AND ABBREVIATIONS

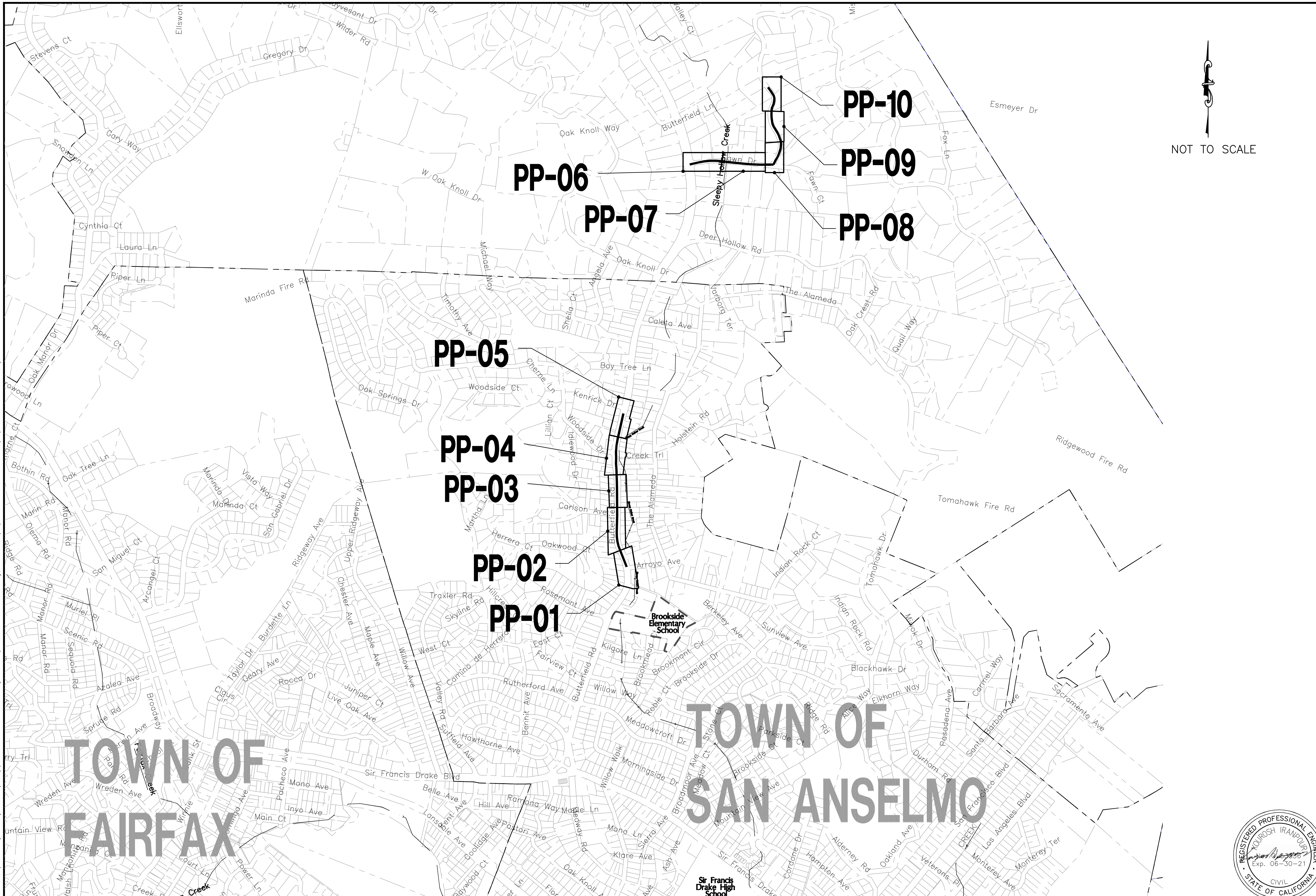
ROSS VALLEY SANITARY DISTRICT

BUTTERFIELD/ARROYO-KENRICK GRAVITY SEWER IMPROVEMENTS PROJECT

SANITARY DISTRICT NO. 1 · Est. 1899 · Ross Valley

Harris & Associates
1401 Willow Pass Rd, Suite 500 Concord, CA 94520
weareharris.com (925) 827-4900

DESIGNED BY	KJC/STK
DRAWN BY	STK
CHECKED BY	DCW/KI
DATE ISSUED	MARCH 17, 2021
JOB NO.	120–0743.001
DWG NO.	N-01
SHEET	2 OF 14



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NO.	BY	DATE	REVISION

KEY MAP

ROSS VALLEY SANITARY DISTRICT

BUTTERFIELD/ARROYO-KENRICK GRAVITY SEWER IMPROVEMENTS PROJECT

SANITARY DISTRICT NO. 1 Of Marin County Est. 1899

Harris & Associates
1401 Willow Pass Rd, Suite 500 Concord, CA 94520
weareharris.com (925) 827-4900

DESIGNED BY	KJC/STK
DRAWN BY	STK
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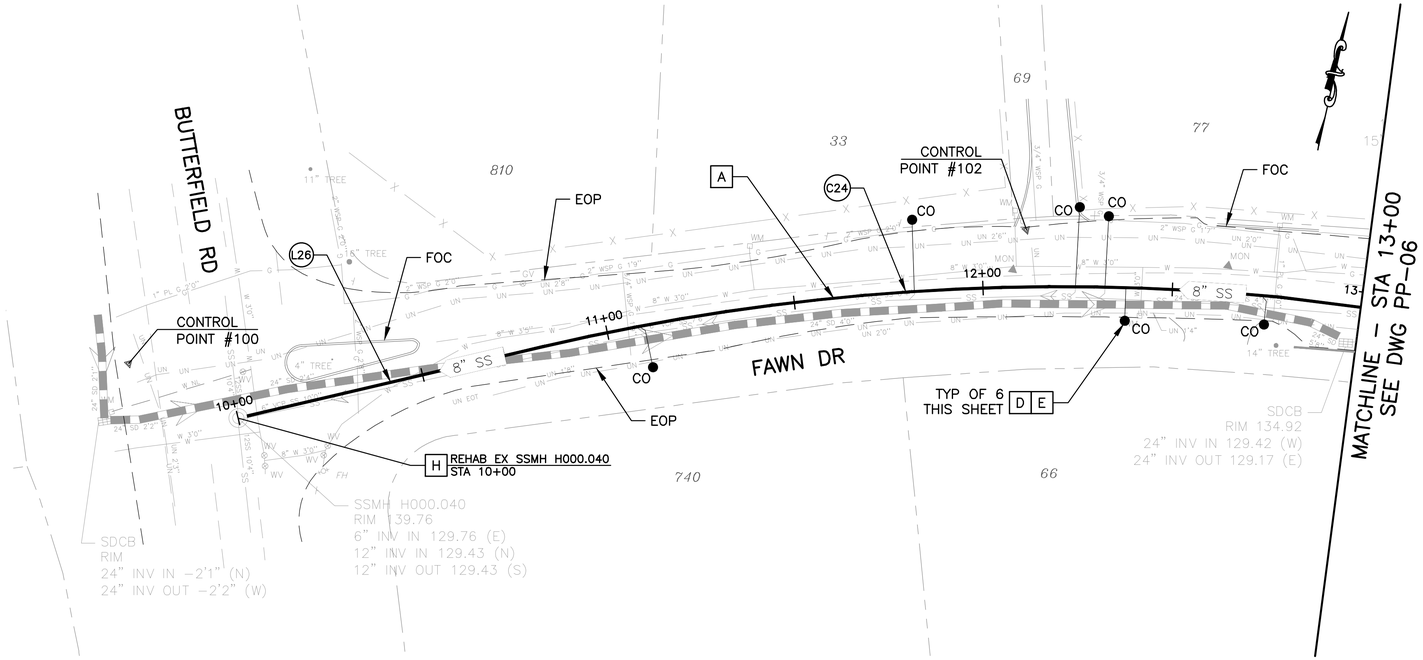
SHEET	3 OF 14

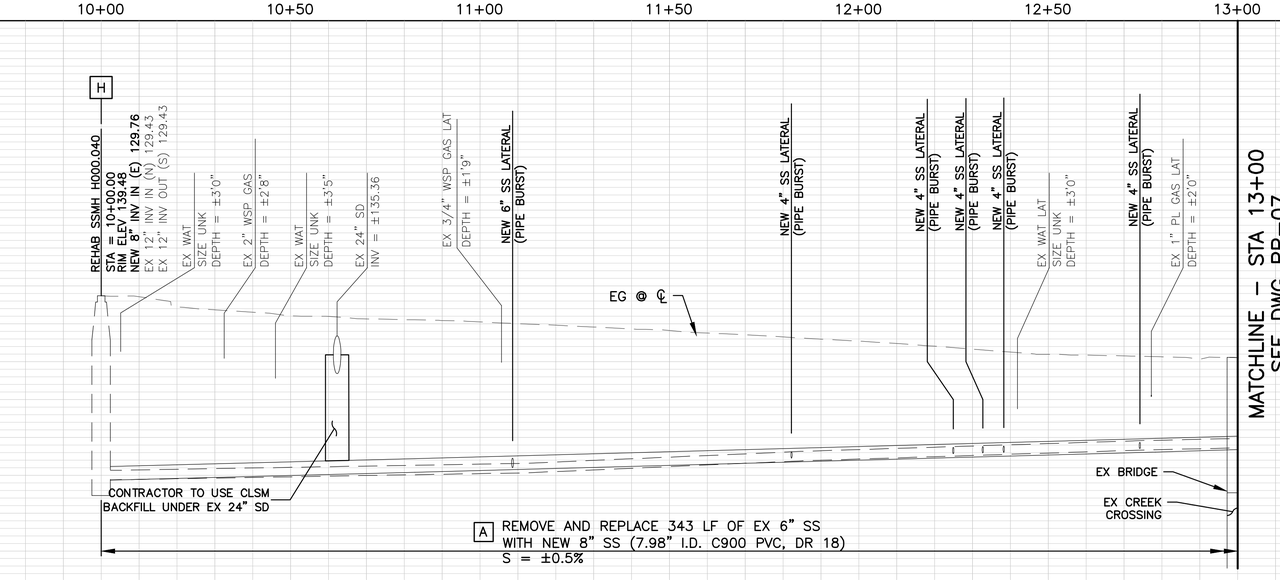
REGISTERED PROFESSIONAL ENGINEER · KOUROSH IRANPOUR · Exp. 06-30-21 · CIVIL · STATE OF CALIFORNIA



SURVEY CONTROL POINTS

POINT #	*NORTHING*	*EASTING*	*ELEVATION*	*DESCRIPTION*
100	*2194054.021*	*5963879.461*	*138.87*	*SET MAG*
102	*2194089.304*	*5964116.386*	*136.70*	*SET MAG*

NOTE TO CONTRACTOR
SEE DWG PP–08 FOR LINE/CURVE TABLE



GRAPHIC SCALE:
20 0 20 40 60
H: 1" = 20'
V: 1" = 4'

LEGEND OF REHABILITATION METHODS

A REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD–16. MODIFY MANHOLE BASES FOR NEW PIPELINE INSTALLATION PER RVSD STD DWG SD–09. FINAL PAVING SHALL BE PER DETAIL 2/D–01. TRENCH DAMS TO BE INSTALLED PER RVSD STD DWG SD–17.

B REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. MODIFY MANHOLE BASES FOR PIPE INSTALLATION PER SD–09. FINAL PAVING SHALL BE PER DETAIL 2/D–01.

REPAIR SURFACE UPHEAVAL AND/OR SAG REPAIR AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT, IN ACCORDANCE WITH RVSD STD DWG SD–20 AND SD–22.

C REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD–01 AND SD–02. FOR DROP SSMH, USE SD–05 AND SD–06

D PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD–29 AND SD–30.

E CONTRACTOR SHALL VERIFY LATERAL ALIGNMENTS IN THE FIELD. CONTRACTOR SHALL EXTEND/SHORTEN EXISTING LATERALS AS REQUIRED TO BRING NEW CLEANOUT TO EDGE OF R/W. CLEANOUTS SHALL BE TWO–WAY, C900 PVC WITH SEWER POPPER TYPE 2 BACKWATER PREVENTION DEVICE. CLEANOUT MATERIALS AND UTILITY BOX SHALL BE PER RVSD APPROVED MATERIALS LIST. CHRISTY B09 BOXES SHALL BE USED FOR NON–TRAFFIC LOCATIONS. CHRISTY B1017 BOXES SHALL BE USED FOR ALL LOCATIONS SUBJECT TO TRAFFIC LOADS. LOCATION AND BOX TYPE SHALL BE CONFIRMED IN THE FIELD BY THE DISTRICT. CONNECTION OF SEWER LATERAL TO SEWER MAIN, INCLUDING DROP OFF ANGLE (TYPE A OR B CONNECTION) OF SERVICE LATERAL, SHALL BE AS SHOWN ON RVSD DWG SD–29. NO VERTICAL DROP OFF IS ALLOWED.

F CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING LIVE SANITARY SEWER LATERALS ALONG SEWER MAINS BY DYE TESTING AND SONDE AND REINSTATE LIVE LATERALS TO NEW SEWER MAIN. LATERAL RECONNECTION MAY UTILIZE INSERTA–TEES OR APPROVED EQUAL.

G FOR PIPE BURST SITES DISCONNECT AND RECONNECT SEWER LATERALS PER RVSD STD DWG SD–33 AND SD–34.

H REHABILITATE EX SSMH PER RVSD STD DWG SD–13.

NOTES:
1. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD–21.
2. WHERE PIPING IS REMOVED AND REPLACED BY OPEN TRENCH, NEW PIPE INVERT ELEVATIONS SHALL MATCH EX PIPE INVERT ELEVATIONS (UPSIZED 8" SS INVERTS SHALL MATCH EXISTING 6" SS INVERTS), UNLESS OTHERWISE NOTED.
3. FOR OPEN TRENCH INSTALLATIONS, AN HDPE SLEEVE SHALL BE INSTALLED PER RVSD STD DWG SD–25 AT LOCATIONS WHERE EX WATER MAIN CROSSES NEW SEWER LINE WITH LESS THAN 12" OF CLEARANCE.
4. BENDING OF NEW PIPING AND/OR JOINT DEFLECTIONS SHALL BE IN ACCORDANCE WITH AWWA AND PIPE MANUFACTURER'S RECOMMENDATIONS.
5. EXISTING UTILITY LOCATIONS SHOWN ARE APPROXIMATE. SEE GENERAL NOTE 8 ON DWG N–01. USE CLSM BACKFILL WHERE 6" CLEARANCE CANNOT BE OBTAINED BETWEEN NEW AND EXISTING UTILITIES. IF CONFLICTS REQUIRE THE RELOCATION OF EXISTING UTILITIES, THE CONTRACTOR SHALL COORDINATE WITH THE EXISTING UTILITY OWNER(S) FOR RELOCATION(S).
6. CONTRACTOR SHALL UTILIZE GROUND STABILIZATION TO PROTECT PARALLEL UTILITIES DURING OPEN TRENCH ACTIVITIES WHERE NEEDED.

REGISTERED PROFESSIONAL ENGINEER
KOUROSH IRANPOUR
Exp. 06–30–21
CIVIL
STATE OF CALIFORNIA

NO.	BY	DATE	REVISION

SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
FAWN DR.

ROSS VALLEY SANITARY DISTRICT

BUTTERFIELD/ARROYO-KENRICK GRAVITY SEWER IMPROVEMENTS PROJECT

SANITARY DISTRICT NO. 1 Est. 1899

Harris & Associates
1401 Willow Pass Rd, Suite 500 Concord, CA 94520
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DESIGNED BY	KJC/STK
DRAWN BY	STK
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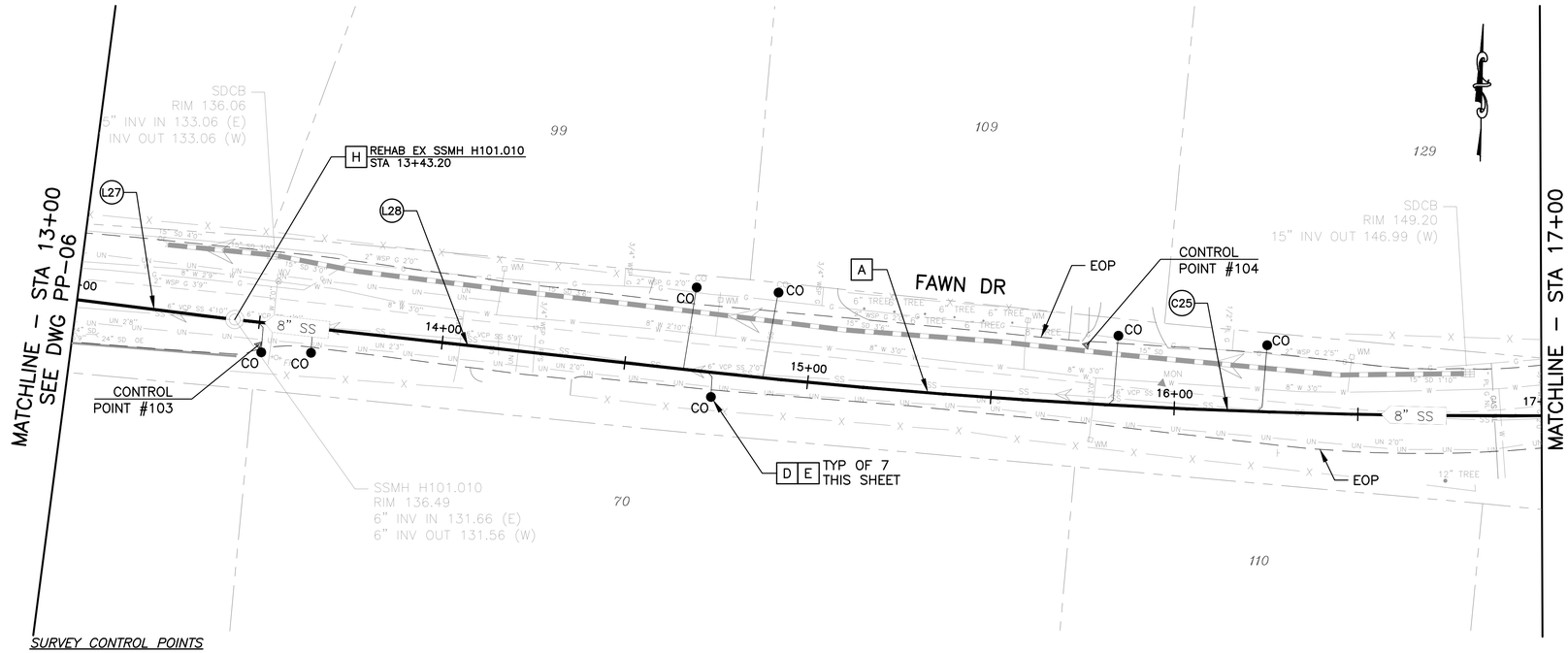
DATE ISSUED	MARCH 17,2021
JOB NO.	120–0743.001
DWG NO.	**PP–06**
SHEET	9 OF 14

H:\Ross Valley Sanitary District (RSVD)\120–0743.001 Butterfield Arroyo–Kenrick\09–13 PP–06–10 FAWN.dwg Save Date: 3/18/2021 2:25 PM Plot Date: 3/18/2021 2:25 PM SutyKomsonkeo



SURVEY CONTROL POINTS

POINT #	*NORTHING*	*EASTING*	*ELEVATION*	*DESCRIPTIO N*
103	*2194056.542*	*5964254.097*	*136.08*	*SET MAG*
104	*2194056.529*	*5964479.327*	*148.78*	*SET MAG*

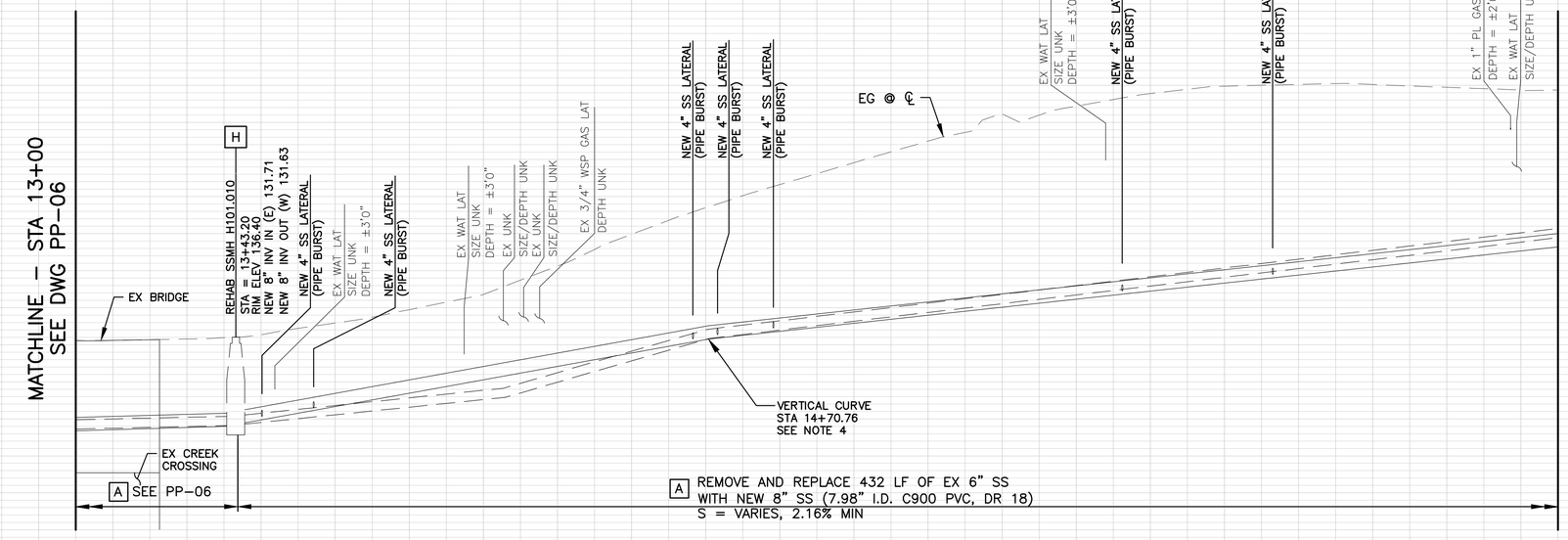
NOTE TO CONTRACTOR
SEE DWG PP–08 FOR LINE/CURVE TABLE

LEGEND OF REHABILITATION METHODS

- A — REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD–16. MODIFY MANHOLE BASES FOR NEW PIPELINE INSTALLATION PER RVSD STD DWG SD–09. FINAL PAVING SHALL BE PER DETAIL 2/D–01. TRENCH DAMS TO BE INSTALLED PER RVSD STD DWG SD–17.
- B — REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. MODIFY MANHOLE BASES FOR PIPE INSTALLATION PER SD–09. FINAL PAVING SHALL BE PER DETAIL 2/D–01.

  REPAIR SURFACE UPHEAVAL AND/OR SAG REPAIR AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT, IN ACCORDANCE WITH RVSD STD DWG SD–20 AND SD–22.
- C — REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD–01 AND SD–02. FOR DROP SSMH, USE SD–05 AND SD–06
- D — PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD–29 AND SD–30.
- E — CONTRACTOR SHALL VERIFY LATERAL ALIGNMENTS IN THE FIELD. CONTRACTOR SHALL EXTEND/SHORTEN EXISTING LATERALS AS REQUIRED TO BRING NEW CLEANOUT TO EDGE OF R/W. CLEANOUTS SHALL BE TWO–WAY, C900 PVC WITH SEWER POPPER TYPE 2 BACKWATER PREVENTION DEVICE. CLEANOUT MATERIALS AND UTILITY BOX SHALL BE PER RVSD APPROVED MATERIALS LIST. CHRISTY B09 BOXES SHALL BE USED FOR NON–TRAFFIC LOCATIONS. CHRISTY B1017 BOXES SHALL BE USED FOR ALL LOCATIONS SUBJECT TO TRAFFIC LOADS. LOCATION AND BOX TYPE SHALL BE CONFIRMED IN THE FIELD BY THE DISTRICT. CONNECTION OF SEWER LATERAL TO SEWER MAIN, INCLUDING DROP OFF ANGLE (TYPE A OR B CONNECTION) OF SERVICE LATERAL, SHALL BE AS SHOWN ON RVSD DWG SD–29. NO VERTICAL DROP OFF IS ALLOWED.
- F — CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING LIVE SANITARY SEWER LATERALS ALONG SEWER MAINS BY DYE TESTING AND SONDE AND REINSTATE LIVE LATERALS TO NEW SEWER MAIN. LATERAL RECONNECTION MAY UTILIZE INSERTA–TEES OR APPROVED EQUAL.
- G — FOR PIPE BURST SITES DISCONNECT AND RECONNECT SEWER LATERALS PER RVSD STD DWG SD–33 AND SD–34.
- H — REHABILITATE EX SSMH PER RVSD STD DWG SD–13.

NOTES:
1. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD–21.
2. WHERE PIPING IS REMOVED AND REPLACED BY OPEN TRENCH, NEW PIPE INVERT ELEVATIONS SHALL MATCH EX PIPE INVERT ELEVATIONS (UPSIZED 8" SS INVERTS SHALL MATCH EXISTING 6" SS INVERTS), UNLESS OTHERWISE NOTED.
3. FOR OPEN TRENCH INSTALLATIONS, AN HDPE SLEEVE SHALL BE INSTALLED PER RVSD STD DWG SD–25 AT LOCATIONS WHERE EX WATER MAIN CROSSES NEW SEWER LINE WITH LESS THAN 12" OF CLEARANCE.
4. BENDING OF NEW PIPING AND/OR JOINT DEFLECTIONS SHALL BE IN ACCORDANCE WITH AWWA AND PIPE MANUFACTURER'S RECOMMENDATIONS.
5. EXISTING UTILITY LOCATIONS SHOWN ARE APPROXIMATE. SEE GENERAL NOTE 8 ON DWG N–01. USE CLSM BACKFILL WHERE 6" CLEARANCE CANNOT BE OBTAINED BETWEEN NEW AND EXISTING UTILITIES. IF CONFLICTS REQUIRE THE RELOCATION OF EXISTING UTILITIES, THE CONTRACTOR SHALL COORDINATE WITH THE EXISTING UTILITY OWNER(S) FOR RELOCATION(S).
6. CONTRACTOR SHALL UTILIZE GROUND STABILIZATION TO PROTECT PARALLEL UTILITIES DURING OPEN TRENCH ACTIVITIES WHERE NEEDED.



GRAPHIC SCALE:
20 0 20 40 60
H: 1" = 20'
V: 1" = 4'

REGISTERED PROFESSIONAL ENGINEER
KOUROSH IRANPOUR
Exp. 06–30–21
CIVIL
STATE OF CALIFORNIA

NO.	BY	DATE	REVISION

SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
FAWN DR.

ROSS VALLEY SANITARY DISTRICT

BUTTERFIELD/ARROYO-KENRICK GRAVITY SEWER IMPROVEMENTS PROJECT

SANITARY DISTRICT NO. 1 Est. 1899

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DATE ISSUED	MARCH 17,2021
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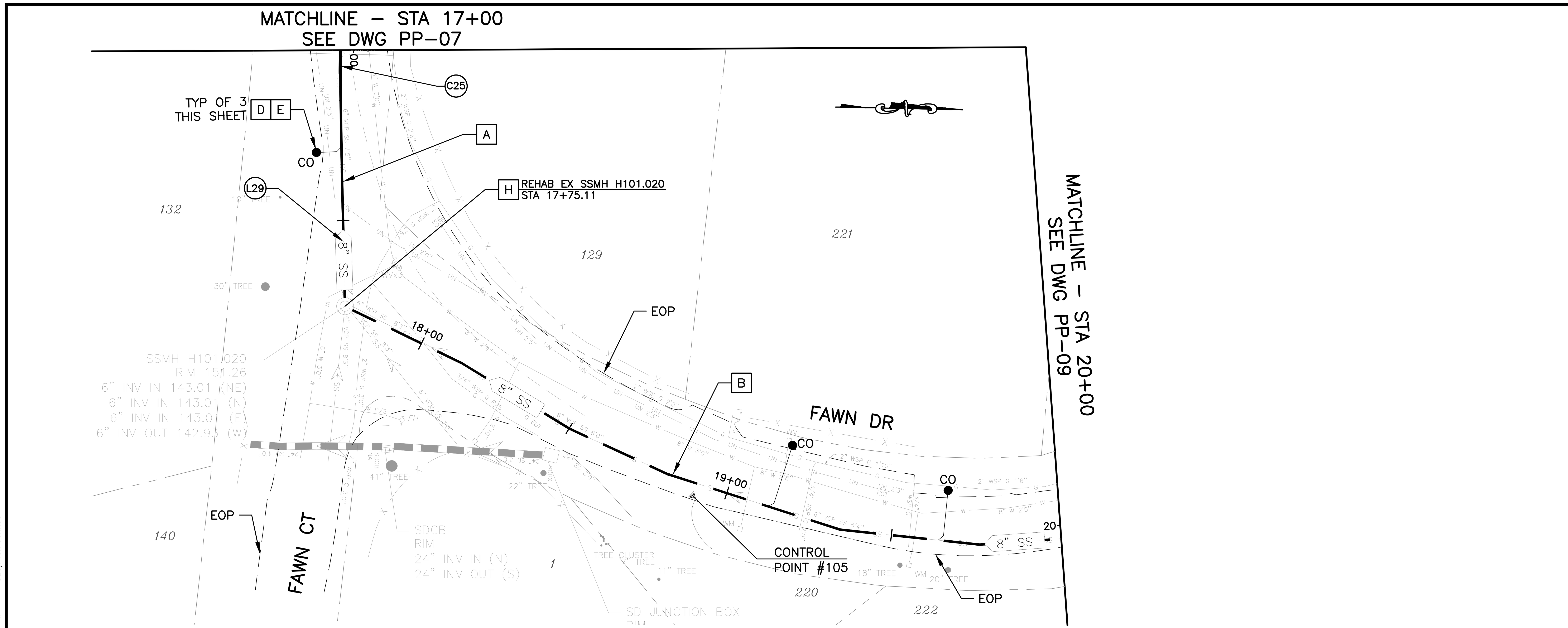
DWG NO.	**PP–07**
SHEET	10 OF 14

H:\Ross Valley Sanitary District (RSVD)\120–0743.001 Butterfield Arroyo–Kenrick\09–13 PP–06–10 FAWN.dwg Save Date: 3/18/2021 2:25 PM Plot Date: 3/18/2021 2:25 PM SulyKomsonkeo



SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
105	2194140.534	5964733.706	155.87	SET MAG

LEGEND OF REHABILITATION METHODS

A — REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD-16. MODIFY MANHOLE BASES FOR NEW PIPELINE INSTALLATION PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 2/D-01. TRENCH DAMS TO BE INSTALLED PER RVSD STD DWG SD-17.

B — REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. MODIFY MANHOLE BASES FOR PIPE INSTALLATION PER SD-09. FINAL PAVING SHALL BE PER DETAIL 2/D-01.

REPAIR SURFACE UPHEAVAL AND/OR SAG REPAIR AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT, IN ACCORDANCE WITH RVSD STD DWG SD-20 AND SD-22.

C — REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD-01 AND SD-02. FOR DROP SSMH, USE SD-05 AND SD-06

D — PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD-29 AND SD-30.

E — CONTRACTOR SHALL VERIFY LATERAL ALIGNMENTS IN THE FIELD. CONTRACTOR SHALL EXTEND/SHORTEN EXISTING LATERALS AS REQUIRED TO BRING NEW CLEANOUT TO EDGE OF R/W. CLEANOUTS SHALL BE TWO-WAY, C900 PVC WITH SEWER POPPER TYPE 2 BACKWATER PREVENTION DEVICE. CLEANOUT MATERIALS AND UTILITY BOX SHALL BE PER RVSD APPROVED MATERIALS LIST. CHRISTY B09 BOXES SHALL BE USED FOR NON-TRAFFIC LOCATIONS. CHRISTY B1017 BOXES SHALL BE USED FOR ALL LOCATIONS SUBJECT TO TRAFFIC LOADS. LOCATION AND BOX TYPE SHALL BE CONFIRMED IN THE FIELD BY THE DISTRICT. CONNECTION OF SEWER LATERAL TO SEWER MAIN, INCLUDING DROP OFF ANGLE (TYPE A OR B CONNECTION) OF SERVICE LATERAL, SHALL BE AS SHOWN ON RVSD DWG SD-29. NO VERTICAL DROP OFF IS ALLOWED.

F — CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING LIVE SANITARY SEWER LATERALS ALONG SEWER MAINS BY DYE TESTING AND SONDE AND REINSTATE LIVE LATERALS TO NEW SEWER MAIN. LATERAL RECONNECTION MAY UTILIZE INSERTA-TEES OR APPROVED EQUAL.

G — FOR PIPE BURST SITES DISCONNECT AND RECONNECT SEWER LATERALS PER RVSD STD DWG SD-33 AND SD-34.

H — REHABILITATE EX SSMH PER RVSD STD DWG SD-13.

NOTES:

1. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD-21.
2. WHERE PIPING IS REMOVED AND REPLACED BY OPEN TRENCH, NEW PIPE INVERT ELEVATIONS SHALL MATCH EX PIPE INVERT ELEVATIONS (UPSIZED 8" SS INVERTS SHALL MATCH EXISTING 6" SS INVERTS), UNLESS OTHERWISE NOTED.
3. FOR OPEN TRENCH INSTALLATIONS, AN HDPE SLEEVE SHALL BE INSTALLED PER RVSD STD DWG SD-25 AT LOCATIONS WHERE EX WATER MAIN CROSSES NEW SEWER LINE WITH LESS THAN 12" OF CLEARANCE.
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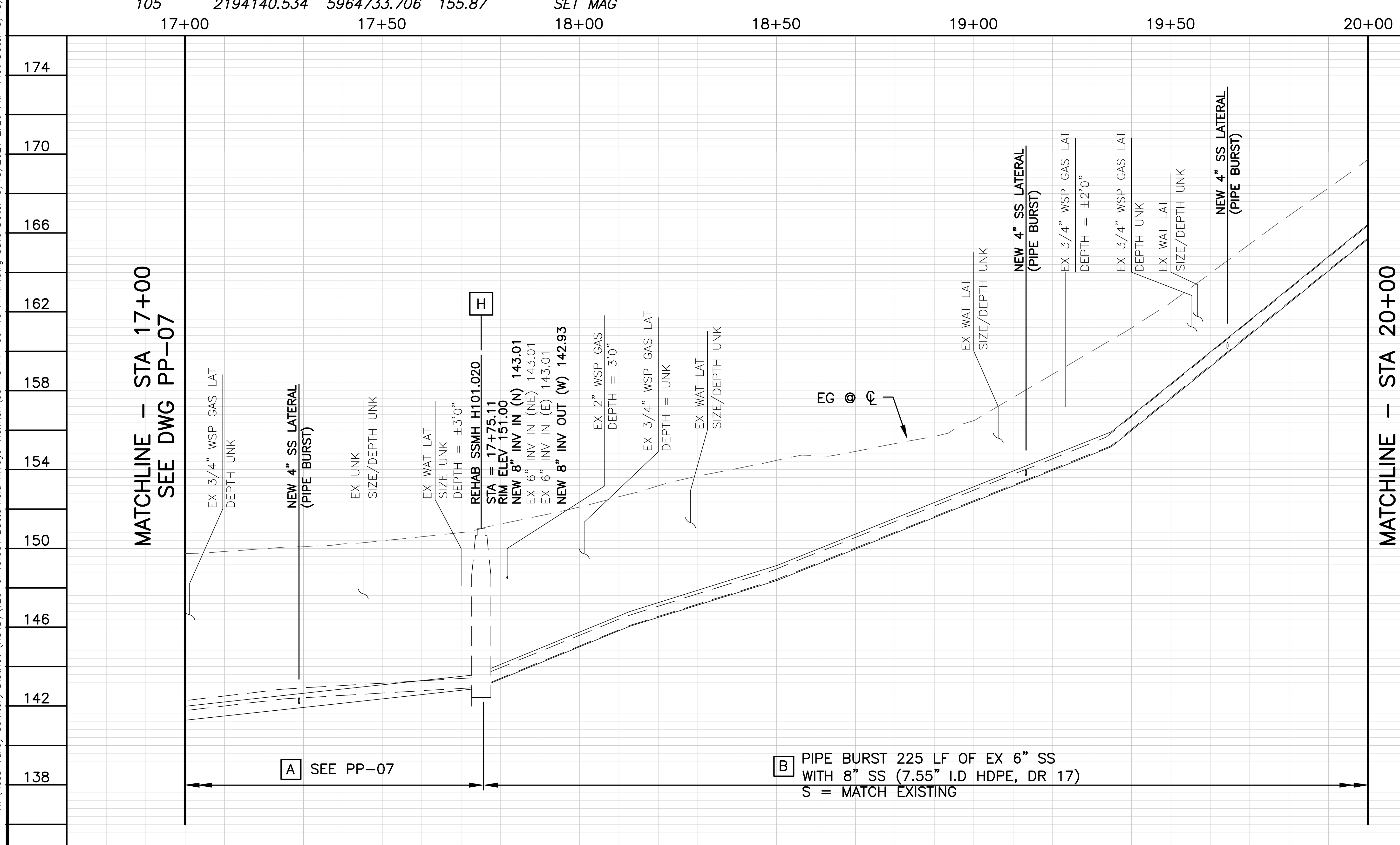
6. CONTRACTOR SHALL UTILIZE GROUND STABILIZATION TO PROTECT PARALLEL UTILITIES DURING OPEN TRENCH ACTIVITIES WHERE NEEDED.



FAWN DR LINE AND CURVE TABLE

SEGMENT	LENGTH	BEARING	RADIUS	START STA	START POINT	END STA	END POINT
L26	82.80'	N76°49'22"E		10+00.00	N = 2194039.62 E = 5963908.35	10+82.80	N =2194058.49 E = 5963988.97
C24	216.14'		600.00'	10+82.80	N = 2194058.49 E = 5963988.97	12+98.94	N = 2194069.21 E = 5964203.67
L27	44.26'	S82°32'16"E		12+98.94	N = 2194069.21 E = 5964203.67	13+43.20	N =2194063.46 E = 5964247.56
L28	127.56'	S83°40'50"E		13+43.20	N = 2194063.46 E = 5964247.56	14+70.76	N =2194049.42 E = 5964374.35
C25	266.40'		2000.00'	14+70.76	N = 2194049.42 E = 5964374.35	17+37.17	N = 2194037.79 E = 5964640.30
L29	37.94'	N88°41'15"E		17+37.17	N = 2194037.79 E = 5964640.30	17+75.11	N =2194038.66 E = 5964678.23

GRAPHIC SCALE:
H: 1" = 20'
V: 1" = 4'

REGISTERED PROFESSIONAL ENGINEER
KOUROSH IRANPOUR
Exp. 06-30-21
CIVIL
STATE OF CALIFORNIA

SANITARY SEWER IMPROVEMENTS
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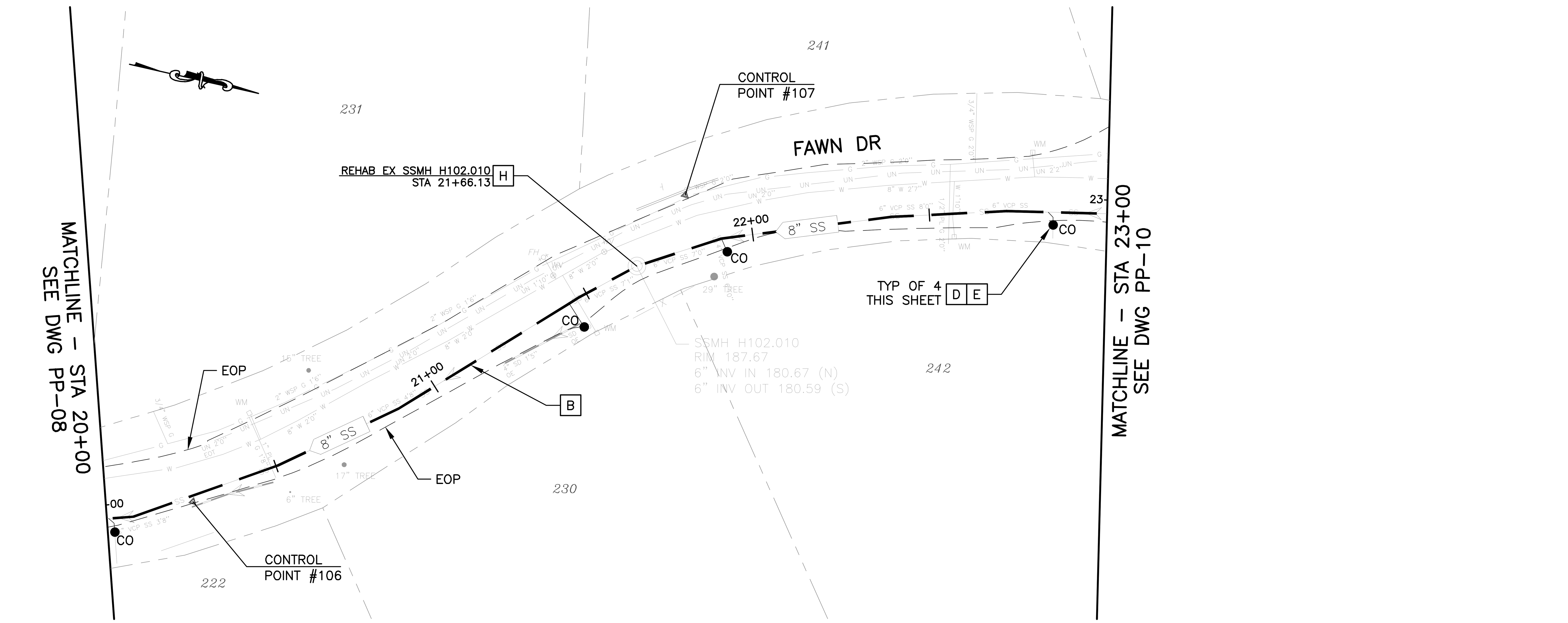
SHEET 11 OF 14



SURVEY CONTROL POINTS

POINT #	*NORTHING*	*EASTING*	*ELEVATION*	*DESCRIPTION*
106	*2194272.766*	*5964741.544*	*172.70*	*SET MAG*
107	*2194411.118*	*5964655.360*	*188.82*	*SET MAG*

LEGEND OF REHABILITATION METHODS

A REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD–16. MODIFY MANHOLE BASES FOR NEW PIPELINE INSTALLATION PER RVSD STD DWG SD–09. FINAL PAVING SHALL BE PER DETAIL 2/D–01. TRENCH DAMS TO BE INSTALLED PER RVSD STD DWG SD–17.

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G FOR PIPE BURST SITES DISCONNECT AND RECONNECT SEWER LATERALS PER RVSD STD DWG SD–33 AND SD–34.

H REHABILITATE EX SSMH PER RVSD STD DWG SD–13.

NOTES:

1. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD–21.
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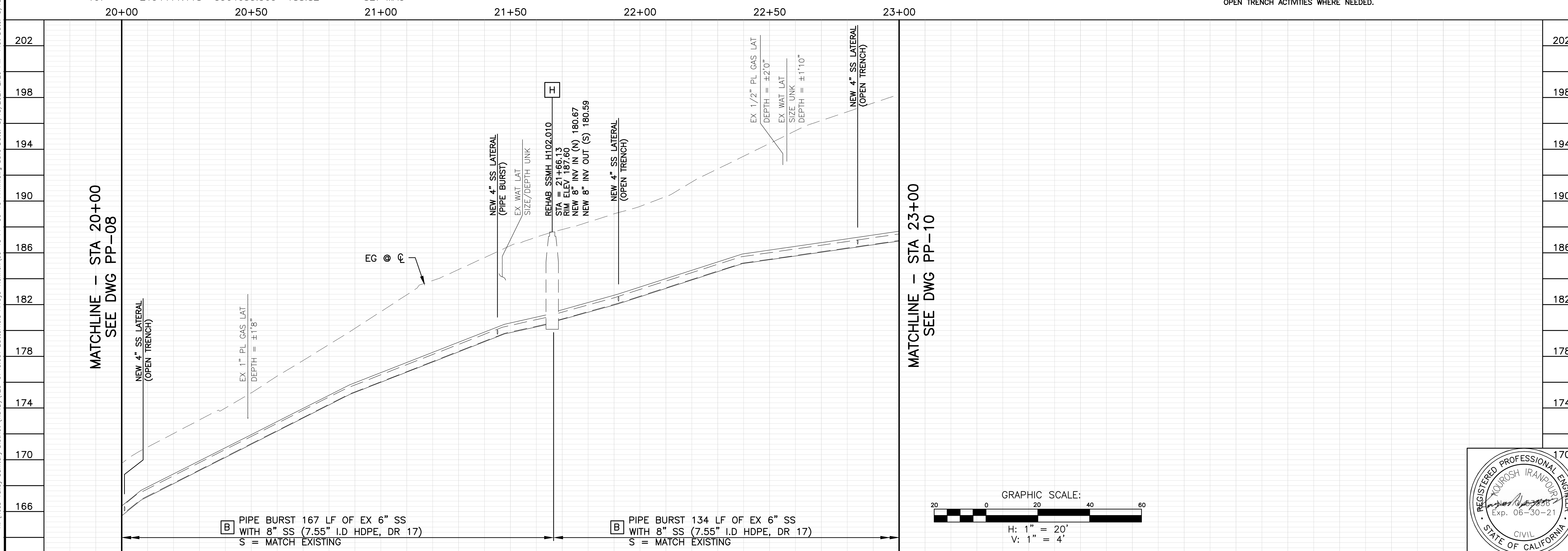

SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
FAWN DR.

ROSS VALLEY SANITARY DISTRICT

BUTTERFIELD/ARROYO-KENRICK GRAVITY SEWER IMPROVEMENTS PROJECT

Harris & Associates
1401 Willow Pass Rd, Suite 500 Concord, CA 94520
weareharris.com (925) 827-4900

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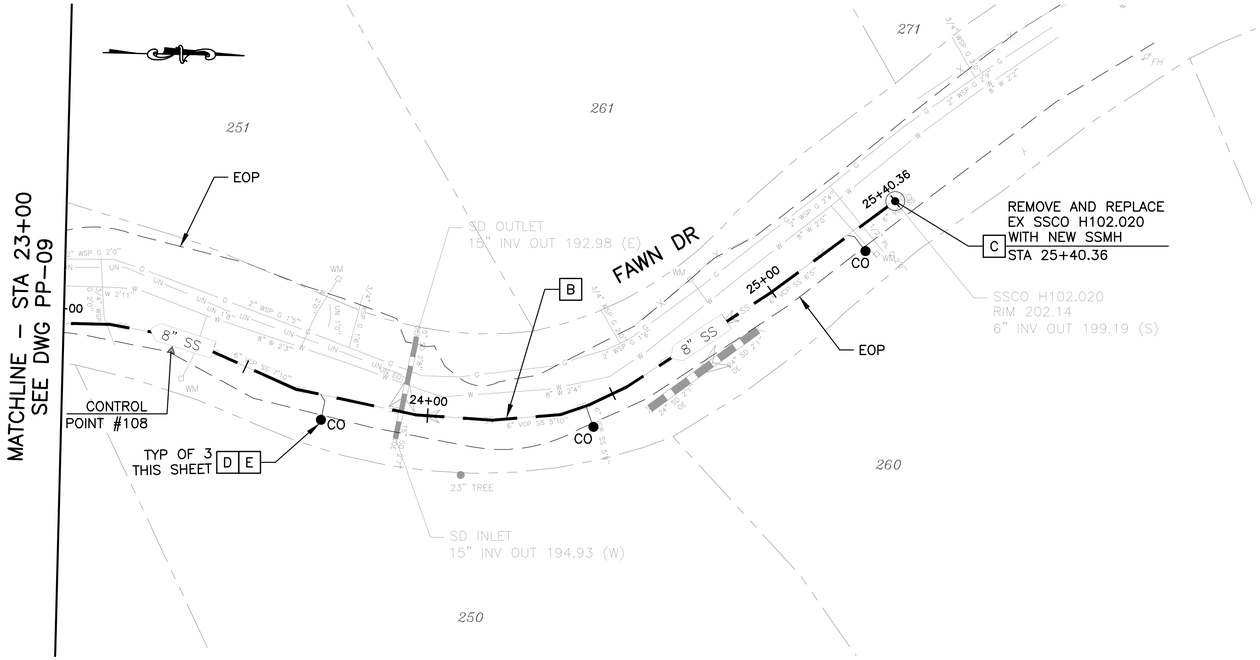
DESIGNED BY	KJC/STK
DRAWN BY	STK
CHECKED BY	DCW/KI
DATE ISSUED	MARCH 17,2021
JOB NO.	120–0743.001
DWG NO.	PP–09
SHEET	12 OF 14

NO.	BY	DATE	REVISION

H:\Ross Valley Sanitary District (RSVD)\120-0743.001 Butterfield Arroyo-Kenrick\09-13 PP-06-10 FAWN.dwg Save Date: 3/18/2021 2:26 PM Plot Date: 3/18/2021 2:26 PM Suty.Komsonkeo



SURVEY CONTROL POINTS

POINT #	*NORTHING*	*EASTING*	*ELEVATION*	*DESCRIPTION*
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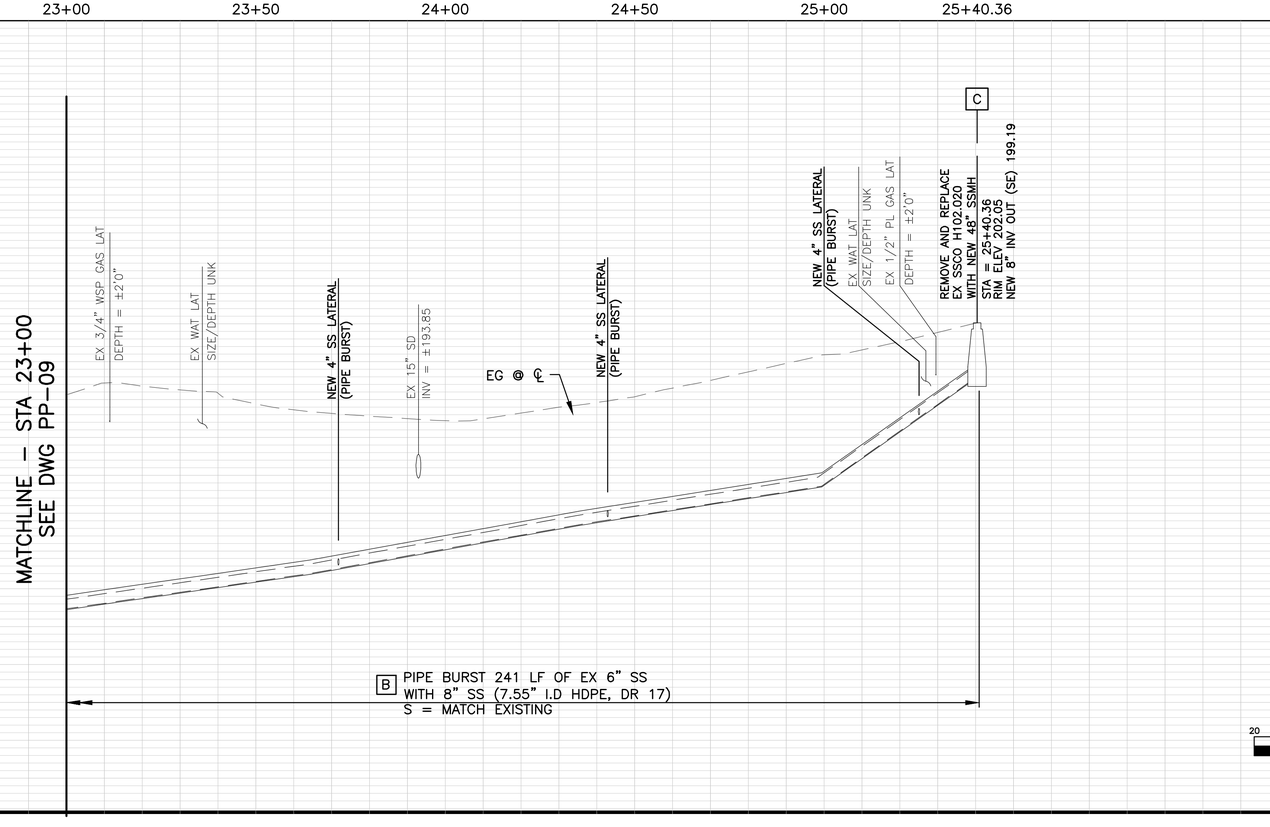

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GRAPHIC SCALE:
20 0 20 40 60
H: 1" = 20'
V: 1" = 4'

REGISTERED PROFESSIONAL ENGINEER
KOUROSH IRANPOUR
Exp. 06-30-21
CIVIL
STATE OF CALIFORNIA

NO.	BY	DATE	REVISION

SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
FAWN DR.

ROSS VALLEY SANITARY DISTRICT

BUTTERFIELD/ARROYO-KENRICK GRAVITY SEWER IMPROVEMENTS PROJECT

SANITARY DISTRICT NO. 1 Est. 1899

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DRAWN BY	STK
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DWG NO.	**PP-10**
SHEET	13 OF 14

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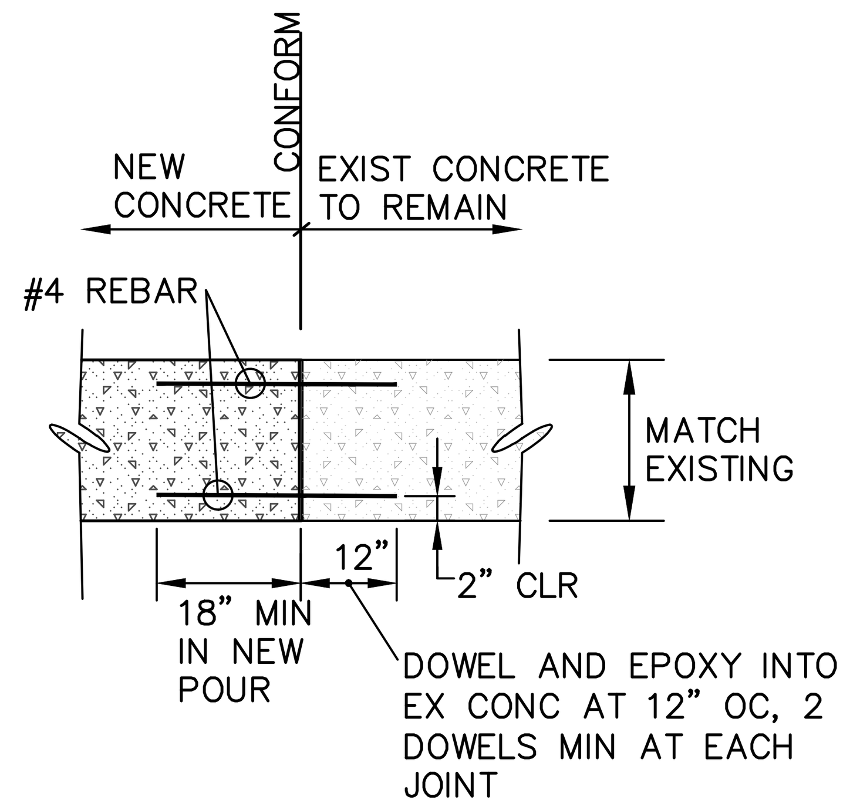
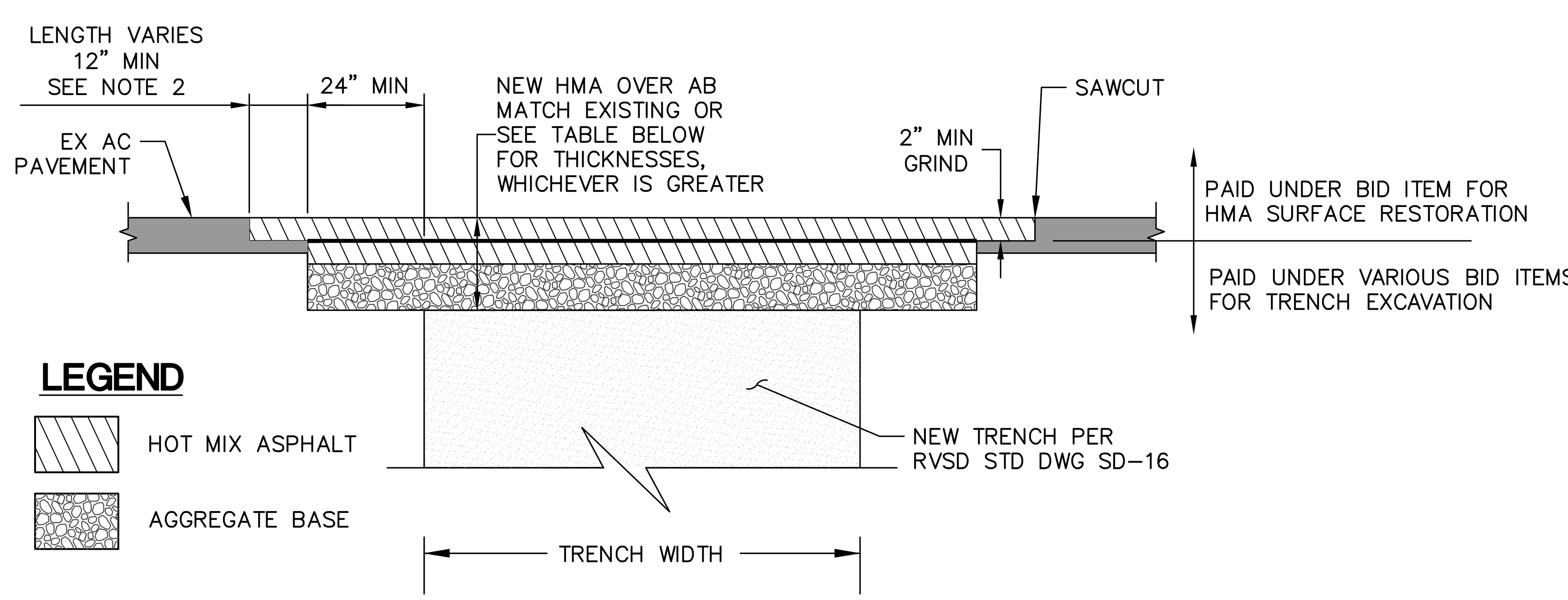


1 - **PCC CONFORM SECTION**

NOT TO SCALE



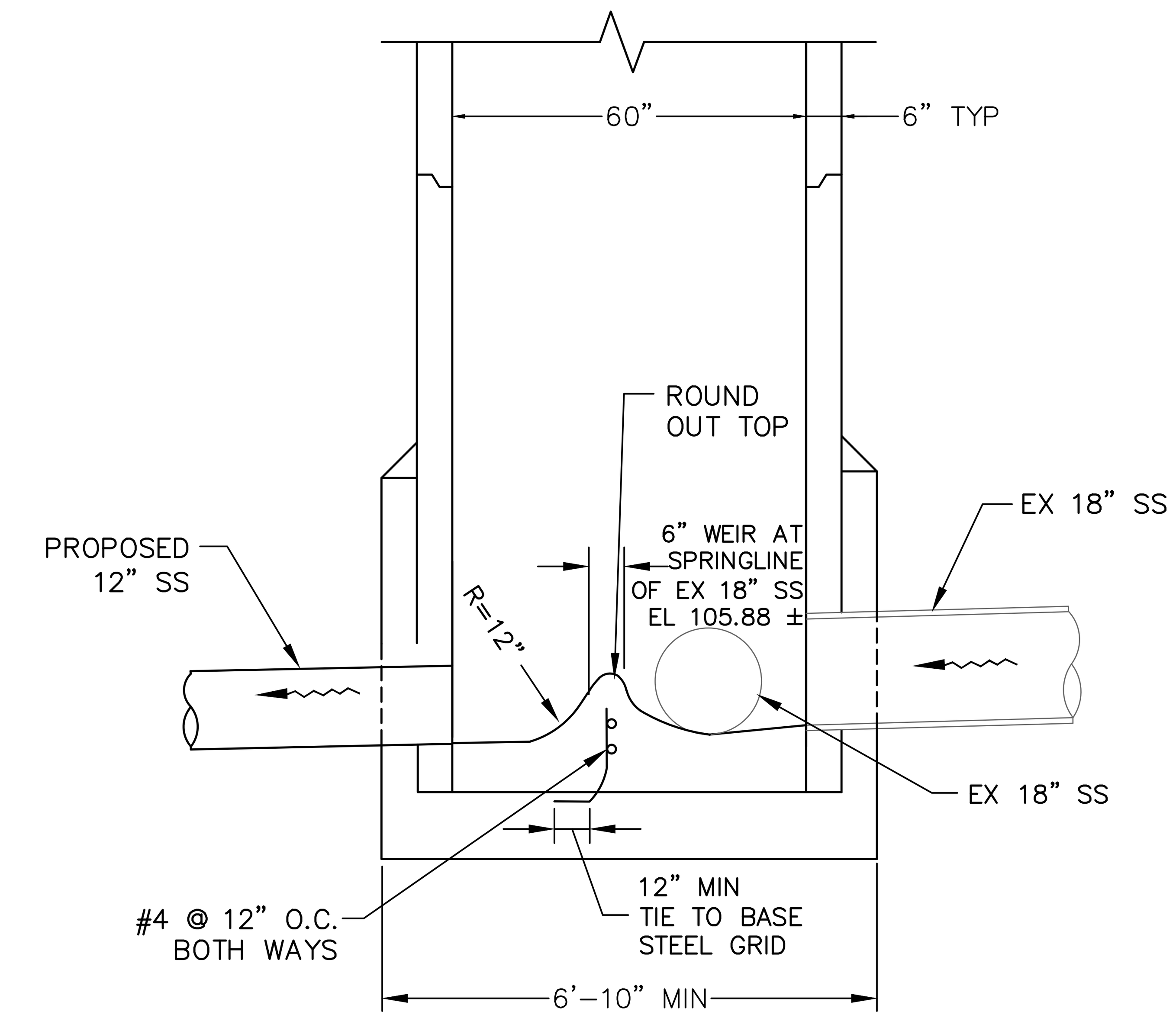
FINAL PAVING		
ROAD TYPE (SEE NOTE 2)	PAVING REQUIREMENTS	ALTERNATE FULL DEPTH AC
FAWN DR	MIN HMA: 4" MIN AB: 7"	7"
BUTTERFIELD RD	MIN HMA: 6" MIN AB: 14"	14"

NOTES

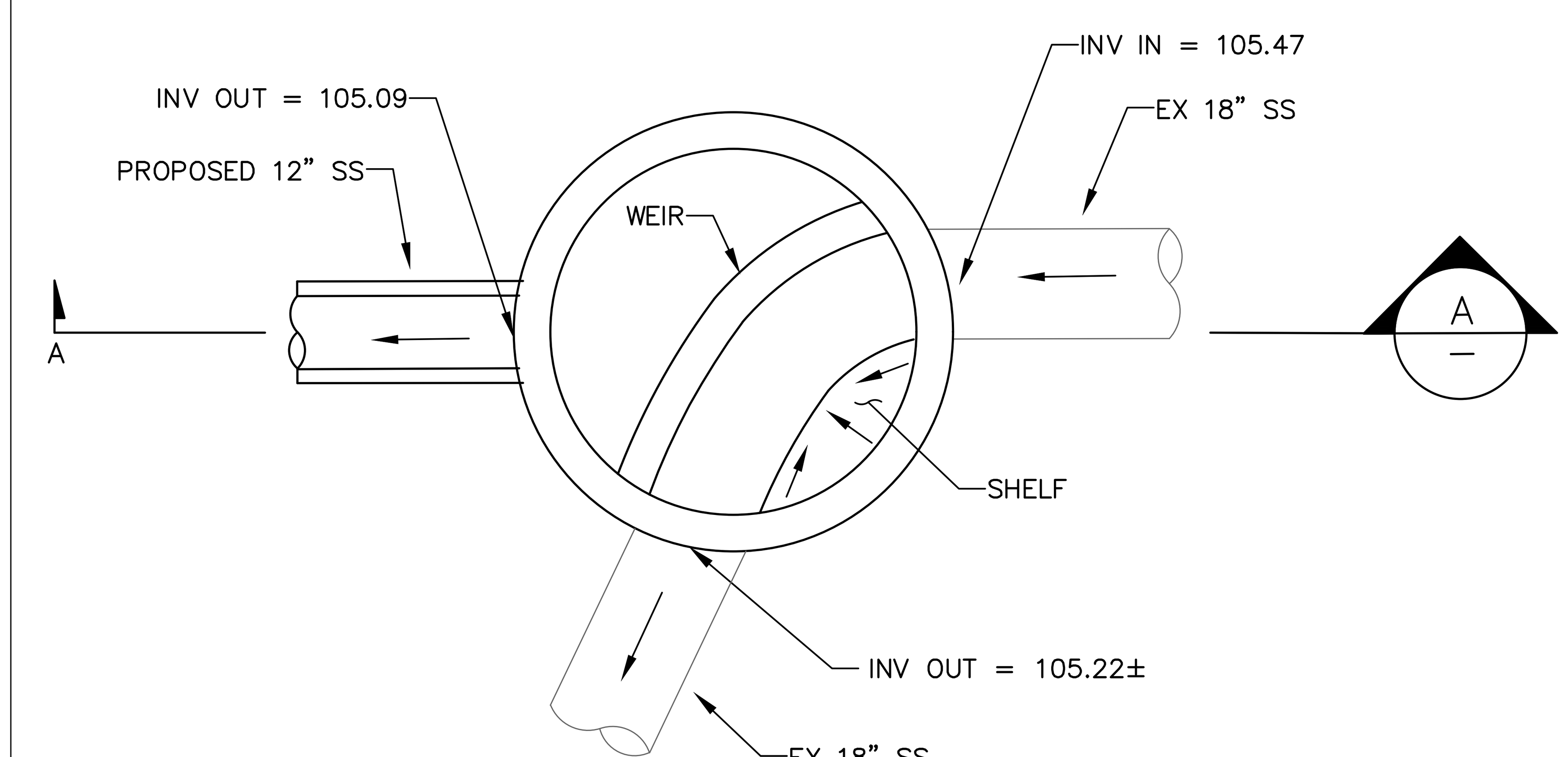
1. BORING LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE. SEE APPENDIX B IN THE SPECIFICATIONS FOR BORING LOGS SHOWING EXISTING PAVEMENT SECTIONS AND SOIL CONDITIONS. EXISTING PAVEMENT SECTIONS/SOIL CONDITIONS PROVIDED ARE FOR INFORMATIONAL PURPOSES ONLY. CONTRACTOR TO NOTE PAVEMENT AND SOIL CONDITIONS VARY DEPENDING ON WHERE BORING WAS TAKEN. NO ADDITIONAL COMPENSATION WILL BE PROVIDED FOR VARYING CONDITIONS.
2. SEE APPENDIX D FOR MARIN COUNTY STANDARDS 330 TO 380 FOR ADDITIONAL PAVING REQUIREMENTS. NOTE THAT EACH JURISDICTION MAY HAVE THEIR OWN ADDITIONAL PAVING REQUIREMENTS ASIDE FROM THOSE SHOWN IN APPENDIX D.

2 - **FINAL PAVING**

NOT TO SCALE



SECTION A-A



NOTES:

1. SEE RVSD STD DETAIL SD-02 FOR ADDITIONAL MANHOLE DETAILS NOT SHOWN HERE.

3 - **WEIR MANHOLE - STA 60+21.33**

NOT TO SCALE

NO. | BY | DATE | REVISION

CONSTRUCTION DETAILS

ROSS VALLEY SANITARY DISTRICT

BUTTERFIELD/ARROYO-KENRICK GRAVITY SEWER IMPROVEMENTS PROJECT

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DWG NO. **D-01**
SHEET 14 OF 14

Attachment D

Control Measures

Attachment D—Overview of Control Measures

Numerous control measures would be incorporated into the Project's Contract Documents by the Ross Valley Sanitary District (RVSD) to address environmental and public health and safety issues. Control measures are procedures known to further reduce the potential for impacts based on regulatory agency requirements, standards in the industry, and construction/operating experiences of RVSD and the design engineer.

Site Management Practices

1. Remove rubbish and debris from job site daily with proper disposal in compliance with all federal, state, and local regulations. Removal and transport of rubbish and debris shall be in a manner that prevents spillage on pavements, streets, or adjacent areas. Clean up any spillage.
2. Store materials that cannot be removed daily in the Contractor's approved laydown and storage areas, following all requirements established by the property owner and associated permitting jurisdiction.
3. All material excavated shall be removed immediately and transported offsite. No stockpiling of excavated materials will be allowed at any time in the public right-of-way except for limited stockpiling of soil or imported fill at the work site to help facilitate daily operations.
4. Provide temporary lighting that complies with California Occupational Safety and Health Administration (Cal/OSHA) standards.
5. Conduct operations to cause as little damage to hardscape and landscape areas as possible:
   - The Contractor shall exercise due diligence and implement necessary precautions to avoid needlessly damaging or destroying trees, shrubs, or other landscaping in the Project limits. Any required pruning of existing trees will be completed by a certified arborist. A specification for the protection of trees will be provided to the Contractor.
   - The Contractor shall protect all existing utilities, pavement, sidewalks, curbs, fences, landscaping, and other improvements that are not designated for removal from damage by his or her operations. Any such features that are damaged or temporarily relocated by the Contractor during construction shall be repaired or restored by the Contractor to a condition equal to or better than they were prior to such damage or temporary relocation.

6. Upon completion of the work, and prior to final acceptance, the Contractor shall remove from the vicinity of the work all surplus material and equipment belonging to them or used under their direction during construction.
7. Restore pavement in all roadways, driveways, and sidewalks.
8. Upon completion of work, the Contractor shall restore road stripping on the roadway.

Dust Control

1. Water all exposed unpaved surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) up to two times per day.
2. Cover all haul trucks transporting soil, sand, or other loose material offsite.
3. Sweep pavements as often as necessary to avoid the spread of debris. Remove all visible mud or dirt track-out from adjacent public roads using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. Minimize idling times either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.
5. Maintain and properly tune all construction equipment in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
6. Post a publicly visible sign with the telephone number and person to contact at RVSD regarding dust complaints. This person shall respond and take corrective action within 48 hours.
7. Priority shall be given to obtaining power from Pacific Gas and Electric (PG&E) to reduce air pollutant emissions; if not practicable, then electrical generators and, if necessary, diesel generators shall be used subject to the noise attenuation measures under the Noise section of these Control Measures.
8. All excavations shall be adequately ventilated and air monitoring of the shafts or pits will be done continuously, pursuant to the Contract Documents.
9. To minimize the dispersal of sewer odors above ground during sewage bypass pumping, the Contractor shall:
    a. Seal all open sanitary manholes or access openings in the sewers when operations have been suspended for a period of 2 hours or more.

b. During construction operations when open manholes or access openings cannot be sealed, vent and filter hydrogen sulfide gases upstream of the openings in the sewer.

Odor

1. Odor related to construction shall be controlled through the use of filters, chemical addition to the wastewater, and masking agents as needed to limit the levels of hydrogen sulfide gas to 5 parts per million (by volume) 25 ft from the source or at the outside wall of any habitable structure.
2. If odor complaints are received, identify the source, evaluate and implement available abatement measures, and notify the complainant(s) of the results.

Permits

1. The RVSD shall secure any required authorizations from regulatory agencies, conform with any conditions included in these authorizations, and comply with all applicable state and federal laws related to biological and wetland resources.
2. Trees and other landscaping removed during construction shall be replaced by the Contractor. If required, the Contractor shall obtain a permit from the Town of San Anselmo for the removal of any trees of regulated size and shall comply with relevant permit conditions of Title 4, Chapter 9 and 13 of the County Code.
3. The Contractor will submit to RVSD, if applicable, a copy of their annual trench and/or excavation permit issued by Cal/OSHA.
4. Comply with all applicable provisions of Section 7-1.01I, "Sound Control Requirements," of the California Department of Transportation (Caltrans) Standard Specifications and Contract Documents.
5. Comply with the County Code that regulates noise levels. The County of Marin, Title 6, Chapter 6.70, Section 6.70.030 Enumerated noises states that:

   a. Hours for construction activities and other work undertaken in connection with building, plumbing, electrical, and other permits issued by the community development agency shall be limited to the following:

      i. Monday through Friday: 7 a.m. to 6 p.m.

      ii. Saturday: 9 a.m. to 5 p.m.

      iii. Prohibited on Sundays and Holidays (New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day.)

b. Loud noise-generating construction-related equipment (e.g., backhoes, generators, jackhammers) can be maintained, operated, or serviced at a construction site for permits administered by the community development agency from 8 a.m. to 5 p.m. Monday through Friday only.

c. Special exceptions to these limitations may occur for:

i. Emergency work as defined in Section 22.130.030 of this code provided written notice is given to the community development director within 48 hours of commencing work

ii. Construction projects of city, county, state, other public agency, or other public utility

iii. When written permission of the community development director has been obtained, for showing of sufficient cause

iv. Minor jobs (e.g., painting, hand sanding, sweeping) with minimal/no noise impacts on surrounding properties

v. Modifications required by the review authority as a discretionary permit condition of approval.

6. Contractor to obtain an encroachment permit from the Town of San Anselmo and comply with permit conditions.

Stormwater and Erosion Control

1. Contractor shall prepare a Water Pollution Control Plan (WPCP) for RVSD approval. The WPCP shall describe measures to be implemented to prevent the discharge of contaminated stormwater runoff from the job site. Erosion control measures shall be in accordance with the requirements of the Marin County Stormwater Pollution Prevention Program and RVSD's Field Management Practices for protection of water quality. The temporary construction site best management practices (BMPs) to be included in the WPCP shall address, but not be limited to the following:
    a. Providing all excavated areas with temporary erosion control measures where natural ground cover is disturbed, all temporary excavation stockpiles, including structures and trench excavations.
    b. Prevent any construction debris from entering drainages in the Project vicinity.
    c. Control of equipment fueling and maintenance, concrete mixing and washout, and hauling and storage of materials.

d. Inspection and maintenance of protected areas regularly during the course of the work.

e. Placing all excavations, spills, and waste materials in areas not subject to washout, flooding, or natural drainage. No sand, mud, rocks, or other construction debris shall be disposed of in the sanitary sewers, storm sewers, or waterways. The Contractor shall comply with all water discharge requirements to local sanitary and storm sewers.

f. Placement of filter fabric at local storm drains and use of other appropriate BMPs.

Geotechnical

1. Incorporate the recommendations of the Project Geotechnical Studies for design, construction, and long-term performance into the Contract Documents for the Project.
2. Have a geotechnical engineer review the final Project plans and specifications prior to construction to verify that geotechnical aspects of the Project are consistent with the intent of the recommendations included in the Project Geotechnical Studies.
3. Have a geotechnical engineer review geotechnical-related Contractor submittals during construction (e.g., shoring, dewatering, ground improvement, backfill materials, etc.).
4. Have a geotechnical engineer perform periodic site inspections during the construction to observe and document subsurface conditions encountered by the Contractor with respect to the subsurface conditions described in the Project Geotechnical Studies.
5. In accordance with the provisions in Section 6705 of the Labor Code, the Contractor shall submit in advance of excavation of any trench or trenches 5 ft or more in depth, a detailed plan in conformance with the Project Geotechnical Studies showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of such trench or trenches. The use of water-tight shoring in excavations or dewatering will be options available to the Contractor. All trenches in streets shall have vertical trench walls. If such plans vary from the shoring system standards set forth in the Construction Safety Orders of the Division of Industrial Safety in Title 8, Subchapter 4, Article 6, CCR, then the plans shall be prepared and signed by a California registered civil or structural engineer.

Hazardous Materials

1. Store and handle all hazardous materials in strict accordance with the Material Safety Data Sheets for the products. The storage and handling of potential pollution-causing and hazardous materials, including but not necessarily limited to gasoline, oil, and paint, will be in accordance with all local, state, and federal requirements.
2. When sandblasting, spray painting, spraying insulation, or other activities inconveniencing or dangerous to property or the health of employees or the public are in progress, the area of activity shall be enclosed adequately to contain the dust, overspray, or other hazards. In the event there are no permanent enclosures at the area, or such enclosures are incomplete or inadequate, the Contractor shall provide suitable temporary enclosures.
3. If contaminated materials are encountered during excavation, then all work shall comply with the following codes:
    a. Code of Federal Regulations, Title 40—Protection of the Environment, Part 761 (40 CFR 761).
    b. California Code of Regulations, Title 22, Social Security, Division 4, Environmental Health, Chapter 30—Minimum Standards for Management of Hazardous and Extremely Hazardous Wastes.
4. Pursuant to the Contract Documents, relative to contaminated materials, the Contractor shall submit the following to the RVSD for review:
    a. The Contractor shall prepare and submit to the RVSD or its appointed Representative, for review, a detailed Job Plan describing the proposed methods and procedures for excavating, segregating, testing, and disposing of petroliferous soil or groundwater. The Job Plan shall be submitted to the RVSD or its appointed Representative no less than 14 days prior to the start of any excavation work at locations where contaminated soils and groundwater is anticipated.
    b. The Job Plan shall include step-by-step procedures for the actions to be taken in identifying, handling, removing, and disposing of any contaminated soil or groundwater encountered during excavation.
    c. At least 14 days before the start of any excavation at locations where contaminated soils and groundwater are anticipated, the Contractor shall prepare and submit to the RVSD or its appointed Representative, for review, a supplemental Health and Safety Plan. The supplemental Health and Safety Plan shall be prepared by an industrial hygienist certified by the American Board of Industrial Hygiene and shall include, but not be limited to, training

of the Contractor's personnel, protective equipment, air monitoring, sampling, and emergency procedures.

d. No excavation will be allowed to commence until the Health and Safety Plan has been returned by the RVSD to the Contractor with the notation: "Resubmittal not required."

e. The Contractor shall provide copies of hazardous waste transporter licenses, permits, or registrations for all states in which the shipment shall travel.

f. The Contractor shall obtain all permits and licenses, pay all charges and fees, and give all notices necessary and incident to the due and lawful prosecution of the work, including certification of transport vehicles carrying hazardous material.

5. Pursuant to the Contract Documents relative to contaminated materials, the Contractor shall implement the following monitoring requirements:

    a. Contractor shall furnish a properly calibrated, fully functional organic vapor analyzer (OVA) for use at the site of every excavation or open trench to continually sample and monitor the ambient atmosphere.

    b. The preliminary mode of examination for petroliferous soil and/or groundwater shall be through visual and olfactory means. Upon the first observation of soil or water that may contain petroliferous products, the Contractor shall stop excavation work and immediately notify the RVSD or its appointed Representative. No excavation of petroliferous soil, nor pumping of petroliferous water, shall proceed without the approval of RVSD or its appointed Representative.

    c. Following sensory observation of petroliferous products, the OVA equipment shall be brought to the excavation site and the atmosphere shall be tested. The Contractor's Job Plan and Health and Safety Plan shall be immediately placed into effect.

    d. Potentially contaminated soil or water shall be segregated and tested by the Contractor, at a certified laboratory approved by RVSD or its appointed Representative, to determine the consistency and quantity of petroliferous products. The soil or water shall then be disposed of in accordance with applicable local, state, and federal law, following the procedures described in the Contractor's Job Plan and Health and Safety Plan.

6. Pursuant to the Contract Documents, contaminated materials will be handled and disposed of in the following manner:

    a. The Contractor shall avoid or minimize excavation in contaminated areas whenever possible.

b. Excavated trench material that, in the opinion of RVSD or its appointed Representative, exhibits evidence of petroleum contamination shall be removed from the site and temporarily stockpiled by the Contractor. The location of the temporary stockpile area must be reviewed by RVSD. The contaminated trench materials shall be placed on a 10-mil polyethylene sheeting to prevent contamination of uncontaminated soils and shall be separated from all uncontaminated trench materials. The temporary stockpiles of contaminated trench materials shall be covered securely with 10-mil polyethylene sheeting to limit emissions and prevent rainfall from entering the stockpile. Runoff or drainage from the temporary stockpile shall be prevented from leaving the area and all materials shall be surrounded with 6-ft-high temporary chainlink fence.

c. The temporary stockpiles of contaminated trench materials shall be sampled and analyzed by a certified testing laboratory, approved by RVSD or its appointed Representative. Results of the laboratory analysis shall be provided by RVSD or its appointed Representative within calendar days from the date that the material is stockpiled.

d. Disposal of the contaminated trench materials will depend on the results of the testing program. The Contractor shall dispose of the contaminated material with the approval of RVSD or its appointed Representative, either at a licensed thermal remediation plant or by disposal at a Class II landfill, following required procedures.

   All handling, storing, transporting, treatment, and disposal of contaminated soil and groundwater shall conform to the federal and state environmental regulations, including those of the San Francisco Bay Regional Water Quality Control Board (Regional Water Board), Department of Toxic Substances Control (DTSC), Integrated Waste Management Board, California Air Resources Board (CARB), and Bay Area Air Quality Management District (BAAQMD). Transport of contaminated material and groundwater shall be performed by appropriately certified and/or licensed personnel.

7. Groundwater management shall conform to the federal and state environmental regulations, including those of the Regional Water Board, DTSC, Integrated Waste Management Board, CARB, and BAAQMD. Transport of contaminated material and groundwater shall be performed by appropriately certified and/or licensed personnel.

   a. Upon completion of excavation within the contaminated area and the hauling and disposal of contaminated materials, the Contractor shall clean

up the site, including proper removal and disposal of all plastic sheeting, containers, and other materials used.

b. Any groundwater from trenching activities within the contaminated soil area, as shown on the plan, shall be stored in temporary Baker-type storage tanks. The Contractor shall sample and analyze groundwater, then dispose of the stored groundwater as directed by RVSD or its appointed Representative. Depending on the quality of the groundwater, disposal may be to the sewer system or a suitable offsite disposal facility.

Safety

1. Employ safety provisions conforming to the U.S. Department of Labor Occupational Safety and Health Administration (OSHA), Cal/OSHA, and all other applicable federal, state, county, and local laws, ordinances, and codes. The completed work shall include all necessary permanent safety devices, such as machinery guards and similar ordinary safety items, required by the state and federal industrial authorities and applicable local and national codes. Develop and submit to RVSD for approval a Health and Safety Plan that defines proposed site safety measures.
2. Appoint as safety supervisor an employee who is qualified and authorized to supervise and enforce compliance with the Safety Program. The Safety Program will include an operation plan with emergency contacts.
3. The Contractor shall construct appropriate safety barriers such as temporary fencing, berms, or similar facilities where required or directed by RVSD. To minimize disturbance of existing roads and facilities, safety barriers shall allow for normal maintenance and operation of existing facilities and roads as determined by RVSD or its appointed Representative. The Contractor shall conduct his or her work so as to ensure the least possible obstruction to traffic and inconvenience to the general public and the residents in the vicinity of the work, and to ensure the protection of persons and property.
4. Establish, implement, and maintain a written injury prevention program as required by Labor Code Section 6401.7.
5. In case of an emergency, make all necessary repairs and promptly execute such work when required by the Construction Manager.
6. Manhole entry and/or entry to any excavation greater than 5 ft deep shall be in full compliance with the confined space entry requirements of OSHA, Cal/OSHA, and RVSD. The RVSD shall have the authority to require the removal from the Project of the foreman and/or superintendent in responsible charge of the work where safety violations occur.

7. During non-working hours, all trenches in public streets shall either be backfilled and temporarily paved or shall be shored and covered with steel plates in compliance with the requirements of local jurisdictions. The maximum length of trench excavation in advance of the pipe laying operation and the maximum amount of trench remaining open without backfill during the course of the daily pipe installations shall be in accordance with local jurisdictional agencies encroachment and excavation permit requirements or a maximum of 200 ft, whichever is more restrictive.
8. Submit for RVSD review, in accordance with the provisions of Section 6705 of the Labor Code, in advance of excavation of any trench or trenches 5 ft or more in depth, a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of ground caving.

Notifications

1. Provide written notice to all private property owners along the alignment three times before work commences in the vicinity of said property. The notices will be provided 7 days before planned construction, 24 hours prior to start of work and day of construction, and will provide information on Project activities, the construction schedule, protocol for providing complaints relative to hazardous conditions and noise, and vehicle access needs.
2. If complaints are received relative to unsafe conditions, identify the source, evaluate and implement appropriate corrective measures, and notify the complainant(s) of the results.

Dewatering

1. Contractor shall submit a plan for all excavation dewatering procedures to RVSD for approval prior to performing dewatering operations as specified in the Contract Documents. The dewatering plan shall provide for:
    a. Use of appropriate equipment and means to accomplish dewatering and may include use of wells, well points, sump pumps, storage tanks, settling tanks, filters temporary pipelines for water disposal, rock or gravel placement, standby pumps and/or generators, and other means.
    b. Compliance with any permitting requirements of RVSD, Central Marin Sanitation Agency, and Regional Water Board.
    c. A dry excavation and preservation of the final lines and grades of the bottoms of excavation with drawdown of groundwater level a minimum of

2 ft below the trench bottom and beyond excavation sidewalls where shoring is not designed to resist hydrostatic pressures.

d. Control of the rate and effect of dewatering so as to avoid settlement, subsidence, or damage to the structures or facilities adjacent to areas of proposed dewatering with repair, restoration, or replacement of facilities or structures damaged. Contractor shall establish reference points daily to quickly detect any settlement, subsidence, or damage that may develop during or following dewatering operations.

e. Demonstrated compliance with the Contractor-designed shoring and bracing method.

f. Disposal of collected groundwater. Discharge options include the sanitary sewer system or the storm drain system. Pretreatment may be required.

g. Minimal interference with vehicle or pedestrian traffic.

2. Implement Control Measures listed above for handling and disposal of contaminated soil and groundwater, if encountered.
3. Comply with the requirements of the approved WPCP.

Noise

1. During the encroachment permit process, the Contractor will coordinate with the County of Marin and RVSD on allowable work hour limitations that are consistent with the County of Marin's noise ordinance. Working hour limitations included in the Project Contract Documents will be generally limited to 8 a.m. to 5 p.m. on weekdays. Work hours beyond these referenced limits must be approved by RVSD and the County of Marin. More specific work hour limitations may be required by the Town of San Anselmo.
2. Avoid the use of loud sound signals in favor of light warnings except those required by safety laws for the protection of personnel.
3. Equip internal combustion engines with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated without said muffler.
4. To minimize noise levels, attempt to obtain electrical power from PG&E in lieu of providing power by portable generator. If use of utility power is not practicable, generator power may be provided by sound-attenuated and enclosed electric generators. Diesel generators shall not be utilized unless they are provided with sound enclosures, as necessary to comply with local ordinances.

5. Use of radio or other music amplification devices will not be permitted in the work area.
6. Implement a vibration monitoring and correction program to protect buildings, structures, and utilities from extensive vibration during construction.
7. If noise complaints are received, identify the source, and evaluate and implement available abatement.
8. Place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the active Project site.
9. Locate equipment staging in areas that would create the greatest possible distance between construction-related noise sources and noise-sensitive receptors nearest the active Project site during all Project construction.
10. Temporary noise control blanket barriers shall be installed in a manner to shield adjacent land uses.
11. Designate a "disturbance coordinator" who would be responsible for responding to any local complaints about construction noise. The disturbance coordinator would determine the cause of the noise complaint (e.g., starting too early, bad muffler) and would determine and implement reasonable measures warranted to correct the problem.

Traffic Management

1. Contractor to prepare a traffic control plan (TCP) and submit it to RVSD and the County of Marin for review and approval at least 3 weeks prior to start of construction. The TCP shall include, at a minimum, the following provisions:
    a. Limit construction work or as otherwise required by the County of Marin.
    b. Conduct operations to reduce obstruction and inconvenience to public traffic and have under construction no greater length or amount of work than can be properly undertaken with due regard to the rights of the public.
    c. Avoid blocking driveways or private roads without notifying the property owner, and access must be restored during all non-working hours.
    d. Maintain safe access for pedestrian and bicyclist traffic throughout the work area at all times.
    e. To the extent possible, maintain at least one lane of traffic in each direction open at all times. Traffic shall be permitted to use shoulders and the side of the roadbed opposite the one under construction. When sufficient width is available, a passageway wide enough to accommodate one lane of traffic

shall be kept open at locations where construction operations are in active progress and it is safe to do so.

f. The Contractor shall be responsible for notifying police and fire departments, the school district, ambulance services, and local transit districts as to the hours and dates of closure and routes of detour at least 48 hours in advance of the detour's occurrence, and shall notify them again when the detour is discontinued.

g. The Contractor shall call local emergency services dispatcher(s) daily with the location of the work and road status.

h. Avoid blocking or obstructing fire lanes at all times. Fire hydrants on or adjacent to the work will be kept accessible to firefighting equipment at all times.

i. Utilize certified flagmen to direct vehicular traffic through the construction area and to guard all obstructions to traffic, and illuminate at night. Traffic control will include signs, warning lights, reflectors, barriers, and other necessary safety devices and measures. These measures shall conform to the requirements set forth in the current "Manual of Traffic Controls for Construction and Maintenance Work Zones," issued by the State Department of Transportation, latest edition.

j. Install and maintain temporary bridges of approved construction (ADA compliant) across the trench at all crosswalks, intersections, and at such other points where traffic conditions make it advisable.

k. Repair excavated areas to the requirements of the County of Marin.

l. Use only approved haul routes for all construction traffic on the Project as may be stipulated by the County of Marin.

m. A maximum delay of 10 minutes shall be allowed on a roadway if it does not create a significant or dangerous area of traffic congestion away from the traffic control area. The County of Marin has the right to reduce the 10-minute traffic-related delay if traffic conditions require it in their opinion. The maximum delay for access to a residence or business is 10 minutes. The Contractor shall have materials onsite to provide safe passage across the work zone and shall install said material when a person in a vehicle requests access to the residence or business.

n. Avoid storing or parking material or equipment where it would interfere with the free and safe passage of public traffic, and at the end of each day's work, and at all times when construction operations are suspended for any reason.

o. Immediately remove any spillage on local roadways resulting from hauling operations.

p. The Contractor may organize parking and staging independently. However, no sidewalks or private property adjacent to the site shall be used for storage of equipment and supplies unless prior written approval is obtained from the legal owner and submitted to the Construction Manager a minimum of 14 days before use of the site. Otherwise, parking and staging may be allowed only within the public right-of-way, if any, designated for such use by the Project Manager.

q. Minimize the removal of curb parking, but if necessary removal shall be in accordance with the approved TCP.

r. Coordinate with the Central Marin Police Authority and the County of Marin's Public Works Department for the location of "No Stopping" and "No Parking" signs.

s. Where construction work will disrupt the traffic signal loops at an intersection, the Contractor shall install and have operational a temporary detection system that is compatible with the traffic signal controller at that location as approved by the Town of San Anselmo. The temporary detection system for the Project will be dependent on the Contractor's work sequence. The temporary detection system is a temporary traffic control device that shall not be removed/relocated until the permanent traffic signal loops are reinstalled and accepted by local jurisdictions.

t. In the event of a declared emergency by the Central Marin Police Authority Chief of Police, the local Captain of the Highway Patrol, or the Marin County Fire Department Fire Marshal, or their Representative, the Contractor shall comply with verbal demands and immediately stop all work and reopen through traffic where work is occurring.

u. Provide, install, and maintain for the duration of the Project up to four Project signs pursuant to the requirements of local jurisdictions.

2. Contact the Marin Transit District, inform them of the construction schedule, and coordinate work in areas that may affect access to bus stops.

Ground Movement Monitoring

1. The Contractor shall provide all labor, materials, equipment, and incidentals required to install, operate, and maintain geotechnical instruments and survey monitoring points for the purpose of monitoring ground movement during construction. The Work shall include, but not be limited to, installing and

monitoring crack gages and settlement markers, and determining ambient vibration levels.

2. The ground movement indicator points shall provide reference points for monitoring vertical and horizontal ground and structure movement and to establish a baseline record of such movement.
3. Measurements of ground and structure movement will provide the basis for the implementation of remedial measures to prevent possible damage to structures and utilities.
4. Remedial measures, if necessary, include modifications to construction procedures, repair or replacement of damaged facilities, and restoration to original conditions of any disturbed property, structure, or utility.
5. The Contractor shall keep the Construction Manager informed of the monitoring measurements; however, it shall be the Contractor's sole responsibility to protect onsite structures and utilities and all adjacent structures and utilities within 50 ft of any excavation, pipe bursting, jack and bore, shoring, and backfill operations. Any damage caused to any of these structures or utilities by the Contractor shall be repaired and restored by the Contractor immediately and at the Contractor's expense.

Air Quality

1. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
2. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of CCR). Clear signage shall be provided for construction workers at all access points.
3. All construction equipment, diesel trucks, and generators shall be required to be equipped with Best Available Control Technology for emission reductions of oxides of nitrogen (NOx) and particulate matter (PM).
4. All Contractors shall be required to use equipment that meets CARB's most recent certification standard for off-road, heavy-duty diesel engines.

Attachment E

Supplemental Biological

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: BIOS selection

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Amorpha californica var. napensis Napa false indigo	G4T2 S2	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	690 690	76 S:2	0	0	0	0	0	2	1	1	2	0	0
Antrozous pallidus pallid bat	G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	45 225	420 S:2	0	0	0	0	1	1	1	1	1	1	0
Bombus caliginosus obscure bumble bee	G4? S1S2	None None	IUCN_VU-Vulnerable	200 200	181 S:1	0	0	0	0	0	1	1	0	1	0	0
Eriogonum luteolum var. caninum Tiburon buckwheat	G5T2 S2	None None	Rare Plant Rank - 1B.2		26 S:1	0	0	0	0	0	1	1	0	1	0	0
Hemizonia congesta ssp. congesta congested-headed hayfield tarplant	G5T2 S2	None None	Rare Plant Rank - 1B.2 SB_UCBG-UC Botanical Garden at Berkeley	100 100	52 S:1	0	0	0	0	0	1	1	0	1	0	0
Holocarpha macradenia Santa Cruz tarplant	G1 S1	Threatened Endangered	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley	120 120	37 S:1	0	0	0	0	1	0	1	0	0	1	0
Laterallus jamaicensis coturniculus California black rail	G3G4T1 S1	None Threatened	BLM_S-Sensitive CDFW_FP-Fully Protected IUCN_NT-Near Threatened NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	2 2	303 S:1	0	0	0	0	0	1	0	1	1	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Melospiza melodia samuelis San Pablo song sparrow	G5T2 S2	None None	CDFW_SSC-Species of Special Concern USFWS_BCC-Birds of Conservation Concern	20 20	41 S:1	0	0	0	0	0	1	1	0	1	0	0
Pentachaeta bellidiflora white-rayed pentachaeta	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_UCBG-UC Botanical Garden at Berkeley	250 250	14 S:1	0	0	0	0	1	0	1	0	0	0	1
Rana boylii foothill yellow-legged frog	G3 S3	None Endangered	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened USFS_S-Sensitive	38 115	2468 S:2	0	0	0	0	2	0	2	0	0	0	2
Sidalcea calycosa ssp. rhizomata Point Reyes checkerbloom	G5T2 S2	None None	Rare Plant Rank - 1B.2	300 300	34 S:1	0	0	0	0	0	1	1	0	1	0	0
Vespericola marinensis Marin hesperian	G2 S2	None None		25 180	23 S:2	0	0	0	0	0	2	2	0	2	0	0

*The database used to provide updates to the Online Inventory is under construction. View updates and changes made since May 2019 here.

Plant List

38 matches found. *Click on scientific name for details*

Search Criteria

California Rare Plant Rank is one of [1A, 1B, 2A, 2B, 3] Found in Quads 3712285 and 3812215;

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Amorpha californica var. napensis	Napa false indigo	Fabaceae	perennial deciduous shrub	Apr-Jul	1B.2	S2	G4T2
Amsinckia lunaris	bent-flowered fiddleneck	Boraginaceae	annual herb	Mar-Jun	1B.2	S3	G3
Arctostaphylos montana ssp. montana	Mt. Tamalpais manzanita	Ericaceae	perennial evergreen shrub	Feb-Apr	1B.3	S3	G3T3
Arctostaphylos virgata	Marin manzanita	Ericaceae	perennial evergreen shrub	Jan-Mar	1B.2	S2	G2
Calamagrostis crassiglumis	Thurber's reed grass	Poaceae	perennial rhizomatous herb	May-Aug	2B.1	S2	G3Q
Chloropyron maritimum ssp. palustre	Point Reyes bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Oct	1B.2	S2	G4?T2
Chorizanthe cuspidata var. cuspidata	San Francisco Bay spineflower	Polygonaceae	annual herb	Apr-Jul(Aug)	1B.2	S1	G2T1
Cirsium hydrophilum var. vaseyi	Mt. Tamalpais thistle	Asteraceae	perennial herb	May-Aug	1B.2	S1	G2T1
Dirca occidentalis	western leatherwood	Thymelaeaceae	perennial deciduous shrub	Jan-Mar(Apr)	1B.2	S2	G2
Eriogonum luteolum var. caninum	Tiburon buckwheat	Polygonaceae	annual herb	May-Sep	1B.2	S2	G5T2
Fissidens pauperculus	minute pocket moss	Fissidentaceae	moss		1B.2	S2	G3?
Fritillaria lanceolata var. tristulis	Marin checker lily	Liliaceae	perennial bulbiferous herb	Feb-May	1B.1	S2	G5T2
Fritillaria liliacea	fragrant fritillary	Liliaceae	perennial bulbiferous herb	Feb-Apr	1B.2	S2	G2
Gilia capitata ssp. tomentosa	woolly-headed gilia	Polemoniaceae	annual herb	May-Jul	1B.1	S1	G5T1
Gilia millefoliata	dark-eyed gilia	Polemoniaceae	annual herb	Apr-Jul	1B.2	S2	G2
Grindelia hirsutula var. maritima	San Francisco gumplant	Asteraceae	perennial herb	Jun-Sep	3.2	S1	G5T1Q
Helianthella castanea	Diablo helianthella	Asteraceae	perennial herb	Mar-Jun	1B.2	S2	G2
Hemizonia congesta ssp. congesta	congested-headed hayfield tarplant	Asteraceae	annual herb	Apr-Nov	1B.2	S2	G5T2
Hesperolinon congestum	Marin western flax	Linaceae	annual herb	Apr-Jul	1B.1	S1	G1
Holocarpha macradenia	Santa Cruz tarplant	Asteraceae	annual herb	Jun-Oct	1B.1	S1	G1
	thin-lobed horkelia	Rosaceae	perennial herb	May-	1B.2	S2	G2

Horkelia tenuiloba				Jul(Aug)			
Kopsiopsis hookeri	small groundcone	Orobanchaceae	perennial rhizomatous herb (parasitic)	Apr-Aug	2B.3	S1S2	G4?
Lessingia hololeuca	woolly-headed lessingia	Asteraceae	annual herb	Jun-Oct	3	S2S3	G3?
Lessingia micradenia var. micradenia	Tamalpais lessingia	Asteraceae	annual herb	(Jun)Jul-Oct	1B.2	S2	G2T2
Micropus amphibolus	Mt. Diablo cottonweed	Asteraceae	annual herb	Mar-May	3.2	S3S4	G3G4
Microseris paludosa	marsh microseris	Asteraceae	perennial herb	Apr-Jun(Jul)	1B.2	S2	G2
Navarretia leucocephala ssp. bakeri	Baker's navarretia	Polemoniaceae	annual herb	Apr-Jul	1B.1	S2	G4T2
Navarretia rosulata	Marin County navarretia	Polemoniaceae	annual herb	May-Jul	1B.2	S2	G2
Pentachaeta bellidiflora	white-rayed pentachaeta	Asteraceae	annual herb	Mar-May	1B.1	S1	G1
Plagiobothrys glaber	hairless popcornflower	Boraginaceae	annual herb	Mar-May	1A	SH	GH
Pleuropogon hooverianus	North Coast semaphore grass	Poaceae	perennial rhizomatous herb	Apr-Jun	1B.1	S2	G2
Polygonum marinense	Marin knotweed	Polygonaceae	annual herb	(Apr)May-Aug(Oct)	3.1	S2	G2Q
Quercus parvula var. tamalpaisensis	Tamalpais oak	Fagaceae	perennial evergreen shrub	Mar-Apr	1B.3	S2	G4T2
Sidalcea calycosa ssp. rhizomata	Point Reyes checkerbloom	Malvaceae	perennial rhizomatous herb	Apr-Sep	1B.2	S2	G5T2
Stebbinsoseris decipiens	Santa Cruz microseris	Asteraceae	annual herb	Apr-May	1B.2	S2	G2
Streptanthus batrachopus	Tamalpais jewelflower	Brassicaceae	annual herb	Apr-Jul	1B.3	S2	G2
Streptanthus glandulosus ssp. pulchellus	Mt. Tamalpais bristly jewelflower	Brassicaceae	annual herb	May-Jul(Aug)	1B.2	S2	G4T2
Trifolium amoenum	two-fork clover	Fabaceae	annual herb	Apr-Jun	1B.1	S1	G1

Suggested Citation

California Native Plant Society, Rare Plant Program. 2021. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 29 March 2021].

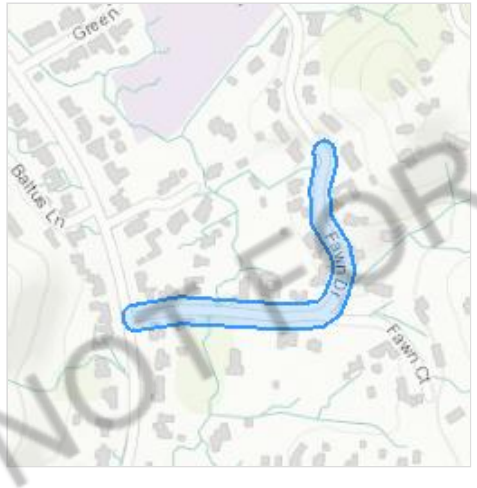
IPaC resource list

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

Marin County, California



Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

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.

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:

Mammals

NAME	STATUS

Salt Marsh Harvest Mouse Reithrodontomys raviventris — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/613

Birds

NAME	STATUS

California Clapper Rail Rallus longirostris obsoletus — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/4240

California Least Tern Sterna antillarum browni — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/8104

Northern Spotted Owl Strix occidentalis caurina — Threatened
Wherever found
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/1123

Western Snowy Plover Charadrius nivosus nivosus — Threatened
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/8035

Reptiles

NAME	STATUS

Green Sea Turtle Chelonia mydas — Threatened
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/6199

Amphibians

NAME	STATUS

California Red-legged Frog Rana draytonii — Threatened
Wherever found
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/2891

Fishes

NAME	STATUS

Delta Smelt Hypomesus transpacificus — Threatened
Wherever found
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/321

Tidewater Goby Eucyclogobius newberryi — Endangered
Wherever found
There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/57

Insects

NAME	STATUS
San Bruno Elfin Butterfly Callophrys mossii bayensis	Endangered

Wherever found
There is **proposed** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/3394

Crustaceans

NAME	STATUS
California Freshwater Shrimp Syncaris pacifica	Endangered

Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/7903

Flowering Plants

NAME	STATUS
Marin Dwarf-flax Hesperolinon congestum	Threatened

Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/5363

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.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

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:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Allen's Hummingbird Selasphorus sasin — Breeds Feb 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/9637

Bald Eagle Haliaeetus leucocephalus — 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/1626

Black Rail Laterallus jamaicensis — Breeds Mar 1 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/7717

Burrowing Owl Athene cunicularia — Breeds Mar 15 to Aug 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/9737

California Spotted Owl Strix occidentalis occidentalis — Breeds Mar 10 to Jun 15

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/7266

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

Nuttall's Woodpecker Picoides 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

Rufous Hummingbird selasphorus rufus — 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/8002

Song Sparrow Melospiza melodia This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Feb 20 to Sep 5
Spotted Towhee Pipilo maculatus clementae 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/4243	Breeds Apr 15 to Jul 20
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 and understand the FAQ "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.

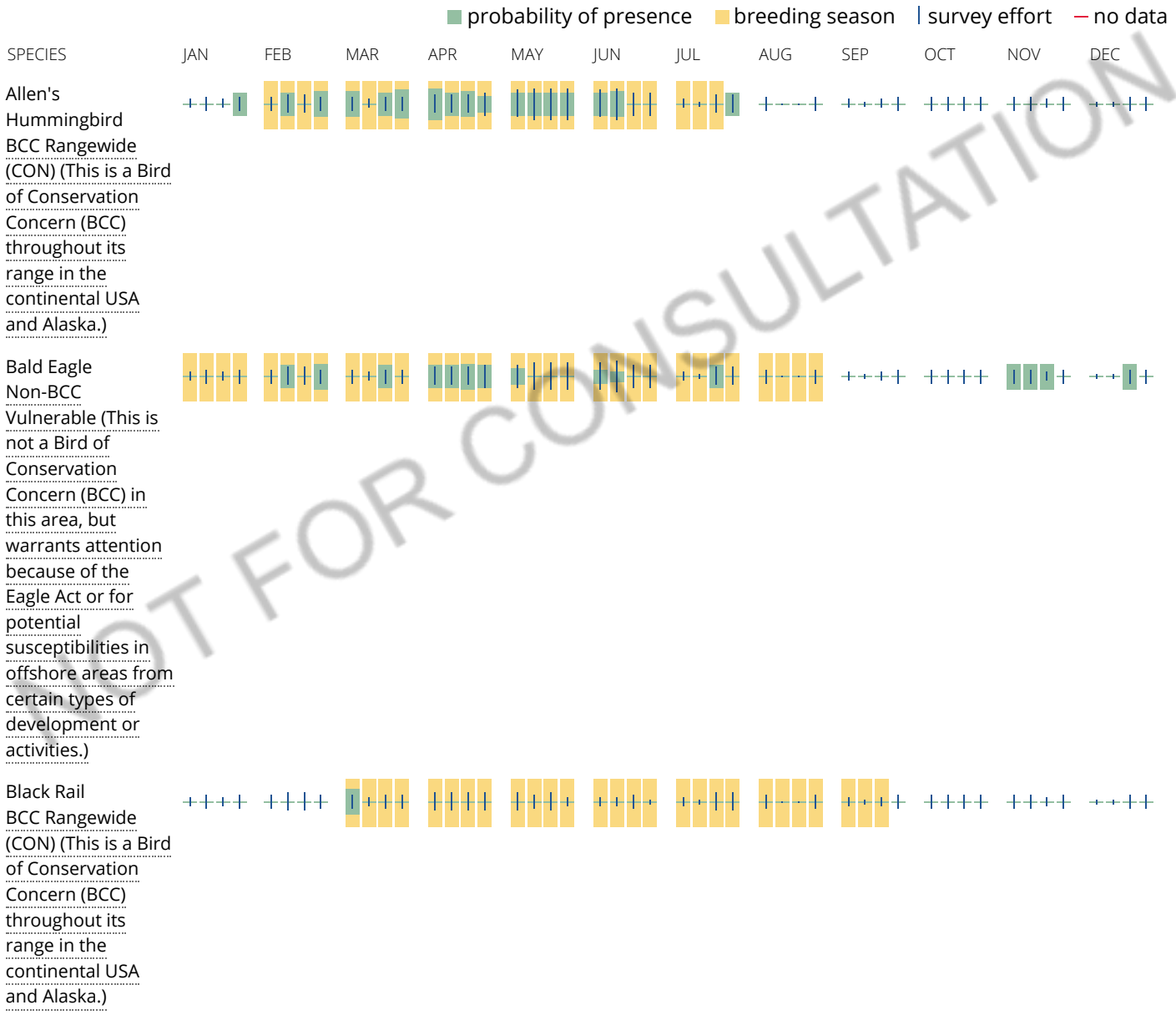
Survey Effort (|)

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.

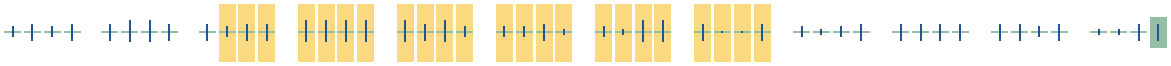
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

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.

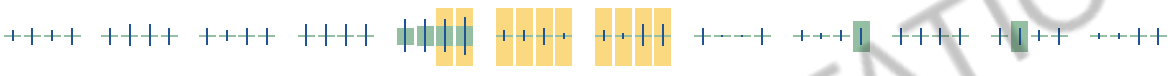


Burrowing Owl BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

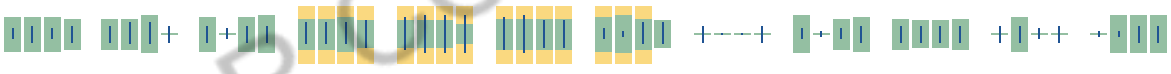


California Spotted Owl BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Common Yellowthroat BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Nuttall's Woodpecker BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Oak Titmouse BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding 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 migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

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) which your project intersects, and

that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle 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, please visit the AKN Phenology Tool.

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 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, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, 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 Eagle 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 try 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 eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

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.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

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 also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). 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 is not perfect; 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 helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

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

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.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE

R4SBC

A full description for each wetland code can be found at the National Wetlands Inventory website

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.

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.

Table E-1. Plant Species Known to Occur or Potentially Occur near Sleepy Hollow

Species	Status[a]	Habitat/ Blooming Period	Distribution and Potential for Occurrence within APE
Minute pocket moss *Fissidens pauperculus*	1B	North Coast coniferous forest (damp coastal soil)	Reported by CNPS Inventory in the general Mt. Tamalpais State Park area. No suitable habitat in APE.
Bent-flowered fiddleneck *Amsinckia lunaris*	1B	Coastal bluff scrub, cismontane woodland, valley and foothill grassland. March-June	Reported by CNPS Inventory. No potential for occurrence in APE - suitable habitat not present.
Congested-headed hayfield tarplant *Hemizonia congesta ssp. congesta*	1B	Valley and foothill grasslands, sometimes roadside. April-November	Reported by CNPS Inventory and CNDDB. Closest CNDDB occurrence is location within 1 mile north of the APE. Suitable habitat not present.
Dark-eyed gilia *Gilia millefoliata*	1B	Found in coastal strand habitat. April-July	Reported by CNPS Inventory. No potential for occurrence in APE - suitable habitat not present.
Diablo helianthella *Helianthella castanea*	1B	Broadleafed upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. March-June	Reported by CNPS Inventory. No potential for occurrence in APE - suitable habitat not present.
Hairless popcornflower *Plagiobothrys glaber*	1A	Coastal salt marshes, alkaline meadows, and seeps. March-May	Reported by CNPS Inventory. No potential for occurrence in APE - suitable habitat not present.
fragrant fritillary *Fritillaria liliacea*	1B	Cismontane woodland, Coastal prairie, Coastal scrub, Valley and foothill grassland. Often serpentinite. February-April	Reported by CNPS Inventory. No potential for occurrence in APE - suitable habitat not present.
Marin County navarretia *Navarretia rosulata*	1B	Closed-cone coniferous forest and chaparral on serpentine. May-July	Reported by CNPS Inventory. No potential for occurrence in APE - suitable habitat not present.
Marin Dwarf-flax *Hesperolinon congestum*	FT; ST; 1B	Dry native bunch grasses, chaparral or other grasslands at elevations less than 200 meters. April-July.	Reported by IPaC resource list. No potential for occurrence in APE - suitable habitat not present.
Marin knotweed *Polygonum marinense*	3	Coastal salt marshes, brackish water marsh, and riparian wetlands. May-August	Reported by CNPS Inventory. No potential for occurrence in APE - suitable habitat not present.
Marin manzanita *Arctostaphylos virgata*	1B	Broadleafed upland forest, closed-cone coniferous forest, chaparral, North Coast coniferous forest on sandstone, or granitic substrates. January-March	Reported by CNPS Inventory. No potential for occurrence in APE - suitable habitat not present.
Marin western flax *Hesperolinon congestum*	FE; ST; 1B	Serpentine barrens and serpentine grassland and chaparral. April-July	Reported by IPaC - no CNDDB reported occurrences in the San Anselmo area. No suitable habitat.
Marsh microseris *Microseris paludosa*	1B	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. April-June	Reported by CNPS Inventory. No potential for occurrence in APE - suitable habitat not present.

Table E-1. Plant Species Known to Occur or Potentially Occur near Sleepy Hollow

Species	Status[a]	Habitat/ Blooming Period	Distribution and Potential for Occurrence within APE
Mt. Tamalpais bristly jewelflower *Streptanthus glandulosus ssp. pulchellus*	1B	Serpentine slopes. May-July (August rarely)	Reported by CNPS Inventory. No potential for occurrence in APE - suitable habitat not present.
Mt. Tamalpais manzanita *Arctostaphylos montana ssp. Montana*	1B	Chaparral, valley and foothill grassland/serpentinite, rocky. February-April	Reported by CNPS Inventory. No potential for occurrence in APE - suitable habitat not present.
Mt. Tamalpais thistle *Cirsium hydrophilum var. vaseyi*	1B	Serpentine seeps and streams in chaparral and woodland. May-August	Reported by CNPS Inventory. No potential for occurrence in APE - suitable habitat not present.
Napa false indigo *Amorpha californica var. napensis*	1B	Openings in broadleafed upland forest, chaparral, cismontane woodland. April-July	Reported by CNPS Inventory and CNDDB. Closest CNDDB records is from an occurrence within 1 mile west and south of the APE. Suitable habitat is absent in APE.
Point Reyes checkerbloom *Sidalcea calycosa ssp. rhizomata*	1B	Freshwater marshes near the coast. April-September	Reported by CNPS Inventory and CNDDB. Closest CNDDB records is from an occurrence 1 mile west of the APE. Suitable habitat is absent in APE.
Point Reyes salty bird's-beak *Chloropyron maritimum ssp. palustre*	1B	Coastal salt marsh and swamps. June-October	Reported by CNPS Inventory. No potential for occurrence in APE - suitable habitat not present.
San Francisco Bay spineflower *Chorizanthe cuspidata var. cuspidata*	1B	Sandy soil on terraces and slopes in coastal bluff, coastal dunes, coastal scrub, and coastal prairie habitat. April-July (August rarely)	Reported by CNPS Inventory. No potential for occurrence in APE - suitable habitat not present.
Santa Cruz microseris *Stebbinsoseris decipiens*	1B	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. April-May	Reported by CNPS Inventory. No potential for occurrence in APE - suitable habitat not present.
Santa Cruz tarplant *Holocarpha macradenia*	FT; SE; 1B	Light, sandy soil or sandy clay, often with non-natives in coastal prairie and grasslands. June-October	Reported by CNPS Inventory and CNDDB. Closest CNDDB records is from an occurrence 1 mile south of the APE. Suitable habitat is absent in APE.
small groundcone *Kopsiopsis hookeri*	2	Open woods, shrubby places, generally on Gaultheria shallon. April-August	Reported by CNPS Inventory. No potential for occurrence in APE - suitable habitat not present.
Tamalpais jewelflower *Streptanthus batrachopus*	1B	Closed-cone coniferous forest, chaparral, Talus serpentine outcrops. April-June	Reported by CNPS Inventory. No potential for occurrence in APE - suitable habitat not present.
Tamalpais lessingia *Lessingia micradenia var. micradenia*	1B	Usually on serpentine, in serpentine grassland or chaparral, often on roadsides. (June rarely) July-October	Reported by CNPS Inventory. No potential for occurrence in APE - suitable habitat not present.
Tamalpais oak *Quercus parvula var. tamalpaisensis*	1B	Lower montane coniferous forest. March-April	Reported by CNPS Inventory. No potential for occurrence in APE - suitable habitat not present.

Table E-1. Plant Species Known to Occur or Potentially Occur near Sleepy Hollow

Species	Status[a]	Habitat/ Blooming Period	Distribution and Potential for Occurrence within APE
thin-lobed horkelia *Horkelia tenuiloba*	1B	Broadleafed upland forest, chaparral, valley and foothill grassland on sandy soils, mesic openings. May-July	Reported by CNPS Inventory. No potential for occurrence in APE - suitable habitat not present.
Tiburon buckwheat Eriogonum luteolum var. caninum	1B	Serpentine soils; sandy to gravelly sites. May-September	Reported by CNPS Inventory and CNDDB. Closest CNDDB records is from an occurrence 3/5 mile north of the APE. Suitable habitat is absent in APE.
two-fork clover *Trifolium amoenum*	FE; 1B	Coastal bluff scrub, valley and foothill grassland, sometimes on serpentinite. April-June	Reported by CNPS Inventory. No potential for occurrence in APE - suitable habitat not present.
western leatherwood *Dirca occidentalis*	1B	Wetland seeps and riparian areas in chaparral, foothill woodland, and forest habitats. January-March	Reported by CNPS Inventory. No potential for occurrence in APE - suitable habitat not present.
white-rayed pentachaeta Pentachaeta bellidiflora	FE; ST; 1B	Cismontane woodland, valley and foothill grassland on open, dry rocky slopes and grassy areas, often on serpentinite. March-May	Reported by CNPS Inventory and CNDDB. Closest CNDDB records is from an occurrence within 1 mile south of the APE. Suitable habitat is absent in APE.
Marin checker lily *Fritillaria lanceolata var. tristulis*	1B	Coastal scrub, valley and foothill grassland, and coastal prairie; often on serpentine; various soils reported though usually clay. February-April	Reported by CNPS Inventory. No potential for occurrence in APE - suitable habitat not present.
woolly-headed gilia *Gilia capitata ssp. tomentosa*	1B	Serpentinite, rocky, outcrops; Coastal bluff scrub; Valley and foothill grassland. May-July	Reported by CNPS Inventory. No potential for occurrence in APE - suitable habitat not present.
San Francisco gumplant *Grindelia hirsutula var. maritima*	3	Sandy or serpentinite; Coastal bluff scrub; Coastal scrub; Valley and foothill grassland. June-September.	Reported by CNPS Inventory. No potential for occurrence in APE - suitable habitat not present.
woolly-headed lessingia *Lessingia hololeuca*	3	Clay, serpentinite; Broadleafed upland forest; Coastal scrub; Lower montane coniferous forest; Valley and foothill grassland. June-October	Reported by CNPS Inventory. No potential for occurrence in APE - suitable habitat not present.
Mt. Diablo cottonweed *Micropus amphibolus*	3	Rocky; Broadleafed upland forest; Chaparral; Cismontane woodland; Valley and foothill grassland. March-May	Reported by CNPS Inventory. No potential for occurrence in APE - suitable habitat not present.
marsh microseris *Microseris paludosa*	1B	Closed-cone coniferous forest; Cismontane woodland; Coastal scrub Valley and foothill grassland. April-June	Reported by CNPS Inventory. No potential for occurrence in APE - suitable habitat not present.
Baker's navarretia *Navarretia leucocephala ssp. bakeri*	1B	Mesic; Cismontane woodland; Lower montane coniferous forest; Meadows and seeps; Valley and foothill grassland; Vernal pools. April-July	Reported by CNPS Inventory. No potential for occurrence in APE - suitable habitat not present.
North Coast semaphore grass *Pleuropogon hooverianus*	ST; 1B	Wet grassy, usually shady areas, sometimes in freshwater marsh, associated with forest environments. April-June	Reported by CNPS Inventory. No potential for occurrence in APE - suitable habitat not present.

Table E-1. Plant Species Known to Occur or Potentially Occur near Sleepy Hollow

Species	Status[a]	Habitat/ Blooming Period	Distribution and Potential for Occurrence within APE
Thurber's reed grass *Calamagrostis crassiglumis*	2	Freshwater marsh in northern coastal scrub, freshwater wetlands and riparian wetlands. March-July	Reported by CNPS Inventory. No potential for occurrence in APE - suitable habitat not present.

Notes:
APE = area of potential effect
CNDDB = California Natural Diversity Database
CNPS = California Native Plant Society
IPaC = Information for Planning and Consultation

[a] Status:
FE = federally endangered
FT = federally threatened
SE = State endangered
ST = State threatened
1A = Presumed extinct in California
1B = Rare, threatened or endangered in California and elsewhere
2 = Rare, threatened, or endangered in California, but more common elsewhere
3 = Review List: Plants about which more information is needed

Table E-2. Animal Species Known to Occur or Potentially Occur near Sleepy Hollow

Species	Status[a]	Habitat	Distribution and Potential for Occurrence within APE
Fish			
Tidewater goby *Eucyclogobius newberryi*	FE; SSC	Brackish shallow lagoons and lower stream reaches where water is fairly still but not stagnant	Reported by IPaC - No suitable habitat in the APE (Project location is outside of designated critical habitat).
Delta smelt *Hypomesus transpacificus*	FT	Found in the Sacramento-San Joaquin estuary in saltwater, brackish and freshwater habitats	Reported by IPaC - No suitable habitat in the APE (Project location is outside of designated critical habitat).
Amphibians and Reptiles			
Foothill yellow-legged frog *Rana boylii*	SC; SSC	Perennial streams and drainages with cobble substrate.	A general occurrence is reported by the CNDDB from the San Anselmo Creek vicinity. This species was last seen near the site in 1913.
Green sea turtle *Chelonia mydas*	FT	Bays and protected shores	Reported by IPaC - West coasts of North and South America from Baja California to Peru. No suitable habitat in the APE.
California red-legged frog *Rana draytonii*	FT	Ponds, streams, drainages and associated uplands; requires areas of deep, still, and/or slow-moving water for breeding.	Reported by IPaC.
Invertebrates			
Obscure bumble bee *Bombus caliginosus*	none	Coastal areas from Santa Barbara County to Washington.	Reported by the CNDDB in the general vicinity of Fairfax in Marin County. No suitable habitat in the APE.
Marin hesperian *Vespericola marinensis*	none	Found in moist areas in coastal brushfields and chaparral, in riparian and mixed forest habitats	Reported by the CNDDB in the general vicinity of Fairfax in Marin County. No suitable habitat in the APE.
San Bruno elfin butterfly *Callophrys mossii bayensis*	FE	Colonies are located on steep, north-facing slopes where larval host plant, Sedum spathulifolium, is present	Reported by IPaC - no CNDDB reported occurrences in the San Anselmo area. No suitable habitat.
California freshwater shrimp *Syncaris paci*	FE	Low elevation, perennial freshwater streams in Marin, Sonoma, and Napa counties.	Reported by IPaC - no CNDDB reported occurrences in the San Anselmo area. No suitable habitat.
Birds			
California black rail *Laterallus jamaicensis coturniculus*	SC; CFP	Salt marshes bordering larger bays, also found in brackish and freshwater marshes	Reported by CNDDB in the general vicinity of South Fork Gallinas Creek. No suitable habitat in APE.
San Pablo song sparrow *Melospiza melodia samuelis*	SSC	Tidal salt marshes dominated by pickleweed; nests primarily in pickleweed and marsh gumplant.	Reported by CNDDB in the general vicinity of Gallinas Creek. No suitable habitat in APE.

Table E-2. Animal Species Known to Occur or Potentially Occur near Sleepy Hollow

Species	Status[a]	Habitat	Distribution and Potential for Occurrence within APE
California Ridgway's Rail *Rallus longirostris obsoletus*	FE	Tidal salt marshes with sloughs and substantial cordgrass (Spartina sp.) cover	Reported by IPaC - No suitable habitat in the APE.
California least tern *Sterna antillarum browni*	FE	Found along the Pacific coast, foraging in shallow estuaries and lagoons, and nesting on open beaches	Reported by IPaC - No suitable habitat in the APE.
Northern spotted owl *Strix occidentalis caurina*	FT	Dense forest and woodland, with suitable prey	Reported by IPaC - No suitable habitat in the APE (Project location is outside of designated critical habitat).
Western snowy plover *Charadrius nivosus nivosus*	FT	Found along the Pacific coast and nests in barren to sparsely vegetated beaches and other shoreline areas	Reported by IPaC - No suitable habitat in the APE (Project location is outside of designated critical habitat).
Mammals			
Pallid bat *Antrozous pallidus*	SSC	A variety of open arid habitats (e.g., chaparral, open woodland, deserts); primary roost sites include bridges, old buildings, and in tree hollows and/or bark; sometimes roost in caves and rock crevices	Reported by CNDDB in the general vicinity of Gallinas Valley, near the Marin County Hospital.

Source: Based on CNDDB occurrences unless otherwise noted.

Notes:
APE = area of potential effect
CNDDB = California Natural Diversity Database
IPaC = Information for Planning and Consultation

[a] Status:
CFP = California Fully Protected Species
FE = federally endangered
FT = federally threatened
SC = State candidate
SSC = California Species of Special Concern

Attachment F

RoadMod Outputs

Road Construction Emissions Model, Version 8.1.0

Daily Emission Estimates for -> Lower Fawn Drive

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	0.00	0.00	0.00	0.20	0.00	0.20	0.04	0.00	0.04	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	2.58	16.02	22.39	1.05	0.85	0.20	0.82	0.78	0.04	0.06	5,372.25	1.71	0.05	5,430.15
Drainage/Utilities/Sub-Grade	2.58	16.02	22.39	1.05	0.85	0.20	0.82	0.78	0.04	0.06	5,372.25	1.71	0.05	5,430.15
Paving	3.20	23.27	28.78	1.18	1.18	0.00	1.08	1.08	0.00	0.07	6,462.04	2.07	0.06	6,531.69
Maximum (pounds/day)	3.20	23.27	28.78	1.18	1.18	0.20	1.08	1.08	0.04	0.07	6,462.04	2.07	0.06	6,531.69
Total (tons/construction project)	0.11	0.68	0.93	0.04	0.04	0.01	0.03	0.03	0.00	0.00	219.93	0.07	0.00	222.30

Notes:

Project Start Year ->	2021
Project Length (months) ->	4
Total Project Area (acres) ->	0
Maximum Area Disturbed/Day (acres) ->	0
Water Truck Used? ->	No

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	0	0
Grading/Excavation	74	0	20	0	0	0
Drainage/Utilities/Sub-Grade	0	0	20	0	0	0
Paving	0	0	20	0	0	0

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> Lower Fawn Drive

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	0.05	0.28	0.39	0.02	0.01	0.00	0.01	0.01	0.00	0.00	94.55	0.03	0.00	86.70
Drainage/Utilities/Sub-Grade	0.04	0.25	0.34	0.02	0.01	0.00	0.01	0.01	0.00	0.00	82.73	0.03	0.00	75.86
Paving	0.02	0.15	0.19	0.01	0.01	0.00	0.01	0.01	0.00	0.00	42.65	0.01	0.00	39.11
Maximum (tons/phase)	0.05	0.28	0.39	0.02	0.01	0.00	0.01	0.01	0.00	0.00	94.55	0.03	0.00	86.70
Total (tons/construction project)	0.11	0.68	0.93	0.04	0.04	0.01	0.03	0.03	0.00	0.00	219.93	0.07	0.00	201.67

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model
Data Entry Worksheet

Version 8.1.0

Note: Required data input sections have a yellow background.
Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells D10 through D24, E28 through G35, and D38 through D41 for all project types.
Please use "Clear Data Input & User Overrides" button first before changing the Project Type or begin a new project.

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Input Type

Project Name	Lower Fawn Drive	
Construction Start Year	2021	Enter a Year between 2014 and 2025 (inclusive)
Project Type For 4: Other Linear Project Type, please provide project specific off-road equipment population and vehicle trip data	4	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction
Project Construction Time	4.00	months
Working Days per Month	22.00	days (assume 22 if unknown)
Predominant Soil/Site Type: Enter 1, 2, or 3 (for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)	1	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the Ione formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)
Project Length	0.29	miles
Total Project Area	0.20	acres
Maximum Area Disturbed/Day	0.01	acres
Water Trucks Used?	2	1. Yes 2. No

Please note that the soil type instructions provided in cells E18 to E20 are specific to Sacramento County. Maps available from the California Geologic Survey (see weblink below) can be used to determine soil type outside Sacramento County.

http://www.conservation.ca.gov/cgs/information/geologic_mapping/Pages/googlemaps.aspx#regionalseries

Material Hauling Quantity Input

Material Type	Phase	Haul Truck Capacity (yd^3) (assume 20 if unknown)	Import Volume (yd^3/day)	Export Volume (yd^3/day)
Soil	Grubbing/Land Clearing			
	Grading/Excavation	18.50	37.00	37.00
	Drainage/Utilities/Sub-Grade			
	Paving			
Asphalt	Grubbing/Land Clearing			
	Grading/Excavation			
	Drainage/Utilities/Sub-Grade			
	Paving			

Mitigation Options

On-road Fleet Emissions Mitigation	No Mitigation	Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer
Off-road Equipment Emissions Mitigation	No Mitigation	Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure (http://www.airquality.org/ceqa/mitigation.shtml). Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard

The remaining sections of this sheet contain areas that require modification when 'Other Project Type' is selected.

Note: The program's estimates of construction period phase length can be overridden in cells D50 through D53, and F50 through F53.

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing		0.40		1/1/2021
Grading/Excavation		1.60		1/14/2021
Drainage/Utilities/Sub-Grade		1.40		3/4/2021
Paving		0.60		4/16/2021
Totals (Months)	4			

Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

Soil Hauling Emissions **User Input**	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing				0	0.00
Miles/round trip: Grading/Excavation	20.00		1	4	20.00
Miles/round trip: Drainage/Utilities/Sub-Grade	20.00		1	0	20.00
Miles/round trip: Paving	20.00		1	0	20.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.10	0.43	3.65	0.11	0.05	0.02	1,614.50	0.00	0.05	1,630.92
Grading/Excavation (grams/mile)	0.10	0.43	3.65	0.11	0.05	0.02	1,614.50	0.00	0.05	1,630.92
Draining/Utilities/Sub-Grade (grams/mile)	0.10	0.43	3.65	0.11	0.05	0.02	1,614.50	0.00	0.05	1,630.92
Paving (grams/mile)	0.10	0.43	3.65	0.11	0.05	0.02	1,614.50	0.00	0.05	1,630.92
Hauling Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.02	0.16	0.01	0.00	0.00	71.19	0.00	0.00	71.91
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	1.25	0.00	0.00	1.27
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.02	0.16	0.01	0.00	0.00	71.19	0.00	0.00	71.91
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	1.10	0.00	0.00	1.11
Pounds per day - Paving	0.00	0.02	0.16	0.01	0.00	0.00	71.19	0.00	0.00	71.91
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.47
Total tons per construction project	0.00	0.00	0.01	0.00	0.00	0.00	2.82	0.00	0.00	2.85

Note: Asphalt Hauling emission default values can be overridden in cells D87 through D90, and F87 through F90.

Asphalt Hauling Emissions **User Input**	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing				0	0.00
Miles/round trip: Grading/Excavation				0	0.00
Miles/round trip: Drainage/Utilities/Sub-Grade				0	0.00
Miles/round trip: Paving				0	0.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.10	0.43	3.65	0.11	0.05	0.02	1,614.50	0.00	0.05	1,630.92
Grading/Excavation (grams/mile)	0.10	0.43	3.65	0.11	0.05	0.02	1,614.50	0.00	0.05	1,630.92
Draining/Utilities/Sub-Grade (grams/mile)	0.10	0.43	3.65	0.11	0.05	0.02	1,614.50	0.00	0.05	1,630.92
Paving (grams/mile)	0.10	0.43	3.65	0.11	0.05	0.02	1,614.50	0.00	0.05	1,630.92
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Worker commute default values can be overridden in cells D113 through D118.

Worker Commute Emissions User Input	User Override of Worker Commute Default Values	Default Values	Calculated Daily Trips	Calculated Daily VMT
Miles/ one-way trip				
One-way trips/day	2			
No. of employees: Grubbing/Land Clearing			0	0.00
No. of employees: Grading/Excavation	10		20	0.00
No. of employees: Drainage/Utilities/Sub-Grade	10		20	0.00
No. of employees: Paving	10		20	0.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.02	0.99	0.10	0.05	0.02	0.00	360.03	0.01	0.00	361.48
Grading/Excavation (grams/mile)	0.02	0.99	0.10	0.05	0.02	0.00	360.03	0.01	0.00	361.48
Draining/Utilities/Sub-Grade (grams/mile)	0.02	0.99	0.10	0.05	0.02	0.00	360.03	0.01	0.00	361.48
Paving (grams/mile)	0.02	0.99	0.10	0.05	0.02	0.00	360.03	0.01	0.00	361.48
Grubbing/Land Clearing (grams/trip)	0.93	2.28	0.18	0.00	0.00	0.00	81.88	0.01	0.01	84.35
Grading/Excavation (grams/trip)	0.93	2.28	0.18	0.00	0.00	0.00	81.88	0.01	0.01	84.35
Draining/Utilities/Sub-Grade (grams/trip)	0.93	2.28	0.18	0.00	0.00	0.00	81.88	0.01	0.01	84.35
Paving (grams/trip)	0.93	2.28	0.18	0.00	0.00	0.00	81.88	0.01	0.01	84.35
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.04	0.10	0.01	0.00	0.00	0.00	3.61	0.00	0.00	3.72
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.07
Pounds per day - Drainage/Utilities/Sub-Grade	0.04	0.10	0.01	0.00	0.00	0.00	3.61	0.00	0.00	3.72
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.06
Pounds per day - Paving	0.04	0.10	0.01	0.00	0.00	0.00	3.61	0.00	0.00	3.72
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.02
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.15

Note: Water Truck default values can be overridden in cells D145 through D148, and F145 through F148.

Water Truck Emissions User Input	User Override of Default # Water Trucks	Program Estimate of Number of Water Trucks	User Override of Truck Miles Traveled/Vehicle/Day	Default Values Miles Traveled/Vehicle/Day	Calculated Daily VMT
Grubbing/Land Clearing - Exhaust					0.00
Grading/Excavation - Exhaust					0.00
Drainage/Utilities/Subgrade					0.00
Paving					0.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.10	0.43	3.65	0.11	0.05	0.02	1,614.50	0.00	0.05	1,630.92
Grading/Excavation (grams/mile)	0.10	0.43	3.65	0.11	0.05	0.02	1,614.50	0.00	0.05	1,630.92
Draining/Utilities/Sub-Grade (grams/mile)	0.10	0.43	3.65	0.11	0.05	0.02	1,614.50	0.00	0.05	1,630.92
Paving (grams/mile)	0.10	0.43	3.65	0.11	0.05	0.02	1,614.50	0.00	0.05	1,630.92
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Fugitive dust default values can be overridden in cells D171 through D173.

Fugitive Dust	User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day	PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
Fugitive Dust - Grubbing/Land Clearing			0.20	0.00	0.04	0.00
Fugitive Dust - Grading/Excavation			0.20	0.00	0.04	0.00
Fugitive Dust - Drainage/Utilities/Subgrade			0.20	0.00	0.04	0.00

Values in cells D183 through D216, D234 through D267, D285 through D318, and D336 through D369 are required when 'Other Project Type' is selected.

Off-Road Equipment Emissions

Grubbing/Land Clearing Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing	pounds per day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grubbing/Land Clearing	tons per phase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Grading/Excavation Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.12	1.56	1.27	0.07	0.07	0.00	208.80	0.07	0.00	211.06
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.00			Model Default Tier	Off-Highway Trucks	2.41	14.35	20.95	0.77	0.71	0.05	5,088.65	1.65	0.05	5,143.46
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grading/Excavation	pounds per day	2.53	15.90	22.22	0.84	0.77	0.05	5,297.45	1.71	0.05	5,354.52
Grading/Excavation	tons per phase	0.04	0.28	0.39	0.01	0.01	0.00	93.24	0.03	0.00	94.24

Drainage/Utilities/Subgrade Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.12	1.56	1.27	0.07	0.07	0.00	208.80	0.07	0.00	211.06
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.00			Model Default Tier	Off-Highway Trucks	2.41	14.35	20.95	0.77	0.71	0.05	5,088.65	1.65	0.05	5,143.46
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Drainage/Utilities/Sub-Grade	pounds per day	2.53	15.90	22.22	0.84	0.77	0.05	5,297.45	1.71	0.05	5,354.52
Drainage/Utilities/Sub-Grade	tons per phase	0.04	0.24	0.34	0.01	0.01	0.00	81.58	0.03	0.00	82.46

Paving Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.12	1.56	1.27	0.07	0.07	0.00	208.80	0.07	0.00	211.06
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4.00			Model Default Tier	Off-Highway Trucks	2.41	14.35	20.95	0.77	0.71	0.05	5,088.65	1.65	0.05	5,143.46
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pavers	0.24	2.82	2.52	0.12	0.11	0.00	441.06	0.14	0.00	445.81
1.00			Model Default Tier	Paving Equipment	0.19	2.52	1.93	0.10	0.09	0.00	391.47	0.13	0.00	395.69
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Rollers	0.19	1.90	1.95	0.12	0.11	0.00	257.27	0.08	0.00	260.04
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment

If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
	Paving	pounds per day	3.16	23.15	28.61	1.18	1.08	0.07	6,387.25	2.07	0.06	6,456.06
	Paving	tons per phase	0.02	0.15	0.19	0.01	0.01	0.00	42.16	0.01	0.00	42.61
Total Emissions all Phases (tons per construction period) =>			0.10	0.68	0.92	0.04	0.03	0.00	216.97	0.07	0.00	219.31

Equipment default values for horsepower and hours/day can be overridden in cells D391 through D424 and F391 through F424.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63		8
Air Compressors		78		8
Bore/Drill Rigs		206		8
Cement and Mortar Mixers		9		8
Concrete/Industrial Saws		81		8
Cranes		226		8
Crawler Tractors		208		8
Crushing/Proc. Equipment		85		8
Excavators	66.60	163		8
Forklifts		89		8
Generator Sets		84		8
Graders		175		8
Off-Highway Tractors		123		8
Off-Highway Trucks		400		8
Other Construction Equipment		172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		167		8
Pavers		126		8
Paving Equipment		131		8
Plate Compactors		8		8
Pressure Washers		13		8
Pumps		84		8
Rollers		81		8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		255		8
Rubber Tired Loaders		200		8
Scrapers		362		8
Signal Boards		6		8
Skid Steer Loaders		65		8
Surfacing Equipment		254		8
Sweepers/Scrubbers		64		8
Tractors/Loaders/Backhoes		98		8
Trenchers		81		8
Welders		46		8

END OF DATA ENTRY SHEET