FINAL
INITIAL STUDY / MITIGATED NEGATIVE DECLARATION

Woodland Area Gravity Sewer Improvement Project
Unincorporated Community of Kent Woodlands in Marin County, CA

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

Prepared by

2455 Bennett Valley Road
Suite C101
Santa Rosa, CA 95404

April 2023

MITIGATED NEGATIVE DECLARATION

PROJECT TITLE

Woodland Area Gravity Sewer Improvement Project

LEAD AGENCY/NAME AND ADDRESS

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

PROJECT LOCATION

The Woodland Area Gravity Sewer Improvement Project (Project) is located in the Ross Valley Sanitary District's (RVSD's) service area in Marin County (Attachment B, Figure 1) in the vicinity of the Kent Woodlands. Regional access to the Project site from the north and south is provided via U.S. Highway 101 (U.S. 101) and from the east by Interstate 580 (I-580) and the Richmond-San Rafael Bridge.

Kent Woodlands is a historic subdivision located near the unincorporated community of Kentfield situated within a wooded canyon area of high natural resource and scenic value. Kent Woodlands is located between the incorporated and unincorporated cities/towns of Kentfield to the north, Greenbrae to the east, and Larkspur to the south. The western border of Kent Woodlands abuts open preserves.

Land uses surrounding the Project site in Kent Woodlands consist of single-family residences. Sir Francis Drake Boulevard, located to the east of the Project site, is a major traffic artery linking U.S. 101 with the community of Kent Woodlands. Residences, businesses, and schools are located along Sir Francis Drake Boulevard.

PROJECT DESCRIPTION

The RVSD Project entails the construction and rehabilitation, within the existing alignment, of sanitary sewer mains and related appurtenances within the unincorporated community of Kent Woodlands.

The Project plans to replace approximately 4,277 linear feet of existing sanitary sewer mains ranging in size from 6-inch (in.) to 8-in. of vitrified clay pipe with 8-in. to 12-in. high-density polyethylene (HDPE) pipe via pipe bursting, open cut, and jack-and-bore or directional drilling methods. Depths of excavation may range from 5 to 12 ft. Figure 1 in Attachment B shows the

project alignments with associated construction methods used. Several creek crossings are located in the Project area along Tamalpais Creek. Work occurring at or near creek crossings is detailed below:

- Creek Crossing 1 (Woodland Road near Laurel Way): Tamalpais Creek flows beneath Woodland Road through a culvert. Work would occur within Tamalpais Creek to remove the old, suspended pipes within the culvert. The pipes would be cut back and capped, and the concrete walls of the culvert would be repaired. The pipes outside the culvert would be abandoned by filling with slurry. These pipes would be replaced with a double-barrel siphon installed under the creek, and any disturbance to the bed or bank of the channel would be avoided. Work may entail excavation by jack-and-bore or directional drilling.
- Creek Crossing 2 (Woodland Road near Acorn Way—private property): Open cut construction would be used to remove the existing pipes that are exposed in the Tamalpais Creek channel and a new sewer main beneath the creek bed would be installed. The creek channel will be restored and replaced with constructed riffles.

  The total area disturbed would be 0.001 acre. Approximately 2.9 cubic yards of existing 6-in. vitrified clay pipe will be removed from the channel bed. Excavation depth at the sewer line would be approximately 4 ft. Approximately 75 ft^2 of existing channel bed materials would be excavated to prepare for the constructed riffle. Excavation depth at the channel bed will be approximately 2 ft. Native channel bed materials will be excavated and stockpiled for use in the constructed riffle. Any non-natural materials, such as asphalt, will be removed from the stockpile.

  Following the demolition, engineered streambed material (including boulders and cobbles) would be imported and staged on private property adjacent to the sewer crossing. The exposed subgrade would be compacted prior to the installation of the engineered streambed materials. Imported rock would be installed along with the native bed materials stockpiled onsite. The Contractor, under the direction of the design team, would construct the riffle in layers using the stockpiled boulders, cobbles, and salvaged bed materials.

  The area adjacent to the sewer line, and the construction access corridor, will be cleared and grubbed of invasive species. Existing streambank vegetation is currently dominated by English ivy and will be replaced by locally sourced box elder, California buckeye, western thimbleberry, and red flowering currant. A total of 775 ft^2 of planted banks will receive 4 in. of mulch. All exposed soil surfaces outside of the active channel will be covered with a 100 percent biodegradable erosion control fabric and stapled in place, and two rows of wattles will be installed on the slope revegetated slopes.

Following the completion of the constructed riffle, the equipment will be removed from the channel bed. The access route will be relandscaped and vegetated, and areas of excavation will be covered with erosion-control fabric.

- Creek Crossing 3 (Woodland Road—private property): Tamalpais Creek flows beneath a culvert underneath the adjacent backyard. The sanitary sewer main would be replaced via pipe bursting.
- Creek Crossing 4 (Woodland Road past Upland Road): Tamalpais Creek flows beneath Woodland Road via a 36-in. concrete culvert. The sanitary sewer main would be replaced via pipe bursting, with no impact to the concrete culvert or Tamalpais Creek. All work where Woodland Road crosses Tamalpais Creek would be conducted within the paved section of Woodland Road via pipe bursting methods. The new sewer alignment would match the existing alignment for the entire section that crosses Tamalpais Creek. No work would be conducted in Tamalpais Creek.

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 to determine whether any active nests are present in the Project area and surrounding vicinity (within 50 ft for songbirds and 250 ft for raptors) of proposed construction. The survey shall be reconducted 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 of the nest location. The size of the buffer may be determined by the biologist based on species and proximity to activities but should generally be between 50 ft for songbirds and up to 250 ft for nesting raptors. As necessary, the no-disturbance zone

shall be delineated if construction is to be initiated elsewhere in the Project area and surrounding vicinity 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 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.

Mitigation Measure BIO-2

Pre-construction surveys for California red-legged frog and foothill yellow-legged frog shall be conducted prior to initiation of Project activities within 48 hours of the start of ground disturbance activities. Surveys are to be conducted by an approved qualified biologist with experience surveying for each species. If Project activities are stopped for greater than 7 days, a follow-up preconstruction survey may be required within 48 hours prior to reinitiation of Project activities. If California red-legged frog is detected during the survey, RVSD will consult with the U.S. Fish and Wildlife Service (USFWS). If foothill yellow-legged frog is detected, RVSD will consult with the California Department of Fish and Game (CDFW).

Pre-construction surveys for Western pond turtle and California giant salamander shall be conducted prior to initiation of Project activities within 48 hours of the start of ground disturbance activities. Surveys are to be conducted by an approved qualified biologist with experience surveying for each species. If Project activities are stopped for greater than 7 days, a follow-up pre-construction survey may be required within 48 hours prior to reinitiation of Project activities. If either of these species are found during surveys, CDFW will be notified via email. If Western pond turtle enters any of the Project area during construction, it will be relocated by the Project biologist to similar suitable habitat beyond the work area heading in the same direction it was found while moving through the area. If Western pond turtle is listed as a candidate species prior to the start of activities, then relocation would only occur following consultation with USFWS upon issuance of an incidental take permit. If California giant salamander are found during construction, they will be removed by the Project biologist and relocated to a similar habitat situated outside of the work area but within close proximity.

Mitigation Measure BIO-3

To the extent feasible, tree trimming will be performed outside the maternity season (between September 1 to April 15) to avoid the period when hoary bats and others may be present. If not possible, an acoustic emergence survey shall be performed to determine if bats are present

including any solitary species. If present, the roost shall be avoided until after September 1 to ensure no significant effects to maternity bat roosts occur.

Mitigation Measure BIO-4

All in-water construction activities are expected to occur during the dry season (June 15 to October 15) when the channel is typically dry. However, if water is unexpectedly present or if groundwater is encountered and dewatering must occur, a fish handling and relocation plan would be developed by the approved aquatic biologist in coordination with the National Marine Fisheries Service (NMFS) and/or CDFW. Individual organisms would be relocated the shortest distance possible to an adjacent upstream area with sufficient aquatic habitat. Within occupied habitat, capture, handling, exclusion, and relocation activities would be completed no earlier than 48 hours before construction begins. If electrofishing is conducted, it must be performed by an approved biologist following NMFS guidelines.[1]

During fish relocation, all organisms would be kept in water to the maximum extent possible, and captured coho salmon and steelhead would be kept in cool, shaded, well-aerated water and protected from disturbance and overcrowding until they are released. To avoid predation, separate containers would be used: one for young-of-the-year steelhead, and one for second- or third-year steelhead. Captured fish would be relocated to suitable upstream rearing habitat that is as close to the dewatered area as possible while meeting the survival needs (adequate water quality/quantity, cover, and forage) of both the relocated individuals and the fish already inhabiting the relocation site.

Mitigation Measure BIO-5

Prior to the start of construction activities, a Qualified Biologist will conduct a habitat assessment for special-status plants. If potential habitat for special-status plants is present, a pre-construction special-status plan survey shall be conducted by a Qualified Biologist during the appropriate blooming period and conditions for all special-status plants that have the potential to occur within or near the Project where they may be directly or indirectly impacted by project activities. The survey will exclude areas that would not be disturbed by the footprint of construction activity, project areas are already disturbed by pedestrian and vehicular activity, and project areas located on private property. Surveys and associated reporting will be conducted according to CDFW's 2018 *Protocol for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Sensitive Natural Communities*. The survey results will be submitted to CDFW prior to the start of construction.

[1] NMFS. 2000. Guidelines for Electrofishing Waters Containing Salmonids Listed Under the Endangered Species Act. National Marine Fisheries Service.

Mitigation Measure CUL-1

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

Based on the results of the testing and in coordination with the RVSD and FIGR, monitoring by an archaeologist and tribal monitor may also be required to observe excavated soils that are removed during construction activities.

Mitigation Measure CUL-2

Upon approval of the Plan, archaeological testing will occur in areas determined to be sensitive for subsurface cultural resources. Testing will take place prior to project implementation and will be coordinated in advance with FIGR. A tribal monitor will be present during all testing. Testing will occur within the Project area. Where testing is not feasible, Mitigation Measure CUL-1 will be implemented.

Mitigation Measure CUL-3

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 would 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 tribal representative, 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-4

Upon discovery of human remains, the Coroner Division of the Marin County Sheriff's Office will be contacted for identification of the 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 (MDL). The MDL 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.

Phil Benedetti Digitally signed by Phil Benedetti
DN: C=US, E=pbenedetti@rvsd.org, O=Ross Valley Sanitary District, CN=Phil Benedetti
Date: 2023.04.20 13:01:06-07'00'

Philip Benedetti
Senior Engineer

4/21/2023

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: Woodland Area Gravity Sewer Improvement Project		
PROJECT ADDRESS: Along Woodland Road	CITY: Unincorporated community of Kent Woodlands	COUNTY: Marin
PROJECT SPONSOR: Ross Valley Sanitary District	CONTACT: Philip Benedetti	PHONE: (415) 259-2949 x212

LEAD AGENCY ADDRESS: 2960 Kerner Blvd. San Rafael, CA 94901	CONTACT: Philip Benedetti	PHONE: (415) 259-2949 x212

APPROVAL ACTION UNDER CONSIDERATION: Implementation of sewer rehabilitation project.

List of Attachments

Attachment A. Abbreviations and Acronyms

Attachment B. Figures

Attachment C. Construction Plans

Attachment D. Overview of Control Measures

Attachment E. Biological Resources Assessment

Attachment F. RoadMod Output

Attachment G. Response to Comments

Project Overview and Purpose

The Ross Valley Sanitary District (RVSD) Woodland Capacity and Creek Crossings Project (Project) entails the construction and rehabilitation, within the existing alignment, of sanitary sewer mains and related appurtenances within the unincorporated community of Kent Woodlands.

The Project plans to replace approximately 4,277 linear feet of existing sanitary sewer mains ranging in size from 6-inch (in.) to 8-in. of vitrified clay pipe (VCP) with 8-in. to 12-in. high-density polyethylene (HDPE) pipe via pipe bursting, open cut, and jack-and-bore or directional drilling methods. Depths of excavation may range from 5 to 12 ft. Figure 1 in Attachment B shows the project alignments with associated construction methods used. Several creek crossings are located in the Project area along Tamalpais Creek. Work occurring at or near creek crossings is detailed below:

- Creek Crossing 1 (Woodland Road near Laurel Way): Tamalpais Creek flows beneath Woodland Road through a culvert. Work would occur within Tamalpais Creek to remove the old, suspended pipes within the culvert. The pipes would be cut back and capped, and the concrete walls of the culvert would be repaired. The pipes outside the culvert would be abandoned by filling with slurry. These pipes would be replaced with a double-barrel siphon installed under the creek, and any disturbance to the bed or bank of the channel would be avoided. Work may entail excavation by jack-and-bore or directional drilling.
- Creek Crossing 2 (Woodland Road near Acorn Way—private property): Open cut construction would be used to remove the existing pipes that are exposed in the Tamalpais Creek channel and a new sewer main beneath the creek bed would be installed. The creek channel will be restored and replaced with constructed riffles.

  The total area disturbed would be 0.001 acre. Approximately 2.9 cubic yards of existing 6-in. VCP will be removed from the channel bed. Excavation depth at the sewer line would be approximately 4 ft. Approximately 75 ft^2 of existing channel bed materials would be excavated to prepare for the constructed riffle. Excavation depth at the channel bed will be approximately 2 ft. Native channel bed materials will be excavated and stockpiled for use in the constructed riffle. Any non-natural materials, such as asphalt, will be removed from the stockpile.

  Following the demolition, engineered stream bed material (including boulders and cobbles) would be imported and staged on private property adjacent to the sewer crossing. The exposed subgrade would be compacted prior to the installation of the engineered stream bed materials. Imported rock would be installed along with the native bed materials stockpiled onsite. The Contractor, under the direction of the design team, would construct the riffle in layers using the stockpiled boulders, cobbles, and salvaged bed materials.

  The area adjacent to the sewer line, and the construction access corridor, will be cleared and grubbed of invasive species. Existing streambank vegetation is currently dominated by English ivy and will be replaced by locally sourced box elder, California buckeye, western thimbleberry, and red flowering currant. A total of 775 ft^2 of planted banks will receive 4 in. of mulch. All exposed soil surfaces outside of the active channel will be covered with a 100 percent biodegradable erosion control fabric and stapled in place, and two rows of wattles will be installed on the slope revegetated slopes.

  Following the completion of the constructed riffle, the equipment will be removed from the channel bed. The access route will be re-landscaped and vegetated and areas of excavation will be covered with erosion control fabric.
- Creek Crossing 3 (Woodland Road—private property): Tamalpais Creek flows beneath a culvert underneath the adjacent backyard. The sanitary sewer main would be replaced via pipe bursting.
- Creek Crossing 4 (Woodland Road past Upland Road): Tamalpais Creek flows beneath Woodland Road via a 36-in. concrete culvert. The sanitary sewer main would be replaced via pipe bursting, with no impact to the concrete culvert or Tamalpais Creek. All work where Woodland Road crosses Tamalpais Creek would be conducted within the paved section of Woodland Road via pipe bursting methods. The new sewer alignment would match the existing alignment for the entire section that crosses Tamalpais Creek. No work would be conducted in Tamalpais Creek.

Figure 2 in Attachment B show the project alignments with photos of the creek crossings.

Project Location and Site Setting

The Project site is located in the RVSD's service area in Marin County (Attachment B, Figure 1) within the Kent Woodlands. 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 Interstate 580 (I-580) and the Richmond-San Rafael Bridge.

Kent Woodlands is a historic subdivision located near the unincorporated community of Kentfield situated within a wooded canyon area of high natural resource and scenic value. Kent Woodlands is located between the incorporated and unincorporated cities/towns of Kentfield to the north, Greenbrae to the east, and Larkspur to the south. The western border of Kent Woodlands abuts open space preserves.

Land uses surrounding the Project site in Kent Woodlands consist of single-family residences. Sir Francis Drake Boulevard, located to the east of the Project site, is a major traffic artery linking U.S. 101 with the community of Kent Woodlands. Residences, businesses, and schools are located along Sir Francis Drake Boulevard.

Site Background

The RVSD provides wastewater utility service to approximately 47,000 people in central Marin County. The service area includes the incorporated City of Larkspur; the Towns of San Anselmo, Ross, and Fairfax; and the unincorporated areas of Kentfield, Kent Woodlands, Greenbrae, Oak Manor, and Sleepy Hollow.

On May 13, 2013, the San Francisco Bay Regional Water Quality Control Board (Regional Water Board) issued Order No. R2-2013-0020, a Cease and Desist Order (CDO) for RVSD in response to annually reoccurring excessive sewer system overflows (SSOs). The CDO contained a list of prescriptive actions and work practices for RVSD to take to mitigate the SSOs and improve operations and maintenance of the sewer system. These actions were largely based on RVSD's 2007 Sewer System Replacement Master Plan, which utilized limited condition assessment information available at the time. Provisions of the CDO include prescribed sewer main reinspection and repair requirements based on the severity of the defects found, as well as requirements for televised inspections for the entire system. One of these requirements included development of the 2013 Infrastructure Asset Management Plan (IAMP).

As RVSD implemented the IAMP and collected more data about the collection system, new priorities and decision-making strategies were developed. It became clear that some of the original CDO requirements and priorities needed to change as RVSD began to better understand the system. Through implementation of the IAMP, RVSD has achieved significant capital and repair targets set forth in the CDO.

The original CDO requirements have resulted in significant improvements in the system and in operations. However, they have also inhibited RVSD's ability to respond to other priorities, adjust plans based on new information and data, and develop a more programmatic approach to effective utility management. Throughout implementation of the CDO, RVSD has had to justify each deviation from the original CDO requirements on an annual basis. Currently, RVSD is revising its IAMP to shift to a more forward-looking and adaptive program.

In 2018, the Regional Water Board issued a National Pollutant Discharge Elimination System (NPDES) permit (Order No. R2-2018-0003, NPDES No. CA0038628) to Central Marin Sanitation Agencies and other dischargers, including RVSD, specifying wastewater treatment and discharge requirements. One of the key mandates that impacts RVSD is the requirement to "…take all feasible actions to rehabilitate portions of their collection systems to reduce inflow and infiltration." This IAMP update incorporates activities to address this requirement, including an evaluation of the impact of RVSD's efforts to mitigate inflow and infiltration (I&I) into the collection system, provide additional insight about the dynamics of I&I in the system, and provide recommendations and strategies to reduce I&I and measure the effectiveness of mitigative actions.

Construction Methods

The following construction methods may be used during the implementation of this Project, as determined by the Contractor:

- 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.
- *Pipe bursting* uses equipment to burst the host pipe outward into the surrounding soil while simultaneously pulling the new pipeline in its place.
- *Horizontal directional drilling* (HDD) is generally accomplished in three stages. The first stage consists of directionally drilling a small diameter pilot hole along a designed directional path. The second stage involves enlarging this pilot hole to a diameter suitable for installation of the proposed pipeline. The third stage consists of pulling the pipeline back through the enlarged hole.
- *Bore-and-jack* is a form of horizontal auger boring for new construction in which a boring machine is set on tracks in an insertion pit, jacking each length of casing into the bore path as the auger carries debris back to the insertion pit for removal.

Construction methods for each segment of work are shown on Figure 1 in Attachment B. Preliminary constructions plans are provided in Attachment C.

Work Hours and Schedule

Construction is expected to begin in spring 2023 and is anticipated to be completed by fall 2023. All in-stream construction activities are expected to occur in the dry season (June 15–October 15), when the channel is seasonally dry (MCFCWCD 2021). No construction equipment is allowed in the Project Area until surface waters are no longer present. Work hours would generally be 8:00 a.m. to 5:00 p.m.; however, hours will be dependent on location-specific constraints.

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.

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 would likely be required include, but are not necessarily limited to, the following:

- County of Marin Encroachment Permit
- General Water Quality Certification for Small Habitat Restoration Projects (File # SB09016GN) (Regional Water Board)
- Nationwide Permit 27 - Aquatic Habitat Restoration, Enhancement, and Establishment Activities (U.S. Army Corps of Engineers [USACE]). As part of this permitting process, consultation with resource agencies is required. USACE would gain concurrence from the National Oceanic and Atmospheric

Administration (NOAA)/National Marine Fisheries Service (NMFS); a programmatic consultation under this permit would likely occur. In addition, USACE may coordinate with the State Historic Preservation Office (SHPO) for Section 106 of the National Historic Preservation Act.

- Lake and Streambed Alteration Permit (California Department of Fish and Wildlife [CDFW], Section 1602).

- A Stormwater Pollution Prevention Plan (SWPPP) or an Erosion Sediment Control Plan (ESCP) would be prepared by a qualified engineer retained by the District and shall comply with the provisions of the state's General Construction Stormwater Permit. Provisions shall be incorporated into the SWPPP or ESCP to prevent any construction debris from entering Ross Creek and other drainages in the Project vicinity, including use of best management practices (BMPs) such as filter fabric over storm drain culvert inlets, fiber rolls around culvert inlets, and other practices.

Several sewer line segments are located on private properties. The RVSD will coordinate with private property owners to access and rehabilitate these sewer line segments.

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 Marin County. 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, motorists, habitat restoration and revegetation measures, and species avoidance measures. The Contractor would be required to comply with all conditions set forth in 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 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 control

- Traffic management
- Ground movement monitoring
- Air quality
- Biological resources.

Technical reports to support the evaluation of potential impacts to biological resources (Attachment E) and cultural resources (Far Western 2022[1]) have been completed and identify measures that would be included in the Contract Documents to address potential impacts. A variety of geotechnical and regulatory agency related control measures are 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.

References

1. Far Western. 2023. Cultural Resources Inventory for the Ross Valley Sanitary District Woodland Area Gravity Sewer Improvement Project, Marin County, California. Far Western Anthropological Research Group, Inc. January.
2. MCFCWCD. 2021. Marin County Stream Maintenance Manual. Available at:https://marinflooddistrict.org/documents/marin-county-stream-maintenance-manual-june-2021/. Marin County Flood Control and Water Conservation District, San Rafael, CA. February.
3. Regional Water Board. 2013. Order No. R2-2013-0020. San Francisco Bay Regional Water Quality Control Board. May 13.
4. Regional Water Board. 2018. Order No. R2-2018-0003. San Francisco Bay Regional Water Quality Control Board. January 10.
5. Ross Valley Sanitary District. 2021. IAMP Summary Report – Infrastructure Asset Management Plan Update. Available at: https://www.rvsd.org/DocumentCenter/View/2257/2021-IAMP-Summary?bidId=. Ross Valley Sanitary District. September.
6. Sol Ecology. 2023. Biological Resources Report for the Ross Valley Sanitary District Woodland Area Gravity Sewer Improvement Project, Kent Woodlands, Marin County, California. Sol Ecology, Inc. January.

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

ENVIRONMENTAL IMPACT ANALYSIS

1. Aesthetics

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings and historic buildings within a state scenic highway?	☐	☐	☐	☒
c. In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from 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?	☐	☐	☒	☐
d. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

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:

Scenic Routes and Vistas

According to the California Department of Transportation (Caltrans) Scenic Highway inventory, portions of State Route 101 are considered eligible for listing as a scenic highway (Caltrans 2021). However, this roadway is 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 Project site, Countywide Policy Des-4.1 “Preserve Visual Quality” emphasizes 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.

Visual Character

The overall visual character of the immediate area is dominated by views of surrounding single-family residential homes with landscaping. The visual character of the Project site is characterized by paved two-lane roads that are flanked by private residences and vegetation. There are no sidewalks, crosswalks, bike lanes, or traffic lights. Woodland Road provides access to the surrounding neighborhood.

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 streetlights, residences, and traffic at the Project site described above.

Analysis as to whether or not project activities would:

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

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

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

No Impact. 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. Therefore, the Project would not result in an impact to scenic resources.

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

Less than Significant. The Project site consists of local roadways primarily used by locals and residents. Construction activities would be temporary. 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.

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

Less than Significant. Construction activities would be temporary and limited to daylight hours for all Project work.

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-scenichighways. 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 Forest Resources

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒
b. Conflict with existing zoning or agriculture use, or a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of, forestland (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))?	☐	☐	☐	☒
d. Result in the loss of forestland or conversion of forestland to non-forest use?	☐	☐	☐	☒
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 forestland to non-forest use?	☐	☐	☐	☒

Project Activities Likely to Create an Impact:

No impact.

Description of Baseline Environmental Conditions:

According to the Protected Agricultural Lands Map (Map 2-20; Marin County 2007), no agricultural or forest lands exist within the Project site. In addition, the California Department of Conservation Farmland Mapping and Monitoring Program (FMMP) classifies the Project site 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?

No Impact. 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. In addition, 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.

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

No Impact. The Project would not call for the conversion of any land from agricultural to non-agricultural use.

c. Conflict with existing zoning for, or cause rezoning of, forestland (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))?

No Impact. The Project would not conflict with existing zoning or cause rezoning of forest land or timber.

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

No Impact. The Project site does not contain forestland.

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 forestland to non-forest use?

No Impact. The Project site does not contain forestland nor is it zoned for agriculture.

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

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

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 unincorporated community of Kent Woodlands 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 2 degrees cooler in the winter and 2 degrees warmer in the summer.

Air pollution potential is highest in eastern Marin County, where most of the 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)

Pollutant/ Averaging Period	Primary Standard		Year	Maximum Concentration [a]	Days Exceeding State/National Standard [b]
	State	National			
Ozone			2017	0.088	6/0
1-hour	0.09 ppm	none	2018	0.072	2/0
			2019	0.096	6/0
Ozone			2017	0.063	6/6
8-hour	0.70 ppm	0.70 ppm	2018	0.053	3/3
			2019	0.08	9/9
Carbon Monoxide			2017	2.6	0/0
1-hour	20 ppm	35 ppm	2018	2	0/0
			2019	1.4	0/0
Carbon Monoxide			2017	1.6	0/0
8-hour	9 ppm	9 ppm	2018	1.6	0/0
			2019	0.9	0/0
Nitrogen Dioxide			2017	0.053	0/1
1-hour	0.18 ppm	0.100 ppm	2018	0.055	0/0
			2019	0.05	0/0
Nitrogen Dioxide			2017	0.001	0/0
Annual	0.030 ppm	0.053 ppm	2018	0.009	0/0
			2019	0.008	0/0
Sulfur Dioxide			2017	ND	0
1-hour	none	0.075 ppm	2018	ND	0
			2019	ND	0
Sulfur Dioxide			2017	ND	0
24-hour	0.04 ppm	none	2018	ND	0/0
			2019	ND	0/0
Respirable Particulate			2017	94	6/0
Matter (PM10)	50 µg/m^3	150 µg/m^3	2018	166	6/1
24-hour			2019	33	5/0
Respirable Particulate			2017	17.7	0/0
Matter (PM10)	20 µg/m^3	none	2018	19	0/0
Annual			2019	14.3	0/0
Fine Particulate Matter			2017	74.7	0/18
(PM2.5)	None	35 µg/m^3	2018	167.6	0/18
24-hour			2019	19.5	0/1

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			2017	9.7	0/0
(PM2.5)	12 µg/m^3	12.0 µg/m^3	2018	11.1	0/0
Annual			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 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 the 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 Clean Air 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 Clean Air 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 (CO_2) by reducing fossil fuel combustion. The 2017 Clean Air 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 provide 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).

In June 2022, BAAQMD released the CEQA Thresholds for Evaluating the Significance of Climate Impacts Report (BAAQMD 2022). This report recommends thresholds of significance for use in determining whether a proposed project will have a significant impact on climate change. Recommendations are focused on thresholds for either land use projects or general plans and planning documents (BAAQMD 2022).

Analysis as to whether or not project activities would:

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

No Impact. 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 existing sanitary sewer lines and channel improvements; 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.

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?

Less than Significant. 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 site. 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

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	0.14	10	4.11	54	No
CO	1.4	NA	40.12	NA	No
SO_2[a]	-- [b]	NA	-- [b]	NA	No
NOx	1.18	10	33.56	54	No
PM10[c]	0.05	15	1.52	82	No
PM2.5[c]	0.05	10	1.39	54	No

Source of input parameters: Phil Benedetti, Associate Engineer (RVSD) and Harris Engineers, November 2022.

Notes:

NA = not applicable

[a] Average daily emissions calculated from annual emissions and 80 working days (or approximately 3.6 months, assuming 22 working days per month) for construction activities. SO_2 emissions are expected to be negligible due to use of ultra-low sulfur diesel fuel.

[b] SO_2 emissions are expected to be negligible due to use of ultra-low sulfur diesel fuel.

[c] PM10 and PM2.5 represent total emission values including exhaust and fugitive dust.

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.

Because emissions from gasoline- and diesel-fueled vehicles and equipment are below significance thresholds, and fugitive dust emissions would be controlled with control measures listed in Attachment D under “Air Quality” and “Dust Control,” which are consistent with BAAQMD-recommended control methods for particulate emissions, the Project would not result in cumulatively considerable net increase of any criteria pollutant.

c. Expose sensitive receptors to substantial pollutant concentrations?

Less than Significant. 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 within residential areas and there are several sensitive receptors, primarily residences, within 1,000 ft 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 0.05 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 excavation 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 5 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, such as minimizing idle times, will be implemented to control emissions and exposures.

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

Less than Significant. During construction, there would be minimal sources of odor from the Project activities as sanitary sewer lines would be replaced and rehabilitated. Control measures listed in Attachment D under "Odor Control" would serve to minimize dispersal of odor and provide for control, as well as to address odor complaints, if received.

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. BAAQMD. 2022. CEQA Thresholds for Evaluating the Significance of Climate Impacts From Land Use Projects and Plans. Available at: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa-thresholds-2022/justification-report-pdf.pdf?la=en. Bay Area Air Quality Management District.
5. 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

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

Project Activities Likely to Create an Impact:

- Construction activities, including work near and within the creek/channel
- Equipment used for construction activities
- Site preparation and restoration.

Description of Baseline Environmental Conditions:

A Biological Resources Report (BRA) for the Project was prepared by Sol Ecology, Inc. (Sol Ecology) in January 2023. The BRA is included as Attachment E.

Biological resources associated with the Project site 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 Project site, presence of sensitive natural communities, and the distribution and habitat requirements of special-status species, which have been recorded or are suspected to occur in the Project vicinity. The literature review included the occurrence records of the CDFW's California Natural Diversity Database (CNDDB); 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. Additional sources that were reviewed are included in the BRA (Attachment E).

The Project site was evaluated for the presence of sensitive biological communities, including riparian areas, sensitive plant communities recognized by CDFW, County-mapped riparian corridors, habitat connectivity corridors, and scenic corridors. The Project site was also surveyed to determine if any wetlands and waters potentially subject to jurisdiction by USACE, the Regional Water Board, and/or CDFW are present. This preliminary assessment was based primarily on the presence of wetland plant indicators, hydrology, or wetland soils. A preliminary waters assessment was based on the presence of unvegetated, ponded areas or flowing water, or evidence indicating their presence such as a high-water mark or a defined drainage course.

Sol Ecology biologists also performed reconnaissance-level surveys for special status species on and adjacent to the Project study areas on May 26 and October 6, 2022. The focus of the surveys was to identify whether suitable habitat elements for each of the special status species documented in the surrounding vicinity are present on the Project site and whether the Project would have the potential to result in impacts to any of these species and/or their habitats either on- or off-site. Habitat elements examined for the potential presence of sensitive plant species included soil type, elevation, vegetation community, and dominant plant species. For wildlife species, habitat elements examined included the presence of dispersal habitat, foraging habitat, refugia or estivation habitat, and breeding (or nesting) habitat.

Vegetation communities present in the Project study areas were classified based on existing plant community descriptions described in the CNPS Online Manual of California Vegetation. These communities are detailed below:

- Urban/Developed: Urban and developed areas consist mostly of hardscape associated with paved roadways, driveways, and buildings often in association with a vegetation cover of tree grove, street strip, shade tree/lawn, lawn, and shrub cover of primarily non-native landscape species. The urban and developed area in and around the Project site, is relatively minimal compared to the denser residential zones typical of suburban areas and is characterized by roadways, other paved surfaces, houses, and ornamental plants in yards. More natural woodlands surround the roads and developed residential land. Plants and wildlife species observed are described in the BRA (Attachment E).

- Mixed Oak Woodland: The Project site and surrounding area contain mixed mature oak woodlands characterized by coast live oak and valley oak among other non-oak tree species such as coast redwood (*Sequoia sempervirens*) California bay (*Umbellularia californica*), and California buckeye. The understory comprises annual grassland species with few shrubs. This community includes a few snags and mostly mature oaks. All of the Project site is in close proximity to residences and have urban/developed vegetation communities intermixed with mixed oak woodland. Plants and wildlife species observed are described in the BRA (Attachment E).

- Valley/Foothill Riparian: Valley and foothill riparian vegetation communities occur along waterways from near sea level to the margins of coniferous forests at higher elevations. Valley/foothill riparian

can consist of wide, densely treed corridors along creeks, streams, and channels, or in more developed areas, a sparse, narrow strip of trees. Plants and wildlife species observed are described in the BRA (Attachment E).

- Riverine: Riverine vegetation occurs in entirely aquatic environments such as flowing or ponded rivers and streams. The velocity of water affects water temperature and turbidity, among other factors, and influences the type of aquatic plant species that can grow in a stream or river. Emergent vegetation growing along the banks, decaying matter from the stream bottom, and algal mats, or plants such as duck weed promote the growth of aquatic organisms that provide important food sources for fish and other aquatic species (Grenfell 1988). Tamalpais Creek is ephemeral where it crosses through the Project site, drying out during the summer months. Ponding occurs in the streambed of the creek only at the most downstream crossing through the Project site near Laurel Way, as well as further downstream from this crossing. No flowing water was observed during the times of the surveys.

Sensitive Vegetation Communities

Natural communities considered sensitive are those identified in local or regional plans, policies, or regulations, or by the CDFW. Sensitive vegetation alliances are ranked 1 through 5 based on NatureServe's methodology, with those alliances ranked globally (G) or statewide (S) as 1 through 3 considered sensitive. Impacts to sensitive natural communities identified in local or regional plans, policies, or regulations, or those identified by the CDFW or USFWS, must be considered and evaluated under CEQA (California Code of Regulations [CCR] Title 14, Div. 6, Chap. 3, Appendix G).

The Project site does not have sensitive vegetation communities.

Jurisdictional Features

Tamalpais Creek is an ephemeral stream that originates from the Mount Tamalpais foothills, west from the Project site. It flows on an easterly course, passing through the Project site in four separate locations. The creek was dry at three of the four places it crosses the Project site but exhibited ponding where it crosses the most western sewer segment. However, the project has been designed to avoid any disturbances or impacts to Tamalpais Creek where it crosses this area. At all four crossings, vegetation along the creek remained consistent, comprising primarily coast live oak, valley oak, willow (*Salix* sp.), coast redwood, Himalayan blackberry, and California bay.

Three segments along Woodland Road of the earthen drainage ditch on the west/south side of the road were found to exhibit wetland vegetation, and hydrology indicators. These wetlands all exhibited similar vegetation.

Special-Status Plants

Special-status species include those plants and wildlife species that have been formally listed, are proposed as endangered or threatened, or are candidates for such listing under the Federal Endangered Species Act (ESA) or California Endangered Species Act (CESA). These acts afford protection to both listed species and those that are formal candidates for listing. Plant species on the CNPS Rare and Endangered Plant Inventory with California Rare Plant Ranks of 1 and 2 are also considered special-status plant species and must be considered under CEQA.

Based upon a review of the resources and databases, special-status plant species have been documented within an eight-quadrangle (there are only eight surrounding quadrangles due to the proximity to the ocean) search of the Project site, of which 40 species have been documented within a 5-mile radius. Based on the presence of biological communities described above and soils at the site, as well as past disturbance during development of the Project site, none have the potential to support any of these special-status plants.

Special-Status Wildlife

In addition to wildlife listed as federal or state endangered and/or threatened, federal and state candidate species, CDFW Species of Special Concern, CDFW California Fully Protected species, USFWS Birds of Conservation Concern, and CDFW Special-status Invertebrates are all considered special-status species. Although these species generally have no special legal status, they are given special consideration under CEQA. The federal Bald and Golden Eagle Protection Act also provides broad protections to both eagle species that are roughly analogous to those of listed species. Bat species are also evaluated for conservation status by the Western Bat Working Group (WBWG), a non-governmental entity; bats named as a "High Priority" or "Medium Priority" species for conservation by the WBWG are typically considered special-status and also considered under CEQA; bat roosts are protected under CDFW Fish and Game Code (CFGC). In addition to regulations for special-status species, most native birds in the United States (including non-status species) are protected by the federal Migratory Bird Treaty Act of 1918 (MBTA) and the CFGC (i.e., sections 3503, 3503.5 and 3513). Under these laws, deliberately destroying active bird nests, eggs, and/or young is illegal.

A total of 65 special-status wildlife species have been documented within an eight-quadrangle (there are only eight surrounding quadrangles due to the proximity to the ocean) search of the Project study areas, of which 14 species have been documented within a 5-mile radius. Based on the presence of biological communities described above, the Project site has the potential to support species, which are described in Table 3 below.

Table 3. Special Status Wildlife with Potential to Occur in the Project site.

Scientific Name/ Common Name	Status[a]	Habitat	Potential for Occurrence
Fish			
Oncorhynchus mykiss irideus population 8/ Steelhead – central California coast DPS	FT	Requires beds of loose, silt-free, well-oxygenated coarse gravel for spawning. After hatching, juveniles spend at least one summer in the freshwater rearing areas, so the stream must have either perennial flow or cool intermittent pools with subsurface flow, shade, food, and shelter during the dry season.	High Potential. Steelhead were found during electrofishing in Tamalpais Creek in 1969 and between 1998 and 2002 (Leidy 2005).
Reptiles and Amphibians			
*Dicamptodon ensatus/*California giant salamander	SSC	Wet coastal forests near streams and seeps from Mendocino County south to Monterey County, and east to Napa County. Aquatic larvae found in cold, clear streams, occasionally in lakes and ponds. Adults occur in wet forests under rocks and logs near streams and lakes.	Low Potential. This species could occur in Tamalpais Creek. The nearest CNDDB record (#73) is for a salamander collected at a location approximately 1.3 miles southeast.
Rana draytonii/ California red-legged frog	FT, SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby, or emergent riparian vegetation.	Low Potential. There are no nearby CNDDB records for CRLF. Most of the Marin County records occur along the coast at Point Reyes National Seashore and Bolinas. However, there is marginal breeding habitat in Tamalpais Creek.

Scientific Name/ Common Name	Status[a]	Habitat	Potential for Occurrence
Rana boylii/ foothill yellow-legged frog	SSC	Prefers partly shaded, shallow streams and riffles with a rocky substrate; requires at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis.	Low Potential. There is marginally suitable breeding habitat in Tamalpais Creek. The nearest recent records are for frogs found in San Anselmo Creek (#2368) at a location approximately 0.5 mile north of Tamalpais Creek, and near Lake Lagunitas (#2365), approximately 0.7 mile west of Tamalpais Creek.
Emys marmorata/ Western pond turtle	SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches, usually with aquatic vegetation below 6,000 ft elevation. Needs basking sites and sandy banks or grassy open fields for upland breeding habitat.	Low Potential. There is no suitable breeding habitat present in the creeks in the Project site. However, this species could forage in the creeks and use them as a corridor. The nearest CNDDB record (#460) is approximately 0.3 mile west of the Project study areas in Phoenix Lake, where multiple adults were observed over multiple years.
Birds			
Baeolophus inornatus/ Oak titmouse	BCC	Inhabit oak woodlands or oak-pine woodland. Nests in cavities high in trees (20 to 40 ft above the ground).	Moderate Potential. There are suitable nesting trees at or near the Project site
Dryobates nuttallii/ Nuttall's woodpecker	BCC	Inhabits oak woodlands, wooded suburban areas and riparian corridors.	Moderate Potential. There are suitable nesting trees at or near the Project site
Mammals			
Lasiurus cinereus/ Hoary bat	WBWG	Prefers open habitats or mosaics with trees for cover within open areas or on habitat edges. Roosts in medium to large trees with dense foliage. Primary prey are moths. Requires water source.	Moderate Potential. While the Project site exhibits many suitable roosting trees for hoary bat, the nearest CNDDB record (#81) is 0.28 mile from the western most extent of the study area at Phoenix Lake, where a single adult was collected.

[a] FE/SE – Federal/State Endangered FT/ST – Federal/State Threatened
SCE/T – State Candidate Endangered/Threatened CFP – California Fully Protected
SSC – Species of Special Concern BCC – Bird of Conservation Concern
SSI – Special Status Invertebrate DPS – Distinct Population Segment
WBWG – Western Bat Working Group – Medium or High Priority Species

Permits and Project Approvals

Special-status wildlife species have been documented and could potentially occur in the Project areas. Implementation of the control measures, in addition to agency consultation and compliance with Project authorizations issued by applicable regulatory agencies, would ensure reduction of impacts on special-status wildlife species to a level considered less than significant pursuant to CEQA. Prior to Project commencement, applicable permits and project approvals (listed under the Project Description) will be secured.

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?

Less than Significant with Mitigation. The Project site does not provide habitat for special status plant species; however, it does provide habitat for the following special status wildlife species and/or critical habitat:

- Steelhead—Central California Coast DPS, a Federally Threatened species
- Steelhead—Central California Coast DPS designated Critical Habitat
- California giant salamander, a State Species of Special Concern
- California red-legged frog, a Federally Threatened Species and a State Species of Special Concern
- Foothill yellow-legged frog, a State Species of Special Concern
- Western pond turtle, a State Species of Special Concern, a determination for federal listing may occur in 2023
- Nesting oak titmouse and Nuttall's woodpecker, both Birds of Conservation Concern
- Hoary bat, listed as of Medium Concern by the WBWG
- Nesting birds protected by the MBTA and Fish and Game Code

A special-status species table that evaluates all species from the database lists referenced in the BRA with an explanation of why or why not the species has potential to occur at the Project or adjacent to the Project is provided in Attachment G.

Impacts to these species due to factors including but not limited to habitat loss, death or injury to individuals, disruption of breeding cycles would be considered a significant impact under CEQA. As discussed in the Project Description, work occurring in the creek at Creek Crossing 2 would involve channel improvement activities to remove an existing pipe and construct a riffle. Imported rock would be installed along with the native bed materials stockpiled onsite to create the constructed riffle. The area adjacent to the sewer line, and the construction access corridor, will be cleared and grubbed of invasive species. Following the completion of the constructed riffle, all equipment will be removed from the channel bed. The access route will be re-landscaped and vegetated and areas of excavation will be covered with erosion control fabric. With the implementation of the following mitigation measures, in addition to the control measures, listed under "Biological Resources" in Attachment D, impacts to biological resources would be less than significant. The primary measure that reduces impacts to less than significant is restricting in-stream construction activities, which are expected to occur during the dry season (June 15 to October 15).

Mitigation Measure BIO-1

Adequate measures shall be taken to avoid inadvertent take of bird nests protected under the federal MBTA 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 to determine whether any active nests are present in the Project area and surrounding vicinity (within 50 ft for songbirds and 250 ft for raptors) 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 of the nest location. The size of the buffer may be determined by the biologist based on species and proximity to activities but should generally be between 50 ft for songbirds and up to 250 ft for nesting raptors. As necessary, the no-disturbance zone shall be delineated if construction is to be initiated elsewhere in the Project area and surrounding vicinity 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 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.

Mitigation Measure BIO-2

Pre-construction surveys for California red-legged frog and foothill yellow-legged frog shall be conducted prior to initiation of Project activities within 48 hours of the start of ground disturbance activities. Surveys are to be conducted by approved qualified biologist with experience surveying for each species. If Project activities are stopped for greater than 7 days, a follow-up preconstruction survey may be required within 48 hours prior to re-initiation of Project activities. If California red-legged frog is detected during the survey, RVSD will consult with USFWS. If foothill yellow-legged frog is detected, RVSD will consult with CDFW.

Pre-construction surveys for Western pond turtle and California giant salamander shall be conducted prior to initiation of Project activities within 48 hours of the start of ground disturbance activities. Surveys are to be conducted by an approved qualified biologist with experience surveying for each species. If Project activities are stopped for greater than 7 days, a follow-up pre-construction survey may be required within 48 hours prior to re-initiation of Project activities. If either of these species are found during surveys, CDFW will be notified via e-mail. If Western pond turtle enters any of the Project area during construction, it will be relocated by the Project biologist, to similar suitable habitat beyond the work area heading in the same direction it was found while moving through the area. If Western pond turtle is listed as a candidate species prior to the start of activities then relocation would only occur following consultation with USFWS upon issuance of an incidental take permit. If California giant salamander are found during construction, they will be removed by the Project biologist and relocated to a similar habitat situated outside of the work area but within close proximity.

Mitigation Measure BIO-3

To the extent feasible, tree trimming will be performed outside the maternity season (between September 1 to April 15) to avoid the period when hoary bats and others may be present. If not possible, an acoustic emergence survey shall be performed to determine if bats are present including any solitary species. If present, the roost shall be avoided until after September 1 to ensure no significant effects to maternity bat roosts occur.

Mitigation Measure BIO-4

All in-water construction activities are expected to occur during the dry season (June 15 to October 15) when the channel is typically dry. However, if water is unexpectedly present or if groundwater is encountered and dewatering must occur, a fish handling and relocation plan would be developed by the approved aquatic biologist in coordination with NMFS and/or CDFW. Individual organisms would be relocated the shortest distance possible to an adjacent upstream area with sufficient aquatic habitat. Within occupied habitat, capture, handling, exclusion, and relocation activities would be completed no earlier than 48 hours before construction begins. If electrofishing is conducted, it must be performed by an approved biologist following NMFS guidelines (NMFS 2000).

During fish relocation, all organisms would be kept in water to the maximum extent possible and captured coho salmon and steelhead would be kept in cool, shaded, well-aerated water and protected from disturbance and overcrowding until they are released. To avoid predation, separate containers would be used: one for young-of-the-year steelhead, and one for second- or third-year steelhead. Captured fish would be relocated to suitable upstream rearing habitat that is as close to the dewatered area as possible while meeting the survival needs (adequate water quality/quantity, cover, and forage) of both the relocated individuals and the fish already inhabiting the relocation site.

Mitigation Measure BIO-5

Prior to the start of construction activities, a Qualified Biologist will conduct a habitat assessment for special-status plants. If potential habitat for special-status plants is present, a pre-construction special-status plan survey shall be conducted by a Qualified Biologist during the appropriate blooming period and conditions for all special-status plants that have the potential to occur within or near the Project where they may be directly or indirectly impacted by project activities. The survey will exclude areas that would not be disturbed by the footprint of construction activity, project areas are already disturbed by pedestrian and vehicular activity, and project areas located on private property. Surveys and associated reporting will be conducted according to CDFW's 2018 *Protocol for Surveying and Evaluating Impacts to Special-Status Native Plant Populations and Sensitive Natural Communities*. The survey results will be submitted to CDFW prior to the start of construction.

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?

Less than Significant. Riparian habitat associated with Tamalpais Creek in the Project site. Tree removal is not expected as part of the Project; however, if tree removal is needed, RVSD and its Contractor will comply with the County of Marin's Tree Ordinance. Any inadvertent damage to the trees in the vicinity of construction near riparian habitat would be addressed by the Contractor. The Contractor shall exercise due diligence and implement necessary precautions to avoid needlessly damaging or destroying trees, shrubs, or other landscaping. Some portions of the project will require work in the creek bed at Creek Crossing 1 and Creek Crossing 2. As discussed in the Project Description, work occurring at Creek Crossing 1 involves the removal of old, suspended pipes within the culvert. These pipes would be replaced with a double-barrel siphon installed under the creek and would avoid any disturbance to the bed or bank of the channe**l.** Work occurring in the creek at Creek Crossing 2 would involve channel improvement activities to remove an existing pipe and construct a riffle. Imported rock would be installed along with the native bed materials stockpiled onsite to create the constructed riffle. The area adjacent to the sewer line, and the construction access corridor, will be cleared and grubbed of invasive species. Following completion of the constructed riffle, all equipment will be removed from the channel bed. The access route will be re-landscaped and vegetated and areas of excavation will be covered with erosion control fabric. Work occurring at Creek Crossing 2 would improve the existing conditions. Prior to Project commencement, RVSD will obtain applicable permits and project approvals (listed under the Project Description). In addition, control measures listed under "Permits," "Site Management Practices," and "Biological Resources" in Attachment D will be

implemented for the Project. The primary measure that reduces impacts to less than significant is restricting in-stream construction activities, which are expected to occur during the dry season (June 15 to October 15).

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

Less than Significant. Segments of the Project site including the most western sewer segment and segments along Woodland Road were found to exhibit wetland vegetation, and hydrology indicators. Prior to Project commencement, the RVSD will obtain applicable permits and project approvals (listed under the Project Description). In addition, control measures listed under "Permits" and "Biological Resources" in Attachment D will be implemented for the Project.

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?

No Impact. The proposed project will not create any dispersal barrier that would interfere substantially with the movement of native resident or migratory fish or wildlife corridors or nursery sites. Proposed removal of the existing sewer line at Creek Crossing 2 and restoration of the channel bed and banks would improve existing wildlife habitat values and ability of aquatic species to move through the project reach. Construction-related disturbance to the creek corridor would be temporary in nature, and would occur when the channel is dry, thereby avoiding aquatic species and seasonal dispersal through the project reach.

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

Less than Significant. Some tree trimming may occur as part of the project. Tree removal is not expected as part of the Project; however, if tree removal is needed, RVSD and its Contractor will comply with the County of Marin's Tree Ordinance. Any inadvertent damage to the trees in the vicinity of construction would be addressed by the Contractor. The Contractor shall exercise due diligence and implement necessary precautions to avoid needlessly damaging or destroying trees, shrubs, or other landscaping. In addition, mitigation measure BIO-3 related to tree trimming and control measures listed under "Permits" and "Site Management Practices" in Attachment D will be implemented for the Project.

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?

No Impact. There are no adopted Habitat Conservation Plans or other local, regional, or state habitat conservation plan in the area.

References Used:

1. Sol Ecology. 2023. Biological Resources Report for the Ross Valley Sanitary District Woodland Area Gravity Sewer Improvement Project, Marin County, California. Sol Ecology, Inc. January.

2. Leidy, R.A., G.S. Becker, and B.N. Harvey. 2005. Historical Distribution and Current Status of Steelhead/Rainbow Trout (*Oncorhynchus mykiss*) in Streams of the San Francisco Estuary, California. Center for Ecosystem Management and Restoration, Oakland, CA.

3. NMFS. 2000. Guidelines for Electrofishing Wasters Containing Salmonids Listed Under the Endangered Species Act. National Marine Fisheries Service. June.

5. Cultural Resources

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?	☐	☒	☐	☐
b. Cause a substantial adverse change in the significance of an archeological resource pursuant to § 15064.5?	☐	☒	☐	☐
c. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

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 sanitary sewer mains and related appurtenances as well as channel improvement activities. The construction methods, previous disturbances, and logistical constraints have been taken into consideration during the design of this project. As such, and discussed in the Project Description, work will entail pipe bursting, open cut trenching, and jack-and-bore or directional drilling for sewer line repair and replacement, existing manhole rehabilitation, excavation for channel improvements, and grubbing for vegetation removal.

The primary Project construction pipe bursting method (trenchless) has a minimal potential impact. Disturbance from pipe bursting is limited to the soils within and immediately surrounding the existing pipeline footprint. While the pipe bursting method is employed, the immediate soils around the existing pipeline footprint are only expected to be displaced *in situ* a few centimeters outward to accommodate the larger pipe. Removal of soil is expected in Project areas where the open cut methods are utilized, in addition to areas where entry and exit pits are constructed, and where sags and potholes need to be repaired. For lateral tie-ins, soil immediately surrounding and above the pipe would also need to be excavated. While the excavated soil would be solely or primarily backfill from the initial installation of the existing pipeline, and thus should not contain any intact archaeological deposits, native soils may be encountered if the new trench does not exactly correspond with the depth or width of the previously excavated trench. Some segments of the Project will require the use of open cut and jack-and-bore or directional drilling methods to rehabilitate sewer lines located within the existing alignment of sanitary sewer mains and related appurtenances.

Creek Crossing 1 would involve the removal of the old suspended pipes within the culvert. The pipes will be cut back and capped, and the concrete walls of the culvert will be repaired. These pipes would be replaced with a double-barrel siphon installed under the creek via jack-and-bore or horizontal drilling methods and would avoid any disturbance to the bed or bank of the channel. Work occurring at Creek Crossing 2 would involve channel improvement activities to remove an existing pipe and construct a riffle. The excavation depth to remove the sewer line would be approximately 4 ft and the excavation depth channel bed would be approximately 2 ft. Imported rock would be installed along with the native bed materials stockpiled onsite to create the constructed riffle. The area adjacent to the sewer line, and the construction access corridor, will be cleared and grubbed of invasive species. Following the completion of the constructed riffle, all equipment will be removed from the channel bed. The access route will be relandscaped and vegetated, and areas of excavation will be covered with erosion-control fabric. At Creek Crossings 3 and 4, the sewer line will be

replaced via pipe bursting. All other sewer segments within the roadway will be replaced primarily via pipe bursting.

Description of Baseline Environmental Conditions:

A Cultural Resources Inventory Report for the Project was prepared by Far Western Anthropological Research Group, Inc. (Far Western) in January 2023. 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 cultural study included a cultural resources records search, consultation with the Federated Indians of Graton Rancheria (FIGR), outreach with a local historical society, buried site sensitivity assessment, and a pedestrian survey of the Project site.

Far Western previously requested a records search for all RVSD alignments at NWIC. The records search included the entire RVSD service territory and provided results for any cultural resources (i.e., archaeological and built environment) identified within or intersecting the service area. The records search was conducted by NWIC researcher Annette Neal, and results were provided to Far Western on March 1, 2022 (NWIC File No. 21-1223). The records search identified no previously recorded cultural resources within the Project area. Two resources were identified within the one-quarter mile search buffer. Both resources are precontact (one isolated artifact and one archaeological site) and have not been studied further or evaluated for the National Register of Historical Places (National Register) or California Register of Historical Resources (California Register).

The buried site sensitivity analysis identified an unlikelihood that precontact archaeological resources may be present below surface in the Project area. In particular, the analyses found the potential to encounter subsurface precontact sites to be either “Low” or “Lowest.” Historic-era developments in the immediate vicinity of the Project indicate some sensitivity for subsurface historic-era archaeological resources in the form of earlier road iterations and domestic refuse. The nature and location of ground-disturbing project activities make it unlikely that subsurface historic-era archaeological resources will be encountered.

Far Western completed the field survey on October 6, 2022. Two precontact Native American archaeological resources and one historic-era built environment resource were identified within and immediately adjacent to the Project area. This includes two sparse concentrations of shell fragments and one historic-era stone culvert (proposed for repair). The culvert was evaluated and does not meet any of the four criteria for eligibility and thus is recommended not eligible for inclusion on the National Register or California Register. The two precontact resources were not evaluated as part of this investigation and will be further assessed to complete identification efforts (see cultural mitigation measures below).

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 tribal cultural importance to various groups. This study addresses archaeological resources, as well as the historic-era culvert in the Project site located near Creek Crossing 1. 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 CEQA Statutes and Guidelines (14 CCR § 15064.5) include procedures for identifying, analyzing, and disclosing potential adverse impacts to historical resources, which include all resources listed in or formally determined eligible for the National Register, the California Register, or local registers. CEQA further defines a “historical resource” as a resource that meets any of the following criteria:

1. A resource listed in, or determined to be eligible for listing in, the National or California Registers.

2. A resource included in a local register of historical resources, as defined in § 5020.1(k) of the Public Resources Code (PRC), unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

3. A resource identified as significant (rated 1–5) in a historical resource survey meeting the requirements of PRC § 5024.1(g) Department of Parks and Recreation Form 523, unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

4. Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the determination is supported by substantial evidence in light of the whole record. Generally, a resource is considered "historically significant" if it meets the criteria for listing on the California Register.

Analysis as to whether or not project activities would:

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

Less than Significant with Mitigation. An archaeological feature's significance is determined by its potential eligibility to be listed on the 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 at least 50 years old; 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 did not identify any resources within the Project area; however, during the field survey, two locations of sparse shell concentration were identified at the surface. In addition, one precontact artifact and one precontact archaeological site were previously recorded approximately within a 0.25 mile buffer of the Project area. The results of the buried site sensitivity assessment concluded a low potential for encountering cultural deposits within the Project area; however, given the identification of Native American resources within and adjacent to the Project area and as a result of consultation with FIGR, additional identification efforts are required to fully assess and identify the presence of subsurface deposits. It is possible that the shell noted on the surface is a secondary disturbed deposit, but these resources have not been archaeologically tested or evaluated.

The historic-era culvert within the Project area located near Creek Crossing 1 was evaluated and does not meet any of the four criteria for eligibility and thus is recommended not eligible for inclusion on the National Register or California Register. Background research for this resource identified a direct historical association with the development of the Kent Woodlands community, more specifically, residential development along Woodland Road, on land originally owned and subdivided by the Kent family, Marin County pioneers. Furthermore, two individuals were identified in the design plans from 1938—Richard K. Wilcox, Landscape Architect, and J.C. Oglesby, Civil Engineer, County of Marin. Bridges and culverts, like all infrastructure, play an important role in the community they serve. However, the Woodland Road culvert over Tamalpais Creek consists of a minor, ubiquitous structure, found throughout California. The resource is recommended as not eligible for listing on the National or California Register(s) due to lack of historical significance under all evaluation criteria.

Construction activities for the Project would require ground-disturbing work to rehabilitate and repair sewer lines located within the existing alignment of sanitary sewer mains and related appurtenances as well as channel improvement activities. Due to the results the field survey, identification of Native American resources within and adjacent to the Project area, and consultation with FIGR, a program of focused

archaeological testing will be conducted within the Project area. Testing will occur in advance of areas proposed for excavation along the proposed work alignment, where feasible. Ongoing consultation efforts with FIGR will further determine testing details and locations. Based on the results of the testing and in coordination with the District and FIGR, monitoring by an archaeologist and tribal monitor may also be required to observe excavated soils that are removed during construction activities. Even if much of the excavation has been previously disturbed, deposits may be visible in trench walls and redeposited midden may contain human remains. With implementation of Mitigation Measures CUL-1, CUL-2, CUL-3, and CUL-4, impacts to cultural resources would be less than significant.

Mitigation Measure CUL-1

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

Based on the results of the testing and in coordination with the RVSD and FIGR, monitoring by an archaeologist and tribal monitor may also be required to observe excavated soils that are removed during construction activities.

Mitigation Measure CUL-2

Upon approval of the Plan, archaeological testing will occur in areas determined to be sensitive for subsurface cultural resources. Testing will take place prior to project implementation and will be coordinated in advance with FIGR. A tribal monitor will be present during all testing. Testing will occur within the Project area. Where testing is not feasible, Mitigation Measure CUL-1 will be implemented.

Mitigation Measure CUL-3

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 would 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 tribal representative, 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-4

Upon discovery of human remains, the Coroner Division of the Marin County Sheriff's Office will be contacted for identification of the 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.

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

Less than Significant with Mitigation. The following investigations were conducted as part of this archaeological resources evaluation:

1. A records search of relevant archival documents on file at NWIC at Sonoma State University in Rohnert Park.

2. Correspondence with NAHC in Sacramento. Consultation with members of the local Native American community (FIGR) is ongoing.

3. A buried site sensitivity assessment to assess the potential for precontact Native American and historic-era archaeological sites within the Project site based on a review and analysis of relevant documents.

4. A pedestrian field survey of the entire Project site.

5. Detailed assessment of the archaeological potential of the various sites and alignments under consideration.

6. Evaluation of historic-era culvert within the Project area.

Construction activities for the Project would require ground-disturbing work to rehabilitate and repair sewer lines located within the existing alignment of sanitary sewer mains and related appurtenances as well as channel improvement activities. These construction activities could potentially damage or destroy any displaced artifacts within the Project area boundaries from surrounding archaeological resources. However, with the implementation of Mitigation Measures CUL-1, CUL-2, and CUL-3, impacts to cultural resources would be less than significant.

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

Less than Significant with Mitigation. 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) 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 Project that involve excavation in the project soils. With implementation of Mitigation Measure CUL-4, impacts to cultural resources would be less than significant.

References Used:

1. Far Western. 2023. Cultural Resources Inventory for the Ross Valley Sanitary District Woodland Area Gravity Sewer Improvements Project, Marin County, California. Far Western Anthropological Research Group, Inc. January.

6. Energy

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

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 debris to appropriate facility.

Description of Baseline Environmental Conditions:

Current energy use within the Project site is predominantly for 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 5 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 greenhouse gas (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. Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?

Less than Significant. 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.

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No Impact. 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 rehabilitate and replace existing sewer mains and reduce SSOs and mitigate I&I with aging RVSD infrastructure. Implementation of this Project would reduce operation and maintenance 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, and the goals and policies contained in Marin County's Countywide Plan and the Climate Action Plan.

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

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☐	☒
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
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?	☐	☐	☐	☒
f. Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	☐	☐	☐	☒

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 was used to supplement this section. Geotechnical control measures included in Attachment D under "Geotechnical" would be implemented on an as-needed basis. 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 Project site 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.

Geologic Hazards

Although there are no active faults or rift zones in the Project site (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.

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 could 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") 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). The Liquefaction Susceptibility Hazards Map indicates the Project site is mapped near 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 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. Because the Project is located adjacent to and crosses Tamalpais Creek, groundwater could be encountered during construction activities.

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.

Less than Significant. There are no active faults or potentially active faults underlying the Proposed Project sites according to published geologic maps. The Project site is not located within an identified Alquist-Priolo Earthquake Hazard Zone. Because the Proposed Project is not located within an Alquist-Priolo Earthquake Fault Zone and no major faults have been mapped within or adjacent to the Proposed Project sites, the likelihood of ground rupture from faulting across the Proposed Project sites is low.

ii) Strong seismic ground shaking?

Less than Significant. Although there are no active faults underlying 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.

iii) Seismic-related ground failure, including liquefaction?

Less than Significant. The Project site is in an area identified as having a high potential for a liquefaction hazard. As a result, the Project could be subject to liquefaction during an earthquake. However, the Project would incorporate standard engineering and construction techniques related to seismicity and liquefaction. Implementation of these practices and requirements would minimize potential impacts of liquefaction on 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 listed under “Geotechnical” in Attachment D have been included in the Project to address these issues, should they arise.

iv) Landslides?

Less than Significant. The Project site is located in an area where few landslides occur (ABAG 2021). Construction activities would not increase the potential for seismically induced landslides or attract additional population to a potentially hazardous area.

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

Less than Significant. Project construction would involve soil excavation, primarily for areas needing insertion and receiving pits and during channel improvement activities (Creek Crossing 2). 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 nearby streams. Once the Project is complete, the Project site along Woodland Drive will be returned to pre-Project conditions. Modified or disturbed portions of the stream channel, banks, and riparian areas would be restored as nearly as possible to natural and stable contours.

Proper implementation of the Control Measures listed under "Permits," "Site Management Practices," "Stormwater and Erosion Control," and "Biological Resources" in Attachment E would prevent significant soil erosion from occurring and the loss of topsoil would be considered a less than significant 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?

Less than Significant. As discussed in 7a(iii), the potential for impacts due to liquefaction would be less than significant. 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. Project would incorporate standard engineering and construction techniques related to seismicity and liquefaction. Control Measures listed under "Geotechnical" in Attachment D have been included in the Project to address these issues, should they arise.

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?

Less than Significant. Although some of the native soils underlying the Project site may have expansion or shrink-swell potential, backfill material used would consist of non-expansive materials. The Project would adhere to standard engineering and construction techniques which would further minimize potential effects of expansive soils on site.

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?

No Impact. While replacement sewer pipelines and manholes would be constructed and channel improvements would occur, no septic tanks or alternative wastewater disposal systems are included as a component of the Project.

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

Less than Significant. The Project involves limited excavation within the public right-of-way or in designated easements, which in general have been previously disturbed. As discussed under Section 5, Cultural Resources, the Project site might contain paleontological resources or unique geologic features of paleontological value. However, mitigation measures listed under Section 5 will be implemented to reduce potential impacts to paleontological resources or unique geologic features of paleontological value.

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. 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. ABAG. 2021. Hazard Viewer Map. Available at: https://abag.ca.gov/our-work/resilience/data-research/hazard-viewer. Association of Bay Area Governments.

8. Greenhouse Gas Emissions

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

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, or 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 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.

AB 32, the Global Warming Solutions Act, addresses GHG 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 5 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 used, 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?

Less than Significant. 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 3. Maximum Annual Emission from Project Activities

Pollutant	Maximum Annual Emissions ($MTCO_2e$ /year)	Threshold [a] ($MTCO_2e$ /year)	Above Threshold?
CO_2e	300.13	1,100	No

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

The Air Quality 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 (300.13 MT/year) that could be generated during construction are approximately one-third 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 estimated GHG emissions for unincorporated Marin County in 2018 were 380,318 $MTCO_2e$ (Marin County 2020). 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 emissions for all of the unincorporated towns in Marin County, the level of Project-related increase is less than significant.

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

Less than Significant. 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.

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. 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.
4. 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.
5. SMAQMD. 2015. Thresholds of Significance Table. Available at: https://files.ceqanet.opr.ca.gov/123569-2/attachment/UL9obk_yjl5aUBxUrjyQ9P3HVyfSLoCEnhvRpgSHGIQmRUgvfjw0ZXCcdqPM73lOOUtFc8Rl7yI_48800. Sacramento Metropolitan Air Quality Management District.

9. Hazards and Hazardous Materials

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Create a significant hazard to the public or the environment throughout the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒

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 under “Hazardous Materials” 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 2022) or the Cortese List (DTSC 2022) are located in the Project site.

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?

No Impact. Construction activities would not create a significant hazard to the public or environment. Control Measures in Attachment D under “Hazardous Materials” have been established to manage the unexpected discovery of hazardous materials during Project implementation.

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?

Less than Significant. 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 and I&I in the RVSD service area. SSOs and I&I can expose the public to raw sewage, and overflows can reach local streams with adverse water quality impacts.

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

Less than Significant. 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. The Control measures listed in Attachment D under “Hazardous Materials” would be implemented to address hazards and hazardous materials.

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 the public or the environment?

No Impact. The Project site is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5.

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

No Impact. 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.

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

No Impact. 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.

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

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

References Used:

1. DTSC. 2022. 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. 2022. GeoTracker. Available at: https://geotracker.waterboards.ca.gov/map/. State Water Resources Control Board.

10. Hydrology and Water Quality

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

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.

Work occurring along Woodland Drive and Creek Crossing 3 and Creek Crossing 4 would utilize pipe bursting methods. Pipe bursting is a trenchless method and does not require open exposure from the surface along the entire segment. Work occurring at Creek Crossing 1 and Creek Crossing 2 includes components of construction work that would take place within the creek bed. Excavation by jack-and-bore or directional drilling and open cut would occur to rehabilitate sewer lines and for channel improvements.

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 Mount 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 the Marin County provides coverage for the Project site. The FEMA Flood Map indicates that a majority of the Project site is located within FEMA Flood Hazard Zone X. Flood Zone X is described by FEMA as an area that has minimal flooding.

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. Given that the Project site is located adjacent to Tamalpais Creek, and some work will occur in the creek (Creek Crossing 2), groundwater may be encountered during excavation activities along the Project alignments.

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?

Less than significant. The Project is one of a series of RVSD projects that addresses I&I within the RVSD service area. The projects that have been set forth by the IAMP include projects to rehabilitate and replace RVSD's deficient wastewater facilities. The RVSD is currently revising its IAMP to shift to a more forward-looking and adaptive program. 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 relieve hydraulic and structural deficiencies and reduce groundwater infiltration with aging RVSD infrastructure. Construction of the Project helps ensure compliance with the Regional Water Board Order No. R2-2018-0003, NPDES No. CA0038628.

During Project construction, excavation and other construction activities could adversely affect water quality due to erosion from exposed soils and the generation of water pollutants, including trash, construction material debris, and equipment fluids. The Project would prepare and implement a plan containing construction BMPs (as listed in control measures under "Stormwater and Erosion Control" and "Site Management Practices" in Attachment D) to reduce construction-related stormwater discharges and minimize potential downstream water quality impacts. For work occurring at Creek Crossing 1 and Creek Crossing 2, proper implementation of the control measures listed under "Permits" and "Biological Resources" in Attachment D would prevent adverse impacts to water quality. In addition, construction at Creek Crossing 1 and Creek Crossing 2 will occur sometime during the period of June 15 to October 15, when the channel is typically dry.

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

Less than Significant. 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 the removal and/or replacement of sewer lines. 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. With the implementation of control measures listed in Attachment D under "Dewatering," any potentially significant impacts to groundwater supplies and recharge would be less than significant.

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?

Less than Significant. The Project would not 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.

ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?

Less than Significant. The Project would require short-term construction-related disturbances along Woodland Road, which is adjacent to Tamalpais Creek in some areas. The rehabilitation and replacement of sewer lines within existing easement areas of the RVSD along Woodland Road would occur 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 along Woodland Road will be returned to pre-Project conditions.

The Project also involves the removal of old, suspended pipes within the culvert of Creek Crossing 1, which would be replaced with a siphon installed under Tamalpais Creek and would avoid any disturbance to the bed or bank of the channel**.** Work would also entail the removal of an abandoned sewer line and restoration of Tamalpais Creek channel bed at Creek Crossing 2. Construction in these areas would occur with proper implementation of the control measures listed under "Permits" in Attachment D. Following completion of the constructed riffle, the equipment will be removed from the channel bed. The access route will be re-landscaped and vegetated and areas of excavation will be covered with erosion control fabric to minimize erosion along the waterway. In addition, control measures listed under "Biological Resources," "Stormwater and Erosion Control," and "Site Management Practices" in Attachment D would be implemented. These practices and procedures protect hydrology and water quality resources by avoiding or minimizing potential adverse impacts during construction activities, related to change in existing drainage pattern of the site in a manner which would result in substantial erosion or siltation on or off site.

iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Less than Significant. The Project would not significantly alter existing drainage patterns of the site or area, including through the alteration of the course of any stream, river, or creeks, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding. The rehabilitation and replacement of sewer lines along Woodland Road would occur within existing easement areas of the RVSD without altering the existing drainage pattern of the area. Project work at all creek crossings would not substantially increase the rate of the amount of surface runoff in a manner that would result in flooding. No substantial increases in the rate or amount of surface runoff is anticipated to result from project construction.

iv) Impede or redirect flood flows?

Less than Significant. See 10c.ii. No substantial increases in the rate or amount of surface runoff is anticipated to result from project construction. Control measures listed under "Biological Resources," "Stormwater and Erosion Control," and "Site Management Practices" in Attachment D would be implemented. These practices and procedures protect hydrology and water quality resources by avoiding or minimizing potential adverse impacts during and following construction activities.

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

No Impact. The Project site is not located within a 100-year flood zone (FEMA 2009). In addition, Project limits are not within the tsunami inundation zone (CalEMA et al. 2009).

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

Less than Significant. See 10a and 10b.

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

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Physically divide an established community?	☐	☐	☐	☒
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?	☐	☐	☐	☒

Project Activities Likely to Create an Impact:

None.

Description of Baseline Environmental Conditions:

The Project is located in areas currently zoned as 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?

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

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?

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

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

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

Project Activities Likely to Create an Impact:

No impact.

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?

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

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?

No Impact. See 12a.

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. County of Marin, CA.

13. Noise

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 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?	☐	☐	☐	☒

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. Sensitive receptors at the Project site include the adjacent residences within 1,000 ft from of the Project site.

Local Noise Regulations

The Project site is within Marin County and is subject to noise regulations of Marin County. The County of Marin Municipal Code, 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: 7:00 a.m. to 6:00 p.m.
    ii. Saturday: 9:00 a.m. to 5:00 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 8:00 a.m. to 5:00 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 (7:00 a.m. to 10:00 p.m.)	Nighttime (10:00 p.m. to 7:00 a.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?

Less than Significant. 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” and “Notifications.”

b. Generation of excessive groundborne vibration or groundborne noise levels?

Less than Significant. Construction activities would not require the use of equipment known to generate high vibration levels such as an impact pile driver or blasting. However, it is conservatively assumed that equipment used during open cut construction would generate vibration levels equivalent to a jackhammer. Sensitive receptors that are located adjacent to open cut construction activities would be exposed to vibration levels that may exceed the human annoyance threshold.[2] Construction activities that may result in temporary vibration impacts include use of off-road construction equipment and trenchless construction techniques (pipe bursting, jack-and-bore, or horizontal drilling methods). Trenchless construction is expected to occur along sewer segments at a majority of the Project site. Jack and bore or horizonal drilling is expected to occur at Creek Crossing 1. In the short-term, construction at the Project site could expose sensitive receptors to vibration levels that exceed the human annoyance threshold. However, this impact would be considered less than significant with the implementation of the control measures listed in Attachment D under “Noise,” “Notifications,” and “Ground Movement Monitoring.”

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 2 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?

No Impact. The Project site is not within any airport land use plan or within 2 miles of any airport or airstrip.

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.

[2] The human annoyance threshold is 0.1 inch/second PPV within approximately 15 feet.

14. Population and Housing

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☐	☒
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Project Activities Likely to Create an Impact:

None.

Description of Baseline Environmental Conditions:

The primary objective of the Project is to relieve hydraulic and structural deficiencies and reduce groundwater infiltration with aging RVSD infrastructure by rehabilitating and replacing existing sewer pipes. Improvements would be made at the Project site primarily along local access roads and in public right-of ways. The RVSD will coordinate with private property owners for improvements being made on private properties. Although the sewer line is being upsized, the primary purpose is to prevent SSOs and I&I. 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 an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?

No Impact. The Project-related construction activities would not induce population growth. Activities are aimed toward relieving hydraulic and structural deficiencies in existing pipes and channel improvements.

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

No Impact. 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.

15. Public Services

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Would the project 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?	☐	☐	☐	☒

Project Activities Likely to Create an Impact:

The Project would have no public service impacts.

Description of Baseline Environmental Conditions:

The Project site is located in areas that are currently served by fire, police, and paramedic services; schools; and other public facilities. It is not anticipated that the rehabilitation and replacement of the sanitary sewer main segments 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. Therefore, the Project would have no impact on public services.

Analysis as to whether or not project activities would:

a. Would the project 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?

No Impact. 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 replaced sanitary sewer mains would ensure necessary system reliability to continue meeting peak utility demands.

16. Recreation

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Would the project 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?	☐	☐	☐	☒
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

Project Activities Likely to Create an Impact:

The primary objective of the Project is to rehabilitate and replace existing sanitary sewer mains. Improvements would be made along local access roads 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 locations.

Analysis as to whether or not project activities would:

a. Would the project 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?

No Impact. 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 communities. 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.

b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No Impact. The Project does not include the development of any new recreational facilities or require the expansion of existing recreational facilities.

17. Transportation

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

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 listed under “Traffic Management” in Attachment D during construction activities. Excavated soils would be hauled away and replaced with suitable material from offsite sources on a continuous basis.

Description of Baseline Environmental Conditions:

According to the Marin Countywide Plan, travel through and around the Project site 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 onto adjacent roadways. However, Sir Francis Drake Boulevard is not within the Project site.

The Project will be adjacent to Woodland Road. Woodland Road is classified as a local residential street providing access to the surrounding neighborhood (Marin County 2007). Streets intersecting Woodland Road in the Project vicinity are residential culs-de-sac including Acorn Way and Laurel Way.

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?

Less than Significant. 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 residential areas, in the Project site, 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 under “Traffic Management” to minimize traffic flow overload.

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

No Impact. 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).

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

Less than Significant. 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 under “Traffic Management,” no elements of the Project design would introduce hazards to the road system.

d. Result in inadequate emergency access?

No Impact. 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.

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

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources 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: i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☒	☐	☐
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

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 sanitary sewer mains and related appurtenances as well as channel improvement activities. The construction methods, previous disturbances, and logistical constraints have been taken into consideration during the design of this project. As such, and discussed in the Project Description, work will entail pipe bursting, open cut trenching, and jack-and-bore or directional drilling for sewer line repair and replacement, existing manhole rehabilitation, excavation for channel improvements, and grubbing for vegetation removal.

The primary Project construction pipe bursting method (trenchless) has a minimal potential impact. Disturbance from pipe bursting is limited to the soils within and immediately surrounding the existing pipeline footprint. While the pipe bursting method is employed, the immediate soils around the existing pipeline footprint are only expected to be displaced *in situ* a few centimeters outward to accommodate the larger pipe. Removal of soil is expected in Project areas where the open cut methods are utilized, in addition to areas where entry and exit pits are constructed, and where sags and potholes need to be repaired. For lateral tie-ins, soil immediately surrounding and above the pipe would also need to be excavated. While the excavated soil would be solely or primarily backfill from the initial installation of the existing pipeline, and thus

should not contain any intact archaeological deposits, native soils may be encountered if the new trench does not exactly correspond with the depth or width of the previously excavated trench. Some segments of the Project will require the use of open cut and jack-and-bore or directional drilling methods to rehabilitate sewer lines located within the existing alignment of sanitary sewer mains and related appurtenances.

Creek Crossing 1 would involve the removal of the old suspended pipes within the culvert. The pipes will be cut back and capped, and the concrete walls of the culvert will be repaired. These pipes would be replaced with a double-barrel siphon installed under the creek via jack-and-bore or horizontal drilling methods and would avoid any disturbance to the bed or bank of the channel. Work occurring at Creek Crossing 2 would involve channel improvement activities to remove an existing pipe and construct a riffle. The excavation depth to remove the sewer line would be approximately 4 ft and the excavation depth channel bed would be approximately 2 ft. Imported rock would be installed along with the native bed materials stockpiled onsite to create the constructed riffle. The area adjacent to the sewer line, and the construction access corridor, will be cleared and grubbed of invasive species. Following the completion of the constructed riffle, all equipment will be removed from the channel bed. The access route will be relandscaped and vegetated, and areas of excavation will be covered with erosion-control fabric. At Creek Crossings 3 and 4, the sewer line will be replaced via pipe bursting. All other sewer segments within the roadway will be replaced primarily via pipe bursting.

Description of Baseline Environmental Conditions:

A Cultural Resources Inventory Report for the Project was prepared by Far Western in January 2023. 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 cultural study included a cultural resources records search, consultation with FIGR, outreach with a local historical society, buried site sensitivity assessment, and a pedestrian survey of the Project site.

Far Western previously requested a records search for all RVSD alignments at the NWIC. The records search included the entire RVSD service territory and provided results for any cultural resources (i.e., archaeological and built environment) identified within or intersecting the service area. The records search was conducted by NWIC researcher Annette Neal, and results were provided to Far Western on March 1, 2022 (NWIC File No. 21-1223). The records search identified no previously recorded cultural resources within the Project area. Two resources were identified within the one-quarter mile search buffer. Both resources are precontact (one isolated artifact and one archaeological site) and have not been studied further or evaluated for the National Register or California Register.

The buried site sensitivity analysis identified an unlikelihood that precontact archaeological resources may be present below surface in the Project area. In particular, the analyses found the potential to encounter subsurface precontact sites to be either “Low” or “Lowest.” Historic-era developments in the immediate vicinity of the Project indicate some sensitivity for subsurface historic-era archaeological resources in the form of earlier road iterations and domestic refuse. The nature and location of ground-disturbing project activities make it unlikely that subsurface historic-era archaeological resources will be encountered.

Far Western completed the field survey on October 6, 2022. Two precontact Native American archaeological resources and one historic-era built environment resource were identified within and immediately adjacent to the Project area. This includes two sparse concentrations of shell fragments and one historic-era stone culvert (proposed for repair). The culvert was evaluated and does not meet any of the four criteria for eligibility and thus is recommended not eligible for inclusion on the National Register or California Register. The two precontact resources were not evaluated as part of this investigation and will be further assessed to complete identification efforts (see cultural mitigation measures below).

Ethnographic Context

Encroachment by 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 reestablish 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 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 tribal cultural importance to various groups. This study addresses archaeological resources in the area of direct impact. The Project requires approval by local and state agencies, thereby mandating that it adhere to CEQA and its implementing guidelines and regulations in 14 CCR § 15000 et seq. In addition, AB 52 establishes the requirements of Tribal Cultural Resources and Native American consultation under CEQA.

Assembly Bill 52

AB 52 amended CEQA to address California Native American tribal concerns regarding how cultural resources of importance to tribes are treated under CEQA. With the addition of AB 52, CEQA now specifies that a project that may cause a substantial adverse change in the significance of a "tribal cultural resource" [as defined in PRC 21074(a)] is a project that may have a significant effect on the environment. According to AB 52, tribes may have expertise in tribal history and "tribal knowledge about land and tribal cultural resources at issue should be included in environmental assessments for projects that may have a significant impact on those resources."

Pursuant to CEQA Section 21080.3.1(d), within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location as well as the lead agency contact information, and a notification statement that the federally recognized California Native American tribe has 30 days to request consultation.

On October 13, 2022, a request was sent to NAHC to search the Sacred Lands File to determine if any sites known to be of concern to local Native Americans exist in the Project area. In a letter dated November 16, 2022, NAHC responded, stating that the results of the Sacred Lands File search were negative. NAHC provided the names of the following three contacts who may have more information about sacred sites or tribal cultural resources in the area.

- Greg Sarris, Chairperson, Federated Indians of Graton Rancheria
- Gene Buvelot, Sacred Sites Protection Committee, Treasurer, Federated Indians of Graton Rancheria
- Donald Duncan, Chairperson, Guidiville Indian Rancheria.

On behalf of RVSD, Integral sent a letter to FIGR on November 15, 2023, pursuant to AB 52 and sent a follow-up email on January 4, 2023. The tribe responded on January 5, 2023, and requested a copy of the initial November 2023 letter, which was subsequently provided. On January 9, 2023, Integral provided FIGR with the results of the field survey and records search results, and requested to schedule a meeting to further discuss the project. RVSD, Integral, Far Western, and FIGR met on January 26, 2023, to review the proposed project and schedule. FIGR's Tribal Heritage Preservation Officer requested that additional identification efforts be carried out in advance of construction in order to identify any subsurface cultural deposits within the proposed repair work segments. A program of archaeological testing will be carried out (see Section 5, Cultural Mitigation Measures – CUL-1 and CUL-2).

California Register of Historical Resources

The CEQA Statutes and Guidelines (14 CCR § 15064.5) include procedures for identifying, analyzing, and disclosing potential adverse impacts to historical resources, which include all resources listed in or formally determined eligible for the National Register, the California Register, or local registers. CEQA further defines a "historical resource" as a resource that meets any of the following criteria:

1. A resource listed in, or determined to be eligible for listing in, the National or California Registers.

2. A resource included in a local register of historical resources, as defined in § 5020.1(k) of the PRC, unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

3. A resource identified as significant (rated 1–5) in a historical resource survey meeting the requirements of PRC § 5024.1(g) Department of Parks and Recreation Form 523, unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

4. Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the determination is supported by substantial evidence in light of the whole record. Generally, a resource is considered "historically significant" if it meets the criteria for listing on the California Register.

Analysis as to whether or not project activities would:

a. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources 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:

   i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)

   The California Register identifies resources considered to be important for state and local planning purposes and affords certain protection under CEQA. California regulations require that effects to cultural resources be considered only for resources meeting the criteria for eligibility to the California Register, as outlined in PRC § 5024.1.

   As discussed in Section 5, the records search did not identify any resources within the Project area. However, during the field survey, two locations of sparse shell concentration were identified at the surface. In addition, one precontact artifact and one precontact archaeological site was previously recorded approximately within a 0.25 mile buffer of the Project area. Given the identification of Native American resources within and adjacent to the Project area and consultation with FIGR, additional identification efforts are required to fully assess and identify the presence of subsurface deposits. It is possible that the shell noted on the surface is a secondary disturbed deposit but these resources have not been archaeologically tested or evaluated.

   Consultation between the tribe and RVSD is currently ongoing, and in the event that cultural materials or tribal cultural resources are identified by the tribe before and/or during Project implementation, Mitigation Measures CUL-1, CUL-2, CUL-3, and CUL-4 would reduce significant impacts to a less than significant level.

   ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

   Due to the overall poor surface visibility of the Project site, the results of the pedestrian survey, buried and subsurface site sensitivity analysis, and consultation with FIGR, a program of focused archaeological testing will be conducted in areas determined to be highly sensitive for encountering cultural deposits. Testing will occur in advance of areas proposed for disturbances for the manholes, sags, potholes, and the insertion and receiving pits for pipe bursting, where feasible. With the implementation of Mitigation Measures CUL-1, CUL-2, CUL-3, and CUL-4 impacts to cultural resources would be less than significant.

References Used:

1. Far Western. 2023. Cultural Resources Inventory for the Ross Valley Sanitary District Woodland Area Gravity Sewer Improvements Project, Marin County, California. Far Western Anthropological Research Group, Inc. January.

2. FIGR. 2019. Federated Indians of Graton Rancheria Coast Miwok and Southern Pomo. www.gratonrancheria.com/home/. Accessed January 2023. Federated Indians of Graton Rancheria, Rohnert Park, CA.

19. Utilities and Service Systems

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

Project Activities Likely to Create an Impact:

- Removal of soil and fill/debris
- Use of water trucks for dust suppression

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 RVSD, 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 sewer piping is operated and maintained by RVSD. RVSD provides collection service to the Project site. Several sewer line segments are located on private properties. RVSD will coordinate with private property owners to access and rehabilitate these sewer line segments.

Wastewater would not be generated by the sanitary sewer rehabilitation and replacement activities. The sanitary sewer rehabilitation and replacement 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.

Analysis as to whether or not project activities would:

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

No Impact. 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.

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

Less than Significant. 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 (see Attachment D under “Dust Control”).

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 provider’s existing commitments?

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

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?

Less than Significant. 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 sanitary sewer rehabilitation and replacement activities. Since landfill approval would take place before the planned soil removal, there would be no impact associated with permitted capacity.

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

Less than Significant. All wastes derived from construction activities would be properly disposed of at a designated facility following the applicable state and federal regulations (see Attachment D under “Hazardous Materials”).

20. Wildfire

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

Project Activities Likely to Create an Impact:

- Equipment used for construction activities
- Project site clearing and restoration activities.

Description of Baseline Environmental Conditions:

The California Department of Forestry and Fire Protection (CalFire) uses Fire Hazard Severity Zones (FHSZs) to classify the anticipated fire-related hazard for State Responsibility Areas (SRAs), Local Responsibility Areas (LRAs), and Federal Responsibility Areas (FRAs). The classifications include Non-Wildland Non-Urban, Moderate, High, and Very High. Fire hazard measurements take into account the following elements: vegetation, topography, weather, crown fire production, and ember production and movement (CalFire 2022). CalFire has a legal responsibility to provide fire protection on all SRA lands, which are defined based on land ownership, population density, and land use. CalFire does not have responsibility for densely populated areas, incorporated cities, agricultural lands, or lands administered by the federal government.

Kent Woodlands is located in a CalFire SRA, in zones classified as moderate to high fire severity (Marin GeoHub 2020).

Analysis as to whether or not project activities would:

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

Less than Significant. The construction work at all Project sites would be temporary, and roads would still be accessible so as not to impair an adopted emergency plan or emergency evacuation plan by ensuring access in the event of an emergency or evacuation.

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

Less than Significant. 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 in Attachment D under "Site Management Practices" 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.

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

Less than Significant. The Project involves maintenance of sewer line segments. Maintenance and rehabilitation activities would be temporary and occur within the existing alignments. The Project site and sewer segments would be restored to existing conditions, and thus would not exacerbate fire risk. Project construction occurring at Creek Crossing 2 may include vegetation clearing to perform maintenance and rehabilitation activities. However, implementation of control measures in Attachment D under "Site Management Practices" would reduce the potential for construction-related wildland fires by providing a clearing, reducing fire fuels, and removing fire-sustaining litter.

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

Less than Significant. 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.

References Used:

1. CalFire. 2021. California Fire Hazard Severity Zone Viewer. Available at: https://egis.fire.ca.gov/FHSZ/. California Department of Forestry and Fire Protection.
2. CalFire. 2022. California Fire Hazard Severity Zones. Available at: https://osfm.fire.ca.gov/divisions/community-wildfire-preparedness-and-mitigation/wildfire-preparedness/fire-hazard-severity-zones/. California Department of Forestry and Fire Protection.
3. Marin GeoHub. 2020. Available at: https://gisopendata.marincounty.org/datasets/fire-hazard-severity-zone/explore. County of Marin.

REPORT PREPARERS

Integral Consulting Inc.
2455 Bennett Valley Road, Suite C101
Santa Rosa, CA 95404
Telephone: 707.636.3222

Bridgette DeShields, Principal-in-Charge
Carolyn Huynh, Project Manager
Samantha Eanes, P.E., Project Engineer

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 substantially impact the adjacent habitat. Based on the information presented in Section 4, “Biological Resources,” 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 remains a possibility that species identified as a candidate, sensitive, or special status species could be impacted as new bird or bat nests could be established in the trees and other vegetation in and near the Project site before construction activities commence, and amphibians and reptiles could be present within jurisdictional waters. With implementation of Mitigation Measures BIO-1, BIO-2, BIO-3, BIO-4 and BIO-5, impacts to biological resources would be less than significant.

As discussed in Section 5, “Cultural Resources,” and Section 18, “Tribal Cultural Resources,” the records search did not identify any resources within the Project area; however, during the field survey, two locations of sparse shell concentration were identified at the surface. In addition, one precontact artifact and one precontact archaeological site were previously recorded approximately within a 0.25 mile buffer of the Project area. The results of the buried site sensitivity assessment concluded a low potential for encountering cultural deposits within the Project area; however, given the identification of Native American resources within and adjacent to the Project area and as a result of consultation with FIGR, additional identification efforts are required to fully assess and identify the presence of subsurface deposits. It is possible that the shell noted on the surface is a secondary disturbed deposit, but these resources have not been archaeologically tested or evaluated. With implementation of Mitigation Measure CUL-1, CUL-2, CUL-3, and CUL-4, impacts to cultural and tribal cultural resources would be less than significant.

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 extent and duration, would not result in the construction of 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.

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 are discussed in various sections of this Initial Study, including air quality, geology and soils, hazards and hazardous materials, noise and vibration, transportation/traffic, utilities and service systems, and wildfire. 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 would replace infrastructure that is past its useful life, improve maintenance operations and safety, and reduce SSOs and I&I. 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:

Phil Benedetti

Digitally signed by Phil Benedetti
DN: C=US, E=pbenedetti@rvsd.org, O=Ross Valley Sanitary District, CN=Phil Benedetti
Date: 2023.04.20 13:01:31-07'00'

4/21/2023

Philip Benedetti
Senior Engineer

Date

Attachment A

Abbreviations and Acronyms

ATTACHMENT A
ABBREVIATIONS AND ACRONYMS

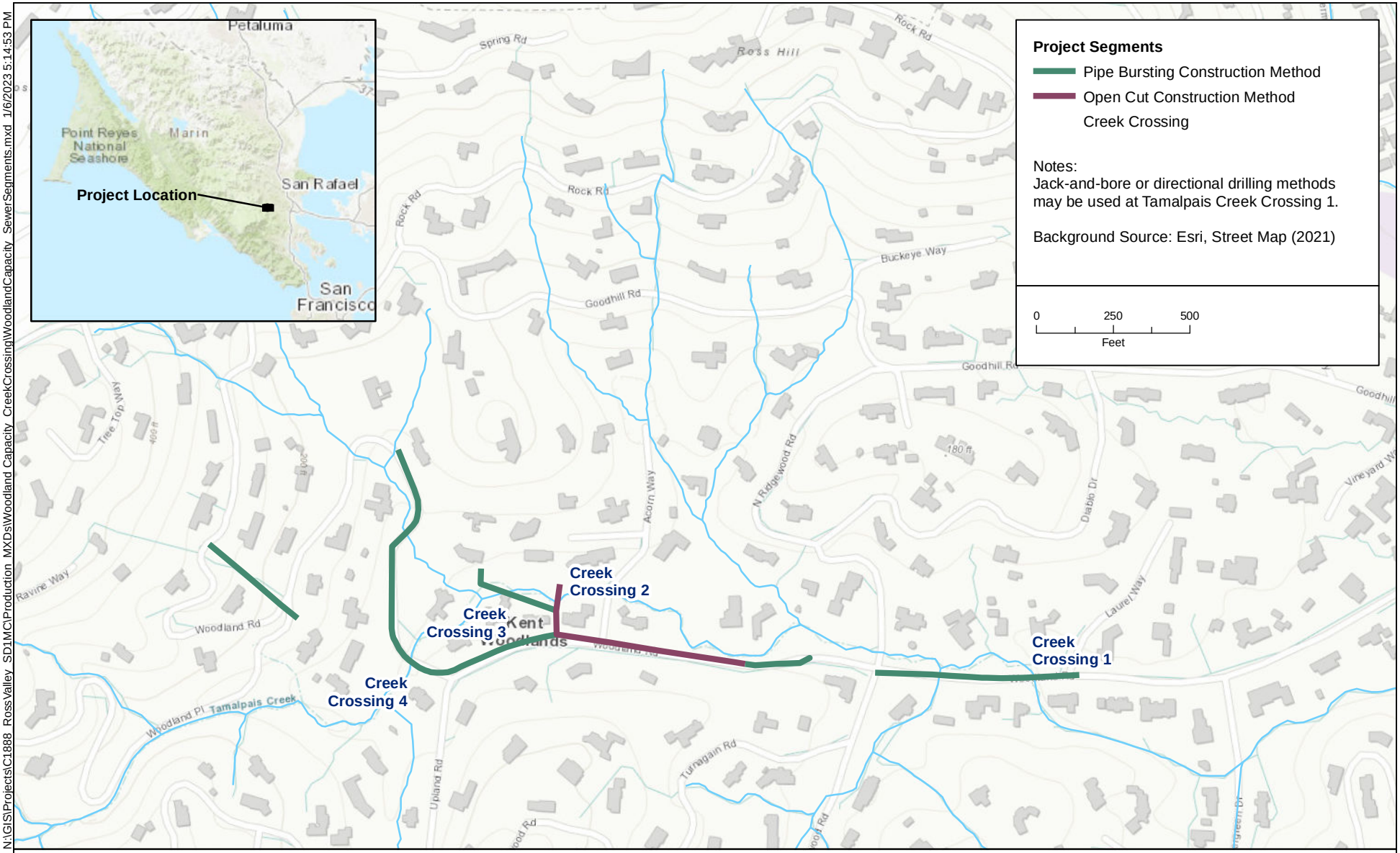
AB	Assembly Bill
BAAQMD	Bay Area Air Quality Management District
bgs	below ground surface
BMP	best management practice
BRA	Biological Resources Report
CAA	Clean Air Act
Cal/OSHA	California Occupational Safety and Health Administration
CalFire	California Department of Forestry and Fire Protection
California Register	California Register of Historical Resources
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCR	California Code of Regulations
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
CFGC	CDFW Fish and Game Code
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
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
FHSZ	Fire Hazard Severity Zone

FIGR	Federated Indians of Graton Rancheria
FMMP	Farmland Mapping and Monitoring Program
FRA	Federal Responsibility Area
GHG	greenhouse gas
HDD	horizontal directional drilling
HDPE	high-density polyethylene
I-580	Interstate 580
I&I	inflow and infiltration
IAMP	Infrastructure Asset Management Plan
in.	inch
Integral	Integral Consulting Inc.
L_{eq}	equivalent sound pressure level
LRA	Local Responsibility Area
MBTA	Migratory Bird Treaty Act of 1918
MRZ	Mineral Resource Zone
MT/year	maximum annual emissions
NAHC	Native American Heritage Commission
National Register	National Register of Historic Places
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NOx	oxides of nitrogen
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NWIC	Northwest Information Center
O_3	ozone
OSHA	U.S. Department of Labor Occupational Safety and Health Administration
OVA	organic vapor analyzer
PG&E	Pacific Gas and Electric
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
PRC	Public Resources Code
Project	Woodland Area Gravity Sewer Improvement Project
Regional Water Board	San Francisco Bay Regional Water Quality Control Board
RoadMod	Roadway Construction Emissions Model
ROG	reactive organic gases
RVSD	Ross Valley Sanitary District

SFBAAB	San Francisco Bay Area Air Basin
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO_2	sulfur dioxide
Sol Ecology	Sol Ecology, Inc.
SRA	State Responsibility Area
SSO	sewer system overflow
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TCP	traffic control plan
U.S. 101	U.S. Highway 101
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
VCP	vitrified clay pipe
WBWG	Western Bat Working Group
$\mu g/m^3$	micrograms per cubic meter

Attachment B

Figures

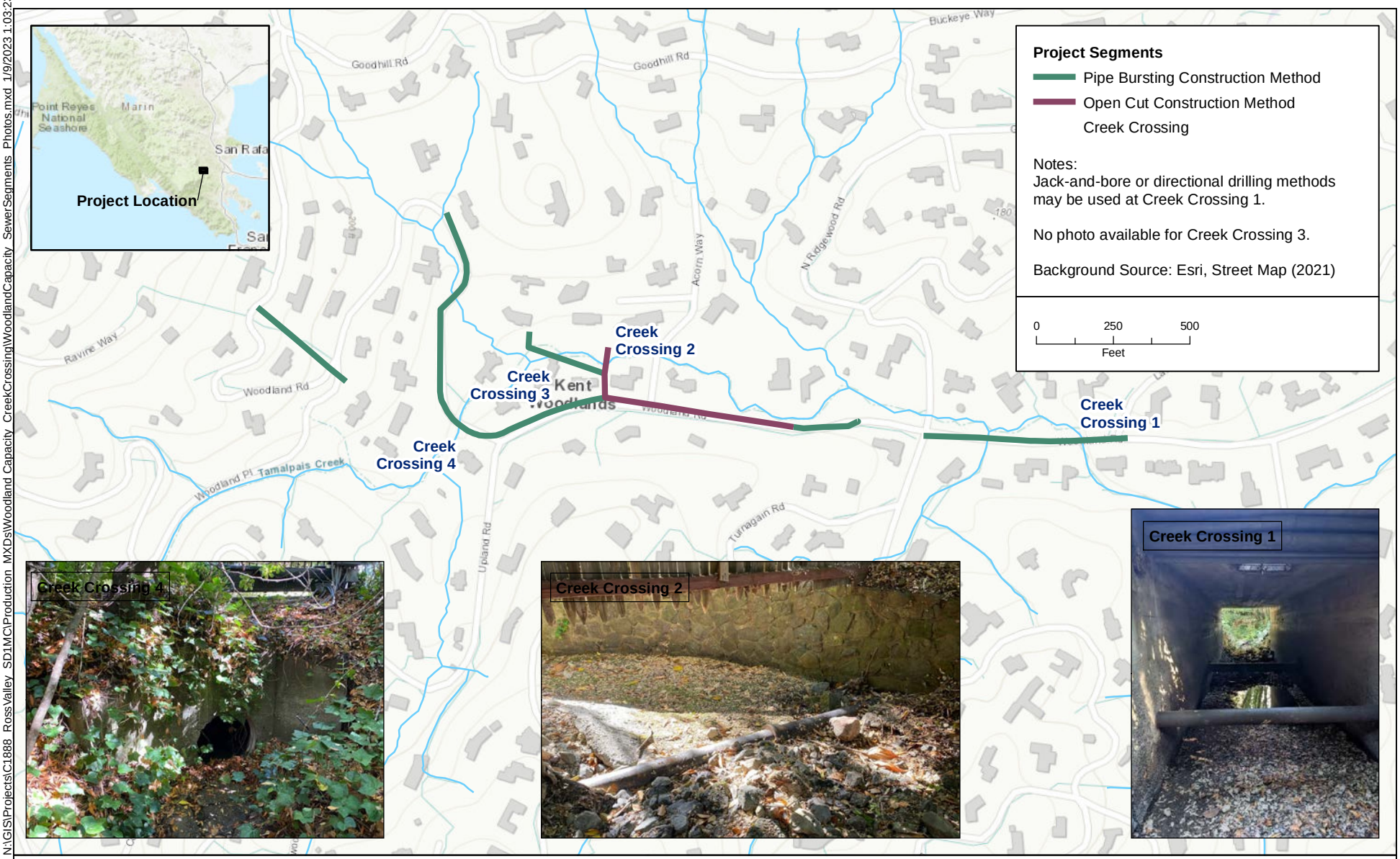


N:\GIS\Projects\C1888 Ross Valley SD1\MC\Production MXDs\Woodland Capacity CreekCrossing\WoodlandCapacity_SewerSegments.mxd 1/6/2023 5:14:53 PM

integral consulting inc.

Figure 1.
Project Location
Woodland Area Gravity Sewer Improvement Project
Ross Valley Sanitary District

N:\GIS\Projects\C1888 RossValley SD1MC\Production MXDs\Woodland Capacity CreekCrossing\WoodlandCapacity SewerSegments Photos.mxd 1/9/2023 1:03:23 PM



integral consulting inc.

Figure 2.
Project Location Showing Creek Crossings
Woodland Area Gravity Sewer Improvement Project
Ross Valley Sanitary District

Attachment C

Construction Plans

INDEX OF DRAWINGS

ROSS VALLEY SANITARY DISTRICT

MARIN COUNTY, CALIFORNIA

PLANS

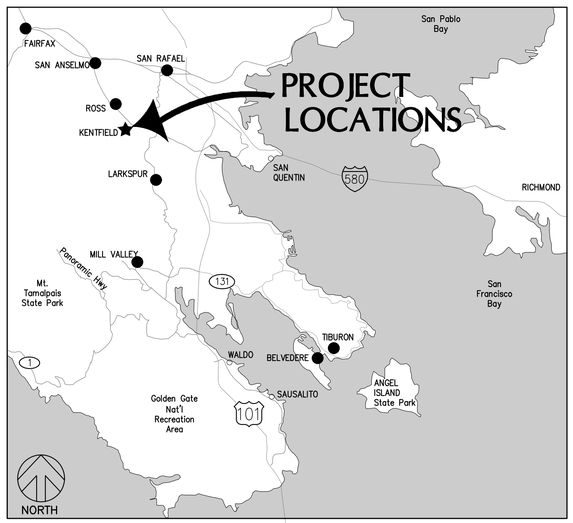
FOR THE CONSTRUCTION OF

WOODLAND CAPACITY AND CREEK CROSSINGS PROJECT (#956)

DATUM

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

VERTICAL DATUM IS NAVD 88



VICINITY MAP

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

GENERAL MANAGER
STEVE MOORE, P.E.

DESIGN ENGINEER
KOUROSH IRANPOUR, P.E.

DATE

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

100% SUBMITTAL NOT FOR CONSTRUCTION

NO.	BY	DATE	REVISION

TITLE SHEET

ROSS VALLEY SANITARY DISTRICT
WOODLAND AREA GRAVITY SEWER IMPROVEMENTS PROJECT

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

DESIGNED BY	KLC/JR
DRAWN BY	KLC/JR
CHECKED BY	KI
DATE ISSUED	02/14/2023
JOB NO.	120–0743.005
DWG NO.	T-1
SHEET	1 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. THE SWPPP SHALL BE 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 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.

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, "UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN", OR STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD PLANS DATED 2018.

10. UNLESS OTHERWISE NOTED, EXISTING SANITARY SEWER LINES ARE TO BE REHABILITATED IN THE SAME LOCATION. EXISTING PIPES ARE ASSUMED 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 COUNTY, 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 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 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.

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) 945-1481
PG&E (NORTH BAY DIVISION)	(415) 257-3405
COMCAST	(707) 207-1376
AT&T	(707) 575-2077
ALL UTILITIES, CONTACT U.S.A	811 / (800) 227-2600

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. 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 PER RVSD STD DWG SD-22. IF A NEW SEWER MAIN CROSSES ABOVE AN EXISTING WATER MAIN WITH LESS THAN 1 FOOT OF CLEARANCE, THE CONTRACTOR SHALL INSTALL A CONTINUOUS 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-25.

24. NEW SEWER MAINS CROSSING UNDER OR ABOVE EXISTING WATER LINES WITH LESS THAN 4 INCHES OF CLEARANCE ARE PROHIBITED.

25. THE CONTRACTOR SHALL MAINTAIN ACCESS TO RESIDENCES AND BUSINESSES ALONG THE STREETS TO BE REPAIRED THROUGHOUT THE LIFE OF THE CONTRACT.

26. CONTRACTOR TO COORDINATE WITH ALL PROPERTY OWNERS FOR EASEMENT WORK A MINIMUM OF TWO WEEKS PRIOR TO START OF SAID WORK.

27. 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.

28. CONTRACTOR SHALL RESTORE SITES TO EQUAL TO OR BETTER THAN EXISTING CONDITIONS.

29. 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.

ABBREVIATIONS

AB, ASB	AGGREGATE BASE, SUBBASE
ABD	ABANDONED
AC	ASPHALT CONCRETE
ADJ	ADJUSTABLE
APPROX	APPROXIMATE
AVE	AVENUE
BC	BEGIN CURVE
BM	BLUE MARKER
BOC	BACK OF CURB
BP	BOTTOM OF PIPE
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
MB	MAILBOX
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
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
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
2:1	2 HORIZONTAL TO 1 VERTICAL SLOPE

LEGEND

EXISTING	REHABILITATE OR NEW	DESCRIPTION
SS CO	8" SS CO	SANITARY SEWER OPEN TRENCH REPLACEMENT WITH SIZE, FLOW DIRECTION, CO, MH
	8" SS	PIPE BURST SEWER MAIN OR LATERAL REPLACEMENT WITH SIZE, FLOW DIRECTION
12"SD		STORM DRAIN WITH SIZE, FLOW DIRECTION, MH, DI
		ABANDON/REMOVE EX PIPE, SSMH
1000		HOUSE NUMBER
CATV		COMMUNICATIONS LINE
W WM WV		WATER MAIN, METER & WATER VALVE
G GM GV		GAS LINE
TEL		TELEPHONE LINE OR DUCT
UNK		UNKNOWN UTILITY LINE
		APPROXIMATE RIGHT OF WAY OR PROPERTY LINE

EXISTING	DESCRIPTION
MON	MONUMENT
E	ELECTRIC
HV	HIGH VOLTAGE ELECTRIC
	GUY WIRE
	FIRE HYDRANT
JP	JOINT/POWER POLE
	EDGE OF PAVEMENT
	CURB AND GUTTER
	AC DIKE
#	APPROX BORING LOCATIONS (SEE APPENDIX B FOR BORING LOGS)
	CONTROL POINT
X X	FENCE
12" TREE	TREE
	SIGN
EPB	PULL BOX
	WALL

GENERAL NOTES CON'T

30. 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.

31. REFER TO SPECIFICATIONS FOR WORK HOUR AND WORK SEQUENCE RESTRICTIONS.

32. WHEN AN ABANDONED GAS LINE IS EXPOSED, CONTRACTOR TO COORDINATE WITH PG&E TO VERIFY THAT IT IS DEACTIVATED.

33. 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.

34. 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.

35. CDF BACKFILL IS NOT ALLOWED FOR SITES WITHIN COUNTY OF MARIN JURISDICTION.

36. CONTRACTOR TO NOTE THAT SOME SITES ARE WITHIN EASEMENTS WITH LIMITED OR NO ACCESS FOR VEHICLES AND EQUIPMENT. THESE SITES MAY REQUIRE PORTABLE EQUIPMENT AND/OR HAND EXCAVATION.

37. CONTRACTOR SHALL USE RECYCLED WATER FOR ANY CONSTRUCTION ACTIVITY. MMWD WILL NOT PROVIDE A WATER METER FOR CONTRACTOR'S USE DUE TO SEVERE DROUGHT CONDITIONS.

100% SUBMITTAL NOT FOR CONSTRUCTION

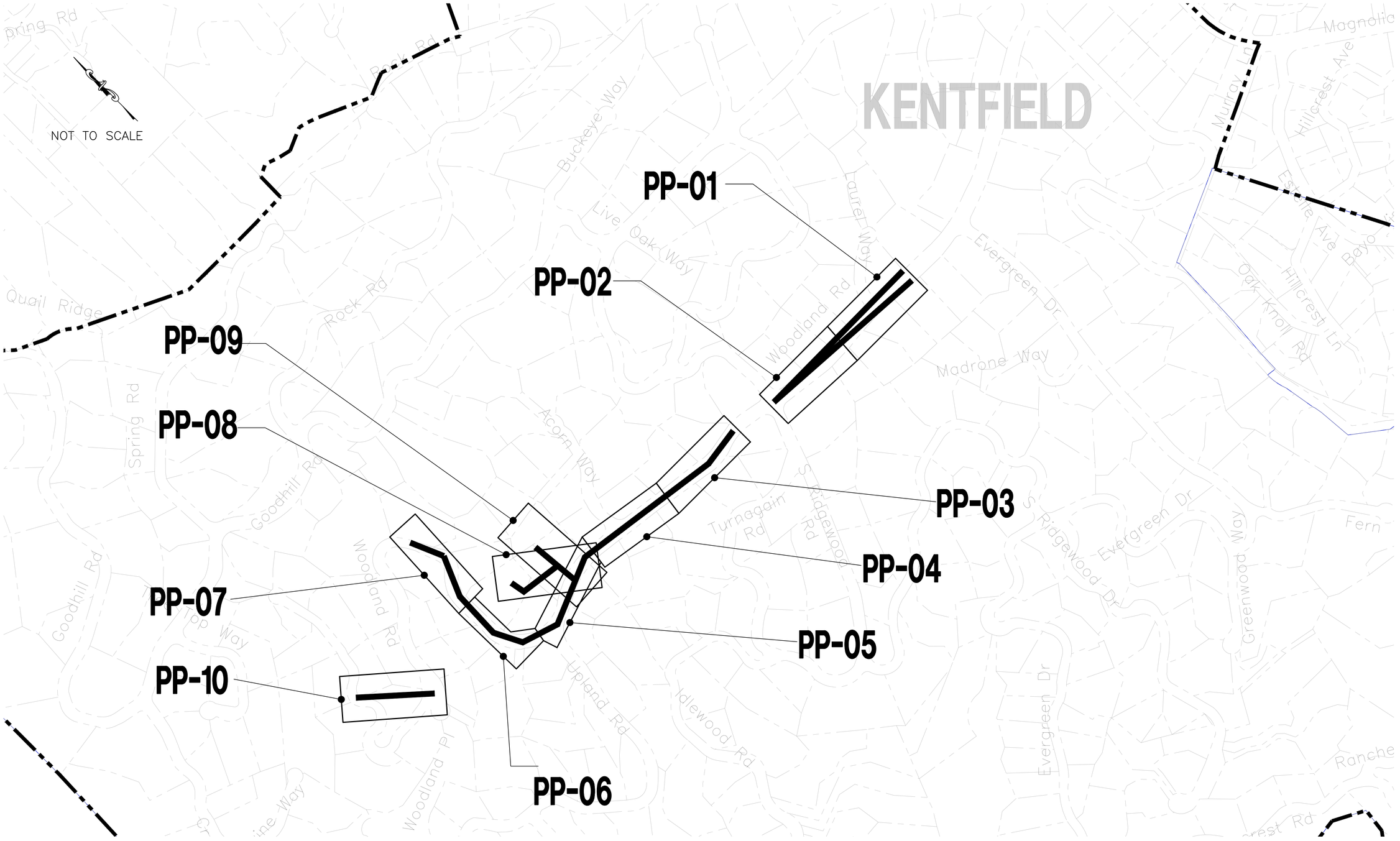
NO.	BY	DATE	REVISION

NOTES, LEGENDS AND ABBREVIATIONS

ROSS VALLEY SANITARY DISTRICT
WOODLAND AREA GRAVITY SEWER IMPROVEMENTS PROJECT

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

DESIGNED BY	KLC/JR
DRAWN BY	KLC/JR
CHECKED BY	KI
DATE ISSUED	02/14/2023
JOB NO.	120-0743.005
DWG NO.	N-01
SHEET	2 OF 14



100% SUBMITTAL
NOT FOR CONSTRUCTION

NO.	BY	DATE	REVISION

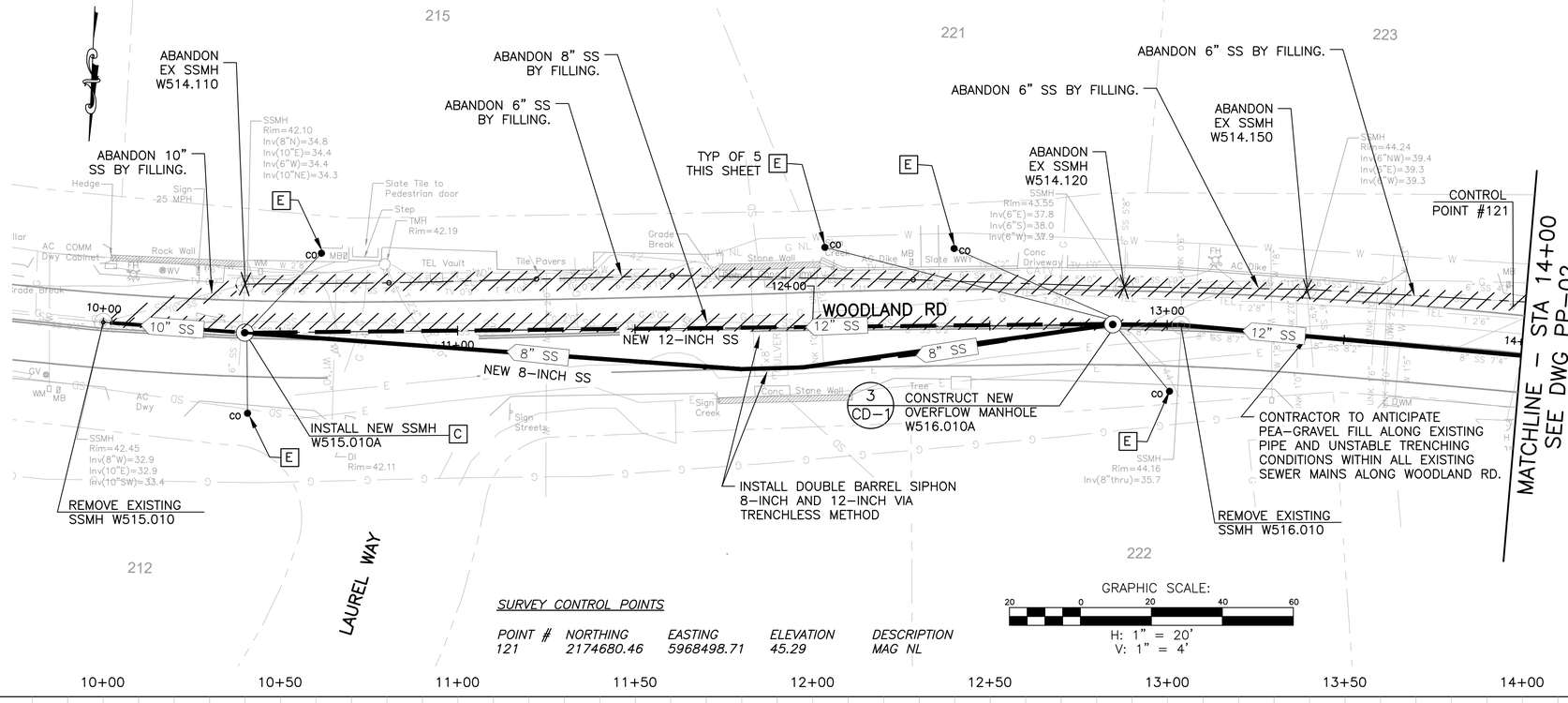
KEY MAPS

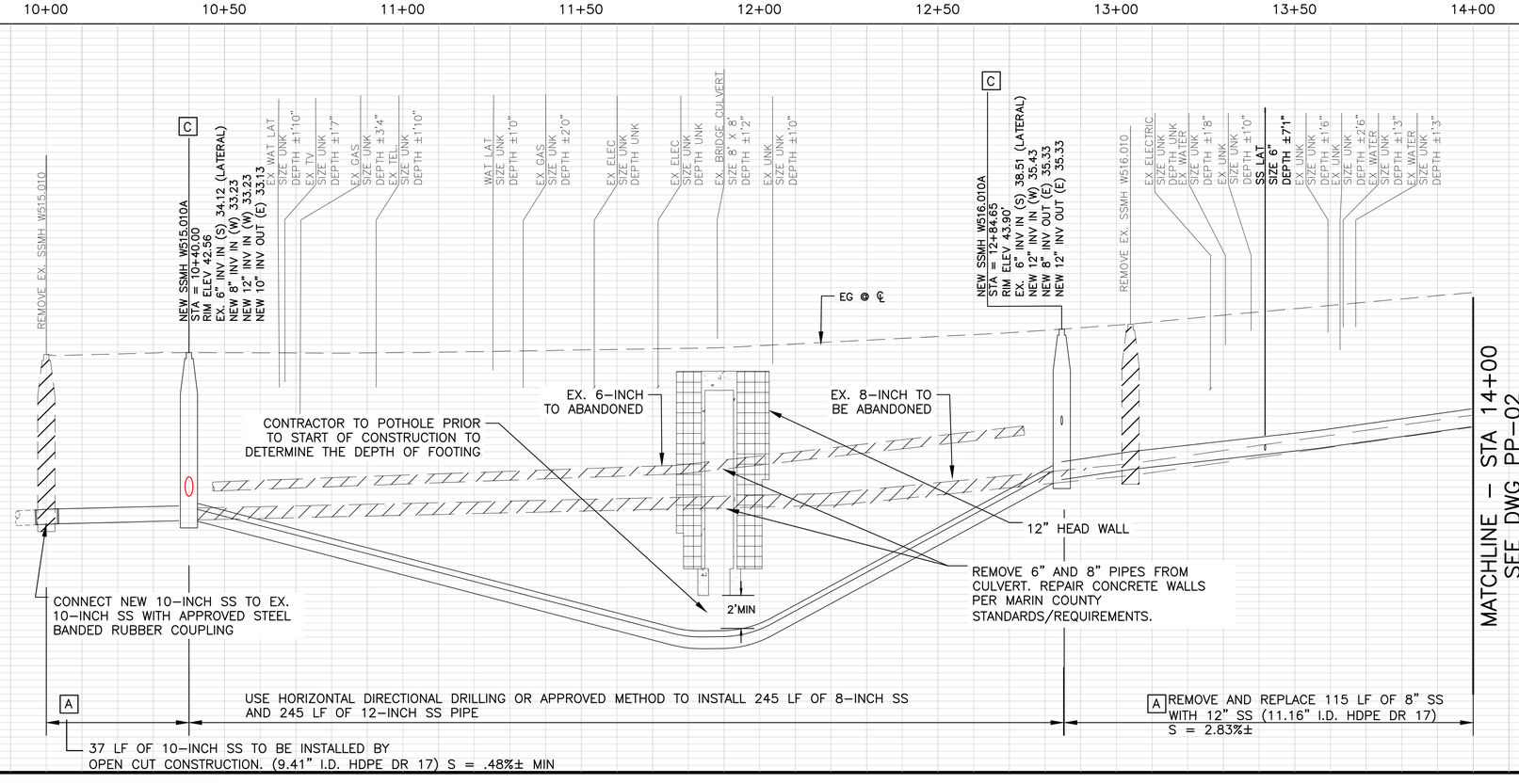
ROSS VALLEY SANITARY DISTRICT
WOODLAND AREA GRAVITY SEWER IMPROVEMENTS PROJECT

Harris & Associates
1401 Willow Pass Rd, Suite 500 Concord, CA 94520
weareharris.com (925) 627-4500

DESIGNED BY	KLC/JR
DRAWN BY	KLC/JR
CHECKED BY	KI
DATE ISSUED	02/14/2023
JOB NO.	120-0743.005
DWG NO.	K-1
SHEET	3 OF 14

H:\Ross Valley Sanitary District (RSVD)\1200743005 Woodland Area Sewer\03_K-1_KEY MAP.dwg Save Date: 2/14/2023 4:00 PM Plot Date: 2/14/2023 4:00 PM JulieRodriguez





LEGEND OF REHABILITATION METHODS

A REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD-16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 2/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.

B REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-14. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 2/D-01 FOR ALL OPEN TRENCHES.

REPAIR SURFACE UPHEAVAL AND SAG REPAIR PER RVSD STD DWG SD-22 AND SD-20 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT.

DISCONNECT AND RECONNECT SEWER LATERALS PER RVSD STD DWG SD-29 AND SD-30.

C REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD-01, SD-02, SD-03, SD-04, SD-05 AND SD-06. FINAL PAVING SHALL BE PER DETAIL 2/D-01.

D REHABILITATE MANHOLE BY LINING WITH CALCIUM ALUMINATE MORTAR SYSTEM AFTER MANHOLE MODIFICATIONS ARE PERFORMED AND IN ACCORDANCE WITH THE SPECIFICATIONS. REMOVE EXISTING MANHOLE STEPS PRIOR TO REHABILITATION.

E PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD-29 AND SD-30. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 2/D-01.

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 WITH SEWER POPPER TYPE 2 BACKWATER PREVENTION DEVICE. CLEANOUTS SHALL MATCH EXISTING LOWER LATERAL MATERIAL. REFER TO SD-29: C-900 IS TWO-WAY AND HDPE IS WYE FACING MAIN. 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 TYPE B CONNECTION) OF SERVICE LATERAL, SHALL BE AS SHOWN ON RVSD DWG SD-29. NO VERTICAL DROP OFF IS ALLOWED.

NOTES:

1. 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.
2. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD-21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION. AIR GAP LOCATIONS ARE NOT IDENTIFIED ON THE PLANS.
3. 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.
4. FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS, SEE GENERAL NOTE 23 AND 24 ON DWG N-01 FOR HDPE SLEEVE REQUIREMENTS.
5. BENDING OF NEW PIPING AND/OR JOINT DEFLECTIONS SHALL BE IN ACCORDANCE WITH AWWA AND PIPE MANUFACTURER'S RECOMMENDATIONS.
6. 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).

100% SUBMITTAL NOT FOR CONSTRUCTION

NO.	BY	DATE	REVISION

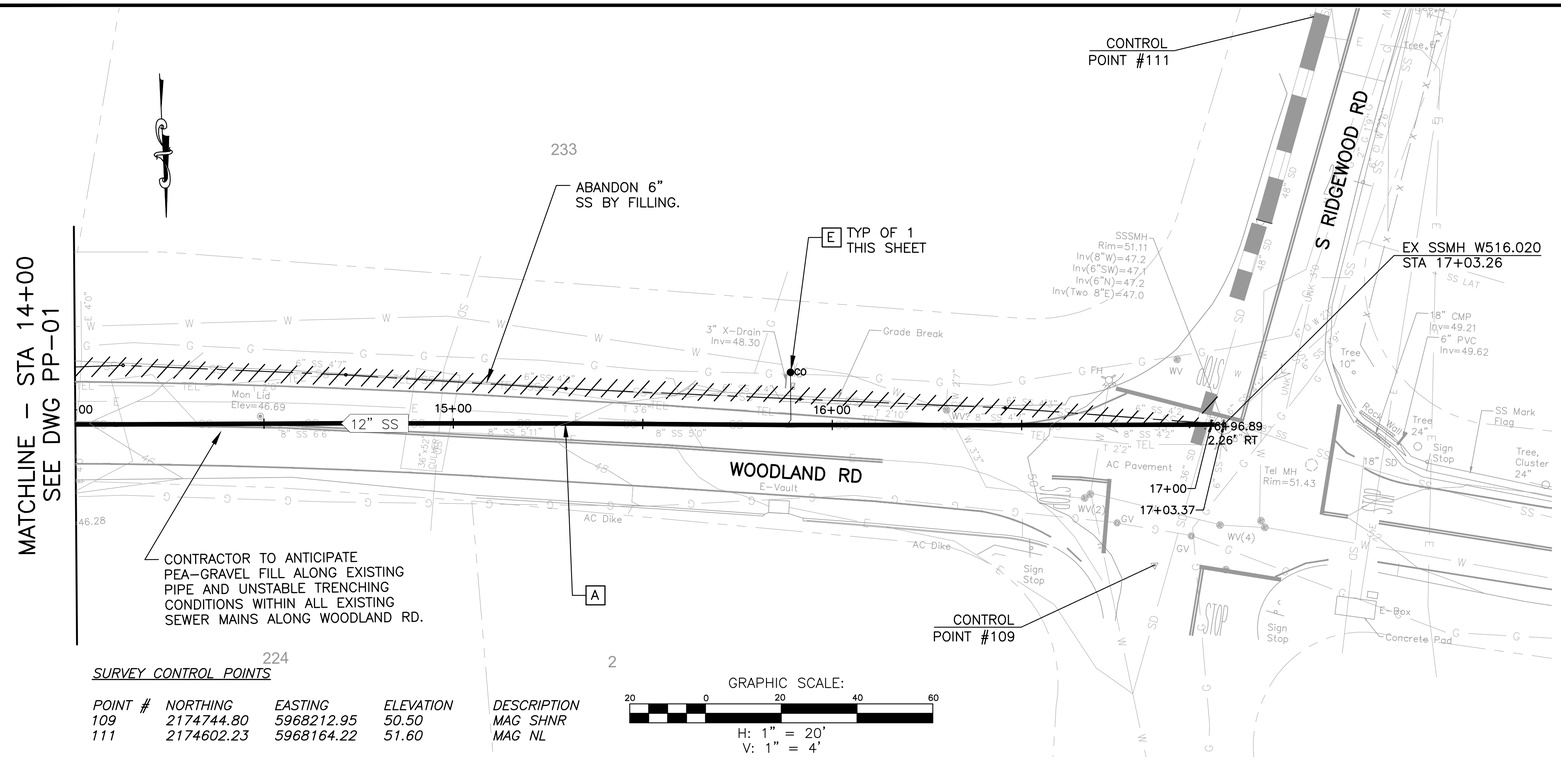
SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
WOODLAND RD

ROSS VALLEY SANITARY DISTRICT
WOODLAND AREA GRAVITY SEWER IMPROVEMENTS PROJECT

ROSS VALLEY SANITARY DISTRICT

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

DESIGNED BY	KLC/JR
DRAWN BY	KLC/JR
CHECKED BY	KI
DATE ISSUED	02/14/2023
JOB NO.	120-0743.005
DWG NO.	PP-01
SHEET	4 OF 14



SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
109	2174744.80	5968212.95	50.50	MAG SHNR
111	2174602.23	5968164.22	51.60	MAG NL

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. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD–09. FINAL PAVING SHALL BE PER DETAIL 2/D–01. INSTALL TRENCH DAM PER RVSD STD DWG SD–17.

B REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD–14. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD–09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 2/D–01 FOR ALL OPEN TRENCHES.

REPAIR SURFACE UPHEAVAL AND SAG REPAIR PER RVSD STD DWG SD–22 AND SD–20 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT.

DISCONNECT AND RECONNECT SEWER LATERALS PER RVSD STD DWG SD–29 AND SD–30.

C REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD–01, SD–02, SD–03, SD–04, SD–05 AND SD–06. FINAL PAVING SHALL BE PER DETAIL 2/D–01.

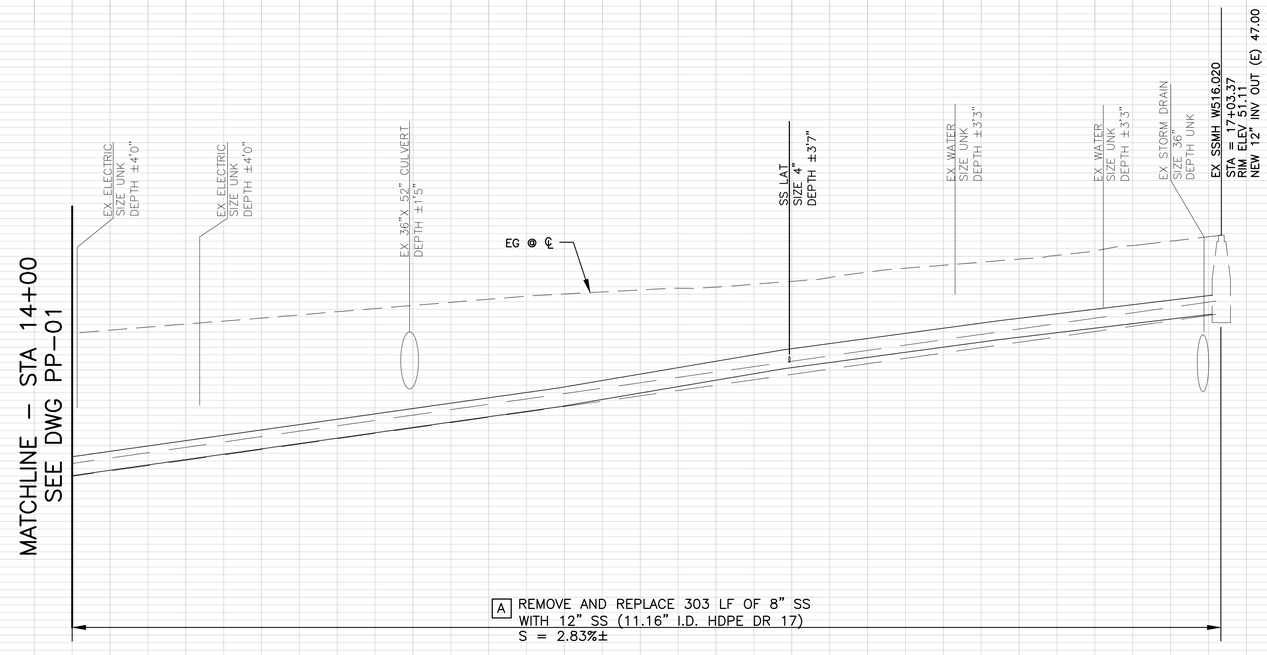
D REHABILITATE MANHOLE BY LINING WITH CALCIUM ALUMINATE MORTAR SYSTEM AFTER MANHOLE MODIFICATIONS ARE PERFORMED AND IN ACCORDANCE WITH THE SPECIFICATIONS. REMOVE EXISTING MANHOLE STEPS PRIOR TO REHABILITATION.

E PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD–29 AND SD–30. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 2/D–01.

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 WITH SEWER POPPER TYPE 2 BACKWATER PREVENTION DEVICE. CLEANOUTS SHALL MATCH EXISTING LOWER LATERAL MATERIAL. REFER TO SD–29: C–900 IS TWO–WAY AND HDPE IS WYE FACING MAIN. 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 TYPE B CONNECTION) OF SERVICE LATERAL, SHALL BE AS SHOWN ON RVSD DWG SD–29. NO VERTICAL DROP OFF IS ALLOWED.

NOTES:
1. 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.
2. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD–21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION. AIR GAP LOCATIONS ARE NOT IDENTIFIED ON THE PLANS.
3. 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.
4. FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS, SEE GENERAL NOTE 23 AND 24 ON DWG N–01 FOR HDPE SLEEVE REQUIREMENTS.
5. BENDING OF NEW PIPING AND/OR JOINT DEFLECTIONS SHALL BE IN ACCORDANCE WITH AWWA AND PIPE MANUFACTURER'S RECOMMENDATIONS.
6. 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).

14+00 14+50 15+00 15+50 16+00 16+50 17+03.37



60 56 52 48 44 40 36 32 28

100% SUBMITTAL NOT FOR CONSTRUCTION

NO.	BY	DATE	REVISION

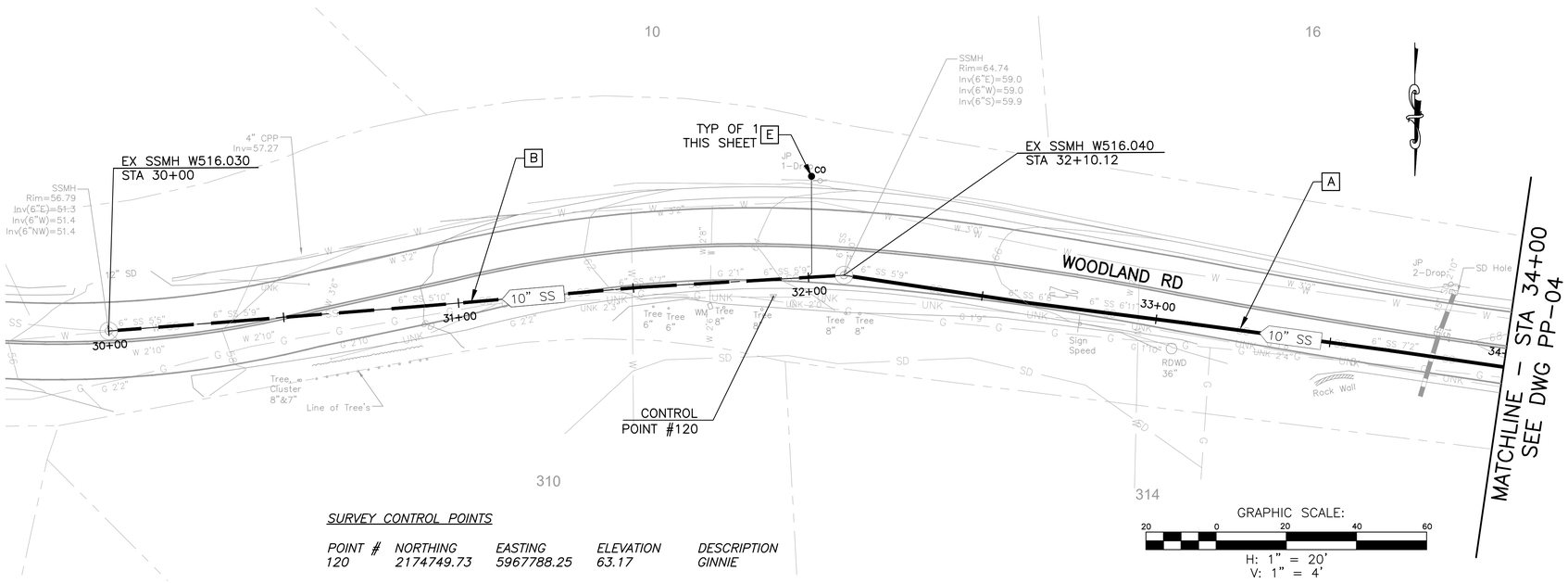
SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
WOODLAND RD

ROSS VALLEY SANITARY DISTRICT
WOODLAND AREA GRAVITY SEWER IMPROVEMENTS PROJECT

Harris & Associates
1401 Willow Pass Rd, Suite 500 Concord, CA 94520
weareharris.com (925) 627-4500

DESIGNED BY	KLC/JR
DRAWN BY	KLC/JR
CHECKED BY	KI
DATE ISSUED	02/14/2023
JOB NO.	120–0743.005
DWG NO.	**PP–02**
SHEET	5 OF 14

H:\Ross Valley Sanitary District (RSVD)\1200743005 Woodland Area Sewer\04_05_PP–01_PP–02_WOODLAND.dwg Save Date: 2/14/2023 3:14 PM Plot Date: 2/14/2023 3:14 PM Julie.Rodriguez



SURVEY CONTROL POINTS

POINT #	*NORTHING*	*EASTING*	*ELEVATION*	*DESCRIPTION*
120	2174749.73	5967788.25	63.17	GINNIE

LEGEND OF REHABILITATION METHODS

A REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD-16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 2/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.

B REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-14. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 2/D-01 FOR ALL OPEN TRENCHES.

REPAIR SURFACE UPHEAVAL AND SAG REPAIR PER RVSD STD DWG SD-22 AND SD-20 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT.

DISCONNECT AND RECONNECT SEWER LATERALS PER RVSD STD DWG SD-29 AND SD-30.

C REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD-01, SD-02, SD-03, SD-04, SD-05 AND SD-06. FINAL PAVING SHALL BE PER DETAIL 2/D-01.

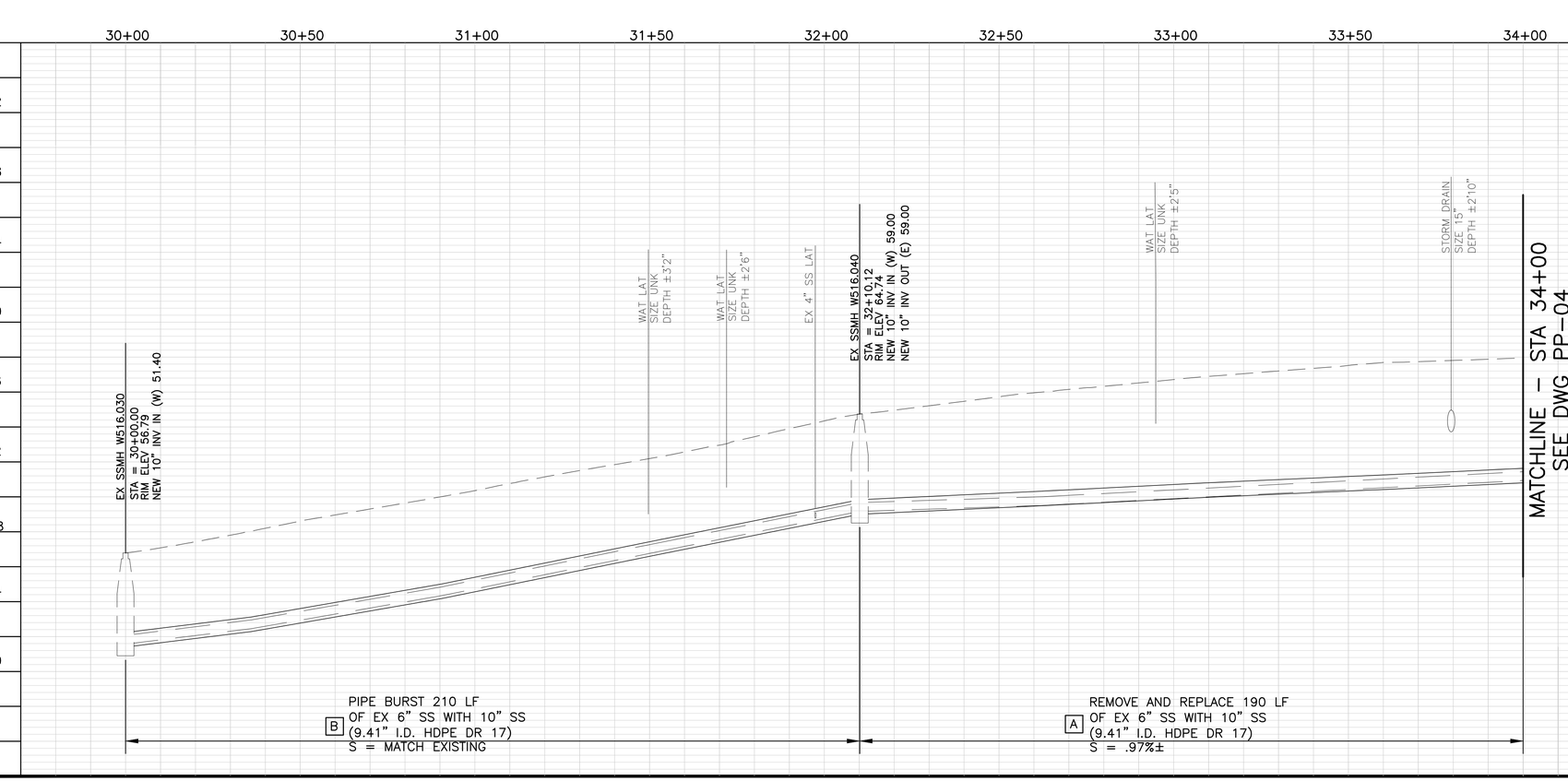
D REHABILITATE MANHOLE BY LINING WITH CALCIUM ALUMINATE MORTAR SYSTEM AFTER MANHOLE MODIFICATIONS ARE PERFORMED AND IN ACCORDANCE WITH THE SPECIFICATIONS. REMOVE EXISTING MANHOLE STEPS PRIOR TO REHABILITATION.

E PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD-29 AND SD-30. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 2/D-01.

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 WITH SEWER POPPER TYPE 2 BACKWATER PREVENTION DEVICE. CLEANOUTS SHALL MATCH EXISTING LOWER LATERAL MATERIAL. REFER TO SD-29: C-900 IS TWO-WAY AND HDPE IS WYE FACING MAIN. 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 TYPE B CONNECTION) OF SERVICE LATERAL, SHALL BE AS SHOWN ON RVSD DWG SD-29. NO VERTICAL DROP OFF IS ALLOWED.

NOTES:

1. 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.
2. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD-21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION. AIR GAP LOCATIONS ARE NOT IDENTIFIED ON THE PLANS.
3. 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.
4. FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS, SEE GENERAL NOTE 23 AND 24 ON DWG N-01 FOR HDPE SLEEVE REQUIREMENTS.
5. BENDING OF NEW PIPING AND/OR JOINT DEFLECTIONS SHALL BE IN ACCORDANCE WITH AWWA AND PIPE MANUFACTURER'S RECOMMENDATIONS.
6. 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).



100% SUBMITTAL
NOT FOR CONSTRUCTION

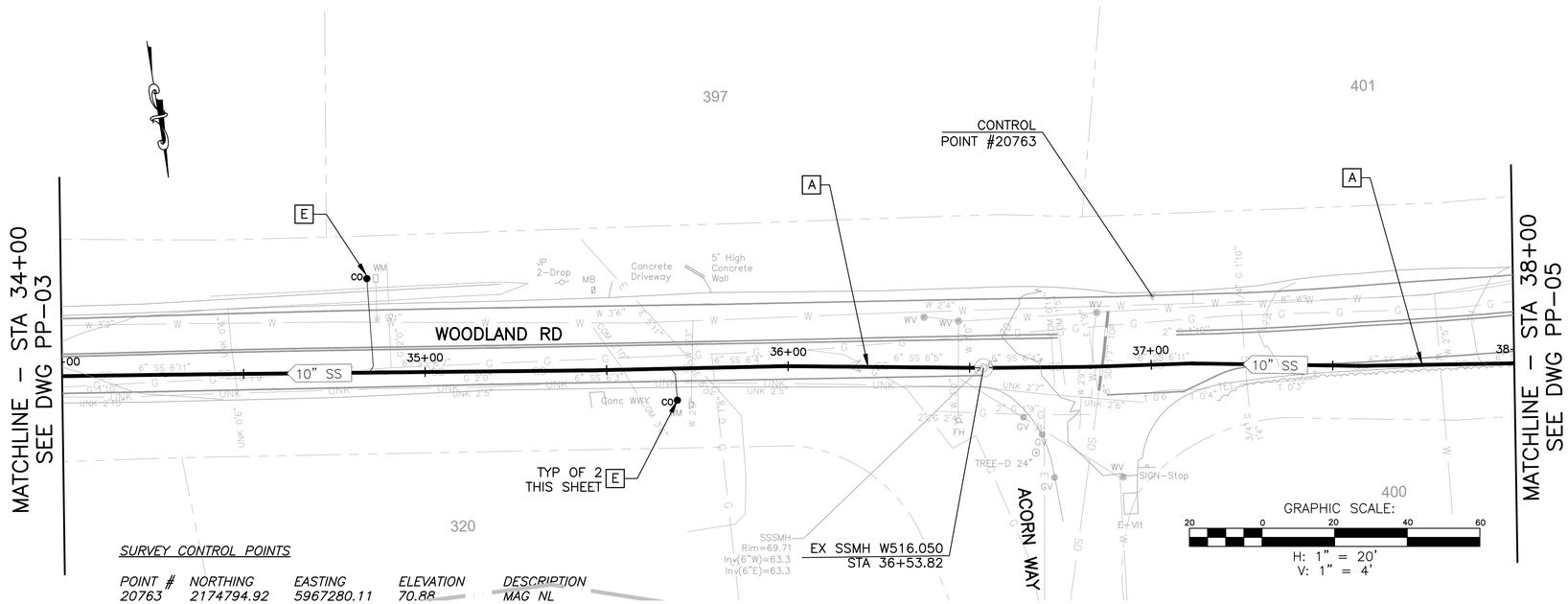
NO.	BY	DATE	REVISION

SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
WOODLAND RD

ROSS VALLEY SANITARY DISTRICT
WOODLAND AREA GRAVITY SEWER IMPROVEMENTS PROJECT

Harris & Associates
1401 Willow Pass Rd, Suite 500 Concord, CA 94520
weareharris.com (925) 627-4500

DESIGNED BY	KLC/JR
DRAWN BY	KLC/JR
CHECKED BY	KI
DATE ISSUED	02/14/2023
JOB NO.	120-0743.005
DWG NO.	**PP-03**
SHEET	06 OF 14



SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
20763	2174794.92	5967280.11	70.88	MAG NL

LEGEND OF REHABILITATION METHODS

A REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD–16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD–09. FINAL PAVING SHALL BE PER DETAIL 2/D–01. INSTALL TRENCH DAM PER RVSD STD DWG SD–17.

B REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD–14. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD–09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 2/D–01 FOR ALL OPEN TRENCHES.

REPAIR SURFACE UPHEAVAL AND SAG REPAIR PER RVSD STD DWG SD–22 AND SD–20 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT.

DISCONNECT AND RECONNECT SEWER LATERALS PER RVSD STD DWG SD–29 AND SD–30.

C REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD–01, SD–02, SD–03, SD–04, SD–05 AND SD–06. FINAL PAVING SHALL BE PER DETAIL 2/D–01.

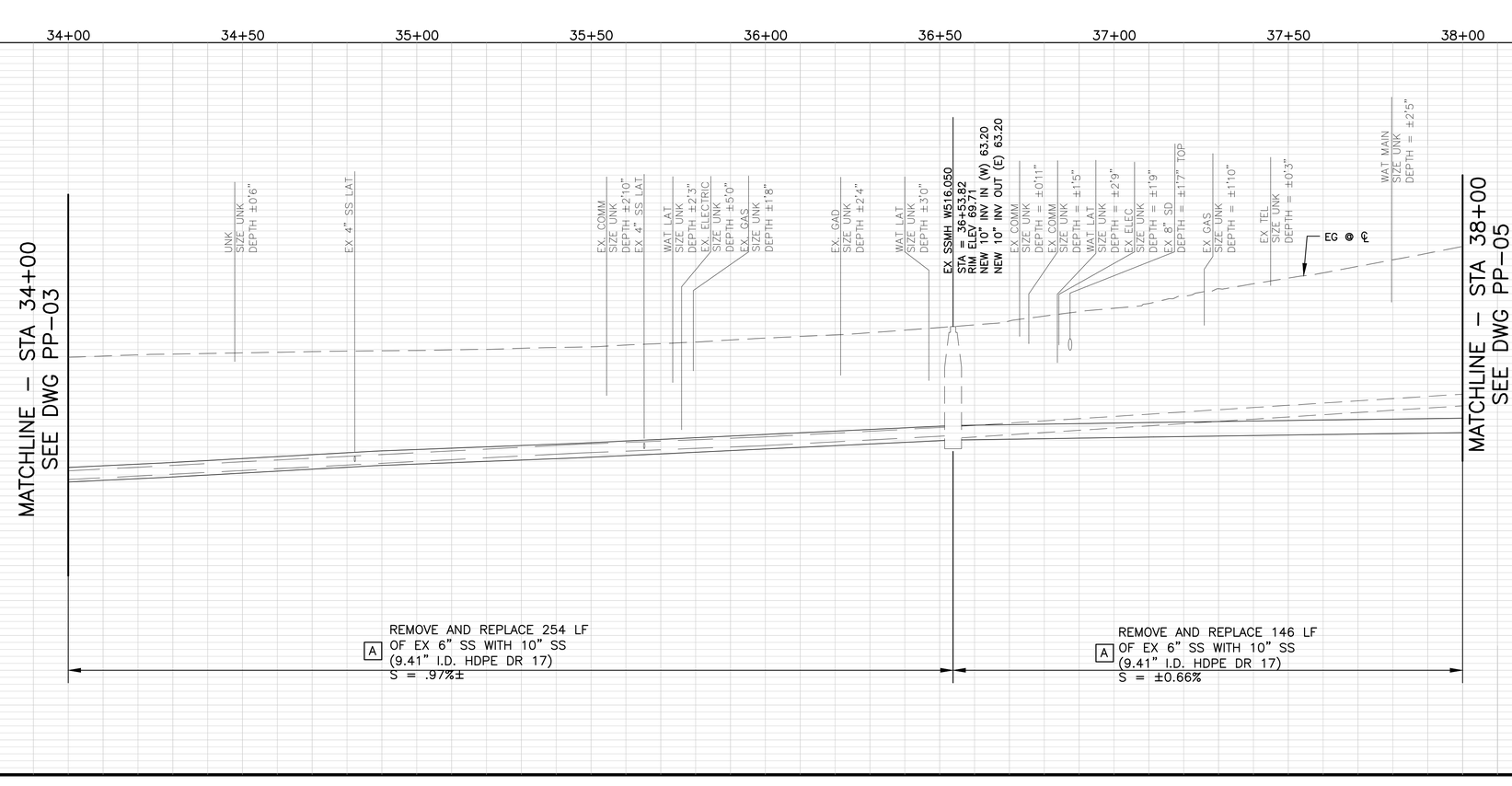
D REHABILITATE MANHOLE BY LINING WITH CALCIUM ALUMINATE MORTAR SYSTEM AFTER MANHOLE MODIFICATIONS ARE PERFORMED AND IN ACCORDANCE WITH THE SPECIFICATIONS. REMOVE EXISTING MANHOLE STEPS PRIOR TO REHABILITATION.

E PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD–29 AND SD–30. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 2/D–01.

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 WITH SEWER POPPER TYPE 2 BACKWATER PREVENTION DEVICE. CLEANOUTS SHALL MATCH EXISTING LOWER LATERAL MATERIAL. REFER TO SD–29: C–900 IS TWO–WAY AND HDPE IS WYE FACING MAIN. 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 TYPE B CONNECTION) OF SERVICE LATERAL, SHALL BE AS SHOWN ON RVSD DWG SD–29. NO VERTICAL DROP OFF IS ALLOWED.

NOTES:

1. 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.
2. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD–21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION. AIR GAP LOCATIONS ARE NOT IDENTIFIED ON THE PLANS.
3. 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.
4. FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS, SEE GENERAL NOTE 23 AND 24 ON DWG N–01 FOR HDPE SLEEVE REQUIREMENTS.
5. BENDING OF NEW PIPING AND/OR JOINT DEFLECTIONS SHALL BE IN ACCORDANCE WITH AWWA AND PIPE MANUFACTURER'S RECOMMENDATIONS.
6. 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).



100% SUBMITTAL NOT FOR CONSTRUCTION

NO.	BY	DATE	REVISION

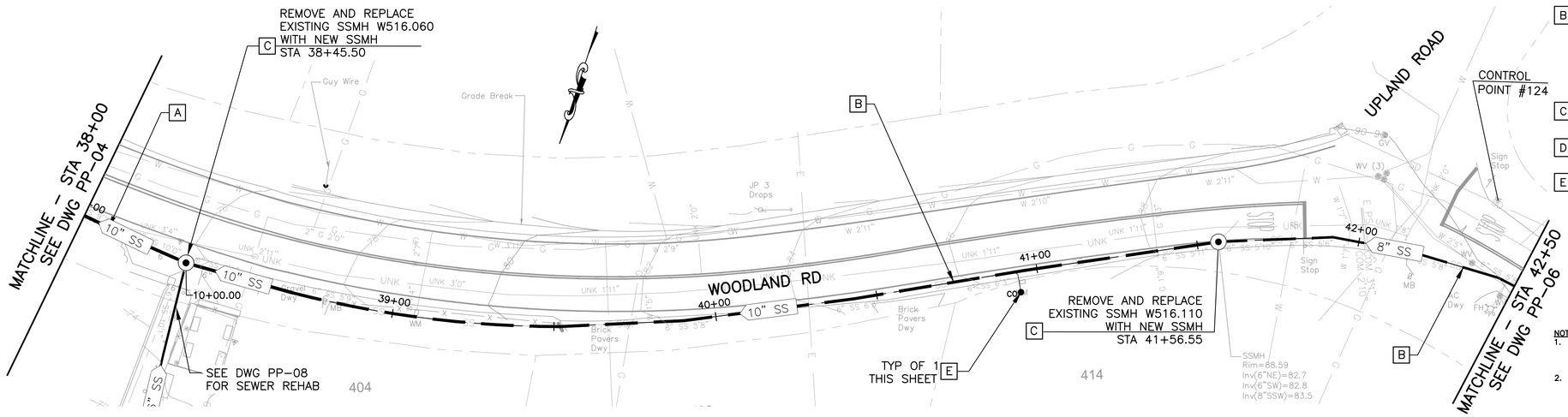
SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
WOODLAND RD

ROSS VALLEY SANITARY DISTRICT
WOODLAND AREA GRAVITY SEWER IMPROVEMENTS PROJECT

Harris & Associates
1401 Willow Pass Rd, Suite 500 Concord, CA 94520
weareharris.com (925) 627-4500

DESIGNED BY	KLC/JR
DRAWN BY	KLC/JR
CHECKED BY	KI
DATE ISSUED	02/14/2023
JOB NO.	120–0743.005
DWG NO.	PP–04
SHEET	07 OF 14

H:\Ross Valley Sanitary District (RSVD)\120074300S Woodland Area Sewer\08_12_PP–05_PP–09_WOODLAND.dwg Save Date: 2/14/2023 4:21 PM Plot Date: 2/14/2023 4:21 PM Julio Rodriguez



LEGEND OF REHABILITATION METHODS

A REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD-16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 2/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.

B REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-14. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 2/D-01 FOR ALL OPEN TRENCHES.

REPAIR SURFACE UPHEAVAL AND SAG REPAIR PER RVSD STD DWG SD-22 AND SD-20 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT.

DISCONNECT AND RECONNECT SEWER LATERALS PER RVSD STD DWG SD-29 AND SD-30.

C REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD-01, SD-02, SD-03, SD-04, SD-05 AND SD-06. FINAL PAVING SHALL BE PER DETAIL 2/D-01.

D REHABILITATE MANHOLE BY LINING WITH CALCIUM ALUMINATE MORTAR SYSTEM AFTER MANHOLE MODIFICATIONS ARE PERFORMED AND IN ACCORDANCE WITH THE SPECIFICATIONS. REMOVE EXISTING MANHOLE STEPS PRIOR TO REHABILITATION.

E PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD-29 AND SD-30. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 2/D-01.

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 WITH SEWER POPPER TYPE 2 BACKWATER PREVENTION DEVICE. CLEANOUTS SHALL MATCH EXISTING LOWER LATERAL MATERIAL. REFER TO SD-29: C-900 IS TWO-WAY AND HDPE IS WYE FACING MAIN. 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 TYPE B CONNECTION) OF SERVICE LATERAL, SHALL BE AS SHOWN ON RVSD DWG SD-29. NO VERTICAL DROP OFF IS ALLOWED.

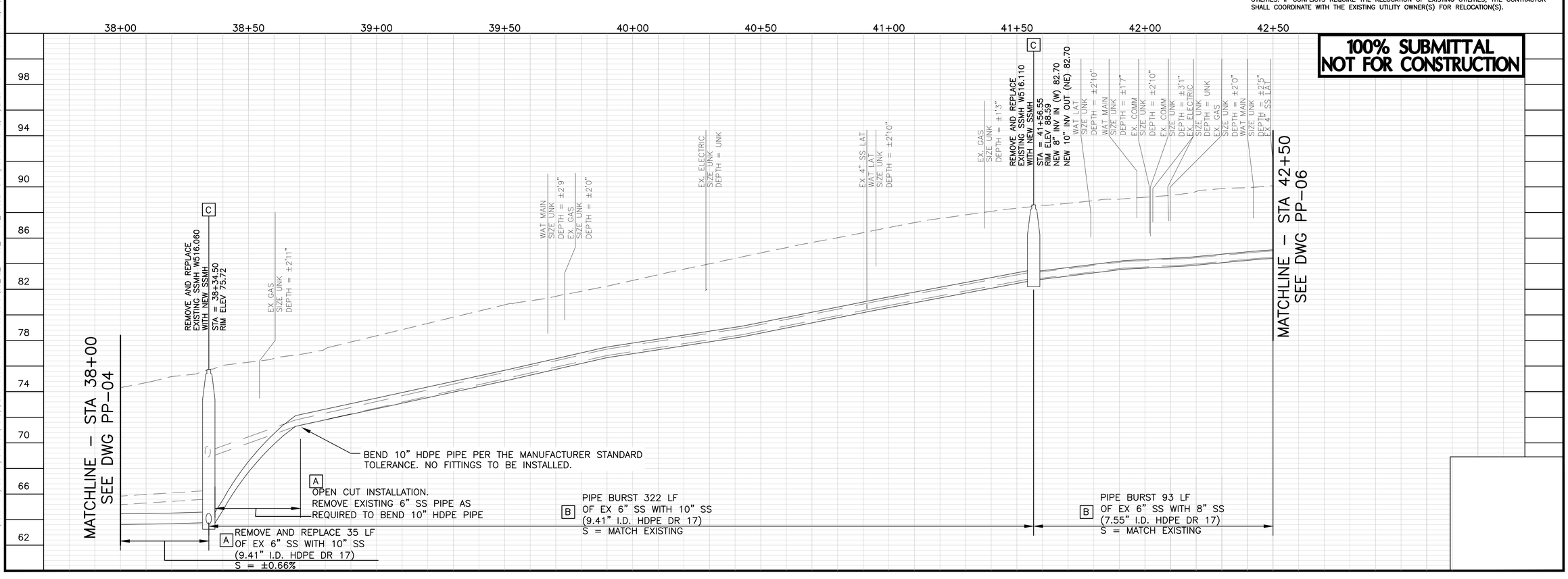
NOTES:

1. 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.
2. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD-21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION. AIR GAP LOCATIONS ARE NOT IDENTIFIED ON THE PLANS.
3. 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.
4. FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS, SEE GENERAL NOTE 23 AND 24 ON DWG N-01 FOR HDPE SLEEVE REQUIREMENTS.
5. BENDING OF NEW PIPING AND/OR JOINT DEFLECTIONS SHALL BE IN ACCORDANCE WITH AWWA AND PIPE MANUFACTURER'S RECOMMENDATIONS.
6. 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).

SURVEY CONTROL POINTS

POINT #	*NORTHING*	*EASTING*	*ELEVATION*	*DESCRIPTION*
124	*2174691.52*	*5966771.22*	*90.37*	*GINNIE*

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



NO.	BY	DATE	REVISION

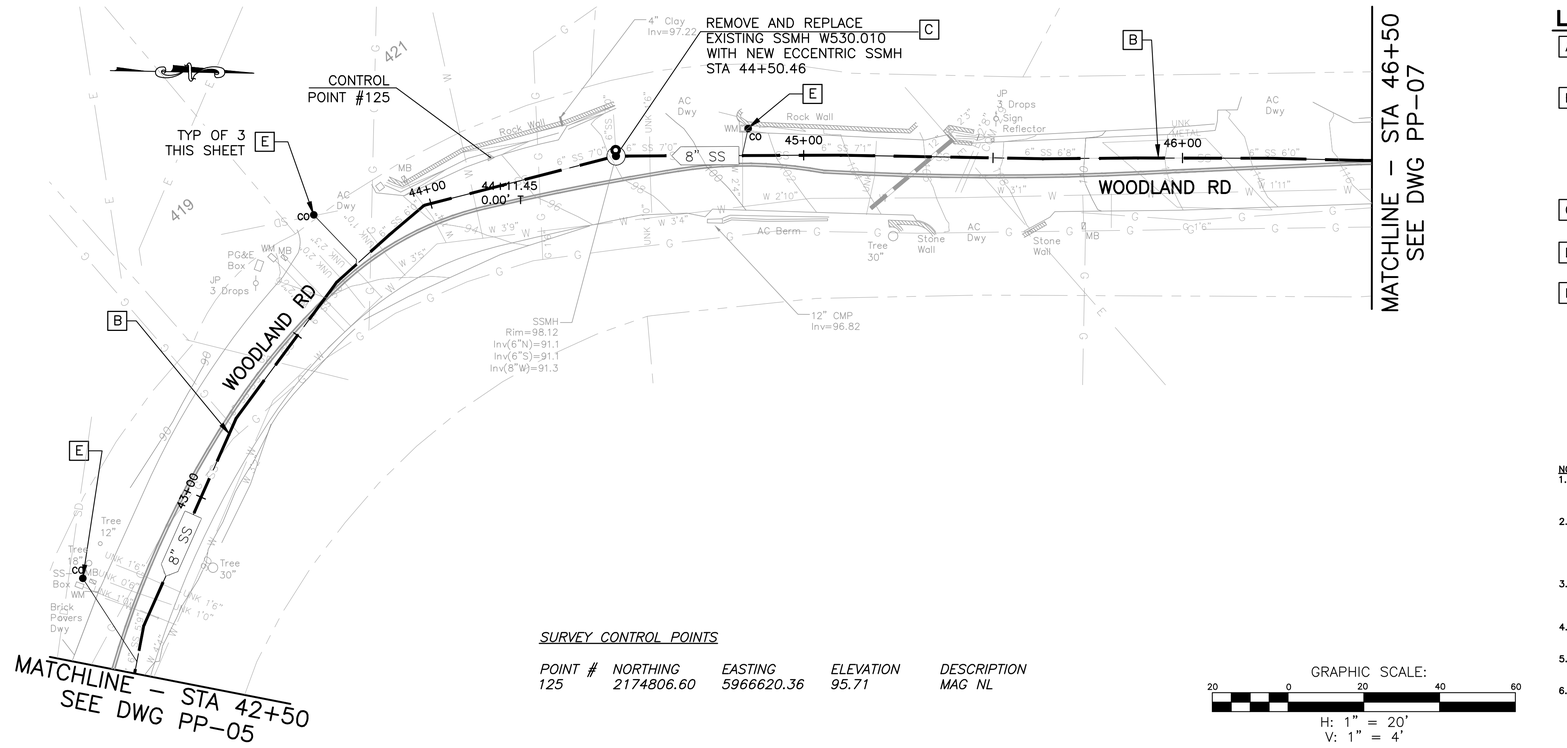
SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
WOODLAND RD

ROSS VALLEY SANITARY DISTRICT
WOODLAND AREA GRAVITY SEWER IMPROVEMENTS PROJECT

Harris & Associates
1401 Willow Pass Rd, Suite 500 Concord, CA 94520
weareharris.com (925) 627-4500

DESIGNED BY	KLC/JR
DRAWN BY	KLC/JR
CHECKED BY	KI
DATE ISSUED	02/14/2023
JOB NO.	120-0743.005
DWG NO.	**PP-05**
SHEET	08 OF 14

H:\Ross Valley Sanitary District (RSVD)\120074300S Woodland Area Sewer\08_12_PP_05_PP_09_WOODLAND.dwg Save Date: 2/14/2023 4:31 PM Plot Date: 2/14/2023 4:31 PM Julio Rodriguez



SURVEY CONTROL POINTS

POINT #	*NORTHING*	*EASTING*	*ELEVATION*	*DESCRIPTION*
125	*2174806.60*	*5966620.36*	*95.71*	*MAG NL*

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. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 2/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.

B REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-14. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 2/D-01 FOR ALL OPEN TRENCHES.

REPAIR SURFACE UPHEAVAL AND SAG REPAIR PER RVSD STD DWG SD-22 AND SD-20 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT.

DISCONNECT AND RECONNECT SEWER LATERALS PER RVSD STD DWG SD-29 AND SD-30.

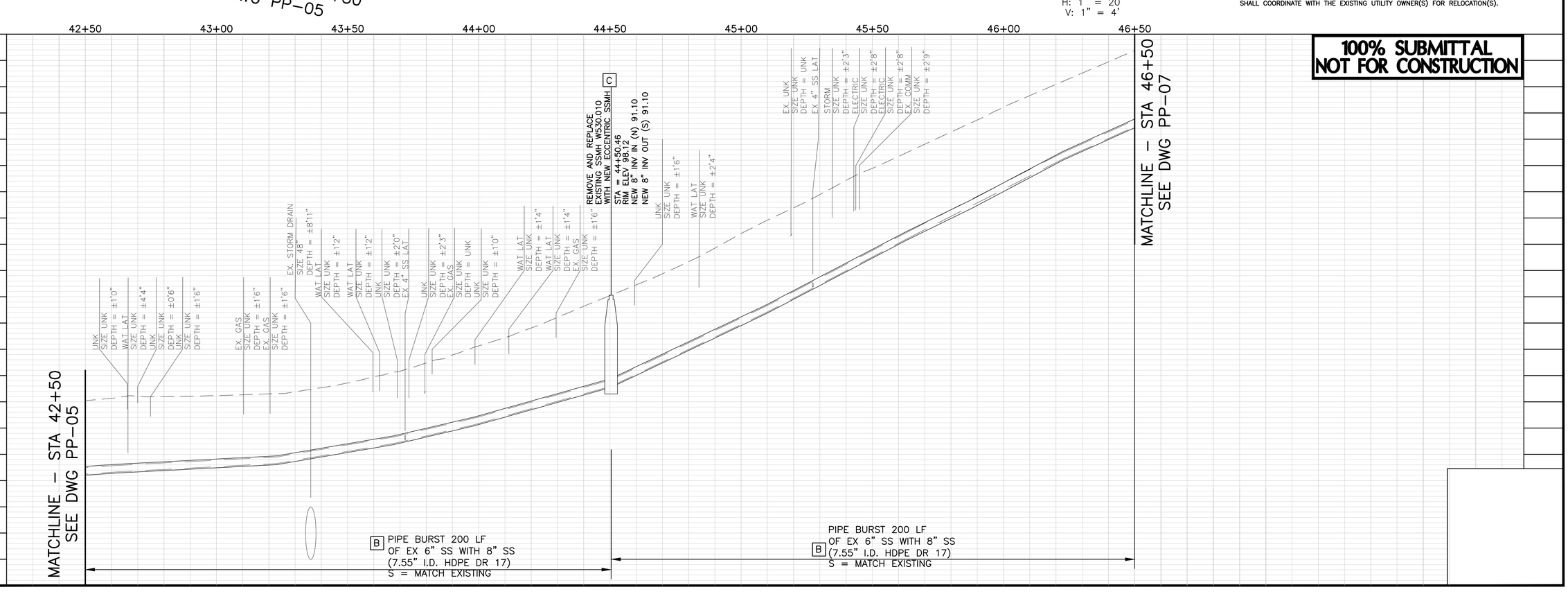
C REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD-01, SD-02, SD-03, SD-04, SD-05 AND SD-06. FINAL PAVING SHALL BE PER DETAIL 2/D-01.

D REHABILITATE MANHOLE BY LINING WITH CALCIUM ALUMINATE MORTAR SYSTEM AFTER MANHOLE MODIFICATIONS ARE PERFORMED AND IN ACCORDANCE WITH THE SPECIFICATIONS. REMOVE EXISTING MANHOLE STEPS PRIOR TO REHABILITATION.

E PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD-29 AND SD-30. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 2/D-01.

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 WITH SEWER POPPER TYPE 2 BACKWATER PREVENTION DEVICE. CLEANOUTS SHALL MATCH EXISTING LOWER LATERAL MATERIAL. REFER TO SD-29: C-900 IS TWO-WAY AND HDPE IS WYE FACING MAIN. 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 TYPE B CONNECTION) OF SERVICE LATERAL, SHALL BE AS SHOWN ON RVSD DWG SD-29. NO VERTICAL DROP OFF IS ALLOWED.

NOTES:
1. 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.
2. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD-21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION. AIR GAP LOCATIONS ARE NOT IDENTIFIED ON THE PLANS.
3. 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.
4. FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS, SEE GENERAL NOTE 23 AND 24 ON DWG N-01 FOR HDPE SLEEVE REQUIREMENTS.
5. BENDING OF NEW PIPING AND/OR JOINT DEFLECTIONS SHALL BE IN ACCORDANCE WITH AWWA AND PIPE MANUFACTURER'S RECOMMENDATIONS.
6. 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).



100% SUBMITTAL NOT FOR CONSTRUCTION

NO.	BY	DATE	REVISION

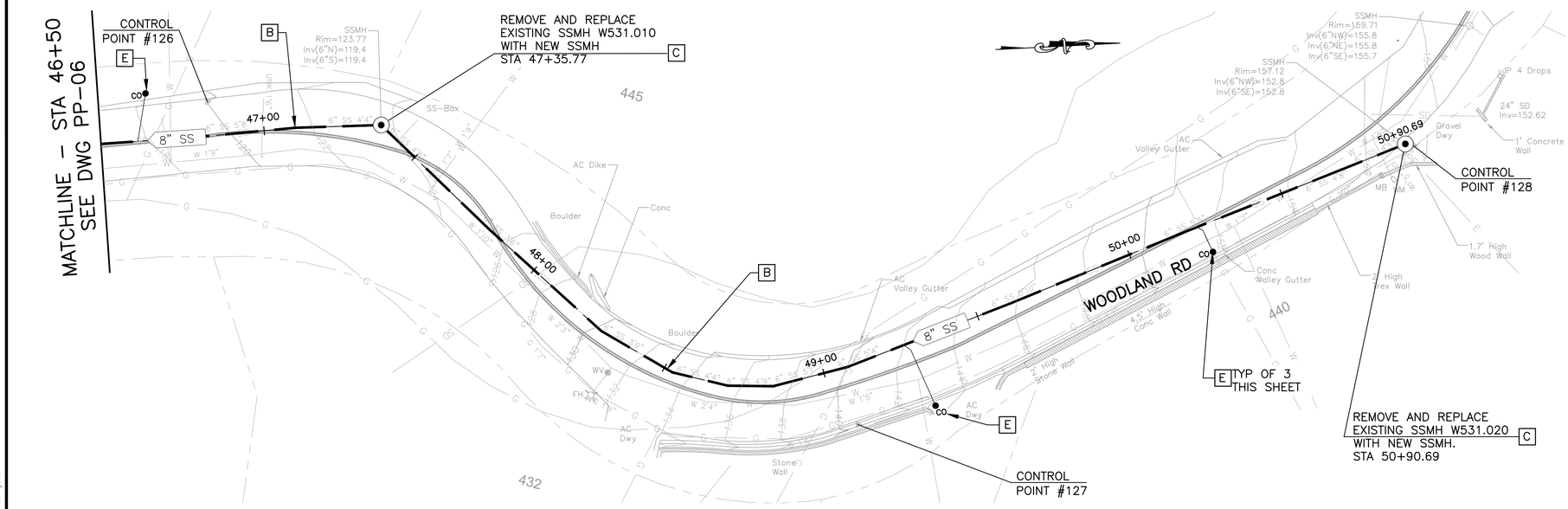
SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
WOODLAND RD

ROSS VALLEY SANITARY DISTRICT
WOODLAND AREA GRAVITY SEWER IMPROVEMENTS PROJECT

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

DESIGNED BY	KLC/JR
DRAWN BY	KLC/JR
CHECKED BY	KI
DATE ISSUED	02/14/2023
JOB NO.	120-0743.005
DWG NO.	**PP-06**
SHEET	09 OF 14

H:\Ross Valley Sanitary District (RSVD)\2007\43005 Woodland Area Sewer\08_12_PP_05_PP_09_WOODLAND.dwg Save Date: 2/14/2023 4:32 PM Plot Date: 2/14/2023 4:32 PM Julie.Rodriguez



SURVEY CONTROL POINTS

POINT #	*NORTHING*	*EASTING*	*ELEVATION*	*DESCRIPTION*
126	*2175072.43*	*5966605.55*	*120.02*	*MAG NL*
127	*2175265.58*	*5966714.04*	*140.59*	*CULT CONC*
128	*2175439.14*	*5966637.79*	*157.30*	*CUT +*

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. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 2/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.

B REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-14. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 2/D-01 FOR ALL OPEN TRENCHES.

REPAIR SURFACE UPHEAVAL AND SAG REPAIR PER RVSD STD DWG SD-22 AND SD-20 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT.

DISCONNECT AND RECONNECT SEWER LATERALS PER RVSD STD DWG SD-29 AND SD-30.

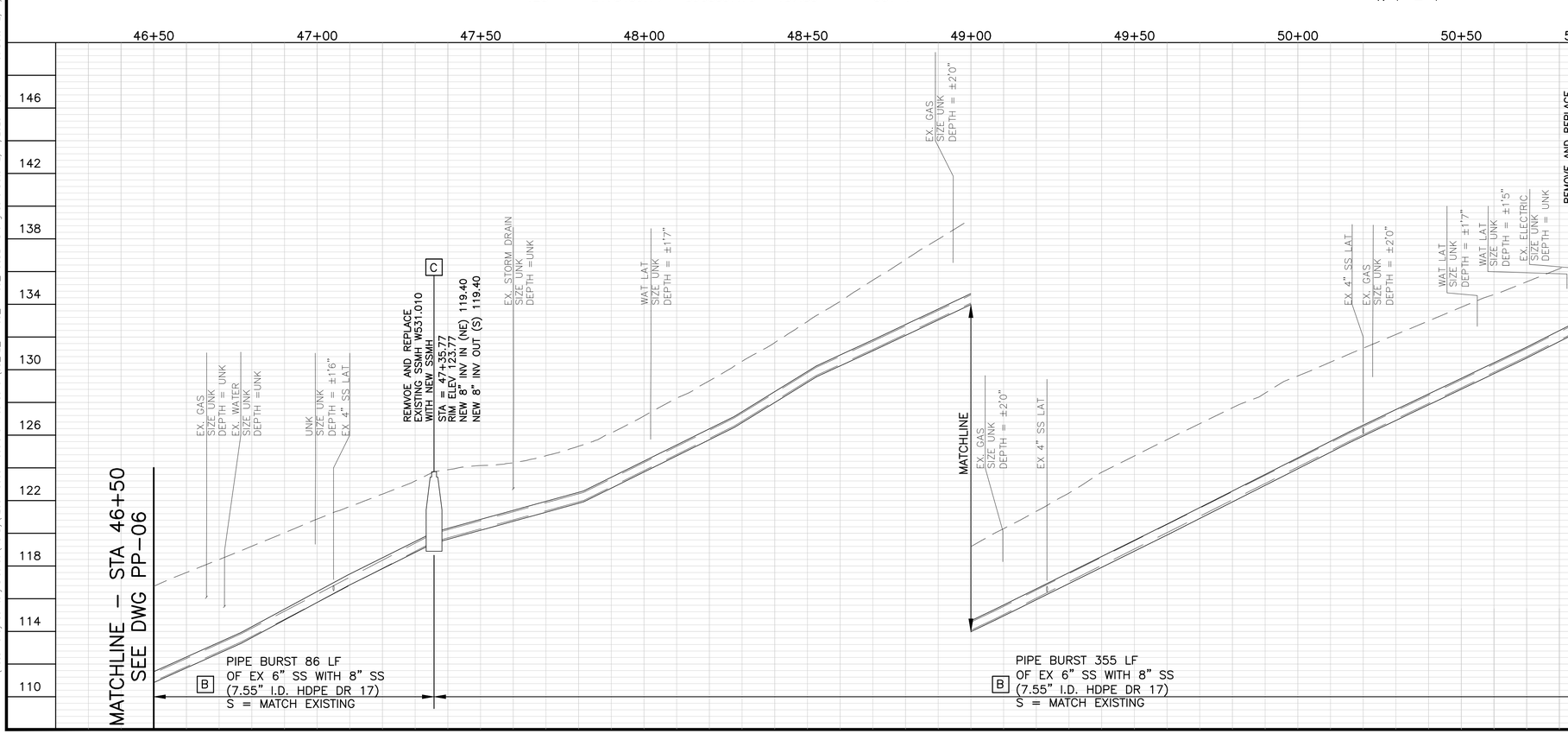
C REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD-01, SD-02, SD-03, SD-04, SD-05 AND SD-06. FINAL PAVING SHALL BE PER DETAIL 2/D-01.

D REHABILITATE MANHOLE BY LINING WITH CALCIUM ALUMINATE MORTAR SYSTEM AFTER MANHOLE MODIFICATIONS ARE PERFORMED AND IN ACCORDANCE WITH THE SPECIFICATIONS. REMOVE EXISTING MANHOLE STEPS PRIOR TO REHABILITATION.

E PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD-29 AND SD-30. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 2/D-01.

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 WITH SEWER POPPER TYPE 2 BACKWATER PREVENTION DEVICE. CLEANOUTS SHALL MATCH EXISTING LOWER LATERAL MATERIAL. REFER TO SD-29: C-900 IS TWO-WAY AND HDPE IS WYE FACING MAIN. 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 TYPE B CONNECTION) OF SERVICE LATERAL, SHALL BE AS SHOWN ON RVSD DWG SD-29. NO VERTICAL DROP OFF IS ALLOWED.

NOTES:
1. 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.
2. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD-21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION. AIR GAP LOCATIONS ARE NOT IDENTIFIED ON THE PLANS.
3. 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.
4. FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS, SEE GENERAL NOTE 23 AND 24 ON DWG N-01 FOR HDPE SLEEVE REQUIREMENTS.
5. BENDING OF NEW PIPING AND/OR JOINT DEFLECTIONS SHALL BE IN ACCORDANCE WITH AWWA AND PIPE MANUFACTURER'S RECOMMENDATIONS.
6. 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).



100% SUBMITTAL NOT FOR CONSTRUCTION

NO.	BY	DATE	REVISION

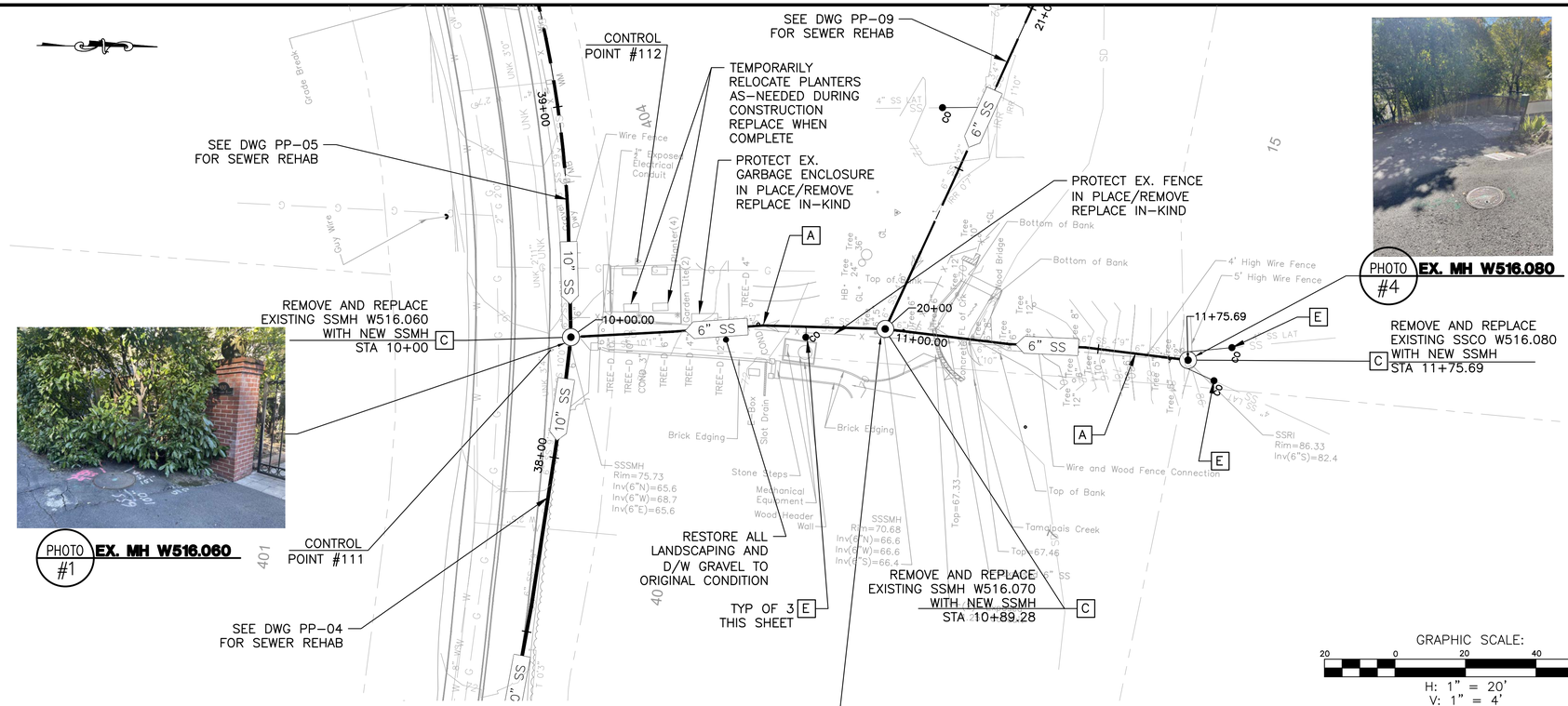
SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
WOODLAND RD

ROSS VALLEY SANITARY DISTRICT
WOODLAND AREA GRAVITY SEWER IMPROVEMENTS PROJECT

Harris & Associates
1401 Willow Pass Rd, Suite 500 Concord, CA 94520
weareharris.com (925) 627-4500

DESIGNED BY	KLC/JR
DRAWN BY	KLC/JR
CHECKED BY	KI
DATE ISSUED	02/14/2023
JOB NO.	120-0743.005
DWG NO.	**PP-07**
SHEET	10 OF 14

H:\Ross Valley Sanitary District (RSVD)\120074300S Woodland Area Sewer\08_12_PP-05_PP-09_WOODLAND.dwg Save Date: 2/14/2023 4:33 PM Plot Date: 2/14/2023 4:33 PM Julie.Rodriguez



LEGEND OF REHABILITATION METHODS

A REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD-16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 2/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.

B REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-14. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 2/D-01 FOR ALL OPEN TRENCHES.

REPAIR SURFACE UPHEAVAL AND SAG REPAIR PER RVSD STD DWG SD-22 AND SD-20 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT.

DISCONNECT AND RECONNECT SEWER LATERALS PER RVSD STD DWG SD-29 AND SD-30.

C REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD-01, SD-02, SD-03, SD-04, SD-05 AND SD-06. FINAL PAVING SHALL BE PER DETAIL 2/D-01.

D REHABILITATE MANHOLE BY LINING WITH CALCIUM ALUMINATE MORTAR SYSTEM AFTER MANHOLE MODIFICATIONS ARE PERFORMED AND IN ACCORDANCE WITH THE SPECIFICATIONS. REMOVE EXISTING MANHOLE STEPS PRIOR TO REHABILITATION.

E PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD-29 AND SD-30. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 2/D-01.

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 WITH SEWER POPPER TYPE 2 BACKWATER PREVENTION DEVICE. CLEANOUTS SHALL MATCH EXISTING LOWER LATERAL MATERIAL. REFER TO SD-29: C-900 IS TWO-WAY AND HDPE IS WYE FACING MAIN. 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 TYPE B CONNECTION) OF SERVICE LATERAL, SHALL BE AS SHOWN ON RVSD DWG SD-29. NO VERTICAL DROP OFF IS ALLOWED.

NOTES:

1. 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.
2. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD-21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION. AIR GAP LOCATIONS ARE NOT IDENTIFIED ON THE PLANS.
3. 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.
4. FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS, SEE GENERAL NOTE 23 AND 24 ON DWG N-01 FOR HDPE SLEEVE REQUIREMENTS.
5. BENDING OF NEW PIPING AND/OR JOINT DEFLECTIONS SHALL BE IN ACCORDANCE WITH AWWA AND PIPE MANUFACTURER'S RECOMMENDATIONS.
6. 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).

PHOTO #1 **EX. MH W516.060**

PHOTO #4 **EX. MH W516.080**

PHOTO #3 **EX. MH W516.070**

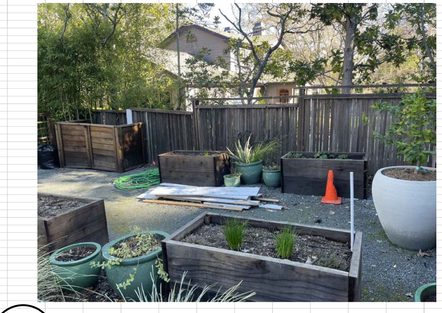


PHOTO #2 **EX. PLANTERS AND GARBAGE ENCLOSURE**

100% SUBMITTAL
NOT FOR CONSTRUCTION

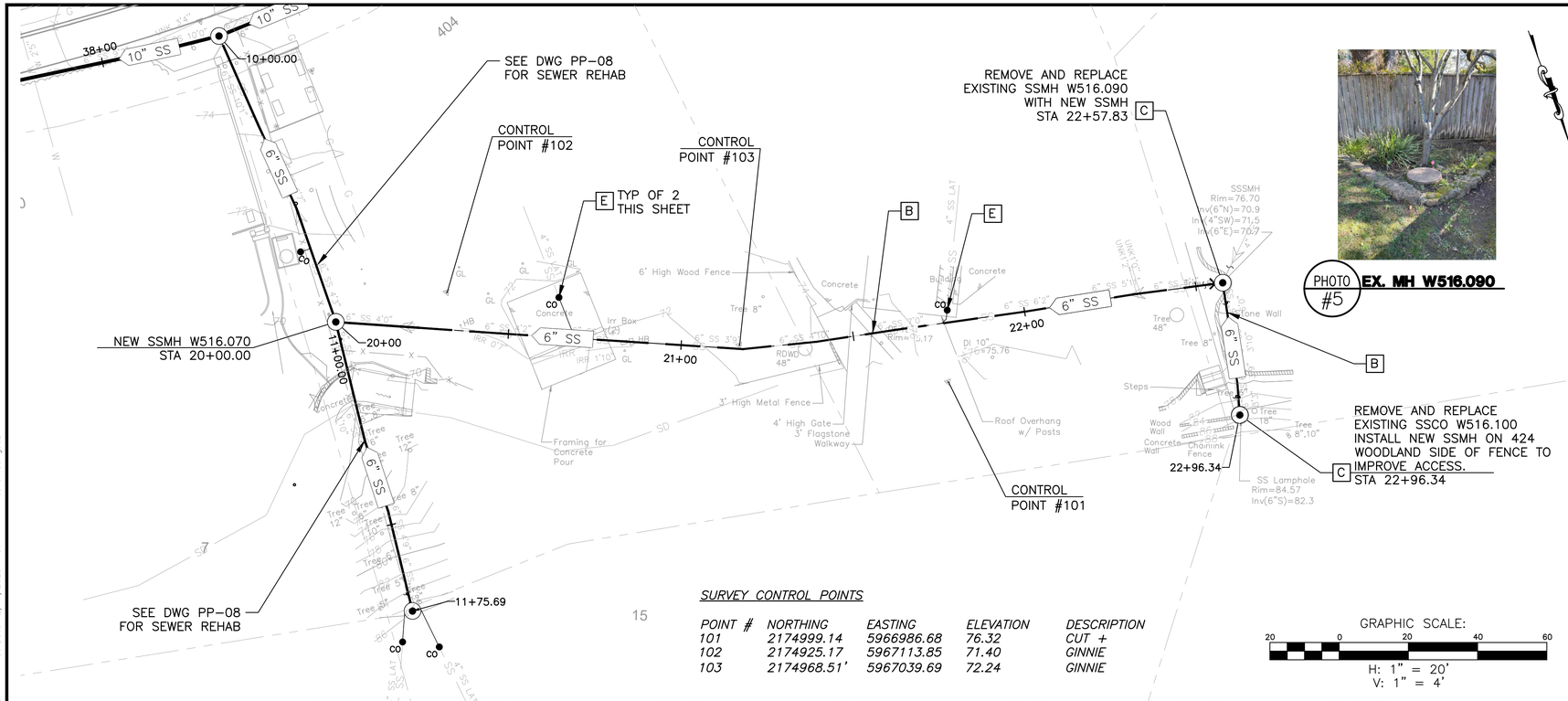
NO.	BY	DATE	REVISION

SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
WOODLAND RD

ROSS VALLEY SANITARY DISTRICT
WOODLAND AREA
GRAVITY SEWER
IMPROVEMENTS PROJECT

Harris & Associates
1401 Willow Pass Rd, Suite 500 Concord, CA 94520
weareharris.com (925) 627-4500

DESIGNED BY	KLC/JR
DRAWN BY	KLC/JR
CHECKED BY	KI
DATE ISSUED	02/14/2023
JOB NO.	120-0743.005
DWG NO.	PP-08
SHEET	11 OF 14



LEGEND OF REHABILITATION METHODS

A REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD-16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 2/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.

B REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-14. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 2/D-01 FOR ALL OPEN TRENCHES.

REPAIR SURFACE UPHEAVAL AND SAG REPAIR PER RVSD STD DWG SD-22 AND SD-20 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT.

DISCONNECT AND RECONNECT SEWER LATERALS PER RVSD STD DWG SD-29 AND SD-30.

C REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD-01, SD-02, SD-03, SD-04, SD-05 AND SD-06. FINAL PAVING SHALL BE PER DETAIL 2/D-01.

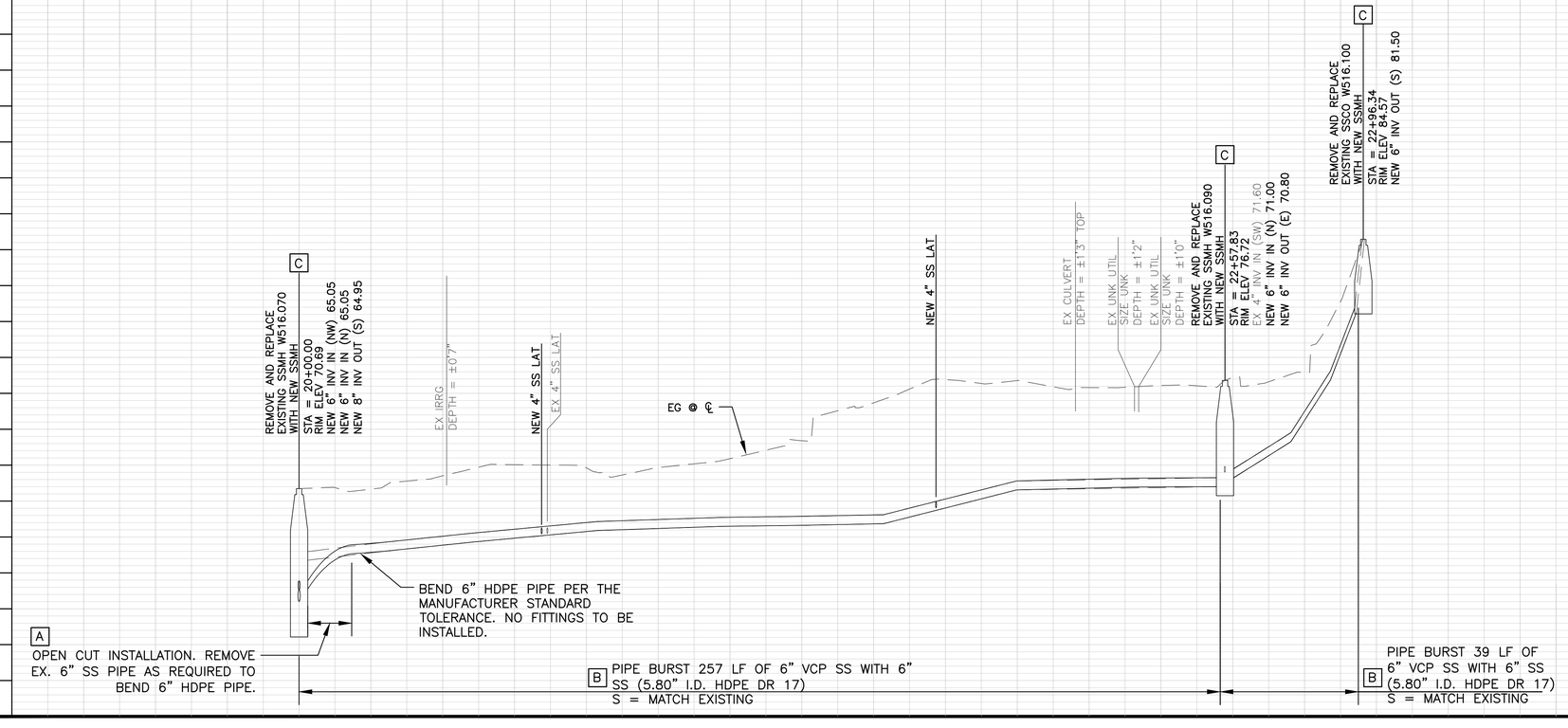
D REHABILITATE MANHOLE BY LINING WITH CALCIUM ALUMINATE MORTAR SYSTEM AFTER MANHOLE MODIFICATIONS ARE PERFORMED AND IN ACCORDANCE WITH THE SPECIFICATIONS. REMOVE EXISTING MANHOLE STEPS PRIOR TO REHABILITATION.

E PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD-29 AND SD-30. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 2/D-01.

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 WITH SEWER POPPER TYPE 2 BACKWATER PREVENTION DEVICE. CLEANOUTS SHALL MATCH EXISTING LOWER LATERAL MATERIAL. REFER TO SD-29: C-900 IS TWO-WAY AND HDPE IS WYE FACING MAIN. 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 TYPE B CONNECTION) OF SERVICE LATERAL, SHALL BE AS SHOWN ON RVSD DWG SD-29. NO VERTICAL DROP OFF IS ALLOWED.

NOTES:

1. 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.
2. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD-21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION. AIR GAP LOCATIONS ARE NOT IDENTIFIED ON THE PLANS.
3. 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.
4. FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS, SEE GENERAL NOTE 23 AND 24 ON DWG N-01 FOR HDPE SLEEVE REQUIREMENTS.
5. BENDING OF NEW PIPING AND/OR JOINT DEFLECTIONS SHALL BE IN ACCORDANCE WITH AWWA AND PIPE MANUFACTURER'S RECOMMENDATIONS.
6. 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).



100% SUBMITTAL NOT FOR CONSTRUCTION

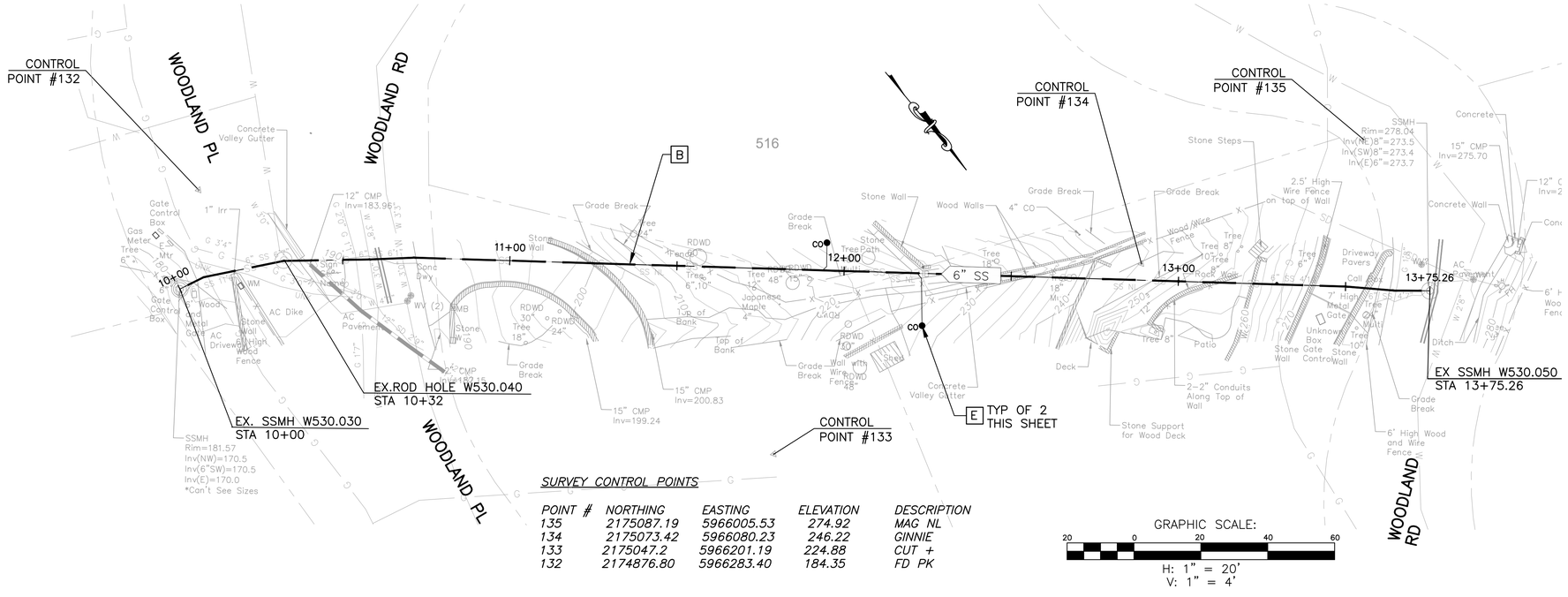
NO.	BY	DATE	REVISION

SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
WOODLAND RD

ROSS VALLEY SANITARY DISTRICT
WOODLAND AREA
GRAVITY SEWER
IMPROVEMENTS PROJECT

Harris & Associates
1401 Willow Pass Rd, Suite 500 Concord, CA 94520
weareharris.com (925) 627-4500

DESIGNED BY	KLC/JR
DRAWN BY	KLC/JR
CHECKED BY	KI
DATE ISSUED	02/14/2023
JOB NO.	120-0743.005
DWG NO.	**PP-09**
SHEET	12 OF 14



SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
135	2175087.19	5966005.53	274.92	MAG NL
134	2175073.42	5966080.23	246.22	GINNIE
133	2175047.2	5966201.19	224.88	CUT +
132	2174876.80	5966283.40	184.35	FD PK

LEGEND OF REHABILITATION METHODS

A REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD-16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 2/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.

B REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-14. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 2/D-01 FOR ALL OPEN TRENCHES.

REPAIR SURFACE UPHEAVAL AND SAG REPAIR PER RVSD STD DWG SD-22 AND SD-20 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT.

DISCONNECT AND RECONNECT SEWER LATERALS PER RVSD STD DWG SD-29 AND SD-30.

C REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD-01, SD-02, SD-03, SD-04, SD-05 AND SD-06. FINAL PAVING SHALL BE PER DETAIL 2/D-01.

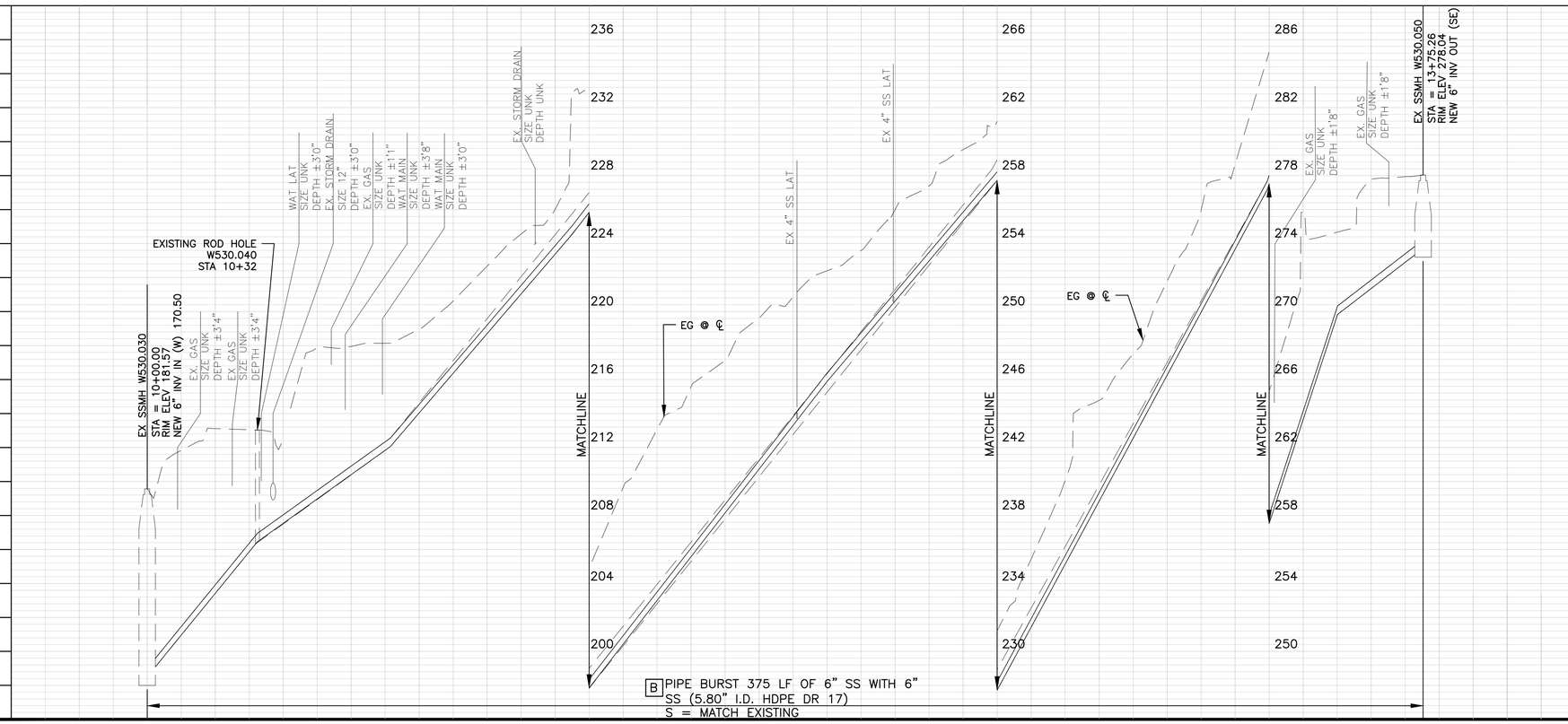
D REHABILITATE MANHOLE BY LINING WITH CALCIUM ALUMINATE MORTAR SYSTEM AFTER MANHOLE MODIFICATIONS ARE PERFORMED AND IN ACCORDANCE WITH THE SPECIFICATIONS. REMOVE EXISTING MANHOLE STEPS PRIOR TO REHABILITATION.

E PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD-29 AND SD-30. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 2/D-01.

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 WITH SEWER POPPER TYPE 2 BACKWATER PREVENTION DEVICE. CLEANOUTS SHALL MATCH EXISTING LOWER LATERAL MATERIAL. REFER TO SD-29: C-900 IS TWO-WAY AND HDPE IS WYE FACING MAIN. 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 TYPE B CONNECTION) OF SERVICE LATERAL, SHALL BE AS SHOWN ON RVSD DWG SD-29. NO VERTICAL DROP OFF IS ALLOWED.

NOTES:

1. 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.
2. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD-21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION. AIR GAP LOCATIONS ARE NOT IDENTIFIED ON THE PLANS.
3. 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.
4. FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS, SEE GENERAL NOTE 23 AND 24 ON DWG N-01 FOR HDPE SLEEVE REQUIREMENTS.
5. BENDING OF NEW PIPING AND/OR JOINT DEFLECTIONS SHALL BE IN ACCORDANCE WITH AWWA AND PIPE MANUFACTURER'S RECOMMENDATIONS.
6. 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).



B PIPE BURST 375 LF OF 6" SS WITH 6" SS (5.80" I.D. HDPE DR 17)
S = MATCH EXISTING

100% SUBMITTAL NOT FOR CONSTRUCTION

NO.	BY	DATE	REVISION

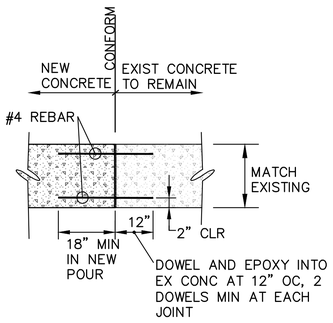
SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
WOODLAND RD

ROSS VALLEY SANITARY DISTRICT
WOODLAND AREA GRAVITY SEWER IMPROVEMENTS PROJECT

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

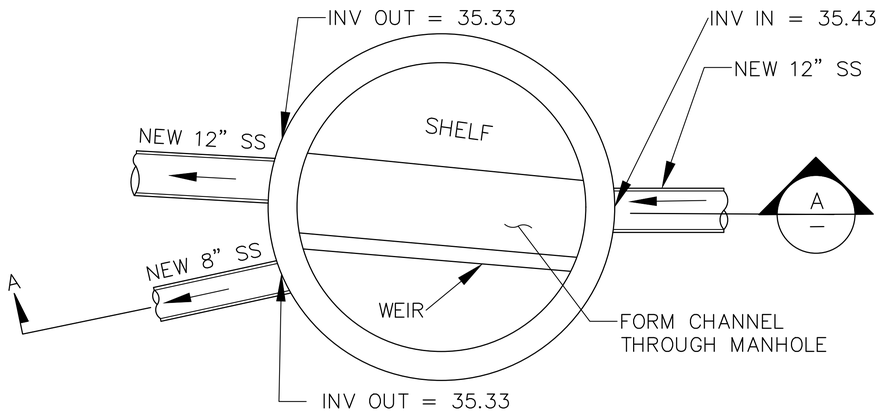
DESIGNED BY	KLC/JR
DRAWN BY	KLC/JR
CHECKED BY	KI
DATE ISSUED	02/14/2023
JOB NO.	120-0743.005
DWG NO.	PP-10
SHEET	13 OF 14

H:\Ross Valley Sanitary District (RSVD)\120074300S Woodland Area Sewer\15_PP-12_WOODLAND EASEMENT.dwg Save Date: 2/14/2023 4:41 PM Plot Date: 2/14/2023 4:41 PM Julie.Rodriguez

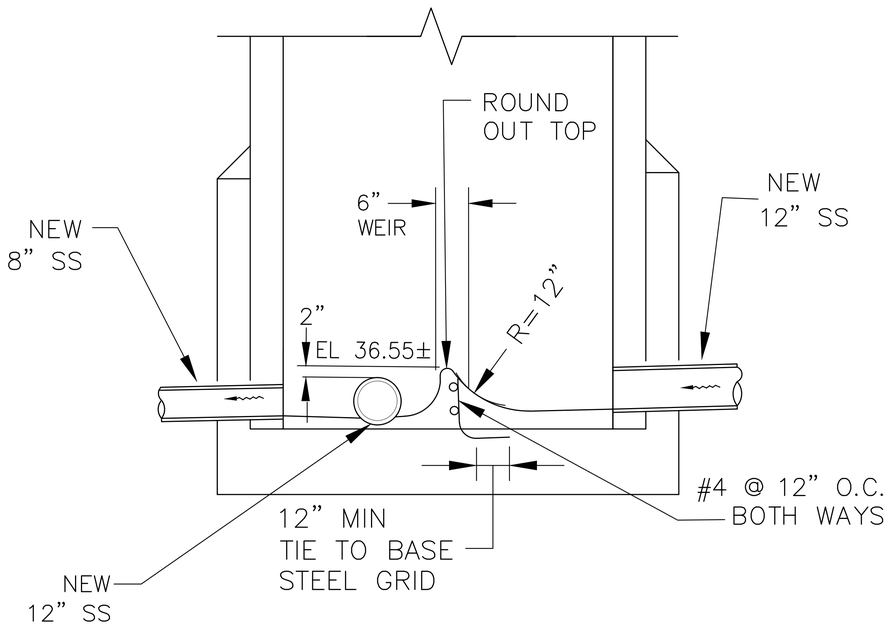


1 — PCC CONFORM SECTION

NOT TO SCALE



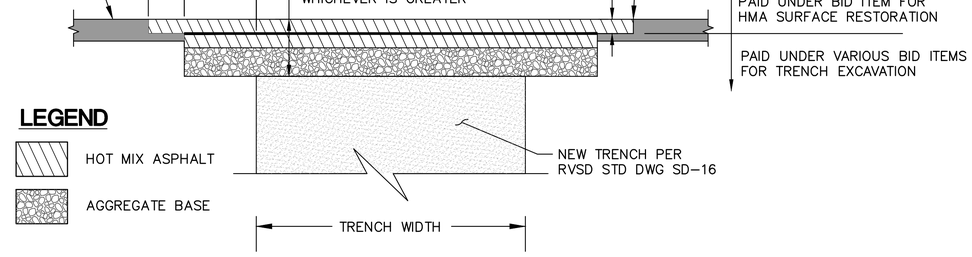
PLAN



SECTION A–A

1 — OVERFLOW MANHOLE

NOT TO SCALE



FINAL PAVING		
ROAD CLASSIFICATION (SEE NOTE 1)	PAVING REQUIREMENTS	ALTERNATE FULL DEPTH AC
LOCAL	MIN HMA: 4" MIN AB: 7"	7"
COLLECTOR	MIN HMA: 5" MIN AB: 11"	11"
ARTERIAL	MIN HMA: 6" MIN AB: 14"	14"

NOTES

1. ROAD CLASSIFICATIONS ARE AS DETERMINED BY THE LOCAL JURISDICTION.
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

100% SUBMITTAL NOT FOR CONSTRUCTION

NO.	BY	DATE	REVISION

CONSTRUCTION DETAILS

ROSS VALLEY SANITARY DISTRICT
WOODLAND AREA GRAVITY SEWER IMPROVEMENTS PROJECT

Harris & Associates
1401 Willow Pass Rd, Suite 500 Concord, CA 94520
weareharris.com (925) 627-4900

DESIGNED BY	KLC/JR
DRAWN BY	KLC/JR
CHECKED BY	KI
DATE ISSUED	02/14/2023
JOB NO.	120-0743.005
DWG NO.	D-01
SHEET	14 OF 14

Attachment D

Overview of 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. Stockpile materials, including portable equipment, vehicles, and supplies (e.g., chemicals), only in the designated construction staging areas, exclusive of any riparian and wetland areas; ensure refueling of any vehicles or equipment is done at least 100 ft away from creeks.
4. Remove all material excavated immediately and ensure it is 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.
5. Provide temporary lighting that complies with California Occupational Safety and Health Administration (Cal/OSHA) standards.
6. Conduct operations in a manner that causes 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 its 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.

7. 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 it or used under its direction during construction.
8. Restore pavement in all roadways, driveways, and sidewalks.
9. 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 in the shafts or pits will be monitored 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 Control

1. Control odor related to construction 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. This shall include permits and project approvals as follows:
    a. General Water Quality Certification for Small Habitat Restoration Projects (File # SB09016GN) (Regional Water Quality Control Board [Regional Water Board])
    b. Nationwide Permit 27 - Aquatic Habitat Restoration, Enhancement, and Establishment Activities (U.S. Army Corps of Engineers [USACE]). As part of this permitting process, consultation with resource agencies is required. The USACE will gain concurrence from the National Oceanic and Atmospheric Administration (NOAA)/National Marine Fisheries Service (NMFS).
    c. Lake and Streambed Alteration Permit (California Department of Fish and Wildlife [CDFW], Section 1602).
2. The RVSD, design engineer and Contractor shall obtain the permit and approvals as listed in #1 and comply with all conditions.
3. All in-creek construction activities shall be restricted to the dry season, with no construction equipment allowed into the Project reach until surface waters are no

longer present, sometime during the period of June 15 to October 15 to avoid potential impacts on special status fish.

4. Trees and other landscaping removed during construction shall be replaced by the Contractor. If required, the Contractor shall obtain a permit from the County of Marin for the removal of any trees of regulated size and shall comply with relevant permit conditions:
    a. Marin County: Ordinance 3342, Chapter 22.75, Section 22.75.080
5. The Contractor will submit to RVSD, if applicable, a copy of its annual trench and/or excavation permit issued by Cal/OSHA.
6. Contractor shall obtain an encroachment permit from the County of Marin and comply with permit conditions.

Stormwater and Erosion Control

The Contractor shall prepare a Water Pollution Control Plan, Stormwater Pollution Prevention Plan, or an Erosion Sediment Control Plan for RVSD approval. The plan 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 plan shall address, but not be limited to, the following:

1. Providing all excavated areas with temporary erosion control measures where natural ground cover is disturbed, all temporary excavation stockpiles, including structures and trench excavations.
2. Preventing any construction debris from entering drainages in the Project vicinity.
3. Controlling equipment fueling and maintenance, concrete mixing and washout, and hauling and storage of materials.
4. Inspecting and maintaining protected areas regularly during the course of the work.
5. 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.
6. Placing filter fabric at local storm drains and using other appropriate BMPs.

Geotechnical

The Project components do not entail work that would require geotechnical engineer review. The following measures will be implemented on an as-needed basis.

1. Have a geotechnical engineer review the final Project plans and specifications prior to construction.
2. Have a geotechnical engineer review geotechnical-related Contractor submittals during construction (e.g., shoring, dewatering, ground improvement, backfill materials).
3. 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.
4. 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 watertight 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 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 are 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 laws, 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 chain-link 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.

e. 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 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, and 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.

2. Develop and submit to RVSD for approval a Health and Safety Plan that defines proposed site safety measures.
3. 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.
4. 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 its 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.
5. Establish, implement, and maintain a written injury prevention program as required by Labor Code Section 6401.7.
6. In case of an emergency, make all necessary repairs and promptly execute such work when required by the Construction Manager.
7. 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. 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.
8. 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.
9. 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 the day of construction, and will provide information on Project activities, the construction schedule, protocol for providing complaints related to hazardous conditions and noise, and vehicle access needs.
2. If complaints are received related 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 plan as detailed under "Stormwater and Erosion Control."

Noise Control

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 8:00 a.m. to 5:00 p.m. on weekdays. Work hours beyond these referenced limits must be approved by RVSD and the County of Marin. Avoid the use of loud sound signals in favor of light warnings except those required by safety laws for the protection of personnel.
2. Equip internal combustion engines with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated without said muffler.
3. 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.
4. Do not use of radio or other music amplification devices in the work area.
5. Implement a vibration monitoring and correction program to protect buildings, structures, and utilities from extensive vibration during construction.
6. If noise complaints are received, identify the source, and evaluate and implement available abatement.
7. Place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the active Project site.
8. 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.
9. Ensure temporary noise control blanket barriers are installed in a manner to shield adjacent land uses.
10. Designate a "disturbance coordinator" who will be responsible for responding to any local complaints about construction noise. The disturbance coordinator will determine the cause of the noise complaint (e.g., starting too early, bad muffler) and

will determine and implement reasonable measures warranted to correct the problem.

11. Ensure noise generated from nightwork operations does not exceed 90 decibels measured at 50 ft from the source of the noise, or as stipulated in the encroachment permits.
12. Comply with all applicable provisions of Section 7-1.01I, "Sound Control Requirements," of the California Department of Transportation Standard Specifications and Contract Documents.
13. Comply with the County of Marin codes that regulate noise levels. The County of Marin Municipal Code, Title 6, Chapter 6.70, Section 6.70.030 (Enumerated Noises) states that:
    - 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:
      - Monday through Friday: 7:00 a.m. to 6:00 p.m.
      - Saturday: 9:00 a.m. to 5:00 p.m.
      - Prohibited on Sundays and Holidays (New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day).
    - 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 8:00 a.m. to 5:00 p.m. Monday through Friday only.
    - Special exceptions to these limitations may occur for:
      - 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
      - Construction projects of city, county, state, other public agency, or other public utility
      - When written permission of the community development director has been obtained, for showing of sufficient cause
      - Minor jobs (e.g., painting, hand sanding, sweeping) with minimal/no noise impacts on surrounding properties
      - Modifications required by the review authority as a discretionary permit condition of approval.

Traffic Management

1. 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 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 could 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 County of Marin. 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 and particulate matter.
4. All Contractors shall be required to use equipment that meets CARB's most recent certification standard for off-road, heavy-duty diesel engines.

Biological Resources

1. Tightly woven fiber netting or similar material shall be used for erosion control or other purposes to ensure wildlife species do not get trapped. Plastic monofilament netting (erosion control matting), rolled erosion control products, or similar material shall not be used.
2. Modified or disturbed portions of the stream channel, banks, and riparian areas will be restored as nearly as possible to natural and stable contours (elevations, profile, and gradient). Native substrates removed during excavations and earthwork will be stockpiled and returned to the creek bed and banks. An assemblage of native grass seed mix and shrubs will be applied to areas disturbed by construction, creek access, and contouring, as well as to areas where native soils overlay any disturbed areas. Riparian trees will be planted in areas onsite and in-kind as those requiring removal for construction access. Riparian plants will also be planted along the banks in the areas of bank disturbance, riprap placement, and any other disturbed areas. Live willow and alder cuttings will be used at the appropriate lower bank elevations (just above bank toe). Invasive, exotic plants will be removed within the Project site to the maximum extent practicable.
3. Environmental training will be provided to all persons working in the Project Study areas prior to the initiation of Project-related activities and training materials and briefings will include all biological resources that may be found on or in the vicinity of the Project site, the laws and regulations that protect those resources, the consequences of non-compliance with those laws and regulations, and a contact

person in the event that protected biological resources are discovered on the Project site.

4. To avoid removal and/or degradation of wetland habitats, a minimum 10-ft setback is recommended; a 10-ft setback is the minimum distance necessary to avoid permanent impacts to wetlands that could occur from shading and temporary impacts from installation activities including laydown and assembly. Orange construction fencing should be installed to demarcate the setback and exclude activities from occurring in sensitive habitats. BMPs will be required to minimize potential indirect impacts to wetlands and waters, such as the use of silt fencing, wattles, and other appropriate stormwater pollution prevention measures to ensure discharge into wetlands does not occur.

Attachment E

Biological Resources Assessment

BIOLOGICAL RESOURCES REPORT

Ross Valley Sanitation District (RVSD) Woodland Area Gravity Sewer Improvement Project, Kent Woodlands, Marin County, CA

Prepared For:

Carolyn Huynh
Integral Consulting, Inc.
2455 Bennett Valley Road, Suite 101C
Santa Rosa, CA 95404

Project No. 2155

Prepared By:

Dana Riggs
Principal Biologist
Sol Ecology, Inc.
P.O. Box 5214
Petaluma, CA 94955
driggs@solecology.com
707-241-7718

January 26, 2023

SOL ECOLOGY

TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF ACRONYMS AND ABBREVIATIONS

BMP	Best Management Practice
CDFG/CDFW	California Department of Fish and Game/Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CGS	California giant salamander
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRLF	California red-legged frog
DPS	Distinct Population Segment
ESA	Federal Endangered Species Act
ESCP	Erosion Sediment Control Plan
FYLF	Foothill yellow-legged frog
HDD	Horizontal Directional Drilling
HDPE	High-density polyethylene
in.	Inch(es)
IS/MND	Initial Study/Mitigated Negative Declaration
LF	Linear foot (feet)
MBTA	Migratory Bird Treaty Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
PP	Plan and Profile Plans
RSP	Residential Single-family Planned
RVSD	Ross Valley Sanitary District
RWQCB	Regional Water Quality Control Board
SWPPP	Stormwater Pollution Prevention Plan
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Service
USFWS	U.S. Fish and Wildlife Service
VCP	Vitrified clay pipe
WBWG	Western Bat Working Group
WPT	Western pond turtle

1.0 INTRODUCTION

The Ross Valley Sanitary District (RVSD) Woodland Area Gravity Sewer Improvement Project (Project) entails the construction and rehabilitation, within the existing alignment, of sanitary sewer mains and related appurtenances within the unincorporated community of Kent Woodlands, Marin County, California.

On May 27, October 6, and October 24, 2022, Sol Ecology, Inc. performed a biological resources assessment at three Project locations (Project Study Areas). The Project Study Areas include the proposed Project sites or "footprint" and surrounding habitat subject to potential direct and indirect effects of the proposed Project. The proposed Project includes alterations to 3 distinct existing segments of sewer infrastructure (Appendix A – Figure 1). The purpose of the Project is to relieve hydraulic and structural deficiencies and reduce groundwater infiltration from aging RVSD infrastructure.

The purpose of the assessment was to gather information necessary to complete a review of potential biological resource impacts from development of the proposed Project, under the County of Marin's guidelines of the California Environmental Quality Act (CEQA). This report describes the results of the site assessment of the Project Study Areas for the presence of sensitive biological resources protected by local, state, and federal laws and regulations. This report also contains an evaluation of potential impacts to sensitive biological resources that may occur from the proposed Project and potential mitigation measures to compensate for those impacts as warranted. This assessment is based on information available at the time of the study and on-site conditions that were observed on the date of the site visits.

1.1 Project Location and Setting

The Project Study Areas are in the RVSD's service area in Marin County (Appendix E: Attachment B, Figure 1). Regional access to the sites from the north and south is provided by U.S. Highway 101 (U.S. 101) and from the east by Interstate 580 (I-580) and the Richmond-San Rafael Bridge.

The Project Study Areas are in Kent Woodlands, a historic subdivision located near the unincorporated community of Kentfield situated within a wooded canyon area of high natural resource and scenic value. Kent Woodlands is located between the incorporated and unincorporated cities/towns of Kentfield to the north, Greenbrae to the east and Larkspur to the south. The western border of Kent Woodlands abuts open preserves.

Land uses surrounding the Project Study Areas in Kent Woodlands consist of single-family residences. Sir Francis Drake Boulevard, located to the east of the Project site, is a major traffic artery linking U.S. 101 with the community of Kent Woodlands. Residences, businesses, and schools are located along Sir Francis Drake Boulevard.

Table 1 provides the location number designated for each Project Study Area for the purposes of this report. It also includes the Plan and Profile Sheet number from the Project plan set, the Assessor's Parcel Number for each area and the land use zoning code. While most of the Project Study Areas are entirely contained within existing right-of-way, certain segments intersect several parcels of private land.

Table 1. Locations of Project Study Areas

Project Study Area No./ Plan & Profile Plan (PP) Sheet No.	Nearest Intersecting Roads with Woodland Road	Intersecting APNs	Zoning
Area 1 / PP-01 – PP-04	Woodland Road near Laurel Way	Right-of-way only	N/A
Area 2 / PP-05 – PP-11	Woodland Road near Acorn Way and Upland Road	074-232-07 074-232-08 074-232-09 074-232-10 074-232-11	RSP-1 RSP-1 RSP-1 RSP-1 RSP-1
Area 3 / PP-12	Woodland Road past Woodland Place	074-223-01 074-223-02 074-223-03	RSP-1

RSP-1 = Residential Single Family Planned (Marin County)

1.2 Project Description

The Project plans to replace approximately 4,277 linear feet (LF) of existing sanitary sewer mains ranging in size from 6-inch (in.) to 8-in. vitrified clay pipe (VCP) with 8-in. to 12-in. high-density polyethylene (HDPE) pipe via pipe bursting, open cut and jack-and-bore or directional drilling methods. Depths of excavation may range from 5 to 12 feet. Several creek crossings are in the Project area along Tamalpais Creek. Work occurring at or near creek crossings is detailed below:

- Creek Crossing 1 (Woodland Road near Laurel Way): Tamalpais Creek flows beneath Woodland Road through a culvert. Work will occur within Tamalpais Creek to remove the old, suspended pipes within the culvert. The pipes will be cut back and capped, and the concrete walls of the culvert will be repaired. The pipes outside the culvert will be abandoned by filling with slurry. These pipes will be replaced with a double-barrel siphon installed under the creek and would avoid any disturbance to the bed or bank of the channel. Work may entail excavation by jack-and-bore or directional drilling.

- Creek Crossing 2 (Woodland Road near Acorn Way – private property): Open cut construction will be used to remove the existing pipes that are exposed in the Tamalpais Creek channel and a new sewer main beneath the creek bed will be installed. The creek channel will be restored and replaced with constructed riffles.

- The total area disturbed would be 0.001 acres. Approximately 2.9 cubic yards of existing 6-in. VCP and will be removed from the channel bed. Excavation depth at the sewer line would be approximately 4 ft. Approximately 75 ft^2 of existing channel bed materials would be excavated to prepare for the constructed riffle. Excavation depth at the channel bed will be approximately 2 ft. Native channel bed materials will be excavated and stockpiled for use in the constructed riffle. Any non-natural materials, such as asphalt, will be removed from the stockpile.

- Following the demolition, engineered stream bed material (including boulders and cobbles) would be imported and staged on private property adjacent to the sewer crossing. The exposed subgrade would be compacted prior to the installation of the engineered stream bed materials. Imported rock would be installed along with the native bed materials stockpiled onsite. The Contractor, under the direction of the design team, would construct the riffle in layers using the stockpiled boulders, cobbles, and salvaged bed materials.

- The area adjacent to the sewer line, and the construction access corridor, will be cleared and grubbed of invasive species. Existing streambank vegetation is currently dominated by English ivy and will be replaced by locally sourced box elder, California buckeye, western thimbleberry, and red flowering currant. A total of 775 ft^2 of planted banks will receive 4 in. of mulch. All exposed soil surfaces outside of the active channel will be covered with a 100 percent biodegradable erosion control fabric and stapled in place, and two rows of wattles will be installed on the slope revegetated slopes.

- Following the completion of the constructed riffle, the equipment will be removed from the channel bed. The access route will be re-landscaped and vegetated and areas of excavation will be covered with erosion control fabric.

- Creek Crossing 3 (Woodland Road – private property): Tamalpais Creek flows beneath a culvert underneath the adjacent backyard. The sanitary sewer main will be replaced via pipe bursting.

- Creek Crossing 3 (Woodland Road past Upland Road): Tamalpais Creek flows beneath Woodland Road via a 36” concrete culvert. The sanitary sewer main will be replaced via pipe bursting, with no impact to the concrete culvert or Tamalpais Creek. All work where Woodland Road crosses Tamalpais Creek will be conducted within the paved section of Woodland Road via pipe bursting methods. The new sewer alignment will match the

existing alignment for the entire section that crosses Tamalpais Creek. No work will be conducted in Tamalpais Creek.

Construction Methods

The following construction methods may be used during the implementation of this Project, as determined by the Contractor:

- 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.
- *Pipe bursting* uses equipment to burst the host pipe outward into the surrounding soil while simultaneously pulling the new pipeline in its place.
- *Horizontal Directional Drilling* (HDD) is generally accomplished in three stages. The first stage consists of directionally drilling a small diameter pilot hole along a designed directional path. The second stage involves enlarging this pilot hole to a diameter suitable for installation of the proposed pipeline. The third stage consists of pulling the pipeline back through the enlarged hole.
- *Bore-and-jack* is a form of horizontal auger boring for new construction in which a boring machine is set on tracks in an insertion pit, jacking each length of casing into the bore path as the auger carries debris back to the insertion pit for removal.

Construction methods for each segment of work are shown on Figure 1. Preliminary constructions plans are provided in Appendix E: Attachment C.

Work Hours and Schedule

Construction is expected to begin in Spring 2023 and is anticipated to be completed by Fall 2023. All in-stream construction activities are expected to occur in the dry season (June 15 – October 15), when the channel is seasonally dry (MCFCWCD 2021). No construction equipment is allowed in the Project Study Areas until surface waters are no longer present. Work hours would generally be 8 a.m. to 5 p.m.; however, hours will be dependent on location-specific constraints.

Construction Staging

Project site preparation would include the following general tasks: survey and excavation layout and preparation of staging, and 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.

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 would likely be required include, but are not necessarily limited to, the following:

- County of Marin Encroachment Permit

- General Water Quality Certification for Small Habitat Restoration Projects (File # SB09016GN) (Regional Water Quality Control Board [RWQCB])

- Nationwide Permit 27 - Aquatic Habitat Restoration, Enhancement, and Establishment Activities (U.S. Army Corps of Engineers [USACE]). As part of this permitting process, consultation with resource agencies is required. USACE would gain concurrence from the National Oceanic and Atmospheric Administration (NOAA)/National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service [USFWS] as needed; a programmatic consultation with NMFS under this permit would likely occur. In addition, USACE may coordinate with the State Historic Preservation Office (SHPO) for Section 106 of the National Historic Preservation Act. Lastly, one species western pond turtle is expected to be determined a candidate for listing in 2023.

- Lake and Streambed Alteration Permit (California Department of Fish and Wildlife [CDFW], Section 1602).

- A Stormwater Pollution Prevention Plan (SWPPP) or an Erosion Sediment Control Plan (ESCP) will be prepared by a qualified engineer retained by the District and shall comply with the provisions of the state's General Construction Stormwater Permit. Provisions shall be incorporated into the SWPPP or ESCP to prevent any construction debris from entering Ross Creek and other drainages in the Modified Project vicinity, including use of best management practices (BMPs) such as filter fabric over storm drain culvert inlets, fiber-rolls around culvert inlets, and other practices.

Several sewer line segments are located on private properties. The RVSD will coordinate with private property owners to access and rehabilitate these sewer line segments.

2.0 METHODS

On May 27, October 6, and October 24, 2022, the Project Study Areas were traversed on foot to determine the presence of (1) plant communities both sensitive and non-sensitive, (2) special status plant and wildlife species, and (3) presence of essential habitat elements for any special-status plant or wildlife species. Photographs of the site are provided in Appendix B. Species identified during the site visit are provided in Appendix C.

2.1 Literature Review

Prior to the site visit, a desktop analysis was performed to evaluate whether special status species or other sensitive biological resources (e.g., wetlands) could occur in the study area and vicinity. Sol Ecology biologists reviewed the following:

- California Native Plant Society's (CNPS's) A Manual of California Vegetation Online Edition (CNPS 2022a)
- USFWS National Wetlands Inventory, Wetlands Mapper (USFWS 2022a)
- U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), Web Soil Survey (USDA 2019)
- CNPS's Inventory of Rare and Endangered Plants of California search for U.S. Geological Survey (USGS) 7.5-minute quadrangle San Rafael and the seven surrounding quadrangles, Novato, Petaluma Point, San Quentin, San Francisco North, Point Bonita, San Geronimo, and Bolinas (CNPS 2022b)
- California Natural Diversity Database (CNDDB) search for USGS 7.5-minute quadrangle San Rafael and the seven surrounding quadrangles, Novato, Petaluma Point, San Quentin, San Francisco North, Point Bonita, San Geronimo, and Bolinas (CDFW 2022, Appendix D)
- USFWS Information for Planning and Conservation Species Lists (USFWS 2022b; Appendix D)
- California Department of Fish and Game (CDFG) publication "California's Wildlife, Volumes I-III" (Zeiner et al. 1990)
- CDFG publication *California Bird Species of Special Concern* (Shuford and Gardali 2008)
- CDFW and University of California Press publication *California Amphibian and Reptile Species of Special Concern* (Thomson et al. 2016)
- *A Field Guide to Western Reptiles and Amphibians* (Stebbins 2003)
- Western Bat Working Group (WBWG) Online Species Accounts (WBWG 2015).

2.2 Field Survey

The Project Study Areas which include Areas 1, 2, and 3 (Appendix A, Figure 1) were evaluated for the presence of sensitive biological communities, including riparian areas, sensitive plant communities recognized by CDFW, County-mapped riparian corridors, habitat connectivity corridors, and scenic corridors. Sensitive communities were identified following A Manual of California Vegetation, Online Edition and includes California Wildlife Habitat Relationships habitat classifications.

The Project Study Areas were also surveyed to determine if any wetlands and waters potentially subject to jurisdiction by the USACE, RWQCB, or CDFW are present. This preliminary assessment was based primarily on the presence of wetland plant indicators, hydrology, or wetland soils. A preliminary waters assessment was based on the presence of unvegetated, ponded areas or flowing water, or evidence indicating their presence such as a high-water mark or a defined drainage course.

Sol Ecology biologists also performed reconnaissance-level surveys for special status species on and adjacent to the Project Study Areas on May 26, and October 6, 2022. The focus of the surveys was to identify whether suitable habitat elements for each of the special status species documented in the surrounding vicinity are present on the Project Study Areas or not and whether the Project would have the potential to result in impacts to any of these species and/or their habitats either on- or off-site. Habitat elements examined for the potential presence of sensitive plant species included: soil type, elevation, vegetation community, and dominant plant species. For wildlife species, habitat elements examined included the presence of dispersal habitat, foraging habitat, refugia or estivation habitat, and breeding (or nesting) habitat.

In cases where little information is known about species occurrences and habitat requirements, the species evaluation was based on best professional judgment of Sol Ecology biologists with experience working with the species and habitats. If a special-status species was observed during the site visit, its presence is recorded and discussed. For some threatened and endangered species, a site survey at the level conducted for this report may not be sufficient to determine presence or absence of a species to the specifications of regulatory agencies.

3.0 RESULTS

3.1 Existing Conditions and General Wildlife Use

Elevations within the Project Study Areas range from approximately 13 to 85 meters (42 to 280 feet) above mean sea level. The Project Study Areas encompass two soil map units identified by the USDA, NRCS (USDA 2019):

- **Tocaloma-McMullin-Urban land complex, 30 to 50 percent slopes:** This soil map unit includes a complex of Tocaloma (40 %) and McMullin (30%) soils, both of which are well drained and occur in hill backslopes. The soil parent material of Tocaloma is residuum weathered from sandstone and shale, and the parent material of McMullin is residuum weathered from conglomerate. Neither Tocaloma nor McMullin soils are rated as hydric. Minor components of this soil map unit include Dipsea (2%), Unnamed (2%), Slopes less than 30 percent (2%), Slopes more than 50 percent (2%), Saurin (2%), and Xerorthents (2%).
- **Tocaloma-McMullin-Urban land complex, 15 to 30 percent slopes:** This soil map unit includes a complex of Tocaloma (40 %) and McMullin (30%) soils, both of which are well drained and occur in hill backslopes. The soil parent material of Tocaloma is residuum weathered from sandstone and shale, and the parent material of McMullin is residuum weathered from conglomerate. Neither Tocaloma nor McMullin soils are rated as hydric. Minor components of this map unit include Xerorthents (2%), Dipsea (2%), Slopes less than 15 percent (2%), Slopes more than 30 percent (2%), Saurin (2%), and Unnamed (2%).

Vegetation communities present in the Project Study Areas were classified based on existing plant community descriptions described in the California Native Plant Society Online Manual of California Vegetation (CNPS 2022a). However, in some cases it is necessary to identify variants of community types or to describe non-vegetated areas that are not described in the literature. Vegetation communities were classified as non-sensitive or sensitive natural communities as defined by CEQA and other applicable laws and regulations.

<u>Urban/Developed</u>

Urban and developed areas are mostly comprised of hardscape associated with paved roadways, driveways, and buildings often in association with a vegetation cover of tree grove, street strip, shade tree/lawn, lawn, and shrub cover that consist primarily of non-native landscape species. Urban landscapes tend to experience high biomass productivity due to regular irrigation and the application of fertilizer (McBride and Reid 1988). These vegetative communities are frequented by humans and pets and offer very little food, shelter, and breeding habitat for terrestrial wildlife species other than generalist species adapted to living in urban environments such as striped skunk (*Mephitis mephitis*), Virginia opossum (*Didelphis virginiana*), and raccoon (*Procyon lotor*). Plant species observed were primarily non-native landscape species such as English ivy (*Hedera helix*), an assortment of acacia, bamboo, and palm species, and numerous other grasses, shrubs,

and trees. The urban and developed area in and around Project Study Areas 1, 2, and 3, is relatively minimal compared to the denser residential zones typical of suburban areas and is characterized by roadways, other paved surfaces, houses, and ornamental plants in yards. More natural woodlands surround the roads and developed residential land. Plants species observed in the urban residential areas included southern magnolia (*Magnolia grandiflora*), Japanese maple (*Acer palmatum*), coast live oak (*Quercus agrifolia*), valley oak (*Quercus lobata*), California buckeye (*Aesculus californica*), and common fig (*Ficus carica*). Wildlife species observed in the urban residential areas included Anna's hummingbird (*Calypte anna*), California scrub-jay (*Aphelocoma californica*), house finch (*Haemorhous mexicanus*), house sparrow (*Passer domesticus*), acorn woodpecker (*Melanerpes formicivorus*), dark-eyed junco (*Junco hyemalis*), fox squirrel (*Sciurus niger*), and evidence of browsing by black-tailed deer (*Odocoileus hemionus*).

Mixed Oak Woodland

Project Study Areas 1, 2, and 3 and the areas around them contain mixed mature oak woodlands characterized by coast live oak and valley oak among other non-oak tree species such as coast redwood (*Sequoia sempervirens*) California bay (*Umbellularia californica*), and California buckeye. The understory is comprised of annual grassland species with few shrubs. This community includes a few snags and mostly mature oaks. This alliance is listed as a G4S4, which is not an imperiled community. All of the Project Study Areas are in close proximity to residences and have urban/developed vegetation communities intermixed with mixed oak woodland. An abundance of non-native species is also present at most Project Study Areas and includes English ivy (*Hedera helix*), Scotch broom (*Cytisus scoparius*), French broom (*Genista monspessulana*), and Himalayan blackberry (*Rubus armeniacus*). Wildlife species that are likely to occur in this community include acorn woodpecker, dark-eyed junco, hermit thrush, spotted towhee, western gray squirrel (*Sciurus griseus*), and mountain lion (*Puma concolor*). Plant and wildlife observed during the site visit are provided in Appendix D.

Valley/Foothill Riparian

Valley and foothill riparian vegetation communities occur along waterways from near sea level to the margins of coniferous forests at higher elevations. Valley/foothill riparian can consist of wide, densely treed corridors along creeks, streams, and channels, or in more developed areas, a sparse, narrow strip of trees. Valley/foothill riparian vegetation occurs in warm climates with long dry summers. Dominant tree species are typically deciduous trees (Holland and Keil 1995). Valley/Foothill riparian is present in Project Study Areas 1 and 2 where Tamalpais Creek runs through these areas. Coast live oak is the dominant tree and the shrubs observed in the understory include poison oak (*Toxicodendron diversilobum*), English ivy, Scotch broom, coyote brush (*Baccharis pilularis*), and Himalayan blackberry among others. Numerous oak, California buckeye and California bay saplings are also present.

Riverine

Riverine vegetation occurs in entirely aquatic environments such as flowing or ponded rivers and streams. The velocity of water, or lack of velocity effects water temperature and turbidity, among other factors, and influences the type of aquatic plant species that can grow in a stream or river. Emergent vegetation growing along the banks, decaying matter from the stream bottom, and algal mats, or plants such as duck weed promote the growth of aquatic organisms which provide important food sources for fish and other aquatic species (Grenfell 1988). Tamalpais Creek is ephemeral where it crosses through the Project Study Area, drying out during the summer months. Ponding occurs in the stream bed of the creek only at the most downstream crossing through the Project Study Area near Laurel Way, as well as further downstream from this crossing. No flowing water was observed during the times of the surveys.

3.2 Sensitive Vegetation Communities

Natural communities considered sensitive are those identified in local or regional plans, policies, regulations, or by the CDFW. Sensitive vegetation alliances are ranked 1 through 5 based on NatureServe's (2010) methodology, with those alliances ranked globally (G) or statewide (S) as 1 through 3 considered sensitive. Impacts to sensitive natural communities identified in local or regional plans, policies, or regulations or those identified by the CDFW, or USFWS must be considered and evaluated under CEQA (CCR Title 14, Div. 6, Chap. 3, Appendix G).

None of the Project Study Areas contained sensitive vegetation communities.

3.2.1. Jurisdictional Features

Tamalpais Creek is an ephemeral stream that originates from the Mt. Tamalpais foothills, west from the Project Study Areas. It flows on an easterly course, passing through the Project Study Areas in four separate locations. The creek was dry at three of the four places it crosses the Project Study Areas but exhibited ponding where it crosses Area 3. However, the Project has been designed to avoid any disturbances or impacts to Tamalpais Creek where it crosses Area 3. At all four crossings, vegetation along the creek remained consistent, comprised primarily of coast live oak, valley oak, willow (*Salix* sp.), coast redwood, Himalayan blackberry, and California bay.

Along Area 2 of the Project, three segments of the earthen drainage ditch on the west/south side of the road were found to exhibit wetland vegetation, and hydrology indicators. These wetlands all exhibited similar vegetation consisting primarily of tall cyperus (*Cyperus eragrostis*), rush (*Juncus* sp.), apple mint (*Mentha suaveolens*), ribwort (*Plantago lanceolata*), denseflower willowherb (*Epilobium densiflorum*), curly dock (*Rumex crispus*), and bristly ox-tongue (*Helminthotheca echioides*). Being a preliminary assessment, wetlands were not sampled for hydric soils, but the presence of the other two parameters strongly suggests the presence of hydric soils. Should impacts to these areas be considered likely, it is suggested that a formal wetlands delineation be performed as part of the permitting process.

Figure 2 of Appendix A shows the locations of jurisdictional aquatic resources.

3.3 Special-Status Plants

Special-status species include those plants and wildlife species that have been formally listed, are proposed as endangered or threatened, or are candidates for such listing under the Federal Endangered Species Act (ESA) or California Endangered Species Act (CESA). These acts afford protection to both listed species and those that are formal candidates for listing. Plant species on CNPS Rare and Endangered Plant Inventory with California Rare Plant Ranks of 1 and 2 are also considered special-status plant species and must be considered under CEQA.

Based upon a review of the resources and databases given in Section 2.1, 76 special-status plant species have been documented within an 8-quadrangle (there are only 8 surrounding quadrangles due to the proximity to the ocean) search of the Project Study Areas, of which 40 species have been documented within a five-mile radius (Appendix A, Figure 3). Based on the presence of biological communities described above and soils at the site, as well as past disturbance during development of the Project Study Areas, none have the potential to support any of these special-status plants.

Species documented in the area are unlikely or have no potential to occur on the Project Study Areas for one or more of the following reasons:

- Hydrologic conditions (e.g., marsh habitat, seeps) necessary to support the special-status plants do not exist on the Project Study Areas (e.g., Marin knotweed [*Polygonum marinense*] Point Reyes checkerbloom [*Sidalcea calycosa* ssp. *rhizomata*], hairless popcornflower [*Plagiobothrys glaber*]).
- Unique pH conditions (e.g., serpentine) necessary to support the special-status plant species are not present on the Project Study Areas (e.g., Marin western flax [*Hesperolinon congestum*], Mt. Tamalpais manzanita (*Arctostaphylos montana* ssp. *montana*] Tiburon paint brush [*Castilleja affinis* var. *neglecta*], two fork clover [*Trifolium hydrophilum*]).
- Associated vegetation communities (e.g., coast bluff scrub, coastal prairie, chaparral, closed-cone coniferous forest) necessary to support the special-status plants do not exist on the Project Study Areas (e.g. Marin checker lily (*Fritillaria lanceolata* var. *tristulis*], Santa Cruz tarplant [*Holocarpha macradenia*], San Francisco spineflower [*Chorizanthe cuspidata* var.*cuspidata*]).

3.4 Special Status Wildlife

In addition to wildlife listed as federal or state endangered and/or threatened, federal and state candidate species, CDFW Species of Special Concern, CDFW California Fully Protected species, USFWS Birds of Conservation Concern, and CDFW Special-status Invertebrates are all considered special-status species. Although these species generally have no special legal status, they are given special consideration under CEQA. The federal Bald and Golden Eagle Protection Act also provides broad protections to both eagle species that are roughly analogous to those of listed

species. Bat species are also evaluated for conservation status by the Western Bat Working Group (WBWG), a non-governmental entity; bats named as a "High Priority" or "Medium Priority" species for conservation by the WBWG are typically considered special-status and are also considered under CEQA; bat roosts are protected under CDFW Fish and Game Code (CFGC). In addition to regulations for special-status species, most native birds in the United States (including non-status species) are protected by the federal Migratory Bird Treaty Act of 1918 (MBTA) and the CFGC, i.e., sections 3503, 3503.5 and 3513. Under these laws, deliberately destroying active bird nests, eggs, and/or young is illegal.

65 special-status wildlife species have been documented within an 8-quadrangle (there are only 8 surrounding quadrangles due to the proximity to the ocean) search of the Project Study Areas, of which 14 species have been documented within a five-mile radius (Appendix A, Figure 4). Based on the presence of biological communities described above, the Project Study Areas have the potential to support two of these species, which are described in Table 2 below.

The remaining species found in the review of background literature were determined to be unlikely to occur due to absence of suitable habitat elements in and immediately adjacent to the Project Study Areas. Habitat elements that were evaluated but found to be absent from the immediate area of the Project Study Areas or surrounding habitats subject to potential indirect impacts include the following:

- No suitable burrows or connectivity to suitable habitats on or adjacent to the Project Study Areas (e.g., for burrowing owl or American badger).
- No suitable salt marsh habitat on or immediately adjacent to the Project Study Areas (e.g., for California Ridgeway's rail, California black rail, salt marsh harvest mouse, San Pablo song sparrow).
- No cliffs are present on or in the vicinity of the Project Study Areas (e.g., nesting habitat for American peregrine falcon, foraging habitat for Marin elfin butterfly).
- No brackish or estuarine waters on or adjacent to the Project Study Areas (e.g., eulachon, longfin smelt, tidewater goby).

Table 2. Special Status Wildlife with Potential to Occur in the Project Study Areas

Scientific Name/ Common Name	Status[1]	Habitat	Potential for Occurrence
Fish			
Oncorhynchus mykiss irideus population 8 Steelhead – central California coast DPS	FT	Requires beds of loose, silt-free, well-oxygenated coarse gravel for spawning. After hatching, juveniles spend at least one summer in the freshwater rearing areas, so the stream must have either perennial flow or cool intermittent pools with subsurface flow, shade, food, and shelter during the dry season.	**High Potential.** Steelhead were found during electrofishing in Tamalpais Creek in 1969 and between 1998 and 2002 (Leidy, 2005).
Reptiles and Amphibians			
Dicamptodon ensatus California giant salamander	SSC	Wet coastal forests near streams and seeps from Mendocino County south to Monterey County, and east to Napa County. Aquatic larvae found in cold, clear streams, occasionally in lakes and ponds. Adults occur in wet forests under rocks and logs near streams and lakes.	**Low Potential.** This species could occur in Tamalpais Creek-Areas 1 and 2. The nearest CNDDB record (#73) is for a salamander collected at a location approximately 1.3 miles southeast.
Rana draytonii California red-legged frog	FT, SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby, or emergent riparian vegetation.	**Low Potential.** There are no nearby CNDDB records for California red-legged frog (CRLF). Most of the Marin County records occur along the coast at Pt. Reyes National Seashore and Bolinas. However, there is marginal breeding habitat in Tamalpais Creek-Areas 1 and 2.

Scientific Name/ Common Name	Status[1]	Habitat	Potential for Occurrence
Rana boylii foothill yellow-legged frog	SSC	Prefers partly shaded, shallow streams and riffles with a rocky substrate; requires at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis.	**Low Potential.** There is marginally suitable breeding habitat in Tamalpais Creek-Areas 1 and 2. The nearest recent records are for frogs found in San Anselmo Creek (#2368) at a location approximately 0.5 miles north of Tamalpais Creek-Areas 1 and 2, and near Lake Lagunitas (#2365), approximately 0.7 miles west of Tamalpais Creek-Areas 2 and 3.
Emys marmorata Western pond turtle	SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches, usually with aquatic vegetation below 6,000 feet elevation. Needs basking sites and sandy banks or grassy open fields for upland breeding habitat.	**Low Potential.** There is no suitable breeding habitat present in the creeks in the Project Study Areas. However, this species could forage in the creeks and use them as a corridor. The nearest CNDDB record (#460) is approximately 0.3 miles west of the Project Study Areas in Phoenix Lake, where multiple adults were observed over multiple years.
Birds			
Baeolophus inornatus Oak titmouse	BCC	Inhabit oak woodlands or oak-pine woodland. Nests in cavities high in trees (20 to 40 feet above the ground).	**Moderate Potential.** There are suitable nesting trees at or near Project Study Areas.
Dryobates nuttallii Nuttall's woodpecker	BCC	Inhabits oak woodlands, wooded suburban areas and riparian corridors. Nests in cavities of primarily oaks, willows, cottonwoods, sycamores, or alders.	**Moderate Potential.** There are suitable nesting trees at or near Project Study Areas.
Mammals			
Lasiurus cinereus Hoary Bat	WBWG	Prefers open habitats or mosaics with trees for cover within open areas or on habitat edges. Roosts in medium to large trees with dense foliage. Primary prey are moths. Requires water source.	**Moderate Potential.** While the Project Study Areas exhibit many suitable roosting trees for Hoary Bat. The nearest CNDDB record (#81) is 0.28 mile from the western most extent of the study area at Phoenix Lake, where a single adult was collected.

Scientific Name/ Common Name	Status[1]	Habitat	Potential for Occurrence

[1] FE/SE – Federal/State Endangered
FT/ST – Federal/State Threatened
SCE/T – State Candidate Endangered/Threatened
CFP – California Fully Protected
SSC – Species of Special Concern
BCC – Bird of Conservation Concern
SSI – Special Status Invertebrate
DPS – Distinct Population Segment
WBWG – Western Bat Working Group – Medium or High Priority Species

4.0 POTENTIAL IMPACTS, AVOIDANCE AND MINIMIZATION MEASURES, AND MITIGATION

The assessment of impacts under CEQA is based on the change caused by the Project relative to the existing conditions at the proposed Project Study Areas. In applying CEQA Appendix G, the terms "substantial" and "substantially" are used as the basis for significance determinations in many of the thresholds but are not defined qualitatively or quantitatively in CEQA or in technical literature. In some cases, the determination requires application of best professional judgment based on knowledge of site conditions as well as the ecology and physiology of biological resources present in a given area. The CEQA and State CEQA Guidelines defines "significant effect on the environment" as "a substantial adverse change in the physical conditions which exist in the area affected by the proposed Project." Pursuant to Appendix G, Section IV of the State CEQA Guidelines, the proposed Project would have a significant impact on biological resources if it 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 [Wildlife] or U.S. Fish and Wildlife Service.

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

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

D. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.

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

F. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Potential impacts associated with implementation of the Project are addressed below. With implementation of the avoidance and minimization measures as well as the specific recommended mitigation measures that would be considered for incorporation in the Initial Study/Mitigated Negative Declaration (IS/MND), all Project-related impacts on biological resources can be reduced to a level considered less than significant.

Permits and Project Approvals

Special-status wildlife species have been documented and could potentially occur in the Project Study Areas. Implementation of the control measures in addition to agency consultation and compliance with Project authorization issued by applicable regulatory agencies, would ensure reduction of impacts on special-status wildlife species, to a level considered less than significant pursuant to CEQA. Prior to Project commencement, applicable permits, and Project approvals (listed under Section 1.2) will be secured.

Avoidance and Minimization Measures

The following biological resources avoidance and minimization measures would be incorporated into the Project's Contract Documents by RVSD. During construction, measures shall be implemented to mitigate temporary construction impacts on the environment, including engineering controls and/or operation BMPs.

Best Management Practices:

1. Tightly woven fiber netting or similar material shall be used for erosion control or other purposes to ensure wildlife species do not get trapped. Plastic monofilament netting (erosion control matting), rolled erosion control products, or similar material shall not be used.

2. Modified or disturbed portions of the stream channel, banks, and riparian areas would be restored as nearly as possible to natural and stable contours (elevations, profile, and gradient). Native substrates removed during excavations and earthwork would be stockpiled and returned to the creek bed and banks. An assemblage of native grass seed mix and shrubs would be applied to areas disturbed by construction, creek access, and contouring, as well as to areas where native soils overlay any disturbed areas. Riparian plants would also be planted along the banks in areas of bank disturbance, riprap placement, and any other disturbed areas. Live willow and alder cuttings will be used at the appropriate lower bank elevations (just above the bank toe). Invasive, exotic plants would be removed within the Project Study Areas to the maximum extent practicable.

3. A minimum 10-foot setback is the minimum setback necessary to avoid permanent impacts to wetlands that would occur from shading and temporary impacts from installation activities including laydown and assembly and will be implemented where needed. Orange construction fencing would be installed to demarcate the setback and exclude activities from occurring in sensitive habitats. Best management practices will be implemented to minimize potential indirect impacts to wetlands and waters, such as the use of silt fencing, wattles, and other appropriate stormwater pollution prevention measures to ensure discharge into wetlands does not occur.

4. *Environmental Training:* Environmental training will be provided to all persons working in the Project Study Areas prior to the initiation of Project-related activities. Training materials and briefings will include all biological resources that may be found on or in the vicinity of the Project Study Areas, the laws and regulations that protect those resources, the consequences of non-compliance with those laws and regulations, and a contact person in the event that protected biological resources are discovered in the Project Study Areas.

4.1 Potentially Significant Impacts and Mitigation Measures

Sensitive Biological Communities

There are no sensitive biological communities present in the Project Study Areas.

Jurisdictional Aquatic Resources

There are jurisdictional aquatic features within Project Study Areas 2 and 3. Tamalpais Creek crosses through Area 3 near its eastern edge, and crosses Area 2 in three separate locations.

Additionally, there are three segments of the drainage ditch on the west and south sides of the road along Area 2 that contain wetlands. These wetland segments have the potential to be impacted by Project construction activities. In order to avoid impacts to these wetland features, avoidance and minimization measures are proposed.

Refer to Figure 2 of Appendix A for a map of jurisdictional aquatic resources.

Special-Status Plant Species

The Project Study Areas are in developed areas comprised of medium density housing. There is no potential for special status plants to occur due to the channelization of the creek and disturbance during development of the area, and none were observed during site surveys. Some of the alignment passes through residential yards where fences have been erected, but a Google Earth search shows that these areas are primarily vegetated with landscaping.

Special-Status Wildlife Species

Steelhead - Central California Coast DPS (*Oncorhynchus mykiss irideus*), Federal Threatened. The Central California Coast Distinct Population Segment (DPS) includes all naturally spawned populations of steelhead (and their progeny) in California streams from the Russian River to Aptos Creek, and the drainages of San Francisco and San Pablo Bays eastward to the Napa River (inclusive), excluding the Sacramento-San Joaquin River Basin. Steelhead typically migrate to marine waters after spending two years in freshwater, though they may stay up to seven. They then reside in marine waters for 2 or 3 years prior to returning to their natal stream to spawn as 4-or 5-year-olds. Steelhead adults typically spawn between December and June. In California, females typically spawn two times before they die. Preferred spawning habitat for steelhead is

in perennial streams with cool to cold water temperatures, high dissolved oxygen levels and fast flowing water. Abundant riffle areas (shallow areas with gravel or cobble substrate) for spawning and deeper pools with sufficient riparian cover for rearing are necessary for successful breeding.

Steelhead were observed or collected in Tamalpais Creek in 1969, 1998, 2000, 2001, and 2002. The occurrence in the creek documented in 2002 was a single juvenile steelhead just south of Woodland Road near Laurel Way (Leidy, 2005), very near to Project Study Area 1. Biologists noted ponding in Tamalpais creek starting approximately 40 feet downstream of where it crosses Woodland Road at Area 1. The extent of the ponding was not determined in order to avoid disturbing the habitat, but it is possible that this stretch of ponding could provide habitat for juvenile steelhead. Since construction activities within Tamalpais Creek will be done during the dry season, no impact to spawning habitat is anticipated, and impacts to juvenile steelhead at Area 1 resulting from directional drilling or jack-and-bore are not anticipated. However, if jack-and-bore is used at Area 1 and frac-out occurs, temporary impacts to critical habitat for Steelhead may occur. Given that work will be performed within the dry season, no impacts to individuals is expected.

Western Pond Turtle (*Emys marmorata*), CDFW Species of Special Concern. The western pond turtle (WPT) is the only native freshwater turtle in California. Western pond turtle (WPT) inhabits annual and perennial aquatic habitats, such as coastal lagoons, lakes, ponds, marshes, rivers, and streams from sea level to 5,500 feet in elevation. Western pond turtle also occupies man-made habitats such as stock ponds, wastewater storage, percolation ponds, canals, and reservoirs. This species requires low-flowing or stagnant freshwater aquatic habitat with suitable basking structures, including rocks, logs, algal mats, mud banks and sand. Warm, shallow, nutrient-rich waters are ideal as they support WPT prey items, which include aquatic invertebrates and occasionally fish, carrion, and vegetation. To escape periods of high-water flow, high salinity, or prolonged dry conditions, WPT may move upstream and/or burrow into loose soils and leaf litter in upland or riparian habitat for up to four months (Thompson et al 2016). Although upland habitat is utilized for refuging and nesting, this species preferentially utilizes aquatic and riparian corridors for movement and dispersal. This species requires open, dry upland habitat with friable soils for nesting and prefers to nest on unshaded slopes within 100 meters of a waterbody (Thompson et al 2016). Hatchlings often remain in the nest through the first winter.

The nearest CNDDB record (#460) is approximately 0.3 mile west of the Project Study Areas in Phoenix Lake, where multiple adults were observed over multiple years. There is no suitable upland breeding habitat present in the creeks in the Project Study Areas due to surrounding residential development and deeply incised banks; there is potential for adult WPT to burrow in uplands during the winter at Creek Crossing 3. This species could also forage in the creeks and use them as a corridor. Dewatering and excavation pose a risk of mortality to WPT in the creek and would be a temporary barrier to dispersal. Pipe bursting and/or jack and bore has potential to impact dispersing WPT individuals crossing through the work area. Work occurring along or on top of creek banks has potential to impact WPT burrowed in upland areas if present.

California giant salamander (*Dicamptodon ensanatus*), CDFW Species of Special Concern. The California giant salamander (CGS) is endemic to the north-central California Coast Ranges and occurs in two discrete areas north and south of San Francisco Bay respectively. This species primarily occupies moist coniferous and mixed forests but is also found in woodland and chaparral areas. Adults are largely terrestrial and fossorial. Breeding occurs in cold, permanent, or semi-permanent streams, often in headwater reaches. Larvae typically remain aquatic for over a year before metamorphosing. Some larvae never undergo metamorphosis and become reproductively mature while remaining aquatic. Prey consists of a variety of invertebrates and small vertebrates.

The nearest CNDDB record (#73) is for a salamander collected at a location approximately 1.3 miles southeast. This species could occur in Tamalpais Creek where pool habitat is located within 40 feet downstream of Creek Crossing 1. There is potential for adult CGS to occur in uplands located at Creek Crossing 3. Dewatering and excavation pose a risk of mortality to CGS in the creek and would be a temporary barrier to dispersal. Pipe bursting has potential to impact dispersing CGS individuals crossing through the work area. Work occurring along or on top of creek banks has potential to impact CGS in upland areas. Additionally, work in the creek or along the banks that could result in sediment deposit into the streambed could impact larval CGS due to increased water turbidity.

California Red-legged Frog (*Rana draytonii*), Federal Threatened Species, CDFW Species of Special Concern. The California red-legged frog (CRLF) is dependent on suitable aquatic, estivation, and upland habitat. During periods of wet weather, starting with the first rainfall in late fall, red-legged frogs disperse away from their estivation sites to seek suitable breeding habitat. Aquatic and breeding habitat is characterized by dense, shrubby, riparian vegetation and deep, still, or slow-moving water. Breeding occurs between late November and late April. Following breeding during the wet season, adult frogs may disperse into upland habitats which include areas up to 300 feet from aquatic and riparian habitat and are comprised of grasslands, woodlands, and/or vegetation that provide shelter, forage, and predator avoidance. At the end of the wet season, CRLF may disperse up to one-mile overland from upland or breeding habitats (often via riparian corridors) to aquatic non-breeding habitats (Bulger 2003, Fellers and Kleeman 2007).

There are no nearby CNDDB records for CRLF. Most of the Marin County records occur along the coast at Pt. Reyes National Seashore and Bolinas. However, there is marginal aquatic non-breeding (foraging) habitat in Tamalpais Creek, approximately 40 feet downstream of Area 3 and potential upland and riparian habitat throughout Areas 1 and 2. Tamalpais Creek and its associated riparian habitat provide suitable dispersal habitat for CRLF. Dewatering and excavation pose a risk of mortality to CRLF in the creek and would be a temporary barrier to dispersal. Pipe bursting has potential to impact dispersing CRLF individuals crossing through the work area. Work occurring along or on top of creek banks has potential to impact CRLF in upland areas. Additionally, bore and jack methods could cause frac-out, which poses a mortality risk and destruction of habitat for CRLF. The overall potential for incidental take is relatively low due to the lack of occurrences in the area and overall poor quality of the habitat for CRLF.

Foothill Yellow-legged Frog (*Rana boylii*), CDFW Species of Special Concern. This species is found in woodland and forest streams and rivers and prefers flowing water with a rocky substrate (including at least some cobble-sized substrate), to which egg masses are attached. The foothill yellow-legged frog (FYLF) does not estivate and is rarely found far from a source of permanent water. Recent studies have found that FYLF are rarely found more than 12 meters from the stream channel but may move upstream or downstream as far as 7 km in response to water availability (Thomson, Wright, and Shaffer 2016). The average distance adults were found outside the stream channel was 3 meters in all seasons with a maximum distance of 40 meters. Studies also found that metamorphosed FYLF's diet is comprised of terrestrial insects primarily including spiders, beetles, and flies. Historically, this species was known to occur in most Pacific drainages from Oregon to Los Angeles (Jennings and Hayes 1994). Populations have declined due to siltation and the introduction of bullfrogs and exotic fish.

There is no suitable breeding habitat in Tamalpais Creek. The nearest recent records are for FYLF found in San Anselmo Creek (#2368) at a location approximately 0.5 miles north of Tamalpais Creek-Areas 2 and 3, and near Lake Lagunitas (#2365), approximately 0.7 miles west of Tamalpais Creek-Areas 2 and 3. Tamalpais Creek may provide suitable dispersal habitat or high flow refugia during the rainy season. Because all work will occur during dry conditions, there is no potential for impact to this species.

Oak titmouse (*Baeolophus inornatus*), USFWS Bird of Conservation Concern. This relatively common species is year-round resident throughout much of California including most of the coastal slope, the Central Valley, and the western Sierra Nevada foothills. In addition, the species may also occur in residential settings where landscaping provides foraging and nesting habitat. Its primary habitat is woodland dominated by oaks. Local populations have adapted to woodlands of pines and/or junipers in some areas (Cicero 2000). Oak titmouse nests in tree cavities, usually natural cavities or those excavated by woodpeckers, though they may partially excavate their own (Cicero 2000). Seeds and arboreal invertebrates make up the birds' diet.

There are a variety of trees within and adjacent to the Project Study Areas that provide suitable nesting habitat for oak titmouse, therefore there is a moderate potential for it to nest in the area. Tree removal, if required, could destroy active nests, and construction activities could cause disturbance enough to result in the abandonment of nearby nests.

Nuttall's woodpecker (*Dryobates nuttallii*), USFWS Bird of Conservation Concern. Nuttall's Woodpecker, common in much of its range, is a year-round resident throughout most of California west of the Sierra Nevada. Typical habitat is oak or mixed woodland, and riparian areas (Lowther 2000). Nesting occurs in tree cavities, principally those of oaks and larger riparian trees. Nuttall's woodpecker also occurs in older residential settings and orchards where trees provide suitable foraging and nesting habitat. This species forages on a variety of arboreal invertebrates.

There are a variety of trees within and adjacent to the Project Study Areas that provide suitable nesting habitat for Nuttall's woodpecker, therefore there is a moderate potential for it to nest in the area. Tree removal, if required, could destroy active nests, and construction activities could cause disturbance enough to result in the abandonment of nearby nests.

Hoary bat (*Lasiurus cinereus*), WBWG Medium Priority. Hoary bats are highly associated with forested habitats in the western United States, particularly in the Pacific Northwest. They are a solitary species and roost primarily in foliage of both coniferous and deciduous trees, near the ends of branches, usually at the edge of a clearing. Roosts are typically 10 to 30 feet above the ground. They have also been documented roosting in caves, beneath rock ledges, in woodpecker holes, in grey squirrel nests, under driftwood, and clinging to the side of buildings, though this behavior is not typical. Hoary bats are thought to be highly migratory, however, wintering sites and migratory routes have not been well documented. This species tolerates a wide range of temperatures and has been captured at air temperatures between 0 and 22 degrees Celsius. Hoary bats probably mate in the fall, with delayed implantation leading to birth in May through July. They usually emerge late in the evening to forage, typically from just over one hour after sunset to after midnight. This species reportedly has a strong preference for moths, but is also known to eat beetles, flies, grasshoppers, termites, dragonflies, and wasps (WBWG 2015).

Hoary bat has potential to be present in riparian trees located throughout Areas 1 and 2. Maternity season is typically from April 15 to September 15. Tree removal, if required, could destroy maternity roosts, and construction activities could cause disturbance enough to result in the abandonment of nearby maternity roosts.

Migratory Birds

The Project Study Areas provide nesting habitat for birds protected by the federal Migratory Bird Treaty Act and California Fish and Game Code § 3513. Impacts to nesting birds resulting in nest abandonment or direct mortality to chicks or eggs is considered a significant impact under CEQA.

Roosting Bats

Roosting bats are likely to occur within the Project Study Areas, however, no trees or structures will be removed as part of the Project. Therefore, there would be no impacts to bats and no impact under CEQA.

Wildlife Corridors

The Project Study Areas are in areas traversed by terrestrial mammals that reside mostly in residential areas such as Columbian black-tailed deer, racoon, gray fox, and striped skunk. The Project does not include erecting above ground structures and will not impede the movement of wildlife.

Marin County Tree Ordinance

Per Marin County Ordinance § 22.27.030 *Prohibition on Removal of Protected Trees*, a tree removal permit is required. The County tree removal permit website provides a list of protected species and the size in diameter-at-breast-height that the tree must exceed in order to be considered protected (Marin County 2022). No tree removal is proposed.

4.2 CEQA Checklist

This section describes the existing environmental conditions in and near the Project Study Areas and evaluates environmental impacts associated with the proposed Project. The environmental checklist, as recommended in the CEQA Guidelines Appendix G, was used to identify environmental impacts that could occur if the proposed Project is implemented.

Each of the environmental categories was fully evaluated, and one of the following four determinations was made for each checklist question:

"No Impact" means that no impact to the resource would occur as a result of implementing the Project.

"Less than Significant Impact" means that implementation of the Project would not result in a substantial and/or adverse change to the resource, and no mitigation measures are required.

"Less than Significant with Mitigation Incorporated" means that the incorporation of one or more mitigation measures is necessary to reduce the impact from potentially significant to less than significant.

"Potentially Significant Impact" means that there is either substantial evidence that a Project-related effect may be significant, or due to a lack of existing information, could have the potential to be significant.

IV.	**BIOLOGICAL RESOURCES** — Would the Project:	***Potentially Significant Impact***	***Less than Significant with Mitigation Incorporated***	***Less than Significant Impact***	***No Impact***
a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐

IV.	**BIOLOGICAL RESOURCES** — Would the Project:	***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, or regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c)	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d)	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
f)	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

4.2.1 Discussion of Impacts

a) ***Less than Significant with Mitigation Incorporated***.

The proposed Project Areas do not provide habitat for special status plant species however, they provide habitat for the following special status wildlife species and/or critical habitat:

- Steelhead – Central California Coast DPS, a Federally Threatened species
- Steelhead – Central California Coast DPS designated Critical Habitat

- California giant salamander, a State Species of Special Concern
- California red-legged frog, a Federally Threatened Species and a State Species of Special Concern
- Foothill yellow-legged frog, a State Species of Special Concern
- Western pond turtle, a State Species of Special Concern, a determination for federal listing as a candidate species may occur in 2023
- Nesting oak titmouse and Nuttall's woodpecker, both Birds of Conservation Concern
- Hoary bat, listed as of Medium Concern by the WBWG
- Nesting birds protected by the MBTA and Fish and Game Code

Impacts to these species due to factors including but not limited to habitat loss, death or injury to individuals, disruption of breeding cycles would be considered a significant impact under CEQA.

Implementation of the following measures and avoidance and minimization measures described above will reduce any potential impacts to special status wildlife to a less than significant level:

1. Adequate measures shall be taken to avoid inadvertent take of bird nests protected under the federal MBTA 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 Project Study Areas and surrounding area (within 50 feet for songbirds and 250 feet for raptors) 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 of the nest location. The size of the buffer may be determined by the biologist based on species and proximity to activities but should generally be between 50 feet for songbirds and up to 250 feet for nesting raptors. As necessary, the no-disturbance zone shall be delineated if construction is to be initiated elsewhere in the Area of Potential Effect to make it clear that the area should not be disturbed.

- A report of findings hall 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.

2. *Pre-construction surveys:* Pre-construction surveys for CRLF and FYLF shall be conducted prior to initiation of Project activities within 48 hours of the start of ground disturbance activities. Surveys are to be conducted by approved qualified biologist with experience surveying for each species. If Project activities are stopped for greater than 7 days, a follow-up pre-construction survey may be required within 48 hours prior to re-initiation of Project activities. If CRLF is detected during the survey, RVSD will consult with USFWS. If FYLF is detected, RVSD will consult with CDFW.

   Pre-construction surveys for WPT and CGS, shall be conducted prior to initiation of Project activities within 48 hours of the start of ground disturbance activities. Surveys are to be conducted by an approved qualified biologist with experience surveying for each species. If Project activities are stopped for greater than 7 days, a follow-up pre-construction survey may be required within 48 hours prior to re-initiation of Project activities. If either of these species are found during surveys, CDFW will be notified via e-mail. If WPT enters any of the Project Study Areas during construction, it will be relocated by the Project biologist, to similar suitable habitat beyond the work area heading in the same direction it was found while moving through the area; if WPT is listed as a candidate species prior to the start of activities then relocation would only occur following consultation with USFWS upon issuance of an incidental take permit. If CGS are found during construction, they will be removed by the Project biologist and relocated to a similar habitat situated outside of the work area but within close proximity.

3. To the extent feasible, tree trimming will be performed outside the maternity season (between September 1 to April 15) to avoid the period when hoary bats and others may be present. If not possible, an acoustic emergence survey shall be performed to determine if bats are present including any solitary species. If present, the roost shall be avoided until after September 1 to ensure no significant effects to maternity bat roosts occur.

4. Fish Handling Plan: All in-water construction activities are expected to occur during the dry season (June 15 to October 15) when the channel is typically dry. However, if water is unexpectedly present when construction activity moves into any of the Project Study Areas, or if groundwater is encountered and dewatering must occur, a fish handling and relocation plan would be developed by the approved aquatic biologist in coordination with NMFS and/or CDFW. Individual organisms would be relocated the shortest distance possible to an adjacent upstream area with sufficient aquatic habitat. Within occupied habitat, capture,

handling, exclusion, and relocation activities would be completed no earlier than 48 hours before construction begins. If electrofishing is conducted, it must be performed by an approved biologist following NMFS guidelines (NMFS 2000).

During fish relocation, all organisms would be kept in water to the maximum extent possible and captured coho salmon and steelhead would be kept in cool, shaded, well-aerated water and protected from disturbance and overcrowding until they are released. To avoid predation, separate containers would be used: one for young-of-the-year steelhead, and one for second- or third-year steelhead. Captured fish would be relocated to suitable upstream rearing habitat that is as close to the dewatered area as possible while meeting the survival needs (adequate water quality/quantity, cover, and forage) of both the relocated individuals and the fish already inhabiting the relocation site.

b) ***Less than Significant***

Riparian habitat associated with Tamalpais Creek is present in Areas 1, 2, and 3. Impacts to the creek, associated riparian habitat, and adjacent wetlands are considered a significant effect under CEQA.

Implementation of the avoidance and minimization measures described above will reduce any potential impacts to riparian vegetation to a less than significant level. No tree removal is proposed, and as such any impacts are likely to be temporary and as such insignificant.

c) ***Less than Significant***

Prior to Project commencement, applicable permits, and Project approvals (listed under Section 1.2) will be secured. Implementation of the avoidance and minimization measures described above will reduce any potential impacts to federally protected wetlands as defined by Section 404 of the Clean Water Act to a less than significant level.

d) ***No Impact***

The proposed Project will not create any dispersal barrier that would interfere substantially with the movement of native resident or migratory fish or wildlife corridors or nursery sites.

e) ***Less than Significant with Mitigation Incorporated***

Some trimming may occur as part of the Project. Tree removal is not expected as part of the Project, however if tree removal is needed, RVSD and its Contractor will comply with the County of Marin's Tree Ordinance. Any inadvertent damage to the trees in the vicinity of construction would be addressed by the Contractor. The Contractor shall exercise due diligence and implement necessary precautions to avoid needlessly damaging or destroying trees, shrubs, or other landscaping.

Implementation of the following measures will reduce any potential impacts protecting biological resources, such as a tree preservation policy or ordinance to a less than significant level.

To the extent feasible, tree trimming will be performed outside the maternity season (between September 1 to April 15) to avoid the period when hoary bats and others may be present. If not possible, an acoustic emergence survey shall be performed to determine if bats are present including any solitary species. If present, the roost shall be avoided until after September 1 to ensure no significant effects to maternity bat roosts occur.

f) **No Impact**

There are no adopted Habitat Conservation Plans or other local, regional, or state habitat conservation plan in the area.

5.0 REFERENCES

Bulger J. B., J. S. Norman, And R. B. Seymour. 2003. Terrestrial Activity and Conservation of Adult California Red-Legged Frogs Rana aurora draytonii In Coastal Forests and Grasslands. Biological Conservation, 110:85.-95.

California Department of Fish and Wildlife (CDFW). 2022. California Natural Diversity Database (CNDDB). Wildlife and Habitat Data Analysis Branch, Sacramento, CA. Most recently accessed: September 2022.

California Native Plant Society (CNPS). 2022a. A Manual of California Vegetation, Online Edition. Sacramento, California. Online at: http://vegetation.cnps.org/; most recently accessed: June 2022.

Cicero, C. 2000. Oak Titmouse (*Baeolophus inornatus*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America. Online at: https://www.allaboutbirds.org/guide/Oak_Titmouse/lifehistory (Last accessed: May 2022).

CNPS. 2022b. Inventory of Rare and Endangered Plants (online edition, v8-02). Sacramento, California. Online at: http://rareplants.cnps.org/; most recently accessed: September 2022.

Fellers, G.M. and P.M. Kleeman. 2007. California red-legged frog (Rana draytonii) movement and habitat use: Implications for conservation. Journal of Herpetology 41(2): 276-286.

Holland, V.L. and D.J. Keil. 1995. California Vegetation. Kendall/Hunt Publishing Co., Dubuque, Iowa.

Integral Consulting, Inc. 2022. Ross Valley Sanitation District 22-23 Gravity Sewers Project – Initial Study/Mitigated Negative Declaration.

Jennings, Mark R. and Marc P. Hayes. 1994. Amphibian and Reptile Species of Special Concern in California. California Department of Fish and Game Inland Fisheries Division.

Leidy, R.A., G.S. Becker, B.N. Harvey. 2005. Historical Distribution and Current Status of Steelhead/Rainbow Trout (*Oncorhynchus mykiss*) in Streams of the San Francisco Estuary, California. Center for Ecosystem Management and Restoration, Oakland, CA.

Lowther, Peter E. 2000. Nuttall's Woodpecker (*Picoides nuttallii*), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; the Birds of North America. Online at: https://www.allaboutbirds.org/guide/Nuttalls_Woodpecker/lifehistory (Last accessed: May 2022).

Marin, County of. 2022. Marin County Code of Ordinances. Chapter 22.27 Native Tree Protection and Preservation. Marin County Flood and Water Conservation District. 2018. Marin County Stream Maintenance Manual. Available at: https://www.marinwatersheds.org/sites/default/files/2018-07/Marin%20SMP_Manual_revised_3_2018.pdf.

McBride, J.R. and C. Reid. 1988. Urban In A Guide to Wildlife Habitats of California. Edited by K.E. Mayer and W.F. Laudenslayer, Jr. California Department of Fish and Game. Sacramento.

NatureServe.2010. U.S. National Vegetation Classification. www.natureserve.org/projects/us-national-vegetation-classification. Accessed on November 10, 2022.

Shuford, WD, and T Gardali (eds). 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and CDFG, Sacramento.

Stebbins, RC. 2003. A Field Guide to Western Reptiles and Amphibians, third edition. The Peterson Field Guide Series, Houghton Mifflin Company, NY.

Thomson, Robert C., Amber N. Wright, and H. Bradley Shaffer. 2016. California Amphibian and Reptile Species of Special Concern. California Department of Fish and Wildlife University Press.

U.S. Department of Agriculture (USDA), Natural Resources Conservation Service. 2019. Web Soil Survey. Online at http://websoilsurvey.nrcs.usda.gov; most recently accessed: June 2022.

United States Fish and Wildlife Service (USFWS). 2022a. National Wetlands Inventory, Wetlands Mapper. Online at: https://www.fws.gov/wetlands/Data/Mapper.html; most recently accessed: June 2022.

USFWS. 2022b. Information for Conservation and Planning Database. Online at: https://ecos.fws.gov/ipac/; most recently accessed: September 2022.

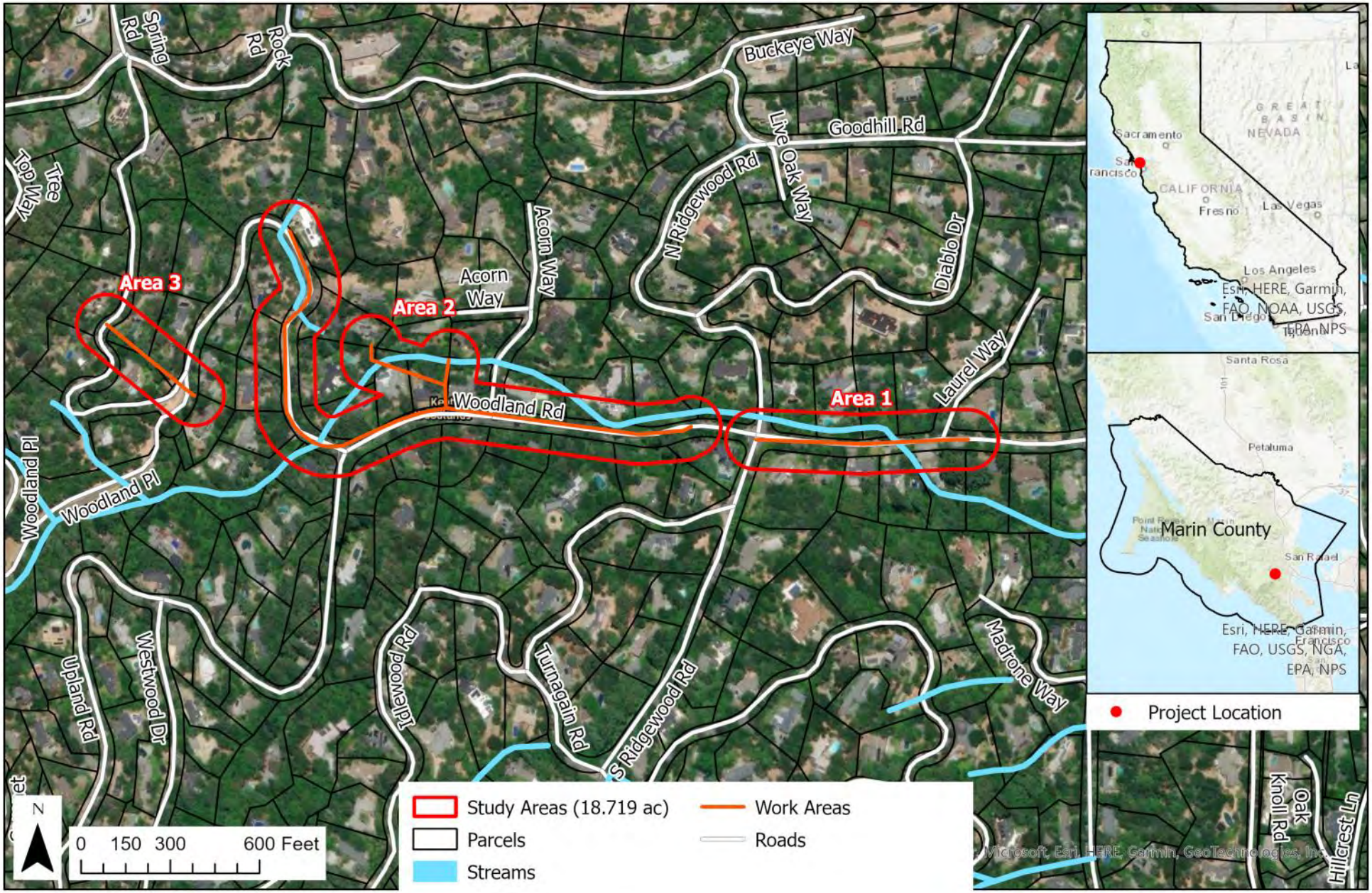
Western Bat Working Group (WBWG). 2015. Species account for Hoary Bat (*Lasiurus cinereus*). Online at: http://wbwg.org/western-bat-species/; most recently accessed: November 2022

Zeiner, DC, WF Laudenslayer, Jr., KE Juneer, and M White. 1990. California's Wildlife, Volume I-III: Amphibians and Reptiles, Birds, Mammals. California Statewide Wildlife Habitat Relationships System, California Department of Fish and Game, Sacramento, CA.

APPENDIX A

PROJECT FIGURES: SITE LOCATION MAP, SENSITIVE COMMUNITIES, AND CNDDB DATABASE RESULTS

Figure 1: Location of Project Study Areas
Woodland Area Gravity Sewer Improvement, Marin County, CA



Date: 12-1-2022
Data: Sol Ecology Inc., Marin Co.

Base: ESRI
GIS: JC2155

SOL ECOLOGY
solecology.com

Figure 2: Aquatic Resources Map
Woodlands Project, Ross Valley Sanitation District, Marin County, CA

Woodlands Project

Kentfield, CA

Legend

- Study Areas
- Work Areas
- Wetlands
- Tamalpais Creek
- Unnamed Stream
- Features of Note

N

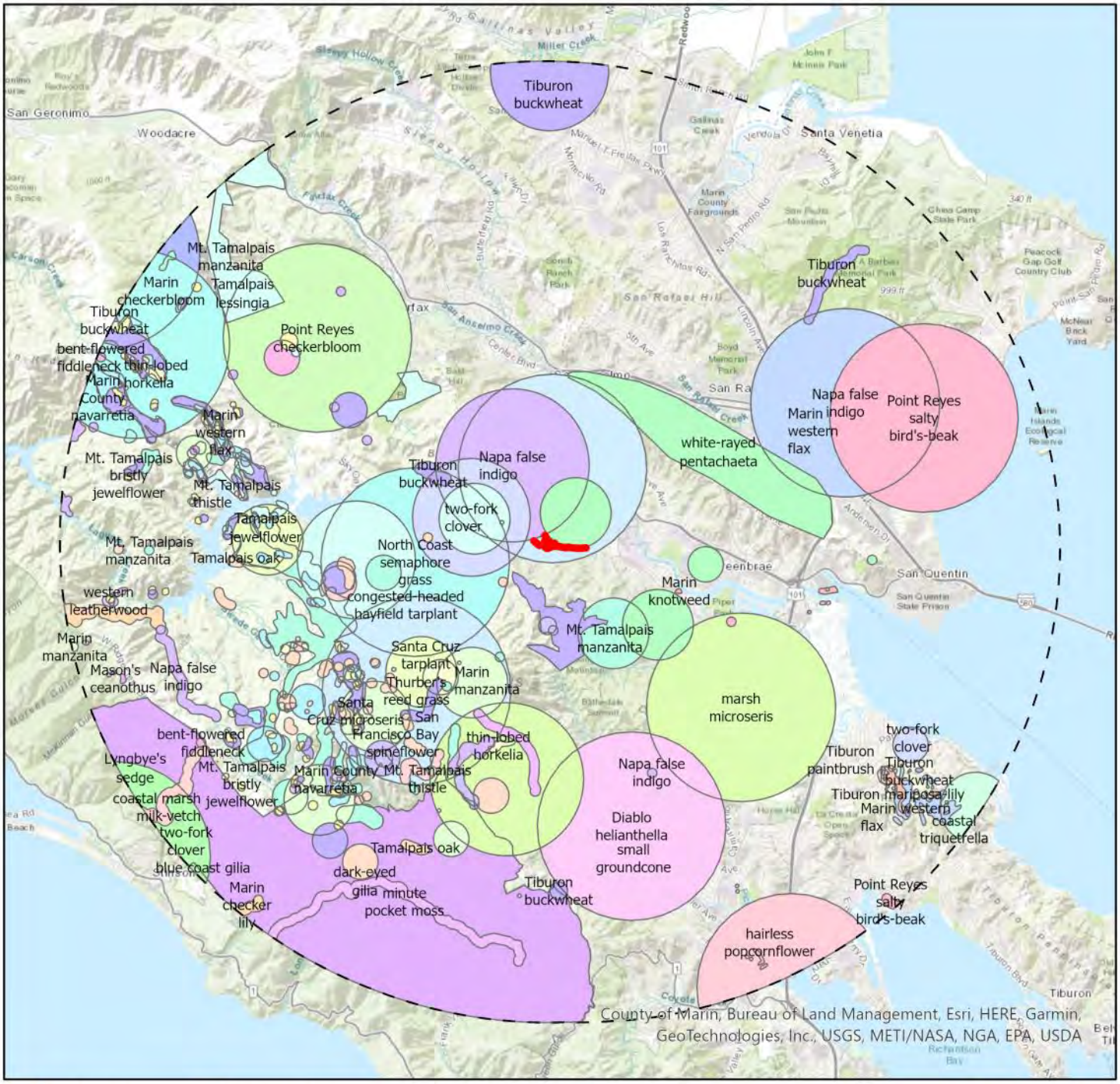
0 125 250 500 Feet

Date: 11/2/2022
Data: Sol Ecology Inc., Marin Co., USACE
Base: ESRI
Datum: NAD83
GIS: JC 2155

SOL ECOLOGY

solecology.com

Figure 3: Special Status Plant Species within 5 Miles of the Project Study Areas
Woodlands Project, Ross Valley Sanitation District, Marin County, CA



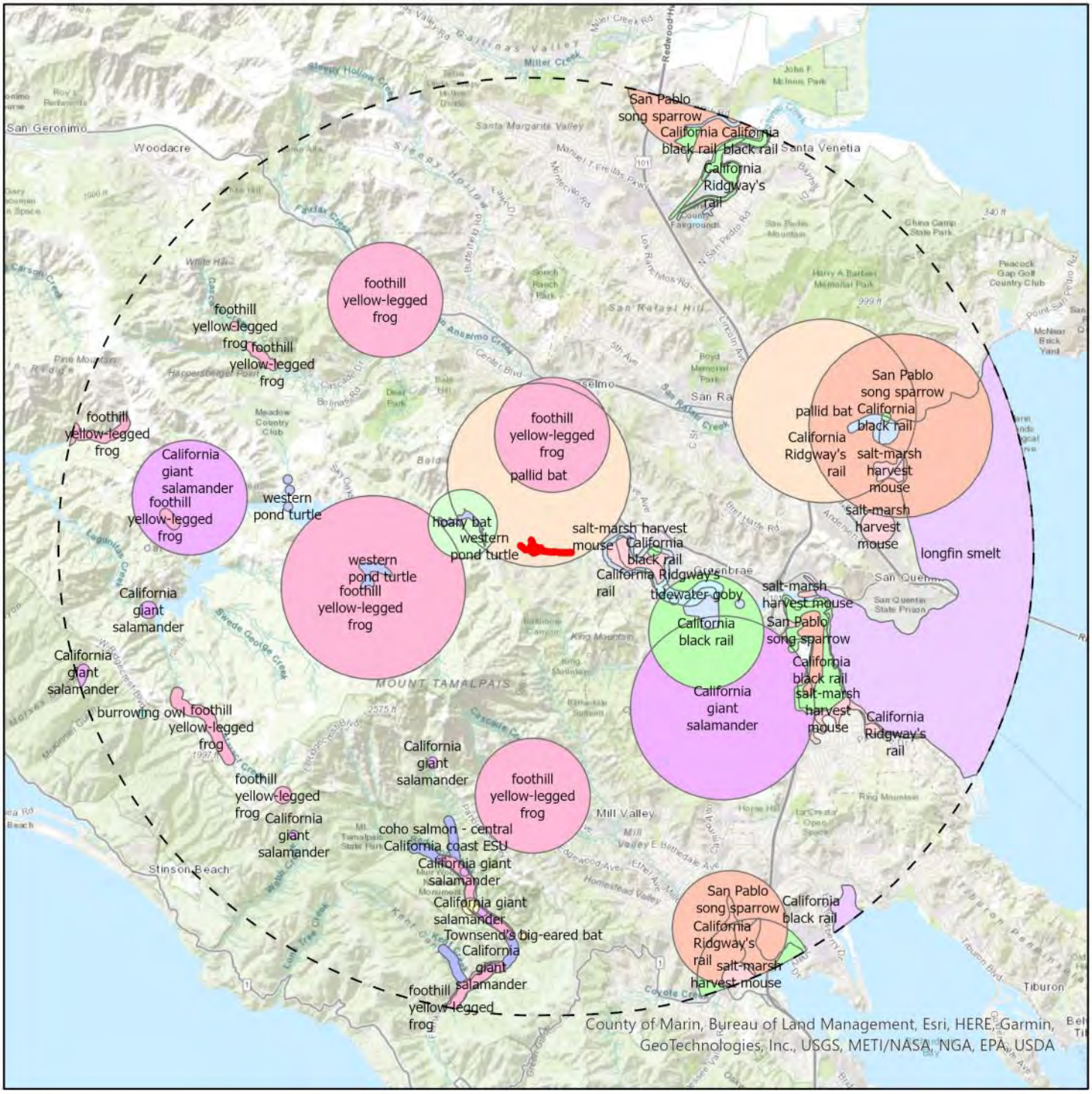
- Project Location
- 5 mile range
- Diablo helianthella
- Lyngbye's sedge
- Marin County navarretia
- Marin checker lily
- Marin checkerbloom
- Marin knotweed
- Marin manzanita
- Marin western flax
- Mason's ceanothus
- Mt. Tamalpais bristly jewelflower
- Mt. Tamalpais manzanita
- Mt. Tamalpais thistle
- Napa false indigo
- North Coast semaphore grass
- Point Reyes checkerbloom
- Point Reyes salty bird's-beak
- San Francisco Bay spineflower
- Santa Cruz microseris
- Santa Cruz tarplant
- Tamalpais jewelflower
- Tamalpais lessingia
- Tamalpais oak
- Thurber's reed grass
- Tiburon buckwheat
- Tiburon mariposa-lily
- Tiburon paintbrush
- bent-flowered fiddleneck
- blue coast gilia
- coastal marsh milk-vetch
- coastal triquetrella
- congested-headed hayfield tarplant
- dark-eyed gilia
- hairless popcornflower
- marsh microseris
- minute pocket moss
- small groundcone
- thin-lobed horkelia
- two-fork clover
- western leatherwood
- white-rayed pentachaeta

Date: 9-14-2022
Data: Sol Ecology Inc., CDFW

Base: ESRI
GIS: JC2155

SOL ECOLOGY
solecology.com

Figure 4: Special Status Wildlife Species within 5 Miles of the Project Study Areas
Woodlands Project, Ross Valley Sanitation District, Marin County, CA



- Project Location
- 5 mile range
- California Ridgway's rail
- California black rail
- California giant salamander
- San Pablo song sparrow
- Townsend's big-eared bat
- burrowing owl
- coho salmon - central California coast ESU
- foothill yellow-legged frog
- hoary bat
- longfin smelt
- pallid bat
- salt-marsh harvest mouse
- tidewater goby
- western pond turtle

Date: 9-14-2022
Data: Sol Ecology Inc., CDFW

Base: ESRI
GIS: JC2155

SOL ECOLOGY
solecology.com

APPENDIX B

SITE PHOTOGRAPHS

Photo 1. Ponding in Tamalpais Creek south of Area 1. Photo taken October 24, 2022.

Photo 2. Tamalpais Creek Crossing 1 in Area 1. Photo taken October 6, 2022.

Photo 3. Tamalpais Creek near Creek Crossing 2 in Area 2. Photo taken on May 27, 2022.

Photo 4. Tamalpais Creek Crossing 3 in Area 2. Photo taken October 6, 2022.

Photo 5. Roadside Wetland 1 in Area 2. Photo taken October 24, 2022.

Photo 6. Roadside Wetland 2 in Area 2. Photo taken October 24, 2022.

Photo 7. Roadside Wetland 3 in Area 2. Photo taken October 24, 2022.

APPENDIX C

OBSERVED SPECIES TABLE

Scientific Name	Common Name	Origin
Acer macrophyllum	Big leaf maple	Native
Acer palmatum	Japanese maple	Non-native
Aesculus californica	California buckeye	Native
Arbutus menziesii	Madrone	Native
Cyperus eragrostis	Tall cyperus	Native
Cytisus scoparius	Scotch broom	Invasive non-native
Epilobium densiflora	Denseflower willowherb	Native
Ficus carica	Common fig	Invasive non-native
Fraxinus sp.	Ash	Native
Genista monspessulana	French broom	Invasive non-native
Ginkgo biloba	Ginkgo	Non-native
Hedera helix	English ivy	Invasive non-native
Helminthotheca echioides	Bristly ox-tongue	Invasive non-native
Heteromeles arbutifolia	Toyon	Native
Juncus sp.	Rush	Native
Juniperus sp.	Juniper	Unknown
Magnolia grandiflora	Magnolia	Non-native
Mentha suaveolens	Apple mint	Non-native
Plantago lanceolata	Ribwort	Invasive non-native
Quercus agrifolia	Coast live oak	Native
Quercus lobata	Valley oak	Native
Rubus armeniacus	Himalayan blackberry	Invasive non-native
Rumex crispus	Curly dock	Invasive non-native
Salix sp.	Willow	Native
Sequoia sempervirens	Coast redwood	Native
Umbellularia californica	California bay	Native

Scientific Name	Common Name
Aphelocoma californica	California scrub jay
Corvus brachyrhynchos	American crow
Junco hyemalis	Dark-eyed junco
Melanerpes formicivorus	Acorn woodpecker
Odocoileus hemionus columbianus*	Colombian black-tailed deer
Sciurus griseus	Western gray squirrel
Sciurus niger	Fox squirrel

*Evidence of foraging activity observed only – droppings, tracks, etc.

APPENDIX D

CNDDB Results and USFWS IPaC Within the 8 quadrant Search of the Project Study Areas

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (San Rafael (3712285) OR Point Bonita (3712275) OR San Francisco North (3712274) OR San Quentin (3712284) OR Petaluma Point (3812214) OR Novato (3812215) OR San Geronimo (3812216) OR Bolinas (3712286))
 AND Taxonomic Group IS (Ferns OR Gymnosperms OR Monocots OR Dicots OR Lichens OR Bryophytes)

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.
Alopecurus aequalis var. sonomensis Sonoma alopecurus	G5T1 S1	Endangered None	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	300 300	21 S:1	0	0	0	0	1	0	1	0	0	0	1
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	200 2,000	76 S:18	1	0	1	0	1	15	5	13	17	1	0
Amsinckia lunaris bent-flowered fiddleneck	G3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_UCBG-UC Botanical Garden at Berkeley SB_UCSC-UC Santa Cruz	795 1,967	93 S:5	0	0	0	0	0	5	2	3	5	0	0
Arctostaphylos franciscana Franciscan manzanita	GHC S1	Endangered None	Rare Plant Rank - 1B.1 SB_UCBG-UC Botanical Garden at Berkeley	100 325	4 S:3	0	0	0	0	2	1	2	1	1	0	2
Arctostaphylos montana ssp. montana Mt. Tamalpais manzanita	G3T3 S3	None None	Rare Plant Rank - 1B.3 SB_UCBG-UC Botanical Garden at Berkeley	500 2,220	15 S:15	0	1	0	0	0	14	13	2	15	0	0
Arctostaphylos montana ssp. ravenii Presidio manzanita	G3T1 S1	Endangered Endangered	Rare Plant Rank - 1B.1	75 325	7 S:6	0	1	0	0	4	1	5	1	2	1	3
Arctostaphylos virgata Marin manzanita	G2 S2	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture	200 2,625	32 S:21	0	2	1	2	0	16	16	5	21	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.
Arenaria paludicola marsh sandwort	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_SBBG-Santa Barbara Botanic Garden	0 140	19 S:5	0	0	0	0	1	4	1	4	4	0	1
Astragalus pycnostachyus var. pycnostachyus coastal marsh milk-vetch	G2T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley		24 S:1	0	0	0	0	1	0	1	0	0	1	0
Astragalus tener var. tener alkali milk-vetch	G2T1 S1	None None	Rare Plant Rank - 1B.2	50 50	65 S:1	0	0	0	0	1	0	1	0	0	1	0
Calamagrostis crassiglumis Thurber's reed grass	G3Q S2	None None	Rare Plant Rank - 2B.1		15 S:1	0	0	0	0	0	1	1	0	1	0	0
Calochortus tiburonensis Tiburon mariposa-lily	G1 S1	Threatened Threatened	Rare Plant Rank - 1B.1 SB_UCBG-UC Botanical Garden at Berkeley	460 460	1 S:1	1	0	0	0	0	0	0	1	1	0	0
Calystegia purpurata ssp. saxicola coastal bluff morning-glory	G4T2T3 S2S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	340 340	42 S:1	0	0	0	0	0	1	0	1	1	0	0
Cardamine angulata seaside bittercress	G4G5 S3	None None	Rare Plant Rank - 2B.1		38 S:1	0	0	0	0	0	1	1	0	1	0	0
Carex comosa bristly sedge	G5 S2	None None	Rare Plant Rank - 2B.1 IUCN_LC-Least Concern	0 0	31 S:1	0	0	0	0	1	0	1	0	0	0	1
Carex lyngbyei Lyngbye's sedge	G5 S3	None None	Rare Plant Rank - 2B.2 IUCN_LC-Least Concern	100 100	37 S:1	0	0	0	0	0	1	1	0	1	0	0
Carex praticola northern meadow sedge	G5 S2	None None	Rare Plant Rank - 2B.2	125 125	14 S:1	0	0	0	0	0	1	1	0	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.
Castilleja affinis var. neglecta Tiburon paintbrush	G4G5T1T2 S1S2	Endangered Threatened	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley	400 900	7 S:4	1	2	1	0	0	0	0	4	4	0	0
Ceanothus decornutus Nicasio ceanothus	G1 S1	None None	Rare Plant Rank - 1B.2	800 950	2 S:2	0	0	0	0	0	2	0	2	2	0	0
Ceanothus masonii Mason's ceanothus	G1 S1	None Rare	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture	780 1,500	8 S:5	1	1	1	0	0	2	3	2	5	0	0
Chloropyron maritimum ssp. palustre Point Reyes salty bird's-beak	G4?T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	0 370	80 S:17	0	5	1	1	2	8	5	12	15	2	0
Chorizanthe cuspidata var. cuspidata San Francisco Bay spineflower	G2T1 S1	None None	Rare Plant Rank - 1B.2	8 1,800	17 S:8	0	0	1	0	1	6	6	2	7	1	0
Cirsium andrewsii Franciscan thistle	G3 S3	None None	Rare Plant Rank - 1B.2	50 550	31 S:11	1	5	2	0	0	3	8	3	11	0	0
Cirsium hydrophilum var. vaseyi Mt. Tamalpais thistle	G2T1 S1	None None	Rare Plant Rank - 1B.2	600 2,000	14 S:14	2	6	0	0	1	5	9	5	13	0	1
Clarkia franciscana Presidio clarkia	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_UCBG-UC Botanical Garden at Berkeley	75 300	4 S:3	0	1	1	0	1	0	1	2	2	1	0
Collinsia corymbosa round-headed Chinese-houses	G1 S1	None None	Rare Plant Rank - 1B.2	100 100	13 S:2	0	0	0	0	1	1	2	0	1	0	1
Collinsia multicolor San Francisco collinsia	G2 S2	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCSC-UC Santa Cruz	300 900	36 S:3	0	0	0	0	0	3	3	0	3	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.
Dirca occidentalis western leatherwood	G2 S2	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	180 2,000	90 S:6	0	2	0	0	0	4	1	5	6	0	0
Entosthodon kochii Koch's cord moss	G1 S1	None None	Rare Plant Rank - 1B.3 BLM_S-Sensitive		4 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	200 2,100	26 S:21	1	0	2	0	0	18	13	8	21	0	0
Fissidens pauperculus minute pocket moss	G3? S2	None None	Rare Plant Rank - 1B.2 USFS_S-Sensitive	1,000 1,000	22 S:2	0	0	0	0	0	2	2	0	2	0	0
Fritillaria lanceolata var. tristulis Marin checker lily	G5T2 S2	None None	Rare Plant Rank - 1B.1	100 1,000	32 S:9	0	0	3	0	0	6	7	2	9	0	0
Fritillaria liliacea fragrant fritillary	G2 S2	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden USFS_S-Sensitive	10 900	82 S:9	0	3	3	0	2	1	5	4	7	1	1
Gilia capitata ssp. chamissonis blue coast gilia	G5T2 S2	None None	Rare Plant Rank - 1B.1 SB_UCBG-UC Botanical Garden at Berkeley	10 600	37 S:9	0	0	0	0	2	7	5	4	7	0	2
Gilia capitata ssp. tomentosa woolly-headed gilia	G5T2 S2	None None	Rare Plant Rank - 1B.1	245 955	18 S:4	1	0	0	0	0	3	1	3	4	0	0
Gilia millefoliata dark-eyed gilia	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	150 150	54 S:4	0	0	0	0	3	1	4	0	1	2	1
Grindelia hirsutula var. maritima San Francisco gumplant	G5T1Q S1	None None	Rare Plant Rank - 3.2 SB_UCSC-UC Santa Cruz	100 700	15 S:6	0	4	1	0	0	1	6	0	6	0	0
Helianthella castanea Diablo helianthella	G2 S2	None None	Rare Plant Rank - 1B.2		107 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	20 1,400	52 S:11	0	1	2	0	0	8	9	2	11	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.
Hesperolinon congestum Marin western flax	G1 S1	Threatened Threatened	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley	200 1,315	27 S:14	2	4	2	1	1	4	4	10	13	0	1
Heteranthera dubia water star-grass	G5 S2	None None	Rare Plant Rank - 2B.2 IUCN_LC-Least Concern		9 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:2	0	0	0	0	1	1	2	0	1	1	0
Horkelia cuneata var. sericea Kellogg's horkelia	G4T1? S1?	None None	Rare Plant Rank - 1B.1 SB_UCSC-UC Santa Cruz USFS_S-Sensitive	50 100	58 S:2	0	0	1	0	0	1	2	0	2	0	0
Horkelia marinensis Point Reyes horkelia	G2 S2	None None	Rare Plant Rank - 1B.2	500 500	36 S:1	0	0	0	0	0	1	1	0	1	0	0
Horkelia tenuiloba thin-lobed horkelia	G2 S2	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	1,100 2,100	27 S:5	1	2	0	0	0	2	4	1	5	0	0
Hypogymnia schizidiata island tube lichen	G2G3 S2	None None	Rare Plant Rank - 1B.3	890 890	10 S:1	0	0	0	0	0	1	0	1	1	0	0
Kopsiopsis hookeri small groundcone	G4? S1S2	None None	Rare Plant Rank - 2B.3	400 1,785	21 S:4	0	0	1	0	0	3	3	1	4	0	0
Layia carnosa beach layia	G2 S2	Threatened Endangered	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden	40 40	25 S:1	0	0	0	0	1	0	1	0	0	0	1

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.
Leptosiphon rosaceus rose leptosiphon	G1 S1	None None	Rare Plant Rank - 1B.1		31 S:1	0	0	0	0	1	0	1	0	0	1	0
Lessingia germanorum San Francisco lessingia	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1	10 300	5 S:3	0	1	0	0	1	1	2	1	2	0	1
Lessingia micradenia var. micradenia Tamalpais lessingia	G2T2 S2	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture	200 1,000	9 S:9	0	1	0	0	0	8	6	3	9	0	0
Microseris paludosa marsh microseris	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_SBBG-Santa Barbara Botanic Garden SB_UCSC-UC Santa Cruz	300 500	38 S:4	0	0	0	0	1	3	4	0	3	0	1
Mielichhoferia elongata elongate copper moss	G5 S3S4	None None	Rare Plant Rank - 4.3 USFS_S-Sensitive	100 100	20 S:1	0	0	0	0	0	1	1	0	1	0	0
Navarretia rosulata Marin County navarretia	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	900 2,100	15 S:12	1	2	0	0	0	9	6	6	12	0	0
Pentachaeta bellidiflora white-rayed pentachaeta	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_UCBG-UC Botanical Garden at Berkeley	120 400	14 S:6	0	0	0	0	5	1	6	0	1	0	5
Plagiobothrys chorisianus var. chorisianus Choris' popcornflower	G3T1Q S1	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_UCSC-UC Santa Cruz	200 200	42 S:2	0	0	0	0	0	2	2	0	2	0	0
Plagiobothrys diffusus San Francisco popcornflower	G1Q S1	None Endangered	Rare Plant Rank - 1B.1 SB_UCSC-UC Santa Cruz	200 200	17 S:1	0	0	0	0	1	0	1	0	0	0	1
Plagiobothrys glaber hairless popcornflower	GX SX	None None	Rare Plant Rank - 1A		9 S:1	0	0	0	0	1	0	1	0	0	1	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.
Pleuropogon hooverianus North Coast semaphore grass	G2 S2	None Threatened	Rare Plant Rank - 1B.1 SB_BerrySB-Berry Seed Bank SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	350 500	27 S:4	0	0	0	1	2	1	3	1	2	2	0
Polemonium carneum Oregon polemonium	G3G4 S2	None None	Rare Plant Rank - 2B.2		16 S:3	0	0	0	0	0	3	3	0	3	0	0
Polygonum marinense Marin knotweed	G2Q S2	None None	Rare Plant Rank - 3.1	5 5	32 S:3	1	0	2	0	0	0	2	1	3	0	0
Quercus parvula var. tamalpaisensis Tamalpais oak	G4T2 S2	None None	Rare Plant Rank - 1B.3	300 2,100	19 S:19	0	2	0	1	0	16	11	8	19	0	0
Sanicula maritima adobe sanicle	G2 S2	None Rare	Rare Plant Rank - 1B.1 SB_SBBG-Santa Barbara Botanic Garden USFS_S-Sensitive	250 250	17 S:1	0	0	0	0	1	0	1	0	0	0	1
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
Sidalcea hickmanii ssp. viridis Marin checkerbloom	G3TH SH	None None	Rare Plant Rank - 1B.1	1,390 1,390	1 S:1	0	0	0	0	0	1	1	0	1	0	0
Silene scouleri ssp. scouleri Scouler's catchfly	G5T4T5 S2S3	None None	Rare Plant Rank - 2B.2		23 S:1	0	0	0	0	0	1	1	0	1	0	0
Silene verecunda ssp. verecunda San Francisco campion	G5T1 S1	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCSC-UC Santa Cruz	10 680	20 S:7	0	0	1	0	4	2	6	1	3	2	2
Spergularia macrotheca var. longistyla long-styled sand-spurrey	G5T2 S2	None None	Rare Plant Rank - 1B.2		22 S:1	0	0	0	0	0	1	1	0	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.
Stebbinsoseris decipiens Santa Cruz microseris	G2 S2	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCSC-UC Santa Cruz	460 2,450	19 S:4	0	0	0	0	1	3	3	1	3	1	0
Streptanthus batrachopus Tamalpais jewelflower	G2 S2	None None	Rare Plant Rank - 1B.3 SB_UCSC-UC Santa Cruz	1,100 2,200	8 S:8	1	2	2	0	0	3	5	3	8	0	0
Streptanthus glandulosus ssp. niger Tiburon jewelflower	G4T1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley	300 350	2 S:2	0	2	0	0	0	0	0	2	2	0	0
Streptanthus glandulosus ssp. pulchellus Mt. Tamalpais bristly jewelflower	G4T2 S2	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	420 2,200	24 S:24	4	5	0	0	0	15	20	4	24	0	0
Symphyotrichum lentum Suisun Marsh aster	G2 S2	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture	0 0	175 S:1	0	0	0	0	0	1	1	0	1	0	0
Trifolium amoenum two-fork clover	G1 S1	Endangered None	Rare Plant Rank - 1B.1 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley SB_USDA-US Dept of Agriculture	100 100	26 S:3	0	0	0	0	2	1	3	0	1	1	1
Trifolium hydrophilum saline clover	G2 S2	None None	Rare Plant Rank - 1B.2		56 S:1	0	0	0	0	0	1	1	0	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.
Triphysaria floribunda	G2?	None	Rare Plant Rank - 1B.2	100	50	0	0	1	0	2	2	3	2	3	1	1
San Francisco owl's-clover	S2?	None		300	S:5											
Triquetrella californica	G2	None	Rare Plant Rank - 1B.2 USFS_S-Sensitive	360	13	0	0	0	0	0	2	1	1	2	0	0
coastal triquetrella	S2	None		525	S:2											

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (San Rafael (3712285) OR Point Bonita (3712275) OR San Francisco North (3712274) OR San Quentin (3712284) OR Petaluma Point (3812214) OR Novato (3812215) OR San Geronimo (3812216) OR Bolinas (3712286))
 AND Taxonomic Group IS (Fish OR Amphibians OR Reptiles OR Birds OR Mammals OR Mollusks OR Arachnids OR Crustaceans OR Insects)

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.
Accipiter cooperii Cooper's hawk	G5 S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	90 90	118 S:1	0	1	0	0	0	0	0	1	1	0	0
Acipenser medirostris pop. 1 green sturgeon - southern DPS	G2T1 S1	Threatened None	AFS_VU-Vulnerable IUCN_EN-Endangered	0 0	14 S:2	0	2	0	0	0	0	0	2	2	0	0
Adela oplerella Opler's longhorn moth	G2 S2	None None		400 1,300	14 S:3	0	0	0	0	0	3	3	0	3	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	40 225	420 S:6	0	0	0	0	2	4	6	0	4	2	0
Aplodontia rufa phaea Point Reyes mountain beaver	G5T2 S2	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	240 240	9 S:1	0	0	0	0	1	0	1	0	0	1	0
Ardea alba great egret	G5 S4	None None	CDF_S-Sensitive IUCN_LC-Least Concern	18 100	43 S:3	0	1	0	0	0	2	2	1	3	0	0
Ardea herodias great blue heron	G5 S4	None None	CDF_S-Sensitive IUCN_LC-Least Concern	18 250	156 S:5	0	1	0	0	0	4	4	1	5	0	0
Asio flammeus short-eared owl	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	2 2	11 S:1	0	1	0	0	0	0	1	0	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.
Athene cunicularia burrowing owl	G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	-1 1,720	2011 S:3	1	0	1	0	0	1	1	2	3	0	0
Bombus caliginosus obscure bumble bee	G2G3 S1S2	None None	IUCN_VU-Vulnerable	20 2,500	181 S:15	0	0	0	0	0	15	12	3	15	0	0
Bombus occidentalis western bumble bee	G2G3 S1	None None	IUCN_VU-Vulnerable USFS_S-Sensitive	20 2,000	306 S:19	0	0	0	0	0	19	19	0	19	0	0
Caecidotea tomalensis Tomales isopod	G2 S2S3	None None		100 100	6 S:1	0	1	0	0	0	0	1	0	1	0	0
Calicina diminua Marin blind harvestman	G1 S1	None None		150 150	1 S:1	0	0	0	0	0	1	1	0	1	0	0
Callophrys mossii marinensis Marin elfin butterfly	G4T1 S1	None None		182 796	4 S:3	1	1	0	1	0	0	0	3	3	0	0
Charadrius nivosus nivosus western snowy plover	G3T3 S2	Threatened None	CDFW_SSC-Species of Special Concern NABCI_RWL-Red Watch List	0 10	138 S:2	0	1	0	0	0	1	1	1	2	0	0
Cicindela hirticollis gravida sandy beach tiger beetle	G5T2 S2	None None		10 10	34 S:2	0	0	0	0	2	0	2	0	0	0	2
Circus hudsonius northern harrier	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	2 2	54 S:1	1	0	0	0	0	0	1	0	1	0	0
Corynorhinus townsendii Townsend's big-eared bat	G4 S2	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive	80 700	635 S:9	0	3	0	0	1	5	3	6	8	1	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.
Cypseloides niger black swift	G4 S2	None None	CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable NABCI_YWL-Yellow Watch List USFWS_BCC-Birds of Conservation Concern	600 600	46 S:1	0	0	0	0	0	1	1	0	1	0	0
Danaus plexippus plexippus pop. 1 monarch - California overwintering population	G4T1T2 S2	Candidate None	IUCN_EN-Endangered USFS_S-Sensitive	10 250	383 S:27	0	9	9	1	6	2	18	9	21	2	4
Dicamptodon ensatus California giant salamander	G2G3 S2S3	None None	CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	25 1,300	234 S:26	5	4	0	1	0	16	12	14	26	0	0
Egretta thula snowy egret	G5 S4	None None	IUCN_LC-Least Concern	18 50	20 S:2	0	1	0	0	0	1	1	1	2	0	0
Elanus leucurus white-tailed kite	G5 S3S4	None None	BLM_S-Sensitive CDFW_FP-Fully Protected IUCN_LC-Least Concern	5 75	184 S:2	0	0	1	0	0	1	2	0	2	0	0
Emys marmorata western pond turtle	G3G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	9 784	1404 S:16	1	5	3	3	0	4	3	13	16	0	0
Enhydra lutris nereis southern sea otter	G4T2 S2	Threatened None	CDFW_FP-Fully Protected IUCN_EN-Endangered MMC_SSC-Species of Special Concern	0 0	2 S:1	0	0	0	0	0	1	1	0	1	0	0
Erethizon dorsatum North American porcupine	G5 S3	None None	IUCN_LC-Least Concern	210 210	523 S:1	0	0	0	0	1	0	1	0	0	1	0
Eucyclogobius newberryi tidewater goby	G3 S3	Endangered None	AFS_EN-Endangered IUCN_NT-Near Threatened	10 10	127 S:3	0	0	0	0	2	1	3	0	1	0	2
Eumetopias jubatus Steller sea lion	G3 S2	Delisted None	IUCN_NT-Near Threatened MMC_SSC-Species of Special Concern	15 15	38 S:1	0	0	0	0	1	0	1	0	0	1	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.
Euphydryas editha bayensis Bay checkerspot butterfly	G5T1 S1	Threatened None		650 650	30 S:1	0	0	0	0	1	0	1	0	0	0	1
Falco peregrinus anatum American peregrine falcon	G4T4 S3S4	Delisted Delisted	CDF_S-Sensitive CDFW_FP-Fully Protected	12 12	73 S:1	0	1	0	0	0	0	0	1	1	0	0
Geothlypis trichas sinuosa saltmarsh common yellowthroat	G5T3 S3	None None	CDFW_SSC-Species of Special Concern USFWS_BCC-Birds of Conservation Concern	6 170	112 S:8	1	2	0	0	0	5	4	4	8	0	0
Gonidea angulata western ridged mussel	G3 S1S2	None None	IUCN_VU-Vulnerable	175 175	157 S:1	0	0	0	0	1	0	1	0	0	1	0
Hesperoleucus venustus subditus southern coastal roach	GNRT2 S2	None None	CDFW_SSC-Species of Special Concern	20 20	10 S:1	1	0	0	0	0	0	0	1	1	0	0
Hydrochara rickseckeri Ricksecker's water scavenger beetle	G2? S2?	None None		160 160	13 S:1	0	0	0	0	0	1	1	0	1	0	0
Icaricia icarioides missionensis Mission blue butterfly	G5T1 S1	Endangered None		400 700	14 S:2	0	0	0	0	1	1	2	0	2	0	0
Icaricia icarioides pheres Pheres blue butterfly	G5TX SX	None None		190 190	1 S:1	0	0	0	0	1	0	1	0	0	0	1
Lasiurus blossevillii western red bat	G4 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	200 200	128 S:1	0	0	0	0	0	1	1	0	1	0	0
Lasiurus cinereus hoary bat	G3G4 S4	None None	IUCN_LC-Least Concern	180 1,215	238 S:5	0	0	0	0	0	5	5	0	5	0	0
Laterallus jamaicensis coturniculus California black rail	G3T1 S1	None Threatened	BLM_S-Sensitive CDFW_FP-Fully Protected IUCN_EN-Endangered NABCI_RWL-Red Watch List	0 375	303 S:23	5	7	0	2	2	7	11	12	21	2	0
Lichnanthe ursina bumblebee scarab beetle	G2 S2	None None		20 20	8 S:1	0	0	0	0	0	1	1	0	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 pusillula Alameda song sparrow	G5T2T3 S2S3	None None	CDFW_SSC-Species of Special Concern USFWS_BCC-Birds of Conservation Concern	10 10	38 S:1	0	0	0	0	0	1	1	0	1	0	0
Melospiza melodia samuelis San Pablo song sparrow	G5T2 S2	None None	CDFW_SSC-Species of Special Concern USFWS_BCC-Birds of Conservation Concern	0 20	41 S:17	3	4	0	0	0	10	10	7	17	0	0
Microcina tiburona Tiburon micro-blind harvestman	G1 S2	None None		500 575	2 S:2	0	0	0	0	0	2	2	0	2	0	0
Microtus californicus sanpabloensis San Pablo vole	G5T1T2 S1S2	None None	CDFW_SSC-Species of Special Concern	2 10	8 S:4	0	0	0	0	0	4	4	0	4	0	0
Nannopterum auritum double-crested cormorant	G5 S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	30 30	39 S:2	0	0	0	0	0	2	2	0	2	0	0
Nycticorax nycticorax black-crowned night heron	G5 S4	None None	IUCN_LC-Least Concern	50 50	37 S:1	0	0	0	0	0	1	1	0	1	0	0
Oncorhynchus kisutch pop. 4 coho salmon - central California coast ESU	G5T2Q S2	Endangered Endangered	AFS_EN-Endangered	130 180	23 S:2	0	1	0	0	0	1	1	1	2	0	0
Oncorhynchus mykiss irideus pop. 8 steelhead - central California coast DPS	G5T2T3Q S2S3	Threatened None	AFS_TH-Threatened	120 120	44 S:1	0	0	1	0	0	0	0	1	1	0	0
Pogonichthys macrolepidotus Sacramento splittail	G3 S3	None None	AFS_VU-Vulnerable CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	0 0	15 S:1	1	0	0	0	0	0	1	0	1	0	0
Pomatiopsis binneyi robust walker	G1 S1	None None		150 2,040	2 S:2	0	0	0	0	0	2	2	0	2	0	0
Pomatiopsis californica Pacific walker	G1 S1	None None	IUCN_DD-Data Deficient	66 66	4 S:1	0	0	0	0	0	1	1	0	1	0	0
Rallus obsoletus obsoletus California Ridgway's rail	G3T1 S1	Endangered Endangered	CDFW_FP-Fully Protected NABCI_RWL-Red Watch List	2 18	99 S:14	2	5	0	0	1	6	6	8	13	1	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.
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	18 1,975	2478 S:31	1	6	2	0	14	8	23	8	17	6	8
Rana draytonii California red-legged frog	G2G3 S2S3	Threatened None	CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable	3 965	1671 S:29	2	5	1	0	0	21	12	17	29	0	0
Reithrodontomys raviventris salt-marsh harvest mouse	G1G2 S1S2	Endangered Endangered	CDFW_FP-Fully Protected IUCN_EN-Endangered	0 4	144 S:11	0	2	1	2	1	5	9	2	10	1	0
Riparia riparia bank swallow	G5 S2	None Threatened	BLM_S-Sensitive IUCN_LC-Least Concern	10 10	298 S:1	0	0	0	0	0	1	1	0	1	0	0
Scapanus latimanus insularis Angel Island mole	G5T1 SH	None None		150 150	1 S:1	0	0	0	0	0	1	1	0	1	0	0
Sorex ornatus sinuosus Suisun shrew	G5T1T2Q S1S2	None None	CDFW_SSC-Species of Special Concern		15 S:1	0	1	0	0	0	0	0	1	1	0	0
Sorex vagrans halicoetes salt-marsh wandering shrew	G5T1 S1	None None	CDFW_SSC-Species of Special Concern	2 2	12 S:1	0	0	0	0	0	1	1	0	1	0	0
Speyeria callippe callippe callippe silverspot butterfly	G5T1 S1	Endangered None		900 900	12 S:1	0	0	0	0	1	0	1	0	0	0	1
Spirinchus thaleichthys longfin smelt	G5 S1	Candidate Threatened	IUCN_LC-Least Concern	0 0	46 S:2	0	0	0	0	0	2	0	2	2	0	0
Stygobromus hyporheicus Hypoheic amphipod	G1 S1	None None		540 540	1 S:1	0	0	0	0	0	1	1	0	1	0	0
Syncaris pacifica California freshwater shrimp	G2 S2	Endangered Endangered	IUCN_EN-Endangered	120 120	20 S:1	0	0	1	0	0	0	1	0	1	0	0
Talanites ubicki Ubick's gnaphosid spider	G1 S1	None None		150 150	1 S:1	0	0	0	0	0	1	1	0	1	0	0
Taxidea taxus American badger	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	50 210	594 S:4	0	0	0	0	0	4	4	0	4	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.
Thaleichthys pacificus eulachon	G5 S2	Threatened None	IUCN_LC-Least Concern	0 0	10 S:1	0	0	0	0	0	1	0	1	1	0	0
Trachusa gummifera San Francisco Bay Area leaf-cutter bee	G1 S1	None None		93 1,130	3 S:2	0	0	0	0	0	2	2	0	2	0	0
Tryonia imitator mimic tryonia (=California brackishwater snail)	G2 S2	None None	IUCN_DD-Data Deficient	0 6	39 S:2	0	0	0	0	1	1	2	0	1	0	1
Vespericola marinensis Marin hesperian	G2 S2	None None		25 600	23 S:11	0	0	0	0	0	11	11	0	11	0	0
Zapus trinotatus orarius Point Reyes jumping mouse	G5T1T3Q S1S3	None None	CDFW_SSC-Species of Special Concern	25 200	5 S:2	0	0	0	0	0	2	2	0	2	0	0

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

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 Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/613	Endangered

Birds

NAME	STATUS
California Clapper Rail Rallus longirostris obsoletus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4240	Endangered
California Least Tern Sterna antillarum browni Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8104	Endangered
Marbled Murrelet Brachyramphus marmoratus There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/4467	Threatened
Northern Spotted Owl Strix occidentalis caurina 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	Threatened
Western Snowy Plover Charadrius nivosus nivosus There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/8035	Threatened

Reptiles

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

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii 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	Threatened

Fishes

NAME	STATUS
Delta Smelt Hypomesus transpacificus 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	Threatened
Tidewater Goby Eucyclogobius newberryi 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	Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

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

Santa Cruz Tarplant Holocarpha macradenia — 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/6832

Showy Indian Clover Trifolium amoenum — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/6459

White-rayed Pentachaeta Pentachaeta bellidiflora — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/7782

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 https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.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
Allen's Hummingbird Selasphorus sasin This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9637	Breeds Feb 1 to Jul 15
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31

Belding's Savannah Sparrow Passerculus sandwichensis beldingi — Breeds Apr 1 to Aug 15

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA
https://ecos.fws.gov/ecp/species/8

Black Swift Cypseloides niger — Breeds Jun 15 to Sep 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8878

Black-chinned Sparrow Spizella atrogularis — Breeds Apr 15 to Jul 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9447

Bullock's Oriole Icterus bullockii — Breeds Mar 21 to Jul 25

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

California Thrasher Toxostoma redivivum — Breeds Jan 1 to Jul 31

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

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

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Lawrence's Goldfinch Carduelis lawrencei — Breeds Mar 20 to Sep 20

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9464

Long-eared Owl asio otus — Breeds Mar 1 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3631

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

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Tricolored Blackbird Agelaius tricolor — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

Western Grebe aechmophorus occidentalis — Breeds Jun 1 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/6743

Willet Tringa semipalmata — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Wrentit Chamaea fasciata — Breeds Mar 15 to Aug 10
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

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.

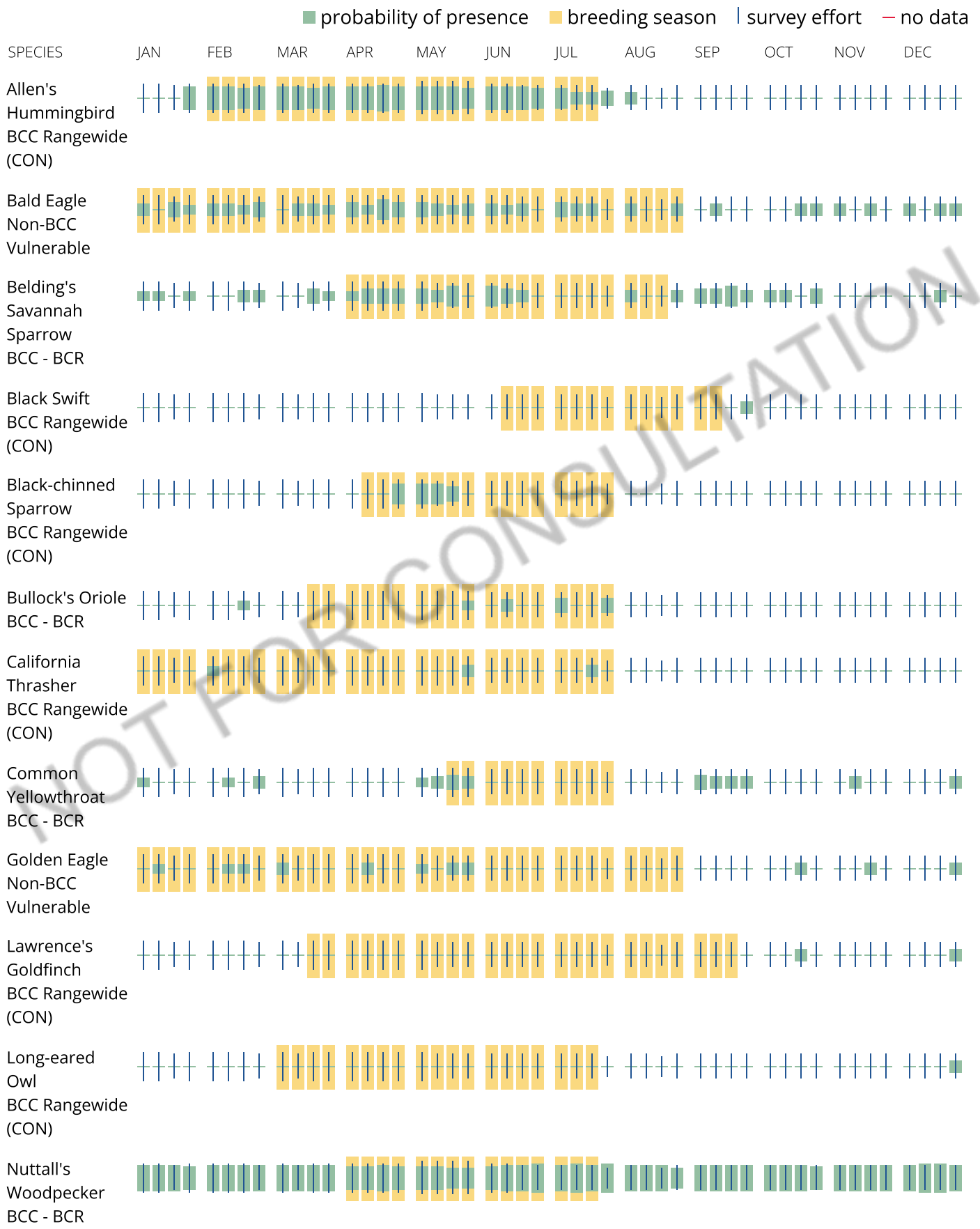
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

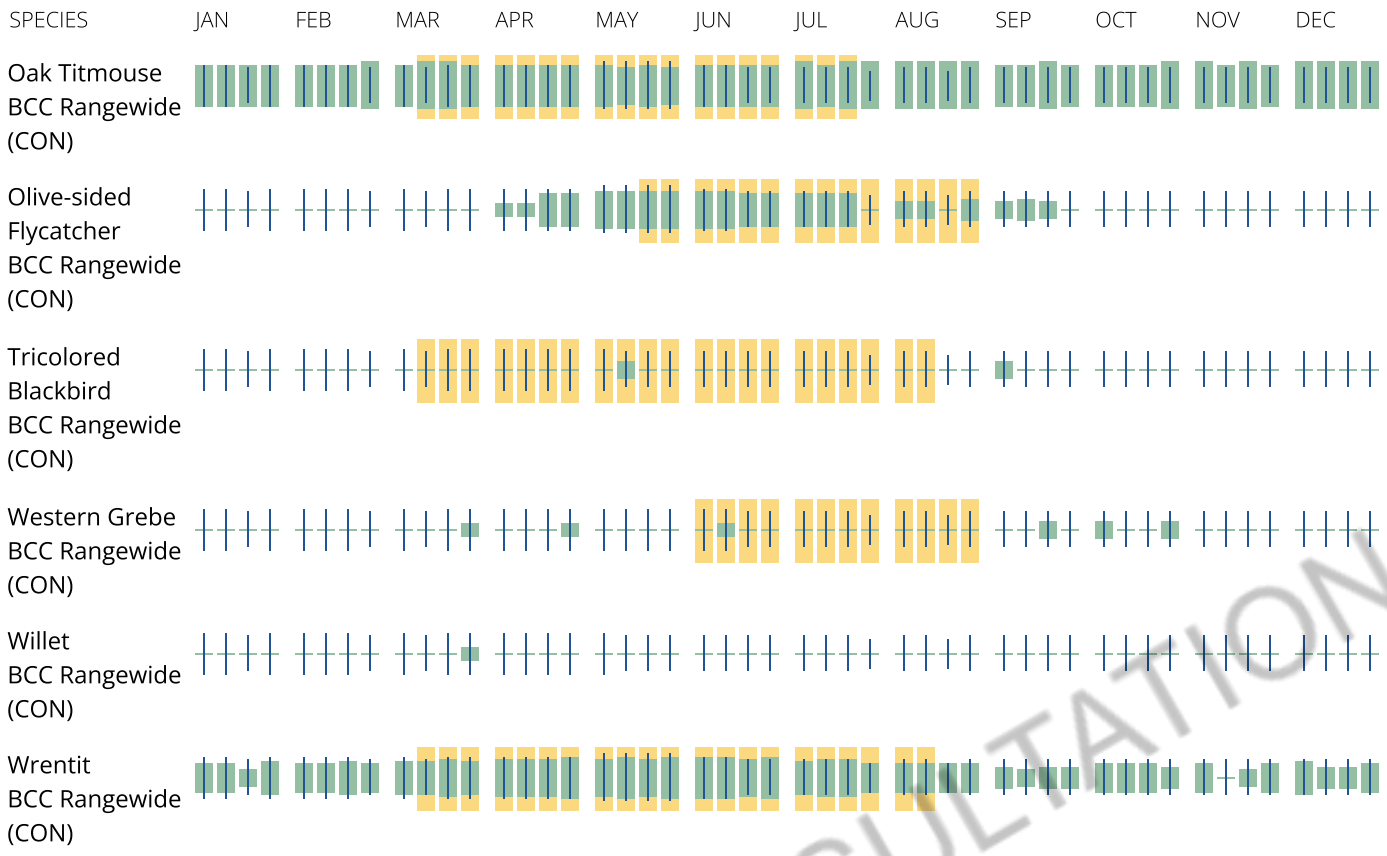
No Data (–)

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.





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 list of migratory birds that potentially occur 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 Rapid Avian Information Locator (RAIL) 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 or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your 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.

Coastal Barrier Resources System

Projects within the John H. Chafee Coastal Barrier Resources System (CBRS) may be subject to the restrictions on federal expenditures and financial assistance and the consultation requirements of the Coastal Barrier Resources Act (CBRA) (16 U.S.C. 3501 et seq.). For more information, please contact the local Ecological Services Field Office or visit the CBRA Consultations website. The CBRA website provides tools such as a flow chart to help determine whether consultation is required and a template to facilitate the consultation process.

There are no known coastal barriers at this location.

Data limitations

The CBRS boundaries used in IPaC are representations of the controlling boundaries, which are depicted on the official CBRS maps. The boundaries depicted in this layer are not to be considered authoritative for in/out determinations close to a CBRS boundary (i.e., within the "CBRS Buffer Zone" that appears as a

hatched area on either side of the boundary). For projects that are very close to a CBRS boundary but do not clearly intersect a unit, you may contact the Service for an official determination by following the instructions here: https://www.fws.gov/service/coastal-barrier-resources-system-property-documentation

Data exclusions

CBRS units extend seaward out to either the 20- or 30-foot bathymetric contour (depending on the location of the unit). The true seaward extent of the units is not shown in the CBRS data, therefore projects in the offshore areas of units (e.g., dredging, breakwaters, offshore wind energy or oil and gas projects) may be subject to CBRA even if they do not intersect the CBRS data. For additional information, please contact CBRA@fws.gov.

Facilities

Wildlife refuges and fish hatcheries

Refuge and fish hatchery information is not available at this time

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.

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

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.

APPENDIX E

Project Site Plans

INDEX OF DRAWINGS

ROSS VALLEY SANITARY DISTRICT

MARIN COUNTY, CALIFORNIA

PLANS

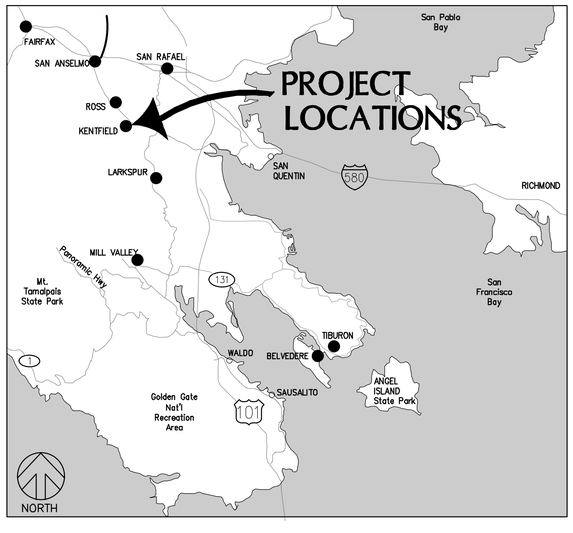
FOR THE CONSTRUCTION OF

WOODLAND AREA GRAVITY SEWER IMPROVMENT PROJECT

DATUM

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

VERTICAL DATUM IS NAVD 88



VICINITY MAP

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

GENERAL MANAGER
STEVE MOORE, P.E.

DESIGN ENGINEER
KOUROSH IRANPOUR, P.E.

DATE

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

50% SUBMITTAL NOT FOR CONSTRUCTION

NO.	BY	DATE	REVISION

TITLE SHEET

ROSS VALLEY SANITARY DISTRICT
WOODLAND AREA GRAVITY SEWER IMPROVEMENTS PROJECT

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

DESIGNED BY	KLC/JR
DRAWN BY	KLC/JR
CHECKED BY	KI
DATE ISSUED	10/31/2022
JOB NO.	120–0743.005
DWG NO.	T–1
SHEET	1 OF 16

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. THE SWPPP SHALL BE 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 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.
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, "UNIFORM STANDARDS ALL CITIES AND COUNTY OF MARIN", OR STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION STANDARD PLANS DATED 2018.
10. UNLESS OTHERWISE NOTED, EXISTING SANITARY SEWER LINES ARE TO BE REHABILITATED IN THE SAME LOCATION. EXISTING PIPES ARE ASSUMED 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 COUNTY, 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 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 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.
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) 945-1481
PG&E (NORTH BAY DIVISION)	(415) 257-3405
COMCAST	(707) 207-1376
AT&T	(707) 575-2077
ALL UTILITIES, CONTACT U.S.A	811 / (800) 227-2600

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. 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 PER RVSD STD DWG SD-22. IF A NEW SEWER MAIN CROSSES ABOVE AN EXISTING WATER MAIN WITH LESS THAN 1 FOOT OF CLEARANCE, THE CONTRACTOR SHALL INSTALL A CONTINUOUS 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-25.
24. NEW SEWER MAINS CROSSING UNDER OR ABOVE EXISTING WATER LINES WITH LESS THAN 4 INCHES OF CLEARANCE ARE PROHIBITED.
25. THE CONTRACTOR SHALL MAINTAIN ACCESS TO RESIDENCES AND BUSINESSES ALONG THE STREETS TO BE REPAIRED THROUGHOUT THE LIFE OF THE CONTRACT.
26. CONTRACTOR TO COORDINATE WITH ALL PROPERTY OWNERS FOR EASEMENT WORK A MINIMUM OF TWO WEEKS PRIOR TO START OF SAID WORK.
27. 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.
28. CONTRACTOR SHALL RESTORE SITES TO EQUAL TO OR BETTER THAN EXISTING CONDITIONS.
29. 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.

ABBREVIATIONS

AB, ASB	AGGREGATE BASE, SUBBASE
ABD	ABANDONED
AC	ASPHALT CONCRETE
ADJ	ADJUSTABLE
APPROX	APPROXIMATE
AVE	AVENUE
BC	BEGIN CURVE
BM	BLUE MARKER
BOC	BACK OF CURB
BP	BOTTOM OF PIPE
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
MB	MAILBOX
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
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
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
2:1	2 HORIZONTAL TO 1 VERTICAL SLOPE

LEGEND

EXISTING	REHABILITATE OR NEW	DESCRIPTION
SS	8" SS CO	SANITARY SEWER WITH SIZE, FLOW DIRECTION, CO, MH
	8" SS	PIPE BURST SEWER MAIN OR LATERAL WITH SIZE, FLOW DIRECTION
12"SD		STORM DRAIN WITH SIZE, FLOW DIRECTION, MH, DI
		ABANDON/REMOVE EX PIPE, SSMH
1000		HOUSE NUMBER
CATV		COMMUNICATIONS LINE
W WM WV		WATER MAIN, METER & WATER VALVE
G GM GV		GAS LINE
TEL		TELEPHONE LINE OR DUCT
UNK		UNKNOWN UTILITY LINE
		APPROXIMATE RIGHT OF WAY OR PROPERTY LINE

EXISTING	DESCRIPTION
MON	MONUMENT
E	ELECTRIC
HV	HIGH VOLTAGE ELECTRIC
	GUY WIRE
	FIRE HYDRANT
JP	JOINT/POWER POLE
	EDGE OF PAVEMENT
	CURB AND GUTTER
	AC DIKE
#	APPROX BORING LOCATIONS (SEE APPENDIX B FOR BORING LOGS)
	CONTROL POINT
X X	FENCE
12" TREE	TREE
	SIGN
EPB	PULL BOX
	WALL

GENERAL NOTES CON'T

30. 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.
31. REFER TO SPECIFICATIONS FOR WORK HOUR AND WORK SEQUENCE RESTRICTIONS.
32. WHEN AN ABANDONED GAS LINE IS EXPOSED, CONTRACTOR TO COORDINATE WITH PG&E TO VERIFY THAT IT IS DEACTIVATED.
33. 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.
34. 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.
35. CDF BACKFILL IS NOT ALLOWED FOR SITES WITHIN COUNTY OF MARIN JURISDICTION.
36. CONTRACTOR TO NOTE THAT SOME SITES ARE WITHIN EASEMENTS WITH LIMITED OR NO ACCESS FOR VEHICLES AND EQUIPMENT. THESE SITES MAY REQUIRE PORTABLE EQUIPMENT AND/OR HAND EXCAVATION.
37. CONTRACTOR SHALL USE RECYCLED WATER FOR ANY CONSTRUCTION ACTIVITY. MMWD WILL NOT PROVIDE A WATER METER FOR CONTRACTOR'S USE DUE TO SEVERE DROUGHT CONDITIONS.

50% SUBMITTAL NOT FOR CONSTRUCTION

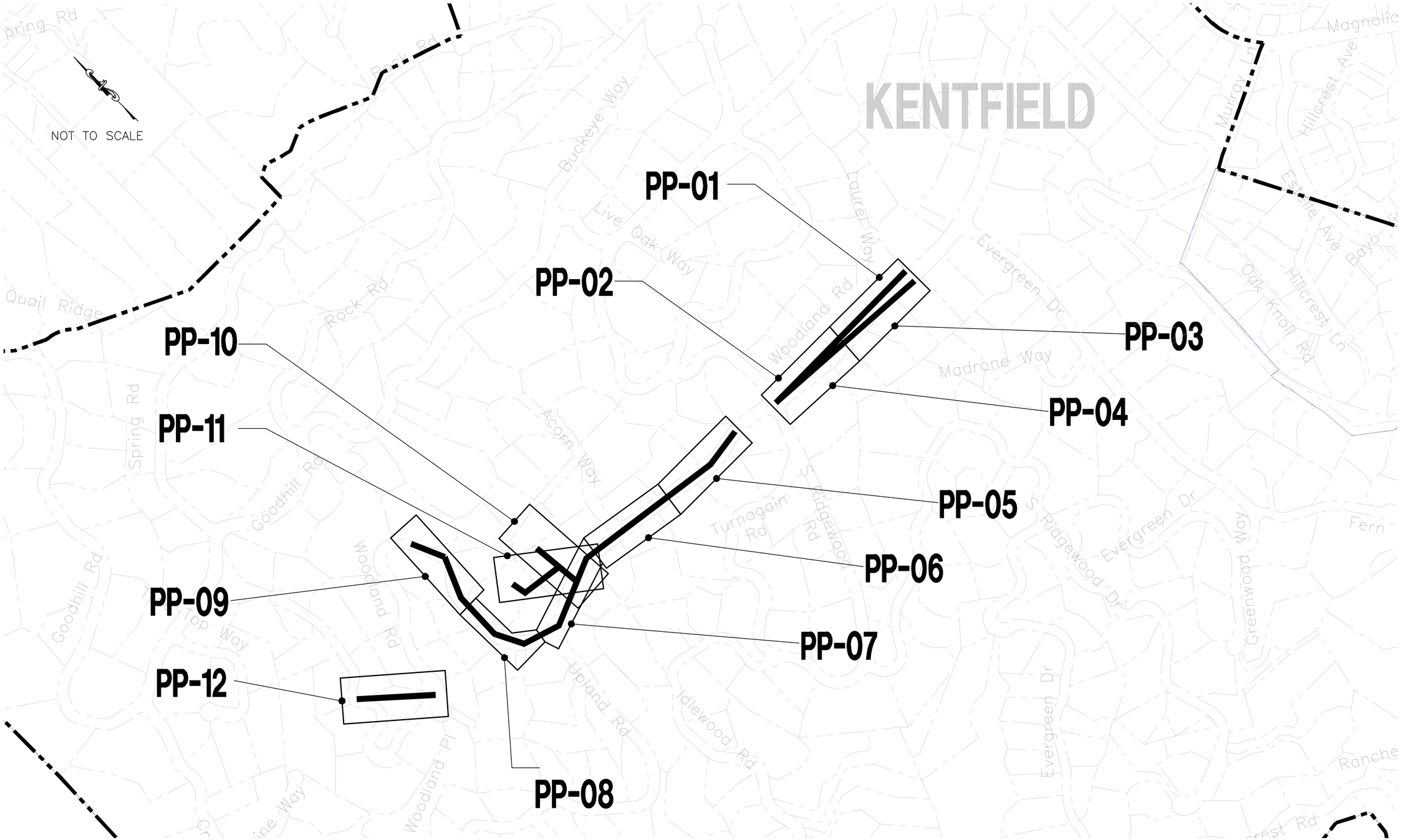
NO.	BY	DATE	REVISION

NOTES, LEGENDS AND ABBREVIATIONS

ROSS VALLEY SANITARY DISTRICT
WOODLAND AREA GRAVITY SEWER IMPROVEMENTS PROJECT

Harris & Associates
1401 Willow Pass Rd, Suite 500 Concord, CA 94520
weareharris.com (925) 827-4500

DESIGNED BY	KLC/JR
DRAWN BY	KLC/JR
CHECKED BY	KI
DATE ISSUED	10/31/2022
JOB NO.	120-0743.005
DWG NO.	N-01
SHEET	2 OF 16



50% SUBMITTAL
NOT FOR CONSTRUCTION

NO.	BY	DATE	REVISION

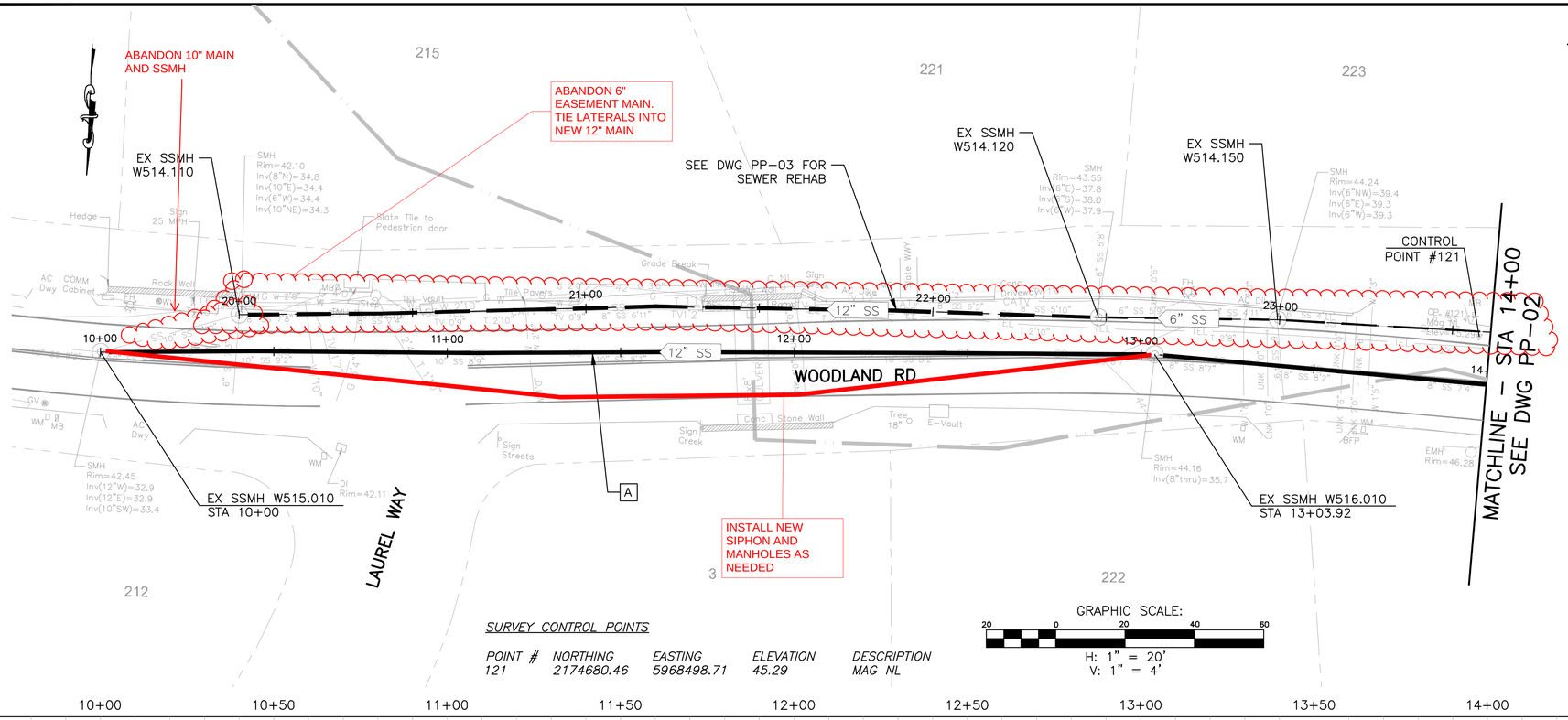
VARIOUS LOCATIONS
KEY MAPS

ROSS VALLEY
SANITARY DISTRICT
WOODLAND AREA
GRAVITY SEWER
IMPROVEMENTS PROJECT

Harris & Associates
1401 Willow Pass Rd, Suite 500 Concord, CA 94520
weareharris.com (925) 827-4690

DESIGNED BY	KLC/JR
DRAWN BY	KLC/JR
CHECKED BY	KI
DATE ISSUED	10/31/2022
JOB NO.	120-0743.005
DWG NO.	K-1
SHEET	3 OF 16

H:\Ross Valley Sanitary District (RSVD)\120074300S Woodland Area Sewer\03_K-1_KEY MAP.dwg Save Date: 10/31/2022 3:38 PM Plot Date: 10/31/2022 3:38 PM Kchew



SURVEY CONTROL POINTS

POINT #	*NORTHING*	*EASTING*	*ELEVATION*	*DESCRIPTION*
121	*2174680.46*	*5968498.71*	*45.29*	*MAG NL*

LEGEND OF REHABILITATION METHODS

A REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD-16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 2/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.

B REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-14. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 2/D-01 FOR ALL OPEN TRENCHES.

REPAIR SURFACE UPHEAVAL AND SAG REPAIR PER RVSD STD DWG SD-22 AND SD-20 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT.

DISCONNECT AND RECONNECT SEWER LATERALS PER RVSD STD DWG SD-29 AND SD-30.

C REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD-01, SD-02, SD-03, SD-04, SD-05 AND SD-06. FINAL PAVING SHALL BE PER DETAIL 2/D-01.

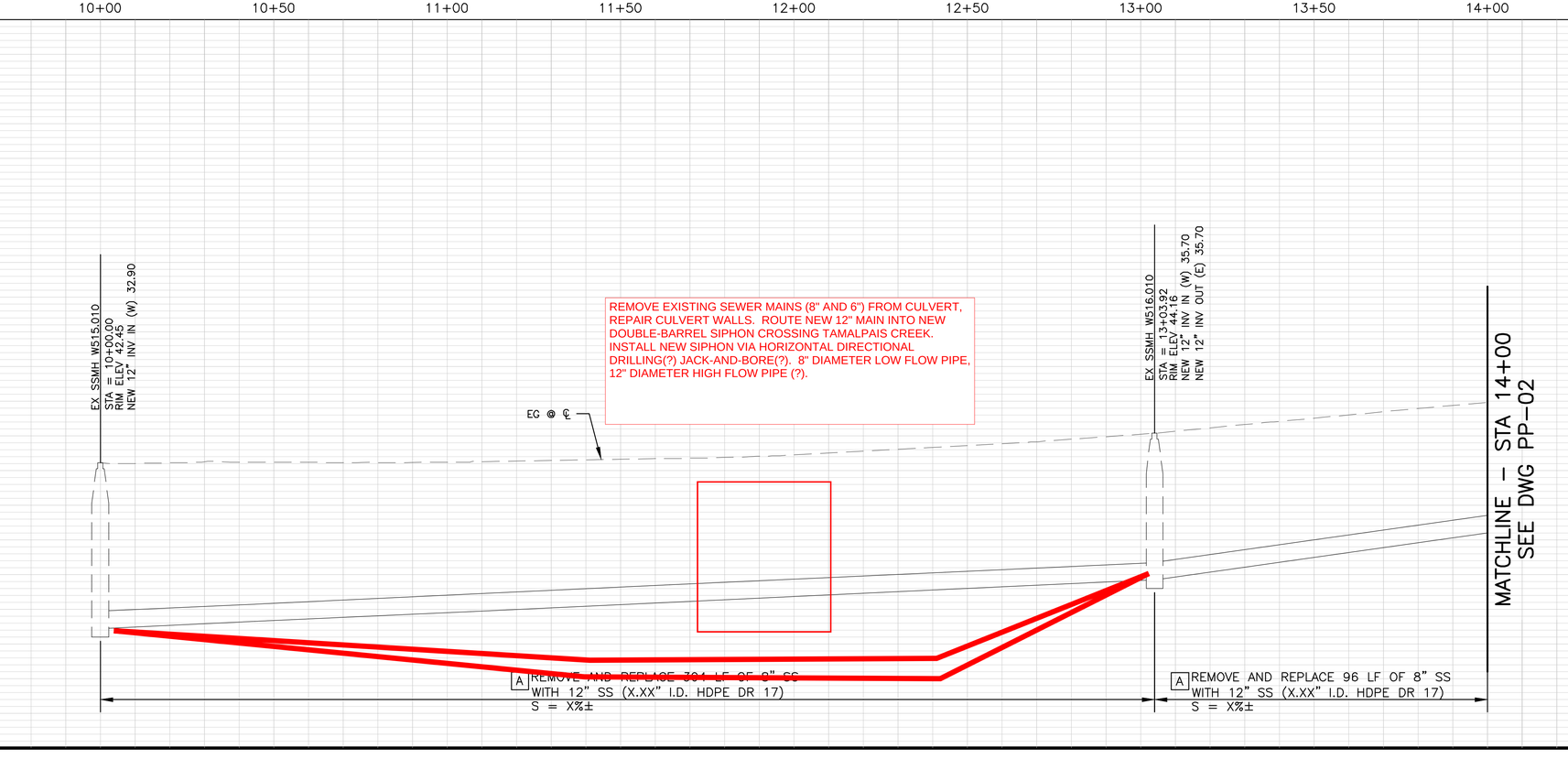
D REHABILITATE MANHOLE BY LINING WITH CALCIUM ALUMINATE MORTAR SYSTEM AFTER MANHOLE MODIFICATIONS ARE PERFORMED AND IN ACCORDANCE WITH THE SPECIFICATIONS. REMOVE EXISTING MANHOLE STEPS PRIOR TO REHABILITATION.

E PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD-29 AND SD-30. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 2/D-01.

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 WITH SEWER POPPER TYPE 2 BACKWATER PREVENTION DEVICE. CLEANOUTS SHALL MATCH EXISTING LOWER LATERAL MATERIAL. REFER TO SD-29: C-900 IS TWO-WAY AND HDPE IS WYE FACING MAIN. 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 TYPE B CONNECTION) OF SERVICE LATERAL, SHALL BE AS SHOWN ON RVSD DWG SD-29. NO VERTICAL DROP OFF IS ALLOWED.

NOTES:

1. 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.
2. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD-21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION. AIR GAP LOCATIONS ARE NOT IDENTIFIED ON THE PLANS.
3. 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.
4. FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS, SEE GENERAL NOTE 23 AND 24 ON DWG N-01 FOR HDPE SLEEVE REQUIREMENTS.
5. BENDING OF NEW PIPING AND/OR JOINT DEFLECTIONS SHALL BE IN ACCORDANCE WITH AWWA AND PIPE MANUFACTURER'S RECOMMENDATIONS.
6. 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).



NO.	BY	DATE	REVISION

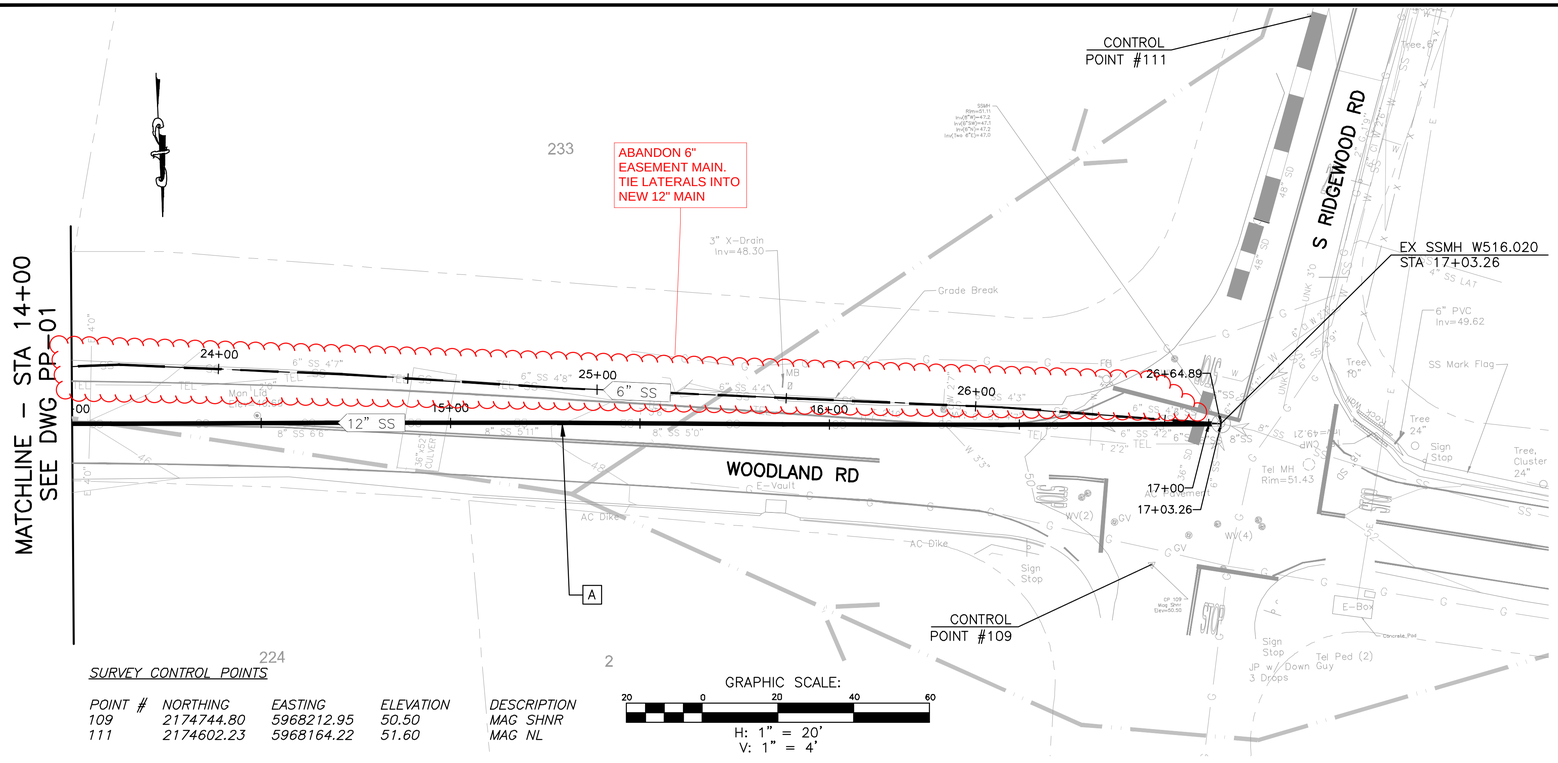
SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
WOODLAND RD

ROSS VALLEY SANITARY DISTRICT
WOODLAND AREA GRAVITY SEWER IMPROVEMENTS PROJECT

Harris & Associates
1401 Willow Pass Rd, Suite 500 Concord, CA 94520
weareharris.com (925) 827-4500

DESIGNED BY	KLC/JR
DRAWN BY	KLC/JR
CHECKED BY	KI
DATE ISSUED	10/31/2022
JOB NO.	120-0743.005
DWG NO.	**PP-01**
SHEET	04 OF 16

H:\Ross Valley Sanitary District (RSVD)\1200743005 Woodland Area Sewer\04_05_PP-01_PP-02_WOODLAND.dwg Save Date: 10/31/2022 3:39 PM Plot Date: 10/31/2022 3:39 PM Kchow



SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
109	2174744.80	5968212.95	50.50	MAG SHNR
111	2174602.23	5968164.22	51.60	MAG NL

LEGEND OF REHABILITATION METHODS

A REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD-16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 2/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.

B REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-14. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 2/D-01 FOR ALL OPEN TRENCHES.

REPAIR SURFACE UPHEAVAL AND SAG REPAIR PER RVSD STD DWG SD-22 AND SD-20 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT.

DISCONNECT AND RECONNECT SEWER LATERALS PER RVSD STD DWG SD-29 AND SD-30.

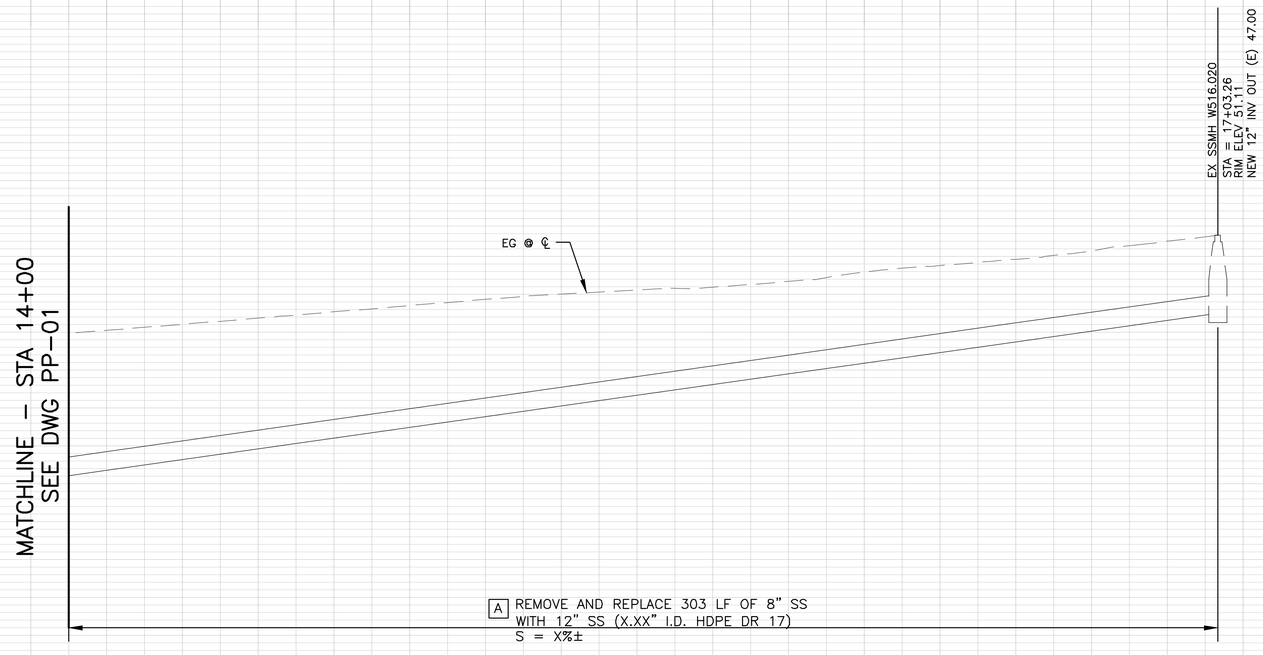
C REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD-01, SD-02, SD-03, SD-04, SD-05 AND SD-06. FINAL PAVING SHALL BE PER DETAIL 2/D-01.

D REHABILITATE MANHOLE BY LINING WITH CALCIUM ALUMINATE MORTAR SYSTEM AFTER MANHOLE MODIFICATIONS ARE PERFORMED AND IN ACCORDANCE WITH THE SPECIFICATIONS. REMOVE EXISTING MANHOLE STEPS PRIOR TO REHABILITATION.

E PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD-29 AND SD-30. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 2/D-01.

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 WITH SEWER POPPER TYPE 2 BACKWATER PREVENTION DEVICE. CLEANOUTS SHALL MATCH EXISTING LOWER LATERAL MATERIAL. REFER TO SD-29: C-90D IS TWO-WAY AND HDPE IS WYE FACING MAIN. 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 TYPE B CONNECTION) OF SERVICE LATERAL, SHALL BE AS SHOWN ON RVSD DWG SD-29. NO VERTICAL DROP OFF IS ALLOWED.

NOTES:
1. 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.
2. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD-21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION. AIR GAP LOCATIONS ARE NOT IDENTIFIED ON THE PLANS.
3. 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.
4. FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS, SEE GENERAL NOTE 23 AND 24 ON DWG N-01 FOR HDPE SLEEVE REQUIREMENTS.
5. BENDING OF NEW PIPING AND/OR JOINT DEFLECTIONS SHALL BE IN ACCORDANCE WITH AWWA AND PIPE MANUFACTURER'S RECOMMENDATIONS.
6. 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).



50% SUBMITTAL NOT FOR CONSTRUCTION

SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
WOODLAND RD

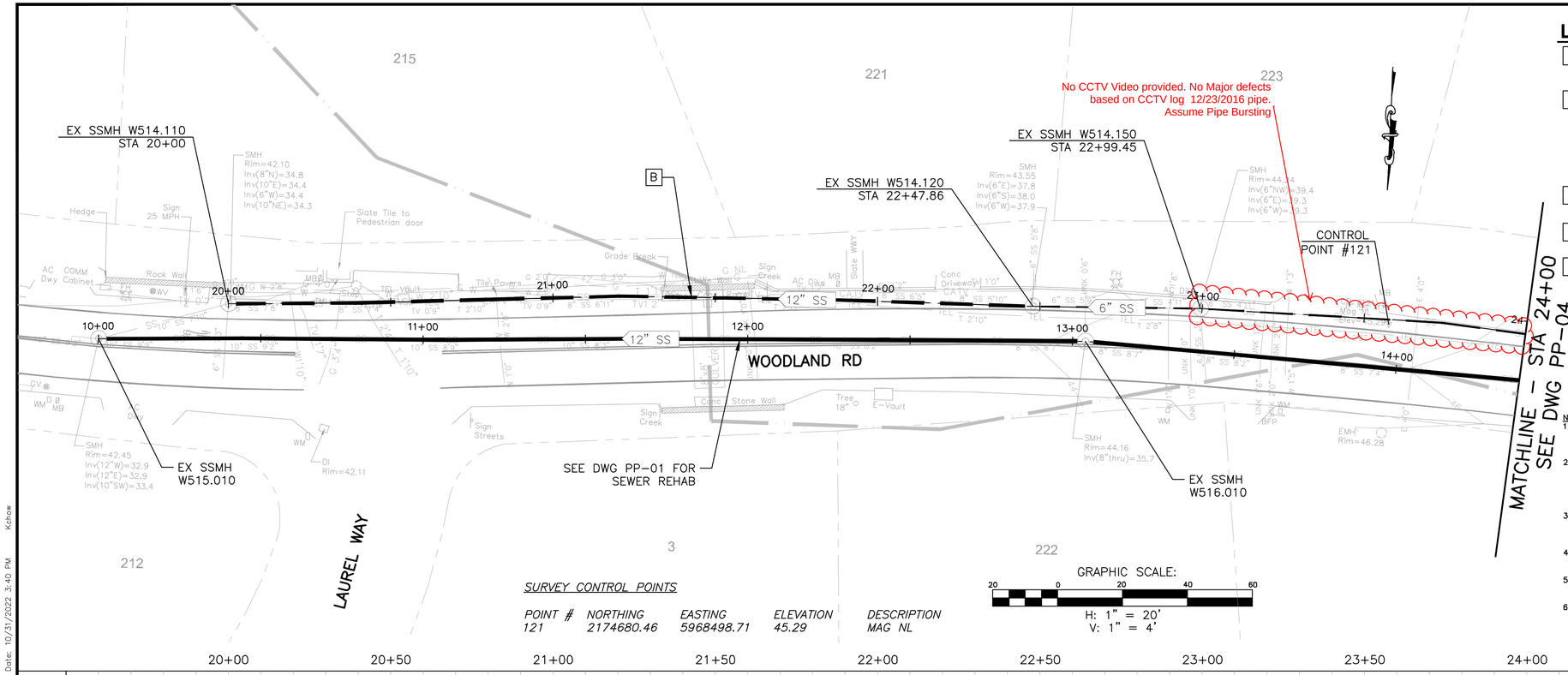
ROSS VALLEY SANITARY DISTRICT
WOODLAND AREA GRAVITY SEWER IMPROVEMENTS PROJECT

Harris & Associates
1401 Willow Pass Rd, Suite 500 Concord, CA 94520
weareharris.com (925) 827-4500

DESIGNED BY	KLC/JR
DRAWN BY	KLC/JR
CHECKED BY	KI
DATE ISSUED	10/31/2022
JOB NO.	120-0743.005
DWG NO.	PP-02
SHEET	05 OF 16

NO.	BY	DATE	REVISION

H:\Ross Valley Sanitary District (RSVD)\120074305 Woodland Area Sewer\04_05_PP-01_PP-02_WOODLAND.dwg Save Date: 10/31/2022 3:39 PM Plot Date: 10/31/2022 3:39 PM Kchow



SURVEY CONTROL POINTS

POINT #	*NORTHING*	*EASTING*	*ELEVATION*	*DESCRIPTION*
121	*2174680.46*	*5968498.71*	*45.29*	*MAG NL*

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. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 2/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.

B REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-14. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 2/D-01 FOR ALL OPEN TRENCHES.

REPAIR SURFACE UPHEAVAL AND SAG REPAIR PER RVSD STD DWG SD-22 AND SD-20 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT.

DISCONNECT AND RECONNECT SEWER LATERALS PER RVSD STD DWG SD-29 AND SD-30.

C REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD-01, SD-02, SD-03, SD-04, SD-05 AND SD-06. FINAL PAVING SHALL BE PER DETAIL 2/D-01.

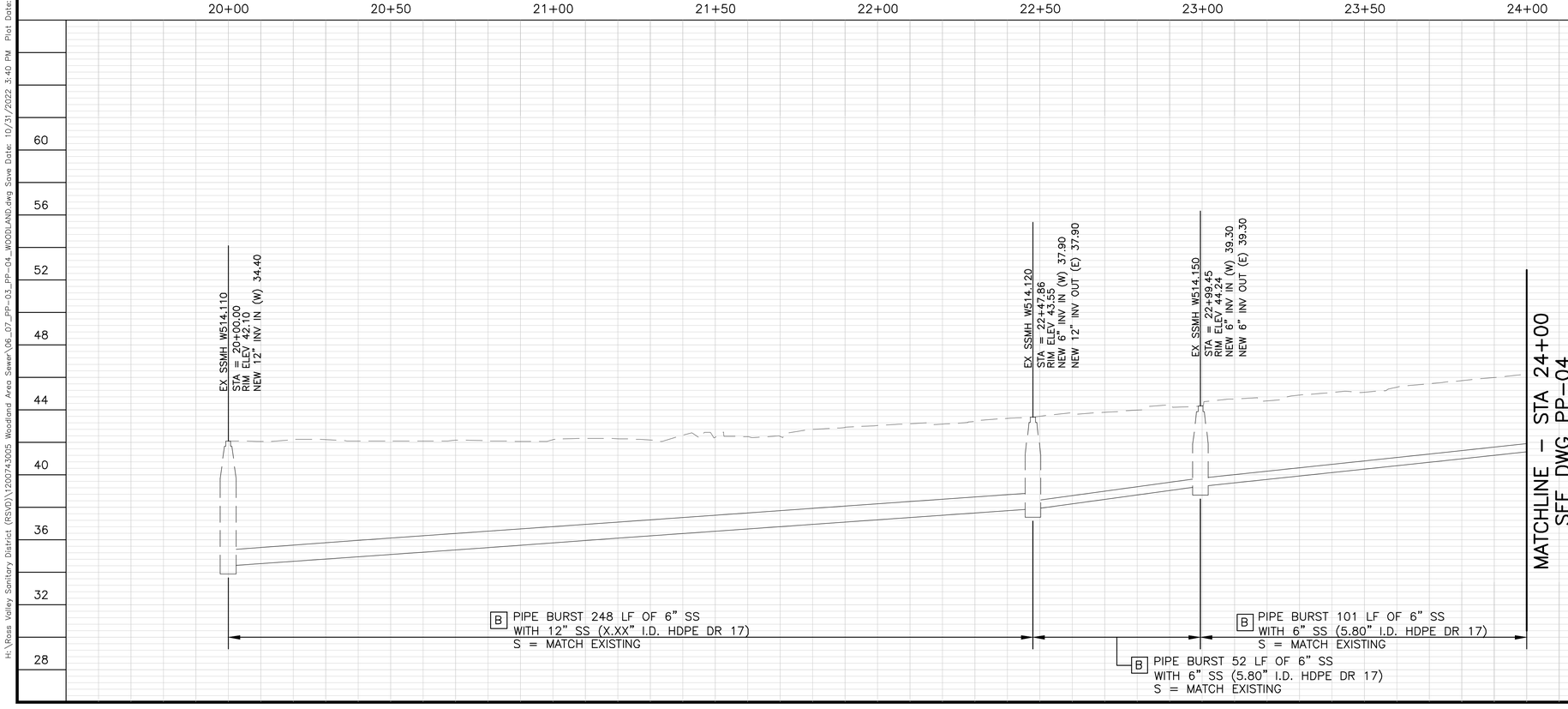
D REHABILITATE MANHOLE BY LINING WITH CALCIUM ALUMINATE MORTAR SYSTEM AFTER MANHOLE MODIFICATIONS ARE PERFORMED AND IN ACCORDANCE WITH THE SPECIFICATIONS. REMOVE EXISTING MANHOLE STEPS PRIOR TO REHABILITATION.

E PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD-29 AND SD-30. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 2/D-01.

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 WITH SEWER POPPER TYPE 2 BACKWATER PREVENTION DEVICE. CLEANOUTS SHALL MATCH EXISTING LOWER LATERAL MATERIAL. REFER TO SD-29: C-900 IS TWO-WAY AND HDPE IS WYE FACING MAIN. 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 TYPE B CONNECTION) OF SERVICE LATERAL, SHALL BE AS SHOWN ON RVSD DWG SD-29. NO VERTICAL DROP OFF IS ALLOWED.

NOTES:

1. 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.
2. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD-21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION. AIR GAP LOCATIONS ARE NOT IDENTIFIED ON THE PLANS.
3. 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.
4. FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS, SEE GENERAL NOTE 23 AND 24 ON DWG N-01 FOR HDPE SLEEVE REQUIREMENTS.
5. BENDING OF NEW PIPING AND/OR JOINT DEFLECTIONS SHALL BE IN ACCORDANCE WITH AWWA AND PIPE MANUFACTURER'S RECOMMENDATIONS.
6. 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).



NO.	BY	DATE	REVISION

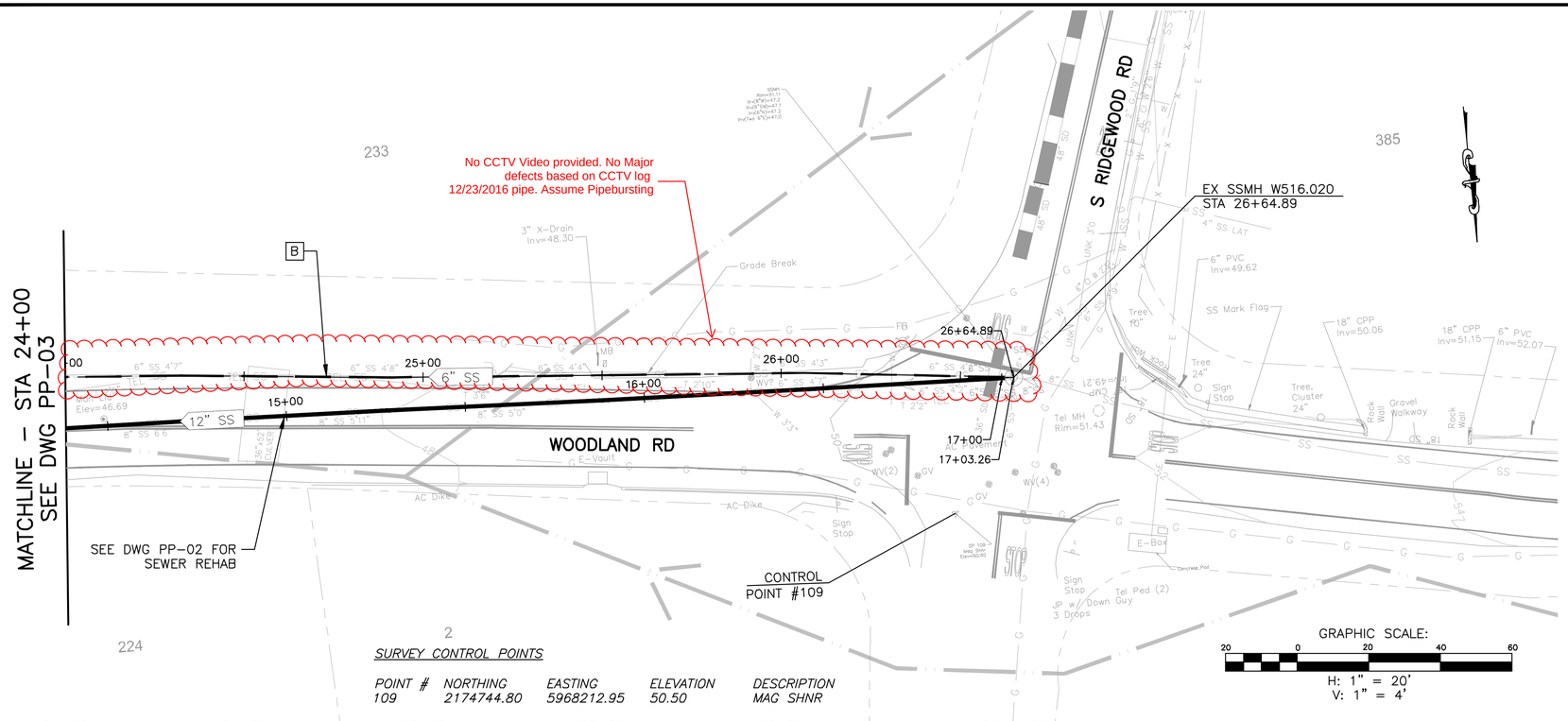
SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
WOODLAND RD

ROSS VALLEY SANITARY DISTRICT
WOODLAND AREA GRAVITY SEWER IMPROVEMENTS PROJECT

Harris & Associates
1401 Willow Pass Rd, Suite 500 Concord, CA 94520
weareharris.com (925) 827-4560

DESIGNED BY	KLC/JR
DRAWN BY	KLC/JR
CHECKED BY	KI
DATE ISSUED	10/31/2022
JOB NO.	120-0743.005
DWG NO.	**PP-03**
SHEET	06 OF 16

H:\Ross Valley Sanitary District (RSVD)\1200743005 Woodland Area Sewer\06_07_PP-03_PP-04_WOODLAND.dwg Save Date: 10/31/2022 3:40 PM Plot Date: 10/31/2022 3:40 PM Kchow



LEGEND OF REHABILITATION METHODS

A REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD–16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD–09. FINAL PAVING SHALL BE PER DETAIL 2/D–01. INSTALL TRENCH DAM PER RVSD STD DWG SD–17.

B REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD–14. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD–09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 2/D–01 FOR ALL OPEN TRENCHES.

REPAIR SURFACE UPHEAVAL AND SAG REPAIR PER RVSD STD DWG SD–22 AND SD–20 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT.

DISCONNECT AND RECONNECT SEWER LATERALS PER RVSD STD DWG SD–29 AND SD–30.

C REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD–01, SD–02, SD–03, SD–04, SD–05 AND SD–06. FINAL PAVING SHALL BE PER DETAIL 2/D–01.

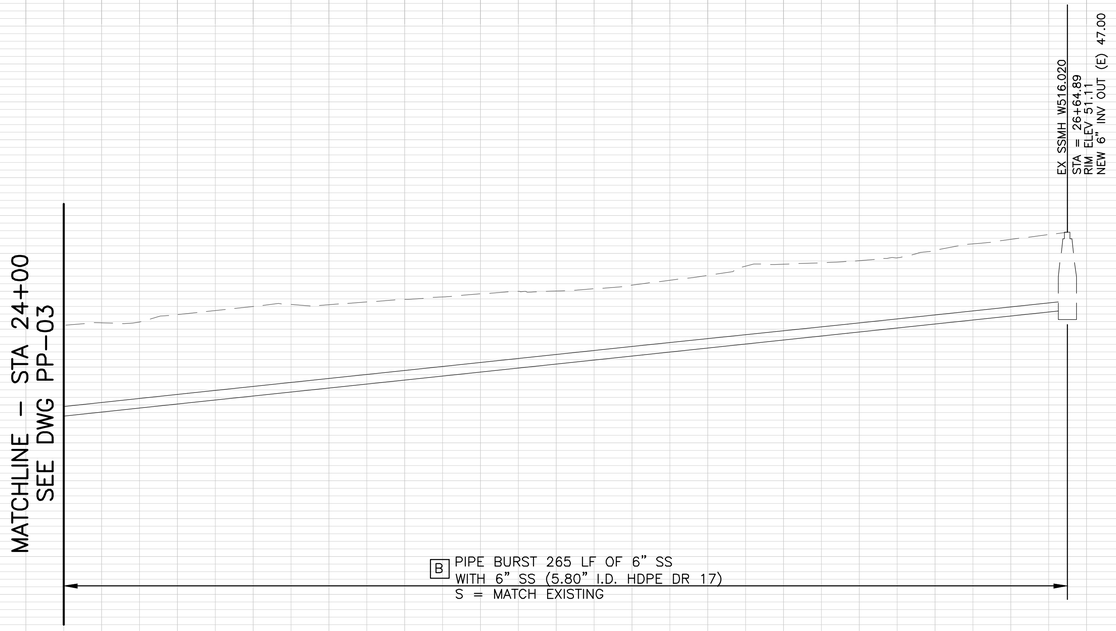
D REHABILITATE MANHOLE BY LINING WITH CALCIUM ALUMINATE MORTAR SYSTEM AFTER MANHOLE MODIFICATIONS ARE PERFORMED AND IN ACCORDANCE WITH THE SPECIFICATIONS. REMOVE EXISTING MANHOLE STEPS PRIOR TO REHABILITATION.

E PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD–29 AND SD–30. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 2/D–01.

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 WITH SEWER POPPER TYPE 2 BACKWATER PREVENTION DEVICE. CLEANOUTS SHALL MATCH EXISTING LOWER LATERAL MATERIAL. REFER TO SD–29: C–90D IS TWO–WAY AND HDPE IS WYE FACING MAIN. 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 TYPE B CONNECTION) OF SERVICE LATERAL, SHALL BE AS SHOWN ON RVSD DWG SD–29. NO VERTICAL DROP OFF IS ALLOWED.

NOTES:

1. 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.
2. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD–21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION. AIR GAP LOCATIONS ARE NOT IDENTIFIED ON THE PLANS.
3. 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.
4. FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS, SEE GENERAL NOTE 23 AND 24 ON DWG N–01 FOR HDPE SLEEVE REQUIREMENTS.
5. BENDING OF NEW PIPING AND/OR JOINT DEFLECTIONS SHALL BE IN ACCORDANCE WITH AWWA AND PIPE MANUFACTURER'S RECOMMENDATIONS.
6. 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).



50% SUBMITTAL NOT FOR CONSTRUCTION

NO.	BY	DATE	REVISION

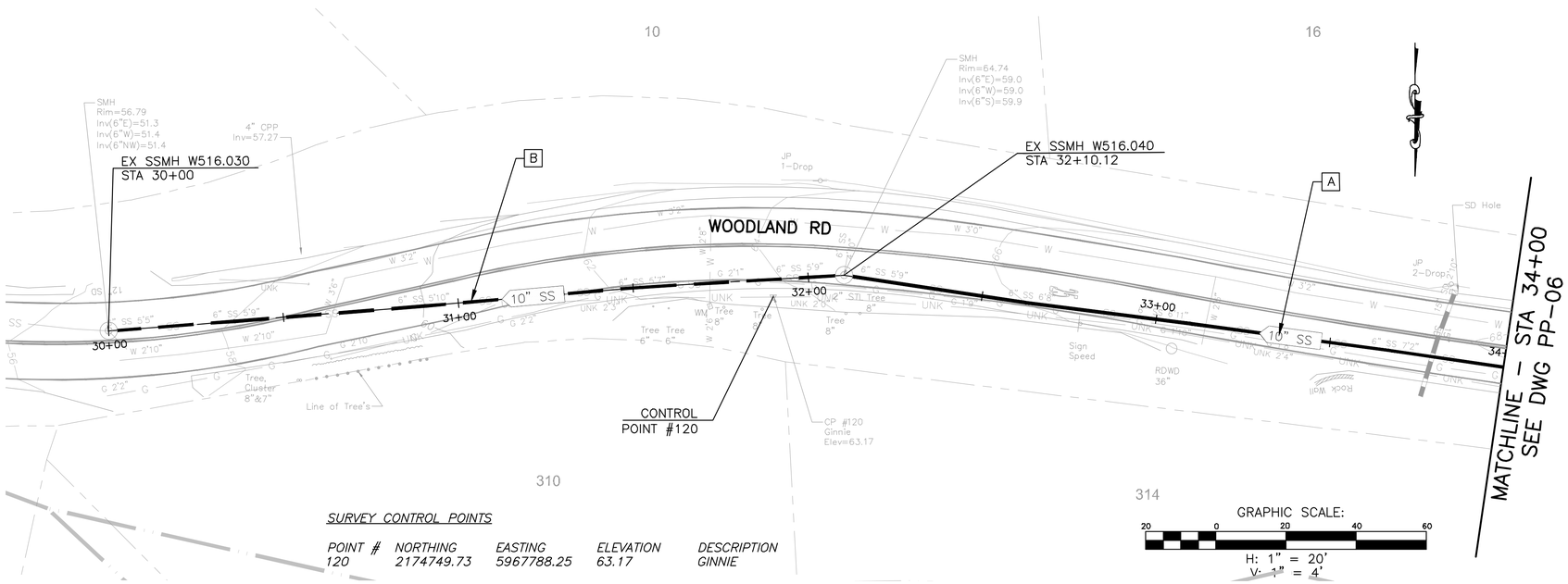
SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
WOODLAND RD

ROSS VALLEY SANITARY DISTRICT
WOODLAND AREA GRAVITY SEWER IMPROVEMENTS PROJECT

Harris & Associates
1401 Willow Pass Rd, Suite 500 Concord, CA 94520
weareHarris.com (925) 827-4500

DESIGNED BY	KLC/JR
DRAWN BY	KLC/JR
CHECKED BY	KI
DATE ISSUED	10/31/2022
JOB NO.	120–0743.005
DWG NO.	**PP–04**
SHEET	07 OF 16

H:\Ross Valley Sanitary District (RSVD)\120074305 Woodland Area Sewer\06_07_PP–03_PP–04_WOODLAND.dwg Save Date: 10/31/2022 3:40 PM Plot Date: 10/31/2022 3:40 PM Kchow



SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
120	2174749.73	5967788.25	63.17	GINNIE

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. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 2/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.

B — REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-14. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 2/D-01 FOR ALL OPEN TRENCHES.

REPAIR SURFACE UPHEAVAL AND SAG REPAIR PER RVSD STD DWG SD-22 AND SD-20 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT.

DISCONNECT AND RECONNECT SEWER LATERALS PER RVSD STD DWG SD-29 AND SD-30.

C — REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD-01, SD-02, SD-03, SD-04, SD-05 AND SD-06. FINAL PAVING SHALL BE PER DETAIL 2/D-01.

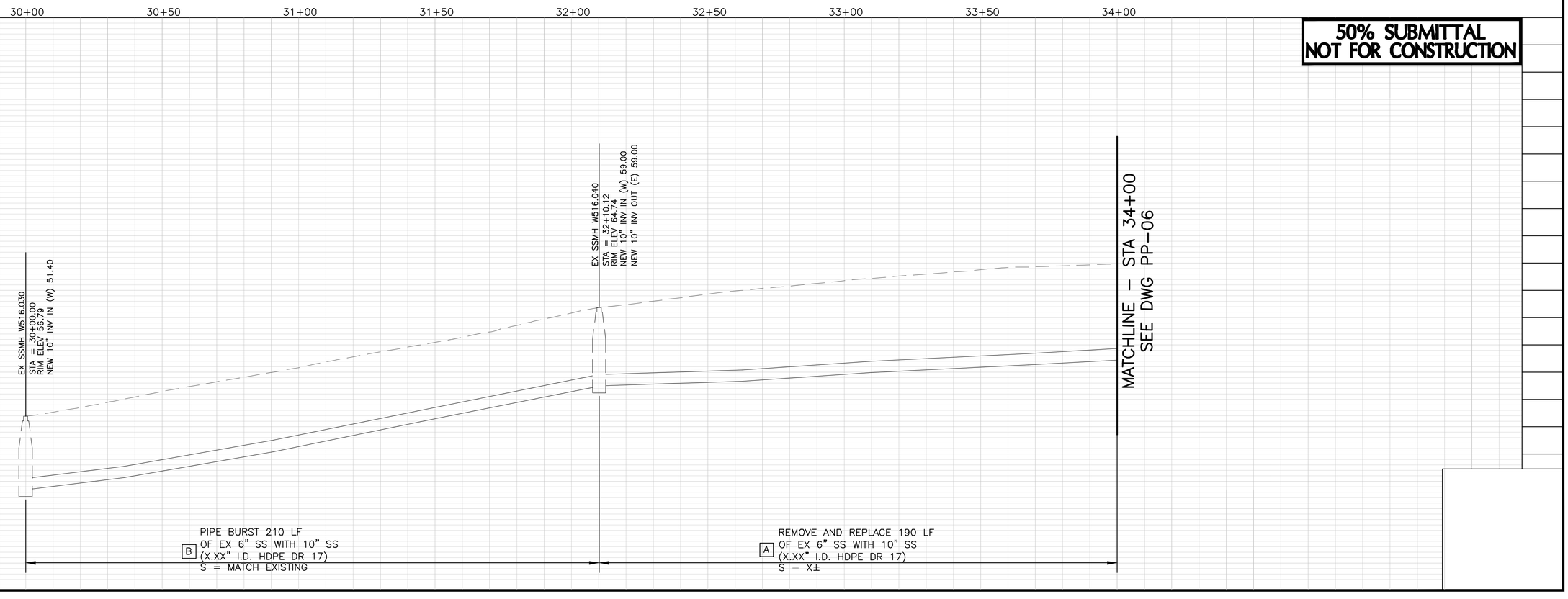
D — REHABILITATE MANHOLE BY LINING WITH CALCIUM ALUMINATE MORTAR SYSTEM AFTER MANHOLE MODIFICATIONS ARE PERFORMED AND IN ACCORDANCE WITH THE SPECIFICATIONS. REMOVE EXISTING MANHOLE STEPS PRIOR TO REHABILITATION.

E — PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD-29 AND SD-30. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 2/D-01.

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 WITH SEWER POPPER TYPE 2 BACKWATER PREVENTION DEVICE. CLEANOUTS SHALL MATCH EXISTING LOWER LATERAL MATERIAL. REFER TO SD-29: C-900 IS TWO-WAY AND HDPE IS WYE FACING MAIN. 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 TYPE B CONNECTION) OF SERVICE LATERAL, SHALL BE AS SHOWN ON RVSD DWG SD-29. NO VERTICAL DROP OFF IS ALLOWED.

NOTES:

1. 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.
2. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD-21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION. AIR GAP LOCATIONS ARE NOT IDENTIFIED ON THE PLANS.
3. 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.
4. FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS, SEE GENERAL NOTE 23 AND 24 ON DWG N-01 FOR HDPE SLEEVE REQUIREMENTS.
5. BENDING OF NEW PIPING AND/OR JOINT DEFLECTIONS SHALL BE IN ACCORDANCE WITH AWWA AND PIPE MANUFACTURER'S RECOMMENDATIONS.
6. 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).



50% SUBMITTAL NOT FOR CONSTRUCTION

NO.	BY	DATE	REVISION

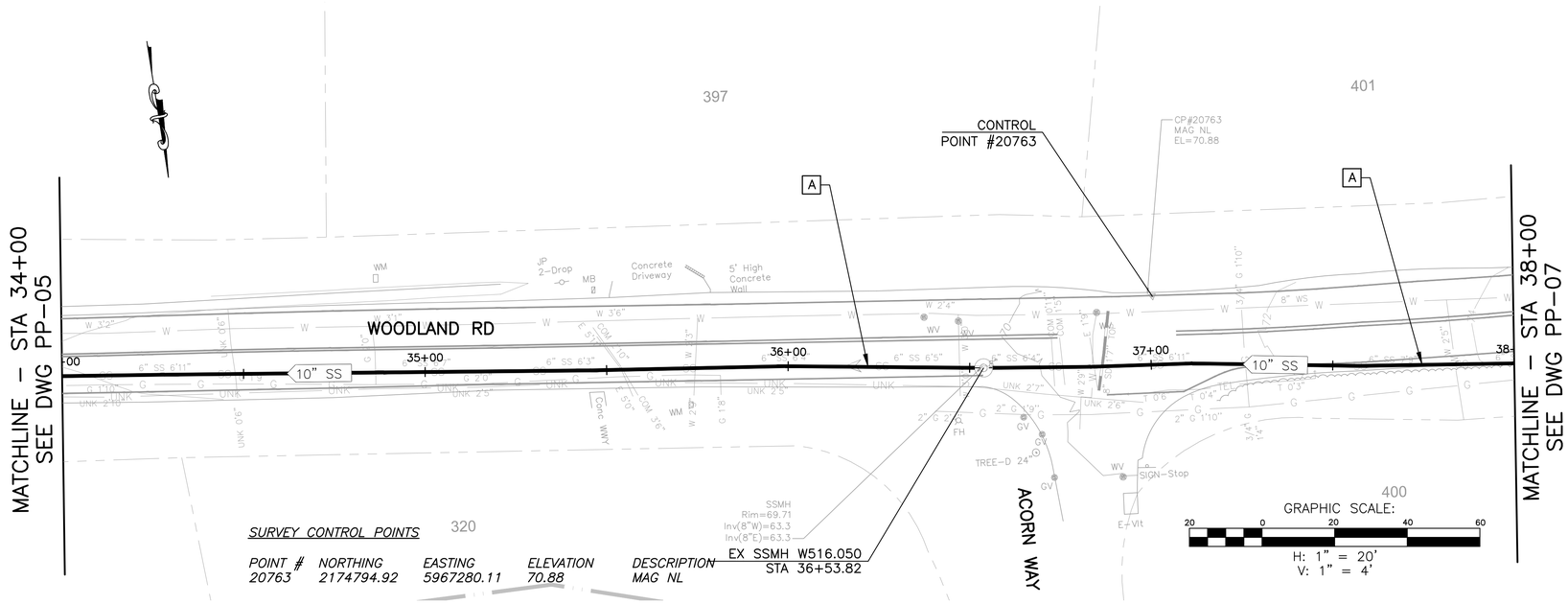
SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
WOODLAND RD

ROSS VALLEY SANITARY DISTRICT
WOODLAND AREA GRAVITY SEWER IMPROVEMENTS PROJECT

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

DESIGNED BY	KLC/JR
DRAWN BY	KLC/JR
CHECKED BY	KI
DATE ISSUED	10/31/2022
JOB NO.	120-0743.005
DWG NO.	**PP-05**
SHEET	08 OF 16

H:\Ross Valley Sanitary District (RSVD)\120074300S Woodland Area Sewer\08_12_PP-05_PP-09_WOODLAND.dwg Save Date: 10/31/2022 3:41 PM Plot Date: 10/31/2022 3:41 PM KKhow



LEGEND OF REHABILITATION METHODS

A REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD–16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD–09. FINAL PAVING SHALL BE PER DETAIL 2/D–01. INSTALL TRENCH DAM PER RVSD STD DWG SD–17.

B REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD–14. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD–09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 2/D–01 FOR ALL OPEN TRENCHES.

REPAIR SURFACE UPHEAVAL AND SAG REPAIR PER RVSD STD DWG SD–22 AND SD–20 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT.

DISCONNECT AND RECONNECT SEWER LATERALS PER RVSD STD DWG SD–29 AND SD–30.

C REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD–01, SD–02, SD–03, SD–04, SD–05 AND SD–06. FINAL PAVING SHALL BE PER DETAIL 2/D–01.

D REHABILITATE MANHOLE BY LINING WITH CALCIUM ALUMINATE MORTAR SYSTEM AFTER MANHOLE MODIFICATIONS ARE PERFORMED AND IN ACCORDANCE WITH THE SPECIFICATIONS. REMOVE EXISTING MANHOLE STEPS PRIOR TO REHABILITATION.

E PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD–29 AND SD–30. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 2/D–01.

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 WITH SEWER POPPER TYPE 2 BACKWATER PREVENTION DEVICE. CLEANOUTS SHALL MATCH EXISTING LOWER LATERAL MATERIAL. REFER TO SD–29: C–900 IS TWO–WAY AND HDPE IS WYE FACING MAIN. 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 TYPE B CONNECTION) OF SERVICE LATERAL, SHALL BE AS SHOWN ON RVSD DWG SD–29. NO VERTICAL DROP OFF IS ALLOWED.

NOTES:

1. 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.
2. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD–21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION. AIR GAP LOCATIONS ARE NOT IDENTIFIED ON THE PLANS.
3. 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.
4. FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS, SEE GENERAL NOTE 23 AND 24 ON DWG N–01 FOR HDPE SLEEVE REQUIREMENTS.
5. BENDING OF NEW PIPING AND/OR JOINT DEFLECTIONS SHALL BE IN ACCORDANCE WITH AWWA AND PIPE MANUFACTURER'S RECOMMENDATIONS.
6. 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).

50% SUBMITTAL NOT FOR CONSTRUCTION

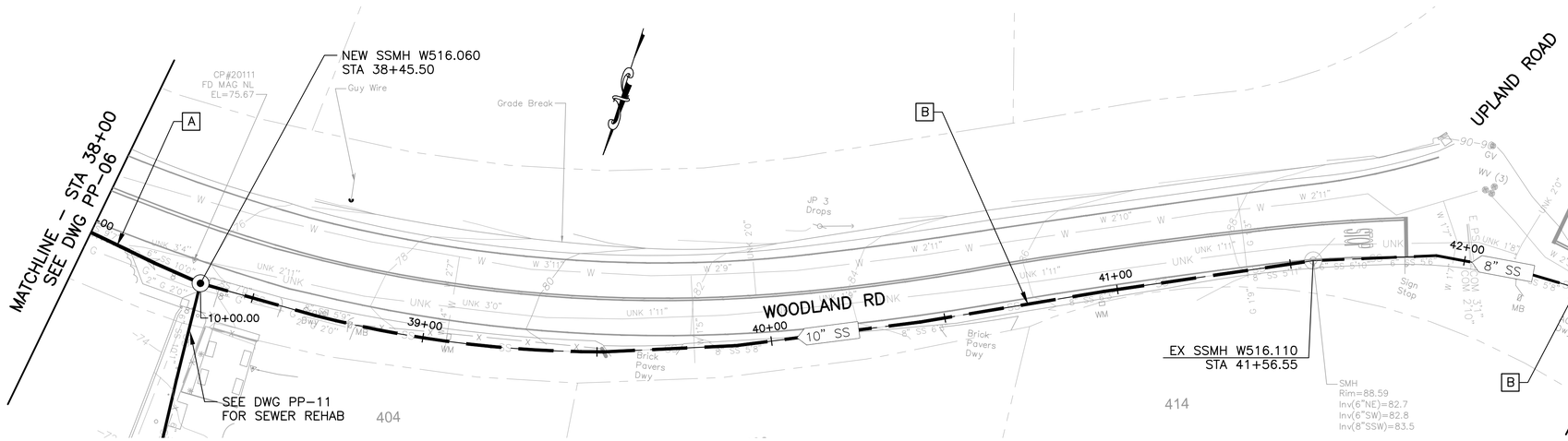
NO.	BY	DATE	REVISION

SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
WOODLAND RD

ROSS VALLEY SANITARY DISTRICT
WOODLAND AREA GRAVITY SEWER IMPROVEMENTS PROJECT

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

DESIGNED BY	KLC/JR
DRAWN BY	KLC/JR
CHECKED BY	KI
DATE ISSUED	10/31/2022
JOB NO.	120–0743.005
DWG NO.	PP–06
SHEET	09 OF 16



SURVEY CONTROL POINTS

POINT #	*NORTHING*	*EASTING*	*ELEVATION*	*DESCRIPTION*
124	*2174691.52*	*5966771.22*	*90.37*	*GINNIE*

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. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 2/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.

B REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-14. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 2/D-01 FOR ALL OPEN TRENCHES.

REPAIR SURFACE UPHEAVAL AND SAG REPAIR PER RVSD STD DWG SD-22 AND SD-20 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT.

DISCONNECT AND RECONNECT SEWER LATERALS PER RVSD STD DWG SD-29 AND SD-30.

C REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD-01, SD-02, SD-03, SD-04, SD-05 AND SD-06. FINAL PAVING SHALL BE PER DETAIL 2/D-01.

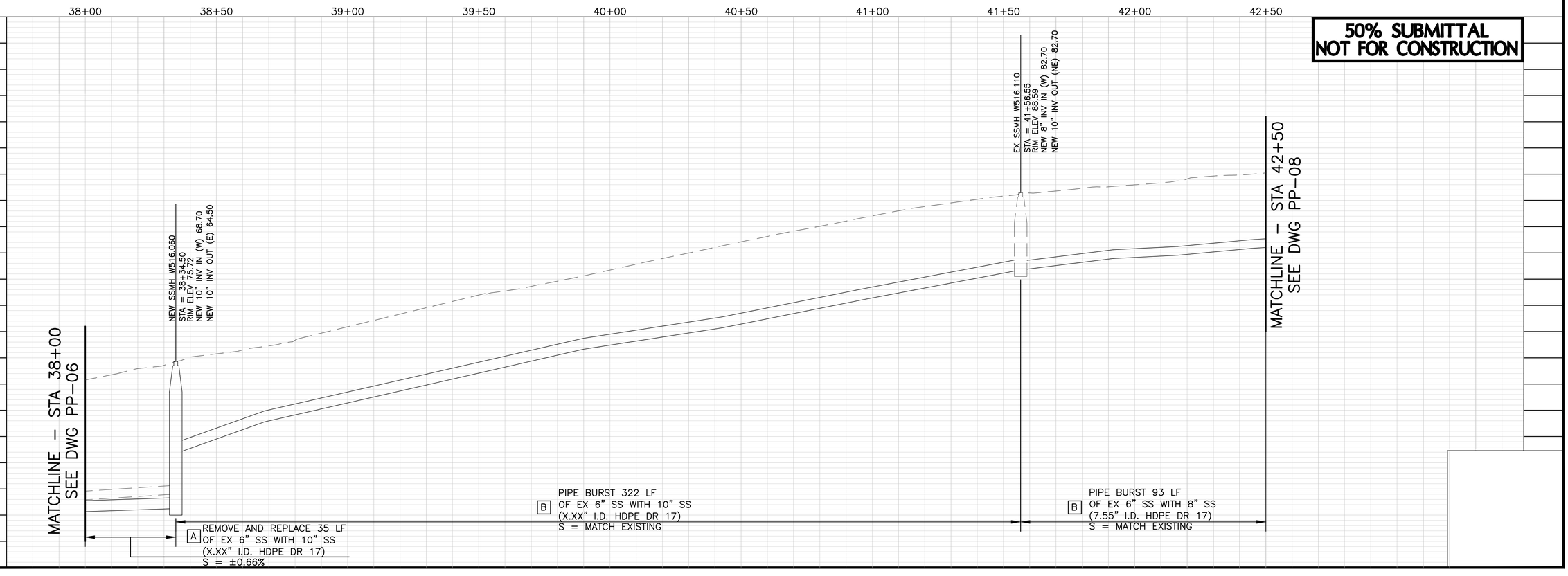
D REHABILITATE MANHOLE BY LINING WITH CALCIUM ALUMINATE MORTAR SYSTEM AFTER MANHOLE MODIFICATIONS ARE PERFORMED AND IN ACCORDANCE WITH THE SPECIFICATIONS. REMOVE EXISTING MANHOLE STEPS PRIOR TO REHABILITATION.

E PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD-29 AND SD-30. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 2/D-01.

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 WITH SEWER POPPER TYPE 2 BACKWATER PREVENTION DEVICE. CLEANOUTS SHALL MATCH EXISTING LOWER LATERAL MATERIAL. REFER TO SD-29: C-900 IS TWO-WAY AND HDPE IS WYE FACING MAIN. 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 TYPE B CONNECTION) OF SERVICE LATERAL, SHALL BE AS SHOWN ON RVSD DWG SD-29. NO VERTICAL DROP OFF IS ALLOWED.

NOTES:

1. 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.
2. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD-21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION. AIR GAP LOCATIONS ARE NOT IDENTIFIED ON THE PLANS.
3. 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.
4. FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS, SEE GENERAL NOTE 23 AND 24 ON DWG N-01 FOR HDPE SLEEVE REQUIREMENTS.
5. BENDING OF NEW PIPING AND/OR JOINT DEFLECTIONS SHALL BE IN ACCORDANCE WITH AWWA AND PIPE MANUFACTURER'S RECOMMENDATIONS.
6. 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).



50% SUBMITTAL NOT FOR CONSTRUCTION

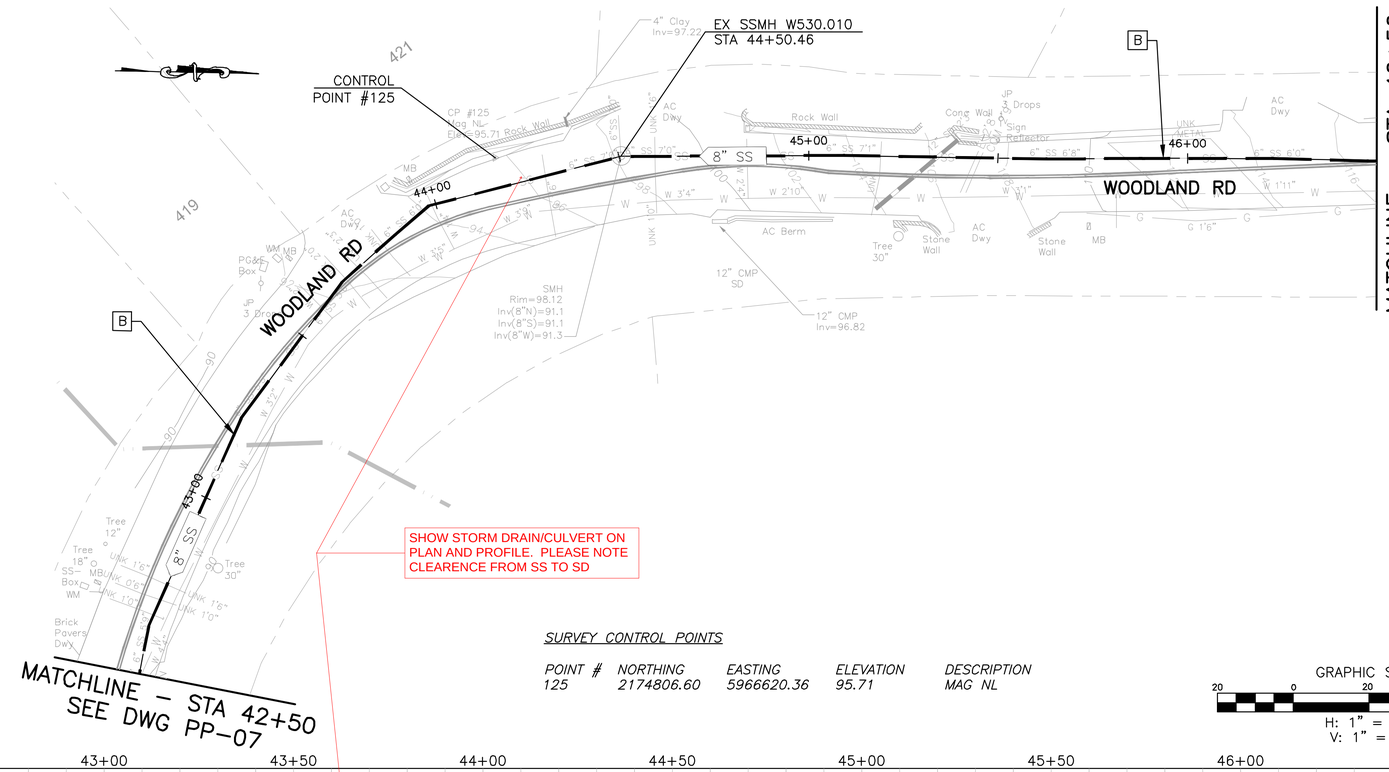
NO.	BY	DATE	REVISION

SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
WOODLAND RD

ROSS VALLEY SANITARY DISTRICT
WOODLAND AREA GRAVITY SEWER IMPROVEMENTS PROJECT

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

DESIGNED BY	KLC/JR
DRAWN BY	KLC/JR
CHECKED BY	KI
DATE ISSUED	10/31/2022
JOB NO.	120-0743.005
DWG NO.	**PP-07**
SHEET	10 OF 16



SURVEY CONTROL POINTS

POINT #	*NORTHING*	*EASTING*	*ELEVATION*	*DESCRIPTION*
125	*2174806.60*	*5966620.36*	*95.71*	*MAG NL*

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. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD–09. FINAL PAVING SHALL BE PER DETAIL 2/D–01. INSTALL TRENCH DAM PER RVSD STD DWG SD–17.

B REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD–14. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD–09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 2/D–01 FOR ALL OPEN TRENCHES.

REPAIR SURFACE UPHEAVAL AND SAG REPAIR PER RVSD STD DWG SD–22 AND SD–20 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT.

DISCONNECT AND RECONNECT SEWER LATERALS PER RVSD STD DWG SD–29 AND SD–30.

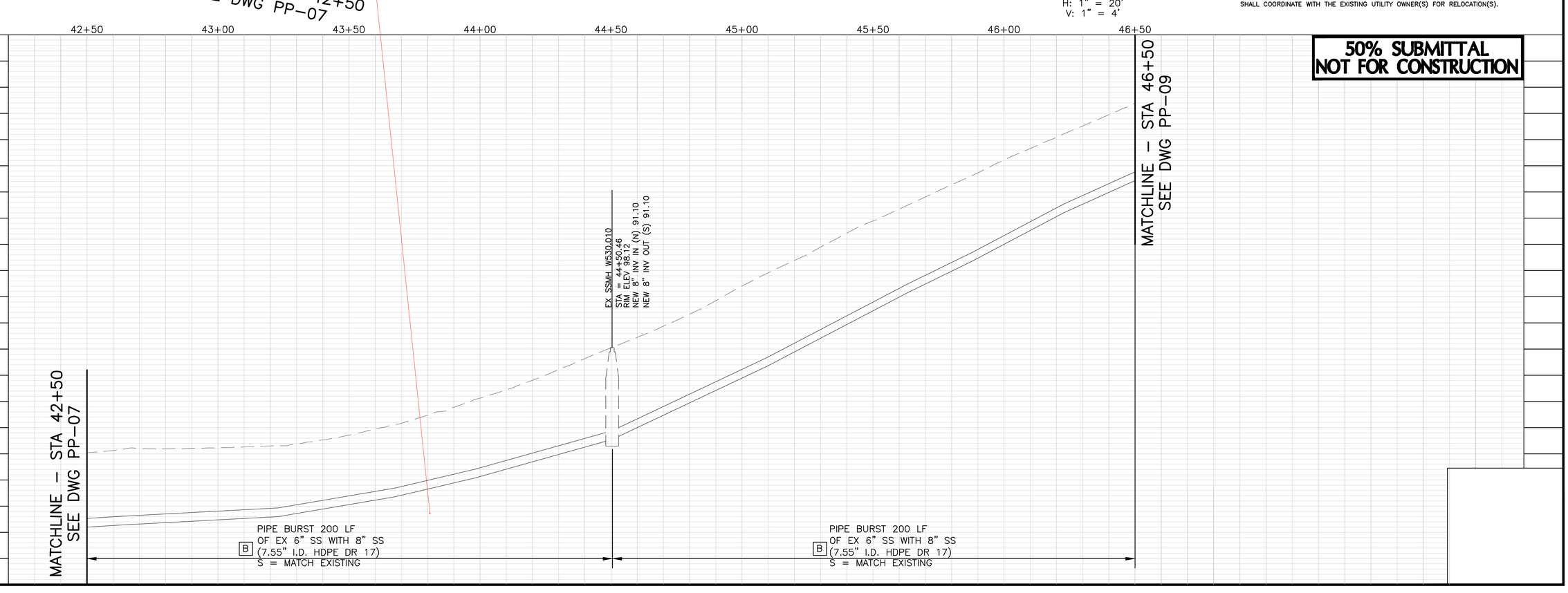
C REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD–01, SD–02, SD–03, SD–04, SD–05 AND SD–06. FINAL PAVING SHALL BE PER DETAIL 2/D–01.

D REHABILITATE MANHOLE BY LINING WITH CALCIUM ALUMINATE MORTAR SYSTEM AFTER MANHOLE MODIFICATIONS ARE PERFORMED AND IN ACCORDANCE WITH THE SPECIFICATIONS. REMOVE EXISTING MANHOLE STEPS PRIOR TO REHABILITATION.

E PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD–29 AND SD–30. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 2/D–01.

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 WITH SEWER POPPER TYPE 2 BACKWATER PREVENTION DEVICE. CLEANOUTS SHALL MATCH EXISTING LOWER LATERAL MATERIAL. REFER TO SD–29: C–900 IS TWO–WAY AND HDPE IS WYE FACING MAIN. 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 TYPE B CONNECTION) OF SERVICE LATERAL, SHALL BE AS SHOWN ON RVSD DWG SD–29. NO VERTICAL DROP OFF IS ALLOWED.

NOTES:
1. 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.
2. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD–21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION. AIR GAP LOCATIONS ARE NOT IDENTIFIED ON THE PLANS.
3. 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.
4. FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS, SEE GENERAL NOTE 23 AND 24 ON DWG N–01 FOR HDPE SLEEVE REQUIREMENTS.
5. BENDING OF NEW PIPING AND/OR JOINT DEFLECTIONS SHALL BE IN ACCORDANCE WITH AWWA AND PIPE MANUFACTURER'S RECOMMENDATIONS.
6. 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).



50% SUBMITTAL NOT FOR CONSTRUCTION

NO.	BY	DATE	REVISION

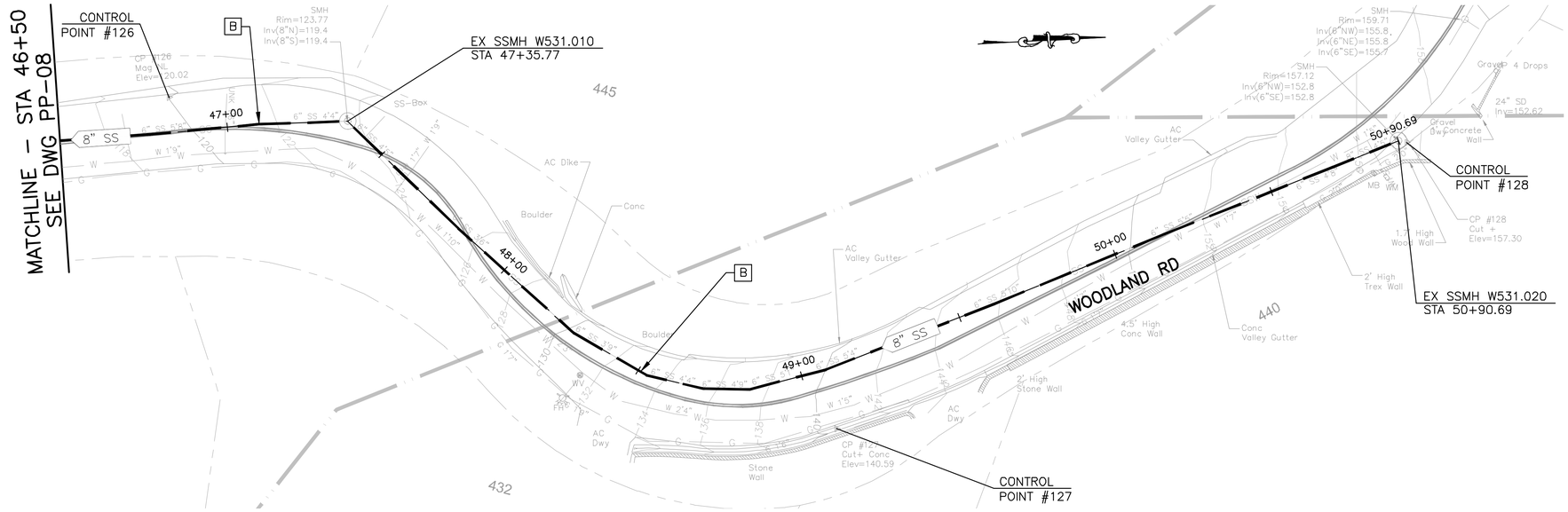
SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
WOODLAND RD

ROSS VALLEY SANITARY DISTRICT
WOODLAND AREA GRAVITY SEWER IMPROVEMENTS PROJECT

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

DESIGNED BY	KLC/JR
DRAWN BY	KLC/JR
CHECKED BY	KI
DATE ISSUED	10/31/2022
JOB NO.	120–0743.005
DWG NO.	**PP–08**
SHEET	11 OF 16

H:\Ross Valley Sanitary District (RSVD)\120074300S Woodland Area Sewer\08_12_PP–05_PP–09_WOODLAND.dwg Save Date: 10/31/2022 3:42 PM Plot Date: 10/31/2022 3:42 PM Kchow



LEGEND OF REHABILITATION METHODS

A REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD–16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD–09. FINAL PAVING SHALL BE PER DETAIL 2/D–01. INSTALL TRENCH DAM PER RVSD STD DWG SD–17.

B REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD–14. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD–09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 2/D–01 FOR ALL OPEN TRENCHES.

REPAIR SURFACE UPHEAVAL AND SAG REPAIR PER RVSD STD DWG SD–22 AND SD–20 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT.

DISCONNECT AND RECONNECT SEWER LATERALS PER RVSD STD DWG SD–29 AND SD–30.

C REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD–01, SD–02, SD–03, SD–04, SD–05 AND SD–06. FINAL PAVING SHALL BE PER DETAIL 2/D–01.

D REHABILITATE MANHOLE BY LINING WITH CALCIUM ALUMINATE MORTAR SYSTEM AFTER MANHOLE MODIFICATIONS ARE PERFORMED AND IN ACCORDANCE WITH THE SPECIFICATIONS. REMOVE EXISTING MANHOLE STEPS PRIOR TO REHABILITATION.

E PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD–29 AND SD–30. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 2/D–01.

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 WITH SEWER POPPER TYPE 2 BACKWATER PREVENTION DEVICE. CLEANOUTS SHALL MATCH EXISTING LOWER LATERAL MATERIAL. REFER TO SD–29: C–900 IS TWO–WAY AND HDPE IS WYE FACING MAIN. 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 TYPE B CONNECTION) OF SERVICE LATERAL, SHALL BE AS SHOWN ON RVSD DWG SD–29. NO VERTICAL DROP OFF IS ALLOWED.

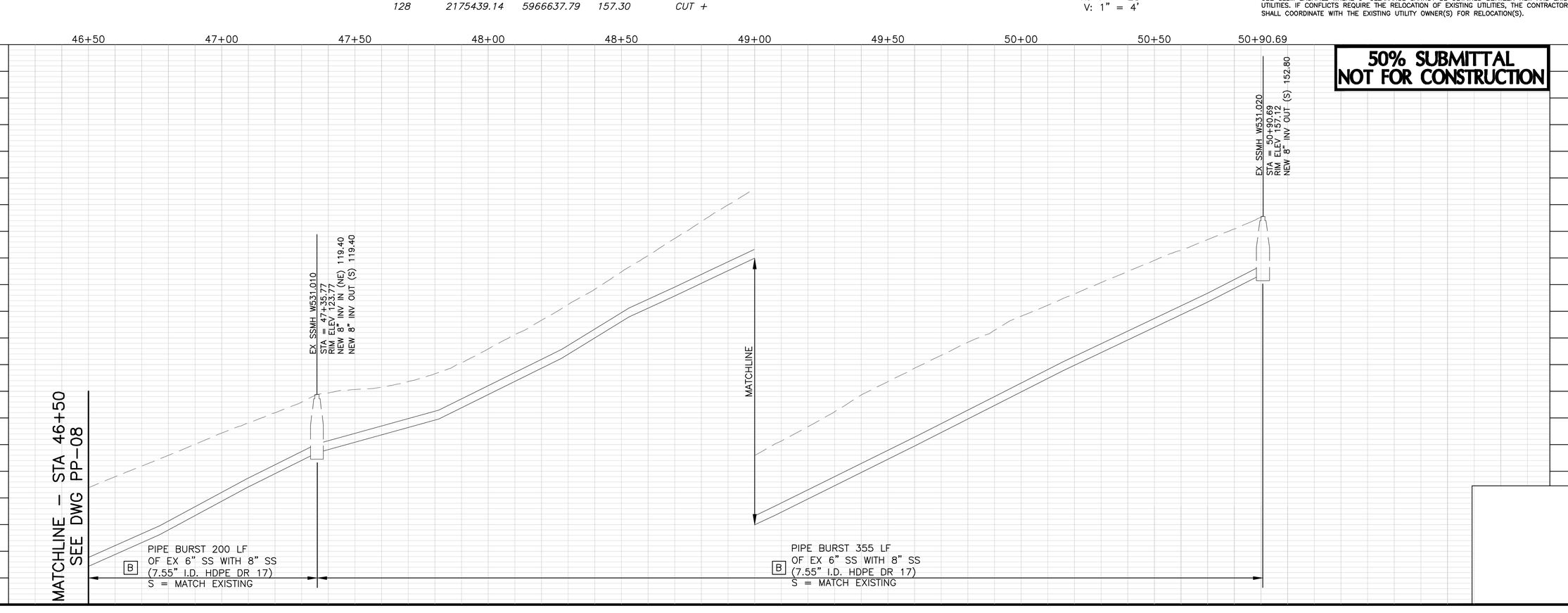
NOTES:

1. 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.
2. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD–21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION. AIR GAP LOCATIONS ARE NOT IDENTIFIED ON THE PLANS.
3. 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.
4. FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS, SEE GENERAL NOTE 23 AND 24 ON DWG N–01 FOR HDPE SLEEVE REQUIREMENTS.
5. BENDING OF NEW PIPING AND/OR JOINT DEFLECTIONS SHALL BE IN ACCORDANCE WITH AWWA AND PIPE MANUFACTURER'S RECOMMENDATIONS.
6. 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).

SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
126	2175072.43	5966605.55	120.02	MAG NL
127	2175265.58	5966714.04	140.59	CULT CONC
128	2175439.14	5966637.79	157.30	CUT +

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



**50% SUBMITTAL
NOT FOR CONSTRUCTION**

NO.	BY	DATE	REVISION

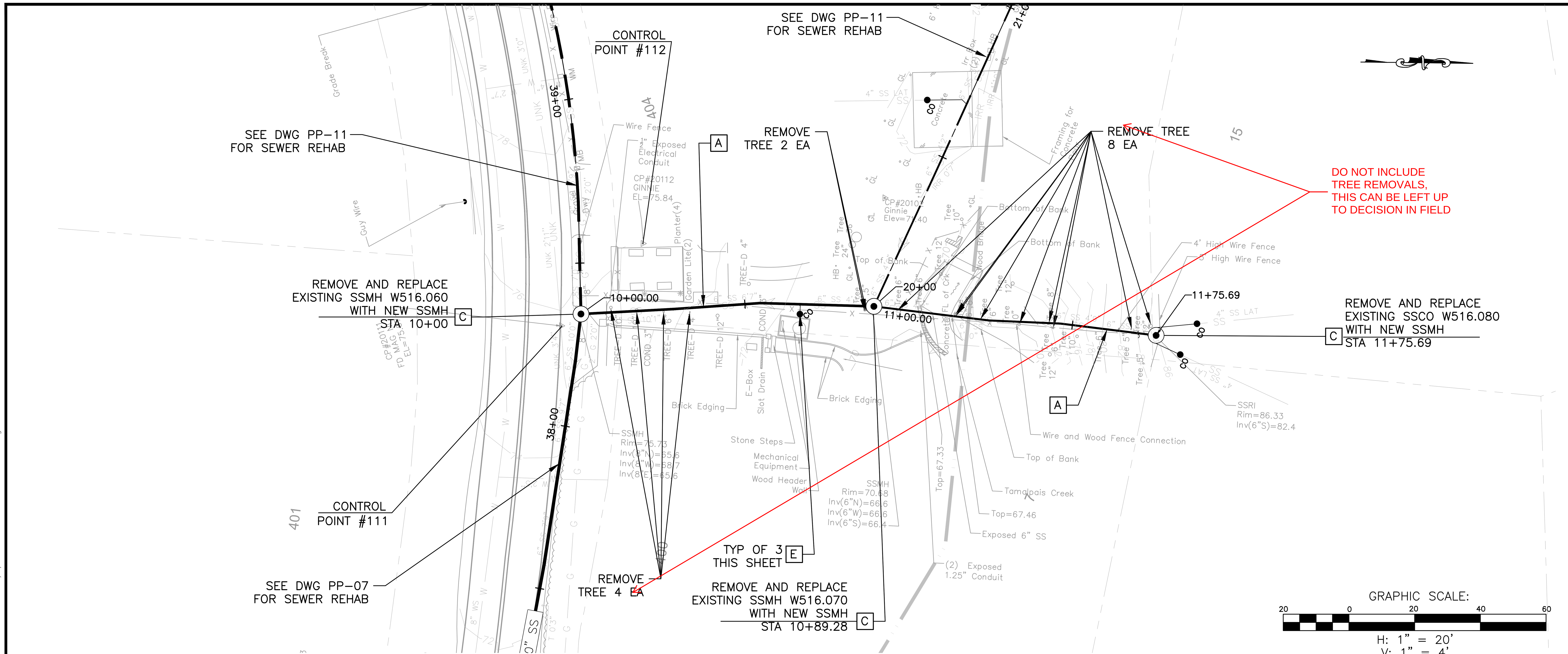
**SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
WOODLAND RD**

**ROSS VALLEY
SANITARY DISTRICT
WOODLAND AREA
GRAVITY SEWER
IMPROVEMENTS PROJECT**

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

DESIGNED BY	KLC/JR
DRAWN BY	KLC/JR
CHECKED BY	KI
DATE ISSUED	10/31/2022
JOB NO.	120–0743.005
DWG NO.	**PP–09**
SHEET	12 OF 16

H:\Ross Valley Sanitary District (RSVD)\120074300S Woodland Area Sewer\08_12_PP–05_PP–09_WOODLAND.dwg Save Date: 10/31/2022 3:42 PM Plot Date: 10/31/2022 3:42 PM Kchow



LEGEND OF REHABILITATION METHODS

A REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD–16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD–09. FINAL PAVING SHALL BE PER DETAIL 2/D–01. INSTALL TRENCH DAM PER RVSD STD DWG SD–17.

B REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD–14. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD–09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 2/D–01 FOR ALL OPEN TRENCHES.

REPAIR SURFACE UPHEAVAL AND SAG REPAIR PER RVSD STD DWG SD–22 AND SD–20 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT.

DISCONNECT AND RECONNECT SEWER LATERALS PER RVSD STD DWG SD–29 AND SD–30.

C REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD–01, SD–02, SD–03, SD–04, SD–05 AND SD–06. FINAL PAVING SHALL BE PER DETAIL 2/D–01.

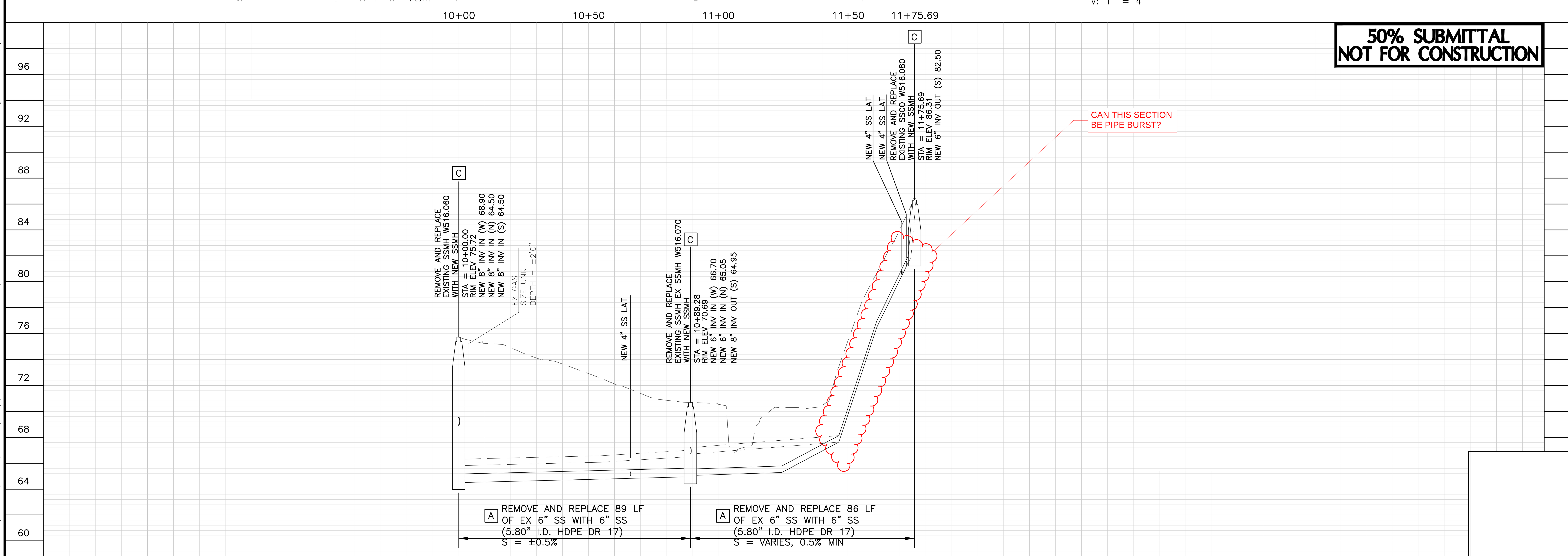
D REHABILITATE MANHOLE BY LINING WITH CALCIUM ALUMINATE MORTAR SYSTEM AFTER MANHOLE MODIFICATIONS ARE PERFORMED AND IN ACCORDANCE WITH THE SPECIFICATIONS. REMOVE EXISTING MANHOLE STEPS PRIOR TO REHABILITATION.

E PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD–29 AND SD–30. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 2/D–01.

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 WITH SEWER POPPER TYPE 2 BACKWATER PREVENTION DEVICE. CLEANOUTS SHALL MATCH EXISTING LOWER LATERAL MATERIAL. REFER TO SD–29: C–900 IS TWO–WAY AND HDPE IS WYE FACING MAIN. 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 TYPE B CONNECTION) OF SERVICE LATERAL, SHALL BE AS SHOWN ON RVSD DWG SD–29. NO VERTICAL DROP OFF IS ALLOWED.

NOTES:

1. 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.
2. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD–21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION. AIR GAP LOCATIONS ARE NOT IDENTIFIED ON THE PLANS.
3. 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.
4. FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS, SEE GENERAL NOTE 23 AND 24 ON DWG N–01 FOR HDPE SLEEVE REQUIREMENTS.
5. BENDING OF NEW PIPING AND/OR JOINT DEFLECTIONS SHALL BE IN ACCORDANCE WITH AWWA AND PIPE MANUFACTURER'S RECOMMENDATIONS.
6. 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).



50% SUBMITTAL NOT FOR CONSTRUCTION

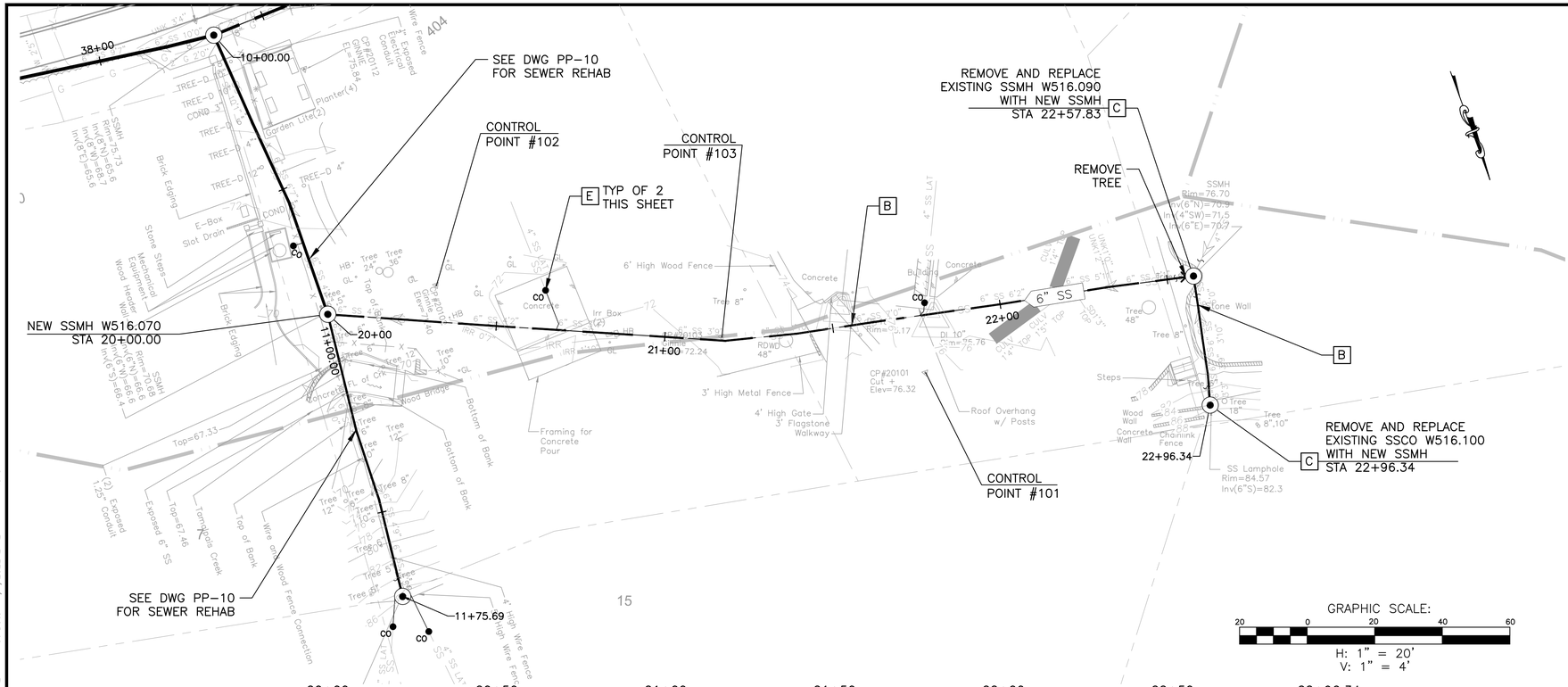
NO.	BY	DATE	REVISION

SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
WOODLAND RD

ROSS VALLEY SANITARY DISTRICT
WOODLAND AREA GRAVITY SEWER IMPROVEMENTS PROJECT

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

DESIGNED BY	KLC/JR
DRAWN BY	KLC/JR
CHECKED BY	KI
DATE ISSUED	10/31/2022
JOB NO.	120–0743.005
DWG NO.	PP-10



LEGEND OF REHABILITATION METHODS

A REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD-16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 2/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.

B REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-14. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 2/D-01 FOR ALL OPEN TRENCHES.

REPAIR SURFACE UPHEAVAL AND SAG REPAIR PER RVSD STD DWG SD-22 AND SD-20 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT.

DISCONNECT AND RECONNECT SEWER LATERALS PER RVSD STD DWG SD-29 AND SD-30.

C REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD-01, SD-02, SD-03, SD-04, SD-05 AND SD-06. FINAL PAVING SHALL BE PER DETAIL 2/D-01.

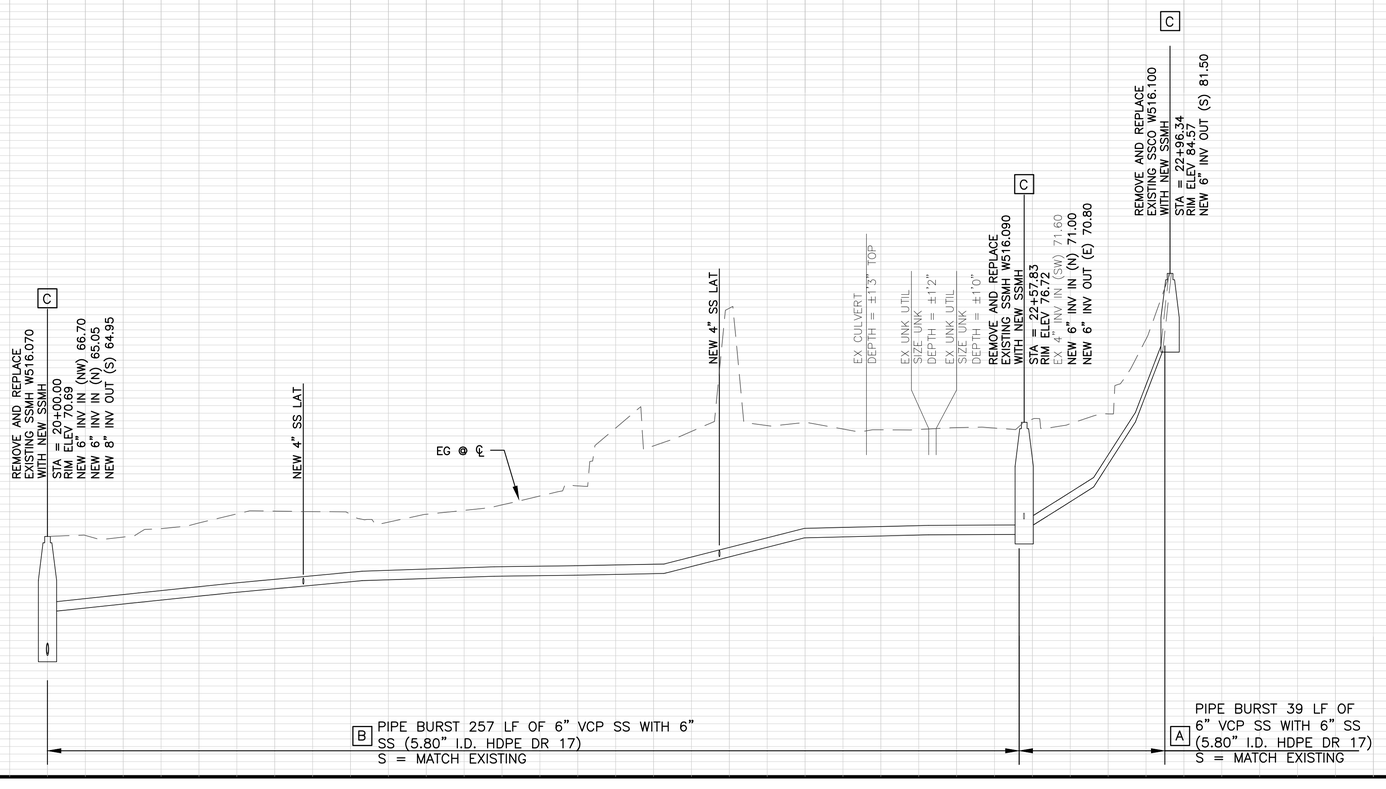
D REHABILITATE MANHOLE BY LINING WITH CALCIUM ALUMINATE MORTAR SYSTEM AFTER MANHOLE MODIFICATIONS ARE PERFORMED AND IN ACCORDANCE WITH THE SPECIFICATIONS. REMOVE EXISTING MANHOLE STEPS PRIOR TO REHABILITATION.

E PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD-29 AND SD-30. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 2/D-01.

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 WITH SEWER POPPER TYPE 2 BACKWATER PREVENTION DEVICE. CLEANOUTS SHALL MATCH EXISTING LOWER LATERAL MATERIAL. REFER TO SD-29: C-900 IS TWO-WAY AND HDPE IS WYE FACING MAIN. 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 TYPE B CONNECTION) OF SERVICE LATERAL, SHALL BE AS SHOWN ON RVSD DWG SD-29. NO VERTICAL DROP OFF IS ALLOWED.

NOTES:

1. 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.
2. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD-21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION. AIR GAP LOCATIONS ARE NOT IDENTIFIED ON THE PLANS.
3. 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.
4. FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS, SEE GENERAL NOTE 23 AND 24 ON DWG N-01 FOR HDPE SLEEVE REQUIREMENTS.
5. BENDING OF NEW PIPING AND/OR JOINT DEFLECTIONS SHALL BE IN ACCORDANCE WITH AWWA AND PIPE MANUFACTURER'S RECOMMENDATIONS.
6. 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).



50% SUBMITTAL NOT FOR CONSTRUCTION

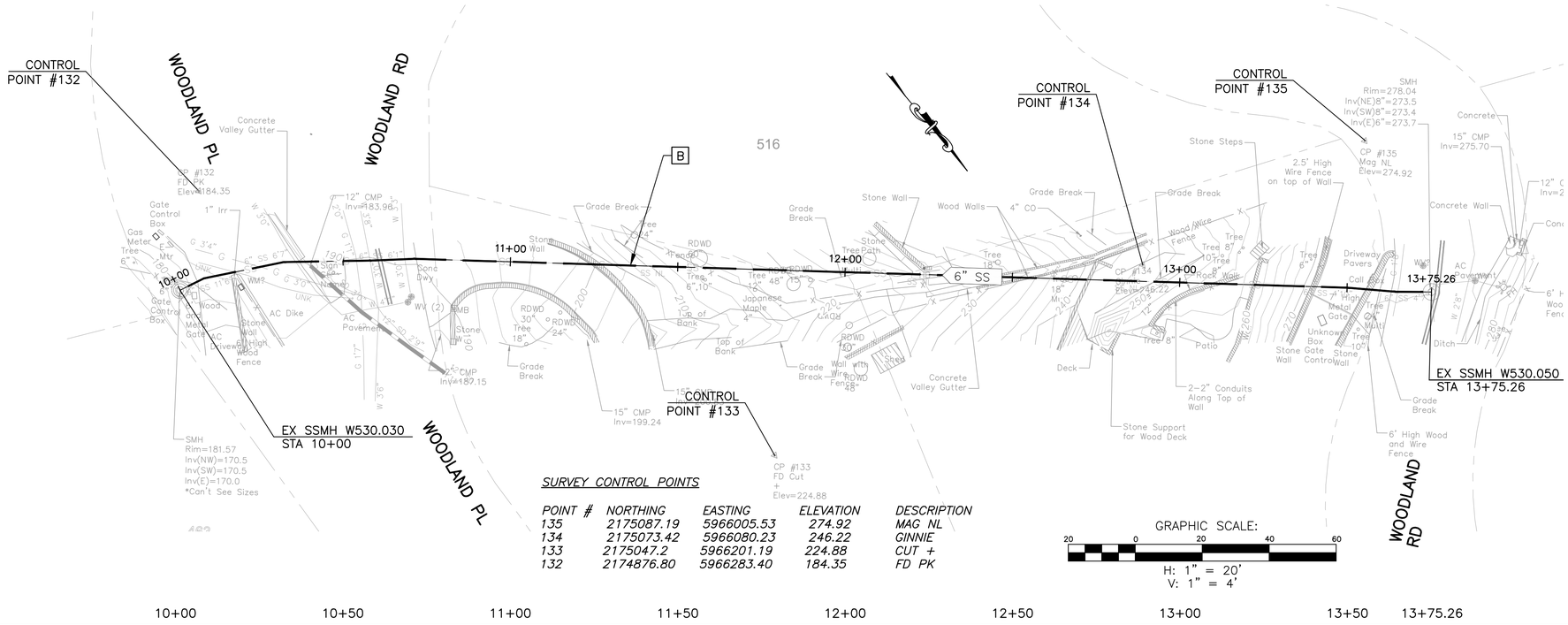
NO.	BY	DATE	REVISION

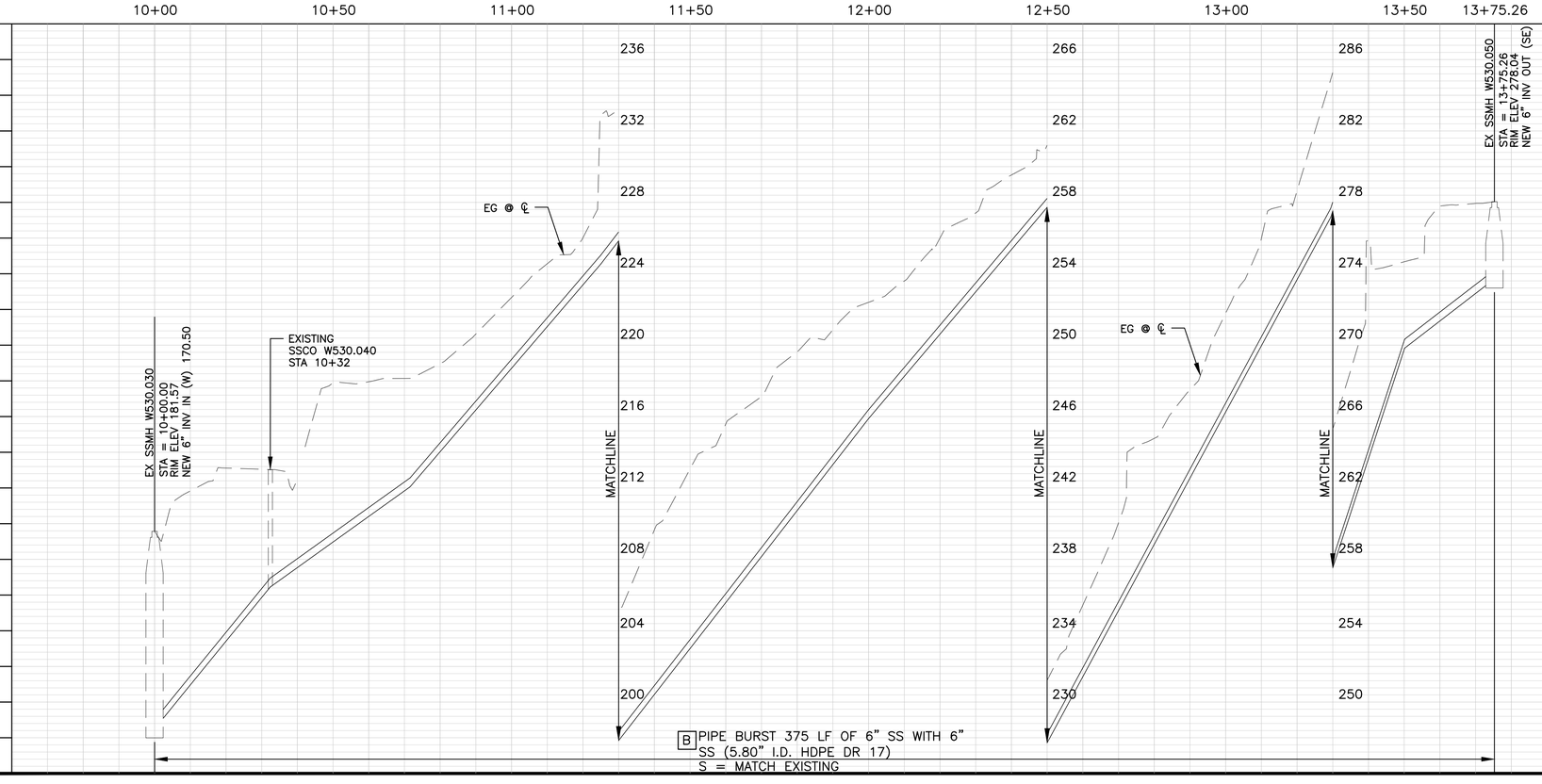
SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
WOODLAND RD

ROSS VALLEY SANITARY DISTRICT
WOODLAND AREA GRAVITY SEWER IMPROVEMENTS PROJECT

Harris & Associates
1401 Willow Pass Rd, Suite 500 Concord, CA 94520
weareharris.com (925) 627-4500

DESIGNED BY	KLC/JR
DRAWN BY	KLC/JR
CHECKED BY	KI
DATE ISSUED	10/31/2022
JOB NO.	120-0743.005
DWG NO.	PP-11
SHEET	14 OF 16





LEGEND OF REHABILITATION METHODS

A REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD-16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 2/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.

B REPLACE EXISTING PIPE USING THE PIPE BURSTING METHOD. CONNECT TO EX SSMH PER RVSD STD DWG SD-14. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. NO BURSTING FROM INSIDE EXISTING SSMH WILL BE ALLOWED UNLESS APPROVED BY THE DISTRICT. FINAL PAVING SHALL BE PER DETAIL 2/D-01 FOR ALL OPEN TRENCHES.

REPAIR SURFACE UPHEAVAL AND SAG REPAIR PER RVSD STD DWG SD-22 AND SD-20 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT.

DISCONNECT AND RECONNECT SEWER LATERALS PER RVSD STD DWG SD-29 AND SD-30.

C REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD-01, SD-02, SD-03, SD-04, SD-05 AND SD-06. FINAL PAVING SHALL BE PER DETAIL 2/D-01.

D REHABILITATE MANHOLE BY LINING WITH CALCIUM ALUMINATE MORTAR SYSTEM AFTER MANHOLE MODIFICATIONS ARE PERFORMED AND IN ACCORDANCE WITH THE SPECIFICATIONS. REMOVE EXISTING MANHOLE STEPS PRIOR TO REHABILITATION.

E PIPE BURST, REMOVE AND REPLACE, OR CONSTRUCT NEW SEWER LATERAL AND SSCO NEAR PROPERTY LINE PER RVSD STD DWG SD-29 AND SD-30. PIPE BURSTING IS THE PREFERRED METHOD FOR REPLACEMENT OF LATERALS. OPEN CUT SHALL BE USED WHERE APPROVED BY THE DISTRICT OR AS SHOWN ON THE PLANS. FINAL PAVING SHALL BE PER DETAIL 2/D-01.

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 WITH SEWER POPPER TYPE 2 BACKWATER PREVENTION DEVICE. CLEANOUTS SHALL MATCH EXISTING LOWER LATERAL MATERIAL. REFER TO SD-29: C-900 IS TWO-WAY AND HDPE IS WYE FACING MAIN. 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 TYPE B CONNECTION) OF SERVICE LATERAL, SHALL BE AS SHOWN ON RVSD DWG SD-29. NO VERTICAL DROP OFF IS ALLOWED.

NOTES:

1. 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.
2. FOR PIPE BURSTING SITES, PROVIDE AIR GAP FOR (1) LOCATIONS WHERE EXISTING UTILITY CROSSES NEW PIPE WITH LESS THAN TWO FEET CLEARANCE PER RVSD STD DWG SD-21 AND (2) WHERE PIPE MATERIAL CHANGES AND REQUIRES REMOVAL PRIOR TO PIPE BURSTING, IF NEEDED. NOT ALL PIPE MATERIAL CHANGES ARE SHOWN ON THE PROFILE. CONTRACTOR TO VERIFY PRIOR TO CONSTRUCTION. AIR GAP LOCATIONS ARE NOT IDENTIFIED ON THE PLANS.
3. 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.
4. FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS, SEE GENERAL NOTE 23 AND 24 ON DWG N-01 FOR HDPE SLEEVE REQUIREMENTS.
5. BENDING OF NEW PIPING AND/OR JOINT DEFLECTIONS SHALL BE IN ACCORDANCE WITH AWWA AND PIPE MANUFACTURER'S RECOMMENDATIONS.
6. 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).

50% SUBMITTAL NOT FOR CONSTRUCTION

NO.	BY	DATE	REVISION

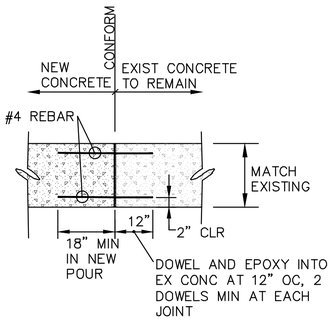
SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
WOODLAND RD

ROSS VALLEY SANITARY DISTRICT
WOODLAND AREA GRAVITY SEWER IMPROVEMENTS PROJECT

Harris & Associates
1401 Willow Pass Rd, Suite 500 Concord, CA 94520
weareharris.com (925) 627-4500

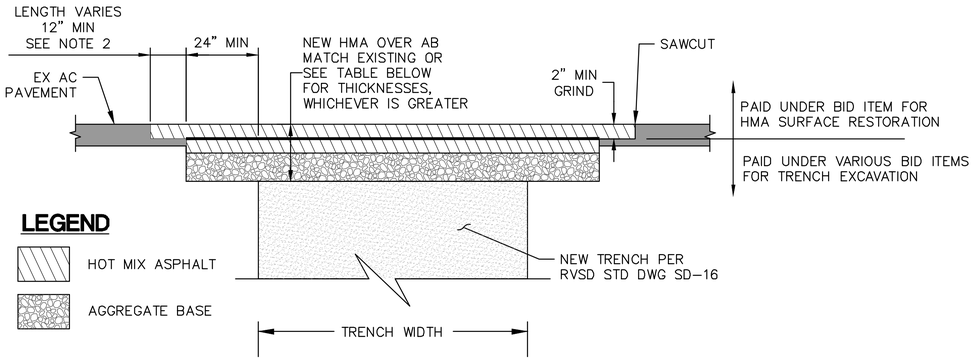
DESIGNED BY	KLC/JR
DRAWN BY	KLC/JR
CHECKED BY	KI
DATE ISSUED	10/31/2022
JOB NO.	120-0743.005
DWG NO.	PP-12
SHEET	15 OF 16

H:\Ross Valley Sanitary District (RSVD)\120074305 Woodland Area Sewer\15_PP-12_WOODLAND EASEMENT.dwg Save Date: 11/1/2022 2:44 PM Plot Date: 11/1/2022 2:44 PM Kohaw



1 - PCC CONFORM SECTION

NOT TO SCALE



FINAL PAVING		
ROAD CLASSIFICATION (SEE NOTE 1)	PAVING REQUIREMENTS	ALTERNATE FULL DEPTH AC
LOCAL	MIN HMA: 4" MIN AB: 7"	7"
COLLECTOR	MIN HMA: 5" MIN AB: 11"	11"
ARTERIAL	MIN HMA: 6" MIN AB: 14"	14"

NOTES

1. ROAD CLASSIFICATIONS ARE AS DETERMINED BY THE LOCAL JURISDICTION.
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

50% SUBMITTAL NOT FOR CONSTRUCTION

NO.	BY	DATE	REVISION

CONSTRUCTION DETAILS

ROSS VALLEY SANITARY DISTRICT WOODLAND AREA GRAVITY SEWER IMPROVEMENTS PROJECT

Harris & Associates
1401 Willow Pass Rd, Suite 500 Concord, CA 94520
weareharris.com (925) 827-4590

DESIGNED BY	KLC/JR
DRAWN BY	KLC/JR
CHECKED BY	KI
DATE ISSUED	10/31/2022
JOB NO.	120-0743.005
DWG NO.	D-01
SHEET	16 OF 16

Attachment F

RoadMod Output

Table F-1. RoadMod Inputs

Inputs	Total Project Quantity	Total Project Unit	Daily Rate Quantity	Daily Rate Unit	Notes
Duration					
Construction	110	days	--	--	--
	3.6	months	--	--	--
Working days	80	days	--	--	22 working days per month
Area					
Total Project Area	4277	sq feet	42	sq feet/day	Maximum area disturbed
	0.10	acres	0.001	acres/day	
Project Length	4277	feet	--	--	Sum of pipelines in project scope
	0.8	mile	--	--	
Equipment					
Saw cutting machine	1	piece	--	--	Grading/excavation phase
Excavator	1	piece	--	--	Grading/excavation phase
Backhoe	1	piece	--	--	Grading/excavation phase
Dump Truck	2	piece	--	--	Grading/excavation phase
Pick up Truck	1	piece	--	--	Grading/excavation phase, paving phase
Pipe bursting equipment	1	piece	--	--	Grading/excavation phase
CIPP Truck	1	piece	--	--	Grading/excavation phase
HDPE fusing machine	1	piece	--	--	Grading/excavation phase
Front-end loader	1	piece	--	--	Grading/excavation phase
Hydraulic winch	1	piece	--	--	Grading/excavation phase
Water Truck	1	piece	--	--	Grading/excavation phase, paving phase
Paver	1	piece	--	--	Paving phase
Roller	1	piece	--	--	Paving phase
Material					
Import	91	cy	1.1	cy/day	Hot mix asphalt
Excavation	865	cy	10.8	cy/day	Excavation includes 170 cy for pits and 695 cy for trenching
Trench backfill	555	cy	6.9	cy/day	
Export soil	310	cy	3.9	cy/day	Export volume with 20% swell divided by working days
Exported material by truckload	372	tcy	4.7	tcy/day	
Workers					
Workers onsite each day	6	workers	--	--	Four to six workers on site per day (6 workers to be conservative)
Worker roundtrips each day	12	roundtrips	--	--	Two roundtrips to/from site per worker each day

Notes:
Inputs were received from RVSD with Harris Engineers (November 2022)
sq feet = square feet
cy = cubic yards
tcy = total cubic yards

Road Construction Emissions Model
Data Entry Worksheet

Version 9.0.0

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	Woodland Capacity	
Construction Start Year	2023	Enter a Year between 2014 and 2040 (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	3.60	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	0.81	miles
Total Project Area	0.10	acres
Maximum Area Disturbed/Day	0.00	acres
Water Trucks Used?	1	1. Yes 2. No

Please note that the soil type instructions provided in cells E18 to E2 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	20.00		3.90
	Drainage/Utilities/Sub-Grade			
	Paving			
Asphalt	Grubbing/Land Clearing			
	Grading/Excavation			
	Drainage/Utilities/Sub-Grade			
	Paving	20.00	1.10	

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/Businesses/CEQA-Land-Use-Planning/Mitigation). 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	0.00	0.36		1/1/2023
Grading/Excavation	3.00	1.44		1/1/2023
Drainage/Utilities/Sub-Grade	0.00	1.26		4/3/2023
Paving	0.60	0.54		4/3/2023
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				1	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)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.04	0.43	3.54	0.12	0.05	0.02	1,726.74	0.00	0.27	1,807.67
Draining/Utilities/Sub-Grade (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/mile)	0.04	0.43	3.54	0.12	0.05	0.02	1,726.74	0.00	0.27	1,807.67
Grubbing/Land Clearing (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	0.00	0.01	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: Asphalt Hauling emission default values can be overridden in cells D91 through D94, and F91 through F94.

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				1	0.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.04	0.43	3.54	0.12	0.05	0.02	1,726.74	0.00	0.27	1,807.67
Draining/Utilities/Sub-Grade (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/mile)	0.04	0.43	3.54	0.12	0.05	0.02	1,726.74	0.00	0.27	1,807.67
Grubbing/Land Clearing (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	0.01	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 D121 through D126.

Worker Commute Emissions User Input	User Override of Worker Commute Default Values	Default Values	Calculated Daily Trips	Calculated Daily VMT
Miles/ one-way trip	20			
One-way trips/day	2			
No. of employees: Grubbing/Land Clearing			0	0.00
No. of employees: Grading/Excavation	6		12	240.00
No. of employees: Drainage/Utilities/Sub-Grade			0	0.00
No. of employees: Paving	6		12	240.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.02	0.91	0.07	0.05	0.02	0.00	317.66	0.00	0.01	319.68
Draining/Utilities/Sub-Grade (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/mile)	0.02	0.91	0.07	0.05	0.02	0.00	317.66	0.00	0.01	319.68
Grubbing/Land Clearing (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	1.04	2.75	0.29	0.00	0.00	0.00	68.26	0.07	0.03	79.50
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	1.04	2.75	0.29	0.00	0.00	0.00	68.26	0.07	0.03	79.50
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	0.56	0.05	0.02	0.01	0.00	169.88	0.00	0.00	171.25
Tons per const. Period - Grading/Excavation	0.00	0.02	0.00	0.00	0.00	0.00	5.61	0.00	0.00	5.65
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	0.04	0.56	0.05	0.02	0.01	0.00	169.88	0.00	0.00	171.25
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	1.12	0.00	0.00	1.13
Total tons per construction project	0.00	0.02	0.00	0.00	0.00	0.00	6.73	0.00	0.00	6.78

Note: Water Truck default values can be overridden in cells D153 through D156, I153 through I156, and F153 through F156.

Water Truck Emissions User Input	User Override of Default # Water Trucks	Program Estimate of Number of Water Trucks	User Override of Truck Round Trips/Vehicle/Day	Default Values Round Trips/Vehicle/Day	Calculated Trips/day	User Override of Miles/Round Trip	Default Values Miles/Round Trip	Calculated Daily VMT
Grubbing/Land Clearing - Exhaust	0							0.00
Grading/Excavation - Exhaust	1							0.00
Drainage/Utilities/Subgrade	0							0.00
Paving	1							0.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/mile)	0.04	0.43	3.54	0.12	0.05	0.02	1,726.74	0.00	0.27	1,807.67
Draining/Utilities/Sub-Grade (grams/mile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/mile)	0.04	0.43	3.54	0.12	0.05	0.02	1,726.74	0.00	0.27	1,807.67
Grubbing/Land Clearing (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	4.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	4.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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 D183 through D185.

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			0.00	0.00	0.00	0.00
Fugitive Dust - Grading/Excavation			0.01	0.00	0.00	0.00
Fugitive Dust - Drainage/Utilities/Subgrade			0.00	0.00	0.00	0.00

Values in cells D195 through D228, D246 through D279, D297 through D330, and D348 through D381 are required when 'Other Project Type' is selected.

Off-Road Equipment Emissions

Grubbing/Land Clearing	Default Number of Vehicles	Mitigation Option Override of	Default		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4
Override of Default Number of Vehicles	*Program-estimate*	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	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
			Model Default Tier	Bore/Drill Rigs	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
			Model Default Tier	Concrete/Industrial Saws	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
			Model Default Tier	Crawler Tractors	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
			Model Default Tier	Excavators	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
			Model Default Tier	Generator Sets	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
			Model Default Tier	Off-Highway Tractors	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
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	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
			Model Default Tier	Paving Equipment	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
			Model Default Tier	Pressure Washers	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
			Model Default Tier	Rollers	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
			Model Default Tier	Rubber Tired Dozers	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
			Model Default Tier	Scrapers	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
			Model Default Tier	Skid Steer Loaders	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
			Model Default Tier	Sweepers/Scrubbers	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
			Model Default Tier	Trenchers	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

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
0.00	N/A		0	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	N/A		0	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	N/A		0	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	N/A		0	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
Grubbing/Land Clearing	pounds per day	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

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
			Model Default Tier	Aerial Lifts	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
			Model Default Tier	Bore/Drill Rigs	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
1.00			Model Default Tier	Concrete/Industrial Saws	0.33	3.66	2.58	0.13	0.13	0.01	592.67	0.03
			Model Default Tier	Cranes	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
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.19	3.26	1.55	0.08	0.07	0.01	500.11	0.16
			Model Default Tier	Forklifts	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
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Off-Highway Tractors	0.19	3.02	1.72	0.08	0.08	0.00	455.15	0.15
4.00			Model Default Tier	Off-Highway Trucks	2.02	13.15	14.27	0.52	0.48	0.05	5,119.56	1.66
3.00			Model Default Tier	Other Construction Equipment	1.05	12.01	10.31	0.54	0.49	0.02	1,794.79	0.58
			Model Default Tier	Other General Industrial Equipn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	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
			Model Default Tier	Paving Equipment	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
			Model Default Tier	Pressure Washers	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
			Model Default Tier	Rollers	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
			Model Default Tier	Rubber Tired Dozers	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
			Model Default Tier	Scrapers	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
			Model Default Tier	Skid Steer Loaders	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
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Tractors/Loaders/Backhoes	0.30	4.46	3.07	0.15	0.14	0.01	603.15	0.20
			Model Default Tier	Trenchers	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

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
0.00	N/A	0	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	N/A	0	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	N/A	0	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	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Grading/Excavation	pounds per day	4.08	39.56	33.51	1.49	1.38	0.09	9,065.42	2.77
Grading/Excavation	tons per phase	0.13	1.31	1.11	0.05	0.05	0.00	299.16	0.09

Drainage/Utilities/Subgrade	Default Number of Vehicles	Mitigation Option Override of	Default		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4
Override of Default Number of Vehicles	*Program-estimate*	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	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
			Model Default Tier	Bore/Drill Rigs	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
			Model Default Tier	Concrete/Industrial Saws	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
			Model Default Tier	Crawler Tractors	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
			Model Default Tier	Excavators	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
			Model Default Tier	Generator Sets	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
			Model Default Tier	Off-Highway Tractors	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
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	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
			Model Default Tier	Paving Equipment	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
			Model Default Tier	Pressure Washers	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
			Model Default Tier	Rollers	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
			Model Default Tier	Rubber Tired Dozers	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
			Model Default Tier	Scrapers	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
			Model Default Tier	Skid Steer Loaders	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
			Model Default Tier	Sweepers/Scrubbers	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
			Model Default Tier	Trenchers	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

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

User-Defined Off-road Equipment				ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4
Number of Vehicles	Equipment Tier	Type		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	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	N/A		0	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	N/A		0	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	N/A		0	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

			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4
	Drainage/Utilities/Sub-Grade	pounds per day	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Drainage/Utilities/Sub-Grade	tons per phase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Paving	Default Number of Vehicles	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4
Override of Default Number of Vehicles	*Program-estimate*			Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	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
			Model Default Tier	Bore/Drill Rigs	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
			Model Default Tier	Concrete/Industrial Saws	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
			Model Default Tier	Crawler Tractors	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
			Model Default Tier	Excavators	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
			Model Default Tier	Generator Sets	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
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00			Model Default Tier	Off-Highway Trucks	1.01	6.58	7.14	0.26	0.24	0.03	2,559.78	0.83
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pavers	0.19	2.88	1.88	0.09	0.08	0.00	455.22	0.15
			Model Default Tier	Paving Equipment	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
			Model Default Tier	Pressure Washers	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
1.00			Model Default Tier	Rollers	0.15	1.85	1.61	0.09	0.08	0.00	254.11	0.08
			Model Default Tier	Rough Terrain Forklifts	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
			Model Default Tier	Rubber Tired Loaders	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
			Model Default Tier	Signal Boards	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
			Model Default Tier	Surfacing Equipment	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
			Model Default Tier	Tractors/Loaders/Backhoes	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
			Model Default Tier	Welders	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	CO	NOx	PM10	PM2.5	SOx	CO2	CH4
				pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	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	N/A		0	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	N/A		0	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	N/A		0	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

			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4
	Paving	pounds per day	1.35	11.31	10.63	0.44	0.40	0.03	3,269.10	1.06
	Paving	tons per phase	0.01	0.07	0.07	0.00	0.00	0.00	21.58	0.01
Total Emissions all Phases (tons per construction period) =>			0.14	1.38	1.18	0.05	0.05	0.00	320.74	0.10

N2O	CO2e
pounds/day	pounds/day
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00

N2O	CO2e
pounds/day	pounds/day
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00

0.00	0.00
0.00	0.00

N2O	CO2e
pounds/day	pounds/day
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	594.72
0.00	0.00
0.00	0.00
0.00	0.00
0.00	505.50
0.00	0.00
0.00	0.00
0.00	0.00
0.00	460.06
0.05	5,174.67
0.02	1,814.17
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.01	609.64
0.00	0.00
0.00	0.00

N2O	CO2e
pounds/day	pounds/day
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.08	9,158.76
0.00	302.24

N2O	CO2e
pounds/day	pounds/day
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00

N2O	CO2e
pounds/day	pounds/day
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00

0.00	0.00
0.00	0.00

N2O	CO2e
pounds/day	pounds/day
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.02	2,587.33
0.00	0.00
0.00	0.00
0.00	0.00
0.00	460.13
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	256.85
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
N2O	CO2e
pounds/day	pounds/day
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.00	0.00
0.03	3,304.30
0.00	21.81
0.00	324.05

Equipment default values for horsepower and hours/day can be overridden in cells D403 through D436 and F403 through F436.

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		221		8
Cement and Mortar Mixers		9		8
Concrete/Industrial Saws		81		8
Cranes		231		8
Crawler Tractors		212		8
Crushing/Proc. Equipment		85		8
Excavators		158		8
Forklifts		89		8
Generator Sets		84		8
Graders		187		8
Off-Highway Tractors		124		8
Off-Highway Trucks		402		8
Other Construction Equipment		172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		168		8
Pavers		130		8
Paving Equipment		132		8
Plate Compactors		8		8
Pressure Washers		13		8
Pumps		84		8
Rollers		80		8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		247		8
Rubber Tired Loaders		203		8
Scrapers		367		8
Signal Boards		6		8
Skid Steer Loaders		65		8
Surfacing Equipment		263		8
Sweepers/Scrubbers		64		8
Tractors/Loaders/Backhoes		97		8
Trenchers		78		8
Welders		46		8

END OF DATA ENTRY SHEET

The maximum pounds per day in row 11 is summed over overlapping phases, but the maximum tons per phase in row 34 is not summed over overlapping phases.

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> Woodland Capacity				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust					
Project Phases (Pounds)	**ROG (lbs/day)**	**CO (lbs/day)**	**NOx (lbs/day)**	**PM10 (lbs/day)**	**PM10 (lbs/day)**	**PM10 (lbs/day)**	**PM2.5 (lbs/day)**	**PM2.5 (lbs/day)**	**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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation	4.11	40.12	33.56	1.53	1.52	0.01	1.39	1.39	0.00	0.10	9,235.30	2.77	0.09	9,330.01
Drainage/Utilities/Sub-Grade	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
Paving	1.39	11.87	10.68	0.46	0.46	0.00	0.41	0.41	0.00	0.04	3,438.99	1.06	0.03	3,475.55
Maximum (pounds/day)	4.11	40.12	33.56	1.53	1.52	0.01	1.39	1.39	0.00	0.10	9,235.30	2.77	0.09	9,330.01
Total (tons/construction project)	0.14	1.40	1.18	0.05	0.05	0.00	0.05	0.05	0.00	0.00	327.46	0.10	0.00	330.83

Notes:

Project Start Year ->	2023
Project Length (months) ->	4
Total Project Area (acres) ->	0
Maximum Area Disturbed/Day (acres) ->	0
Water Truck Used? ->	Yes

	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	4	0	0	0	240	0
Drainage/Utilities/Sub-Grade	0	0	0	0	0	0
Paving	0	1	0	0	240	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 -> Woodland Capacity				Total	Exhaust	Fugitive Dust	Total	Exhaust	Fugitive Dust					
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	**ROG (tons/phase)**	**CO (tons/phase)**	**NOx (tons/phase)**	**PM10 (tons/phase)**	**PM10 (tons/phase)**	**PM10 (tons/phase)**	**PM2.5 (tons/phase)**	**PM2.5 (tons/phase)**	**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	0.14	1.32	1.11	0.05	0.05	0.00	0.05	0.05	0.00	0.00	304.77	0.09	0.00	279.32
Drainage/Utilities/Sub-Grade	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
Paving	0.01	0.08	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.70	0.01	0.00	20.81
Maximum (tons/phase)	0.14	1.32	1.11	0.05	0.05	0.00	0.05	0.05	0.00	0.00	304.77	0.09	0.00	279.32
Total (tons/construction project)	0.14	1.40	1.18	0.05	0.05	0.00	0.05	0.05	0.00	0.00	327.46	0.10	0.00	300.13

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.

Attachment G

Response to Comments

Integral Consulting Inc.
703 2nd Street
Suite 256
Santa Rosa, CA 95404

telephone: 707.636.3222
www.integral-corp.com

MEMORANDUM

To:	Steve Moore, Ross Valley Sanitary District
From:	Bridgette DeShields and Samantha Eanes, Integral Consulting Inc.
Date:	April 10, 2023
Subject:	Summary of Comments on the Initial Study/Mitigated Negative Declaration for the Woodland Area Gravity Sewer Improvement Project
Project No.:	C1888-23

INTRODUCTION

The Ross Valley Sanitary District (RVSD) prepared an Initial Study/Mitigated Negative Declaration (IS/MND) for the Woodland Area Gravity Sewer Improvement Project (Project) in accordance with the provisions of the California Environmental Quality Act (CEQA).

The RVSD Woodland Area Gravity Sewer Improvement Project (Project) entails the construction and rehabilitation, within the existing alignment, of sanitary sewer mains and related appurtenances within the unincorporated community of Kent Woodlands, within the County of Marin. The Project plans to replace approximately 4,277 linear feet of existing sanitary sewer mains ranging in size from 6-inch (in.) to 8-in. of vitrified clay pipe with 8-in. to 12-in. high-density polyethylene (HDPE) pipe via pipe bursting, open cut, and jack-and-bore or directional drilling methods. In addition, work will be completed in or near Tamalpais Creek to remove the old, suspended pipes and to remove existing pipes that are exposed in the Tamalpais Creek channel. The Tamalpais Creek channel will be restored and replaced with constructed riffles. Following the completion of the constructed riffle, the equipment will be removed from the channel bed. The access route will be relandscaped and vegetated and areas of excavation will be covered with erosion-control fabric. Depths of excavation for Project implementation may range from 5 to 12 ft. The primary objective of this Project is to relieve hydraulic and structural deficiencies and reduce groundwater infiltration with aging RVSD infrastructure.

The 30-day public review period for the IS/MND ran from March 6 through April 5, 2023. The State Clearinghouse distributed the document to several state agencies and other organizations. The RVSD posted the document on the RVSD website and published a Notice of Intent in the Marin Independent Journal and through public notice mailers. Comments were invited via email to Philip Benedetti, RSVD Senior Engineer.

One agency, the California Department of Fish and Wildlife (CDFW) submitted comments (attached to this memorandum) on March 29, 2023. The comments on the IS/MND are summarized below along with a summary of changes made to the IS/MND in response to the comments, where necessary.

COMMENTS

The following section is intended to provide a comprehensive review of all received comments that were relevant for evaluating the sufficient completeness of the MND.

Summary of Comments: CDFW - Letter dated March 29, 2023 from Erin Chappell, Regional Manager, Bay Delta Region

1. **Comment:** The CDFW stated an LSA Notification pursuant to Fish and Game Code section 1602 would be required because the MND described Project impacts to Tamalpais Creek, one unnamed tributary to Tamalpais Creek, and wetlands hydrologically connected to Tamalpais Creek. The CDFW recommends that Project shall notify CDFW pursuant to Fish and Game Code section 1600 et seq. using the Environmental Permit Information Management System for Project activities affecting lakes or streams, associated riparian or otherwise hydrologically connected habitat, and any connected wetlands, and shall comply with the LSA Agreement, if issued.

   Conclusion: LSA Notification/Permit is identified under "Permits and Project Approvals" in the IS/MND and in Attachment E (Biological Resources Assessment [BRA]) of the IS/MND under applicable permits and project approvals are identified on page 5 of the BRA. No further action required to address this comment as LSA Notification, and compliance with an LSA Agreement, is planned.

2. **Comment:** The CDFW stated that the mixed oak woodland present at the Project site may provide habitat for two species of special-status plants, Napa false indigo and bent-flowered fiddleneck. CDFW recommended adding a mitigation measure requiring that prior to the start of Project activities, a Qualified Biologist shall conduct a habitat assessment for special-status plants.

Conclusion: A mitigation measure (BIO-5) was added to conduct a habitat survey, and as necessary, will conduct plant surveys in areas that are determined to have potential habitat for special status plant species. The survey will exclude areas that would not be disturbed by the footprint of construction activity, project areas are already disturbed by pedestrian and vehicular activity, and project areas located on private property.

3. **Comment:** CDFW recommends that a list or table of all special-status species with the potential to occur at the Project be included in the MND or publicly available biological report. Per CDFW, this list or table should include the source of information about each potentially occurring special-status species (e.g., CNDDB), and discussion of why or why not the species has potential to occur at the Project or adjacent to the Project where the species may be indirectly impacted by, for example, visual or auditory disturbances, or hydrological modifications.

   Conclusion: Special-status species with potential to occur in the Project study areas are identified in IS/MND Attachment E (BRA). The requested table is provided below.

Table 1. Special Status Plant Species Potential for Occurrence

Scientific Name/ Common Name	Status[1]	Habitat	Blooming Period	Potential for Occurrence
Amorpha californica var. napensis Napa false indigo	1B.2	Broadleafed upland forest, chaparral, cismontane woodland. Openings in forest or woodland or in chaparral. 30-735 m	May-Jul	**No Potential.** Openings in woodland habitat within the Project Study Area are too disturbed to support this species.
Amsinckia lunaris Bent-flowered fiddleneck	1B.2	Cismontane woodland, valley and foothill grassland, coastal bluff scrub. 3-795 m.	Mar-Jun	**No Potential.** Grassland and woodland habitat within the Project Study Area is too disturbed to support this species.
Arctostaphylos montana ssp. montana Mt. Tamalpais manzanita	1B.3	Chaparral, valley and foothill grassland. Serpentine slopes in chaparral and grassland. 150-680 m.	Feb-Apr	**No Potential.** Serpentine soils are absent from the Project Study Area.
Arctostaphylos virgata Marin manzanita	1B.2	Broadleafed upland forest, closed-cone coniferous forest, chaparral, north coast coniferous forest. On sandstone or granitic. 1-800 m.	Dec-Feb	**No Potential.** Suitable soil conditions are absent from the Project Study Area.
Astragalus pycnostachyus var. pycnostachyus Coastal marsh milk-vetch	1B.2	Coastal dunes, marshes and swamps, coastal scrub. Mesic sites in dunes or along streams or coastal salt marshes. 0-155 m.	Jun Sep	**No Potential.** Suitable coastal habitats are absent from the Project Study Area
Calamagrostis crassiglumis Thurber's reed grass	2B.1	Coastal scrub, marshes and swamps. Usually in marshy swales surrounded by grassland or coastal scrub. 5-50 m.	Jun-Aug	**No Potential.** Suitable coastal habitats are absent from the Project Study Area
Calochortus tiburonensis Tiburon mariposa-lily	FT/ST	Valley and foothill grassland. On open, rocky, slopes in serpentine grassland. 50-150 m.	May-Jun	**No Potential.** Serpentine soils are absent from the Project Study Area.
Carex lyngbyei Lyngbye's sedge	2B.2	Marshes and swamps (brackish or freshwater). 0-200 m.	May-Jul	**No Potential.** Suitable marshes and swamps are absent from the Project Study Area.
Castilleja affinis var. neglecta Tiburon paintbrush	FE/ST	Valley and foothill grassland. Rocky serpentine sites. 120-400 m.	Apr-Jun	**No Potential.** Serpentine soils are absent from the Project Study Area.

Scientific Name/ Common Name	Status[1]	Habitat	Blooming Period	Potential for Occurrence
Ceanothus masonii Mason's ceanothus	1B.2	Chaparral. Serpentine ridges or slopes in chaparral or transition zone. 180-460 m.	Mar-May	**No Potential.** Suitable chaparral habitat and soil conditions are absent from the Project Study Area.
Chloropyron maritimum ssp. palustre Point Reyes salty bird's-beak	1B.2	Coastal salt marsh. Usually in coastal salt marsh with Salicornia, Distichlis, Jaumea, Spartina, etc. 0-115m.	May-Oct	**No Potential.** Suitable coastal habitats are absent from the Project Study Area
Chorizanthe cuspidata var. cuspidata San Francisco Bay spineflower	1B.2	Coastal bluff scrub, coastal dunes, coastal prairie, coastal scrub. Closely related to C. pungens. Sandy soil on terraces and slopes. 2-550 m.	Apr-Jul	**No Potential.** Suitable coastal habitats are absent from the Project Study Area
Cirsium hydrophilum var. vaseyi Mt. Tamalpais thistle	1B.2	Broadleafed upland forest, chaparral, meadows and seeps. Serpentine seeps and streams in chaparral and woodland. 180-610 m.	Jun-Sep	**Low Potential.** Typically found in serpentine seeps, but seeds are water dispersed and recruits are occasionally observed in seeps associated with other soil types downstream from source populations higher up in several drainages.
Dirca occidentalis Western leatherwood	1B.2	Broadleafed upland forest, chaparral, closed-cone coniferous forest, cismontane woodland, north coast coniferous forest, riparian forest, riparian woodland. On brushy slopes, mesic sites; mostly in mixed evergreen and foothill woodland communities. 20-640 m.	Nov-Mar	**No Potential.** Marginally suitable habitat is present in the Project Study Area, but this species was not observed during reconnaissance surveys.
Eriogonum luteolum var. caninum Tiburon buckwheat	1B.2	Chaparral, valley and foothill grassland, cismontane woodland, coastal prairie. Serpentine soils; sandy to gravelly sites. 60-640 m.	May-Oct	**No Potential.** Suitable soil conditions are absent from the Project Study Area.

Scientific Name/ Common Name	Status[1]	Habitat	Blooming Period	Potential for Occurrence
Fissidens pauperculus Minute pocket moss	1B.2	North coast coniferous forest. Moss growing on damp soil along the coast. In dry streambeds and on stream banks. 30-1025 m.	N/A (Moss)	**No Potential.** Suitable coniferous forest is absent from the Project Study Area.
Fritillaria lanceolata var. tristulis Marin checker lily	1B.1	Coastal bluff scrub, coastal scrub, coastal prairie. Occurrences reported from canyons and riparian areas as well as rock outcrops; often on serpentine. 5-305 m.	Mar-Jun	**No Potential.** Suitable coastal habitats are absent from the Project Study Area
Gilia capitata ssp. chamissonis Blue coast gilia	1B.1	Coastal dunes, coastal scrub. 3-200 m.	Apr-Jul	**No Potential.** Suitable coastal habitats are absent from the Project Study Area
Gilia millefoliata Dark-eyed gilia	1B.2	Coastal dunes. 1-60 m.	Mar-Jul	**No Potential.** Suitable coastal dune habitat is absent from the Project Study Area
Helianthella castanea Diablo helianthella	1B.2	Broadleafed upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. Usually in chaparral/oak woodland interface in rocky, azonal soils. Often in partial shade. 45-1070 m.	Apr-Jun	**No Potential.** The rocky, somewhat xeric conditions that this species is associated with are absent from the Project Study Area.
Hemizonia congesta ssp. congesta Congested-headed hayfield tarplant	1B.2	Valley and foothill grassland. Grassy valleys and hills, often in fallow fields; sometimes along roadsides. 5-520 m.	May-Nov	**No Potential.** Grassland habitat within the Project Study Area is too shaded and restricted to support this species.
Hesperolinon congestum Marin western flax	FT/ST	Chaparral, valley and foothill grassland. In serpentine barrens and in serpentine grassland and chaparral. 60-400 m.	Apr-Aug	**No Potential.** Serpentine soils are absent from the Project Study Area.
Holocarpha macradenia Santa Cruz tarplant	FT/SE	Coastal prairie, coastal scrub, valley and foothill grassland. Light, sandy soil or sandy clay; often with nonnatives. 10-275 m.	Jun-Nov	**No Potential.** Suitable soil conditions are absent from the Project Study Area.

Scientific Name/ Common Name	Status[1]	Habitat	Blooming Period	Potential for Occurrence
Horkelia tenuiloba Thin-lobed horkelia	1B.2	Broadleafed upland forest, chaparral, valley and foothill grassland. Sandy soils; mesic openings. 45-640 m.	Apr-Jul	**No Potential.** Suitable soil conditions are absent from the Project Study Area.
Kopsiopsis hookeri Small groundcone	2B.3	North coast coniferous forest. Open woods, shrubby places, generally on Gaultheria shallon. 120-1435 m.	Apr	**No Potential.** Marginally appropriate habitat is present in the Project Study Area, but associated host plants are not present.
Lessingia micradenia var. micradenia Tamalpais lessingia	1B.2	Chaparral, valley and foothill grassland. Usually on serpentine, in serpentine grassland, or serpentine chaparral. Often on roadsides. 60-305 m.	Jul-Oct	**No Potential.** Suitable soil conditions are absent from the Project Study Area.
Microseris paludosa Marsh microseris	1B.2	Moist grassland, open woodland. < 300 m.	Apr-Jun	**No Potential.** Suitable mesic grassland habitat is absent from the Project Study Area.
Navarretia rosulata Marin County navarretia	1B.2	Closed-cone coniferous forest, chaparral. Dry, open rocky places; can occur on serpentine. 185-640 m.	May-Jul	**No Potential.** Suitable coniferous forest and chaparral habitats are absent from the Project Study Area.
Pentachaeta bellidiflora White-rayed pentachaeta	FE/SE	Valley and foothill grassland, cismontane woodland. Open dry rocky slopes and grassy areas, often on soils derived from serpentine bedrock. 35-610 m.	Mar-May	**No Potential.** Serpentine grassland habitat is absent from the Project Study Area. The species is also currently only known from a single locality in San Mateo County.
Plagiobothrys glaber Hairless popcornflower	1A	Meadows and seeps, marshes and swamps. Coastal salt marshes and alkaline meadows. 5-125 m.	Apr-May	**No Potential.** Suitable saline wetlands and alkaline soil conditions are absent from the Project Study Area.
Pleuropogon hooverianus North Coast semaphore grass	ST	Broadleafed upland forest, meadows and seeps, north coast coniferous forest. Wet grassy, usually shady areas, sometimes freshwater marsh; associated with forest environments. 45-1160 m.	Mar-Jun	**No Potential.** Suitable mesic grassland habitat is absent from the Project Study Area.

Scientific Name/ Common Name	Status[1]	Habitat	Blooming Period	Potential for Occurrence
Quercus parvula var. tamalpaisensis Tamalpais oak	1B.3	Lower montane coniferous forest, cismontane woodland. 200-640 m.	Mar-Apr	**No Potential.** Suitable woodland habitat is absent from the Project Study Area.
Sidalcea calycosa ssp. rhizomata Point Reyes checkerbloom	1B.2	Marshes and swamps. Freashwater marshes near the coast. 5-95 m.	May-Jul	**No Potential.** Suitable marsh habitat is absent from the Project Study Area.
Sidalcea hickmanii ssp. viridis Marin checkerbloom	1B.1	Chaparral. Serpentine or volcanic soils; sometimes appears after burns. 1-425 m.	May-Jun	**No Potential.** Suitable chaparral habitat is absent from the Project Study Area.
Stebbinsoseris decipiens Santa Cruz microseris	1B.2	Broadleafed upland forest, closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, valley and foothill grassland. Open areas in loose or disturbed soil, usually derived from sandstone, shale or serpentine, on seaward slopes. 90-750 m.	Apr-May	**No Potential.** Suitable coastal habitat is absent from the Project Study Area.
Streptanthus batrachopus Tamalpais jewelflower	1B.3	Closed-cone coniferous forest, chaparral. Talus serpentine outcrops. 335-670 m.	May-Jun	**No Potential.** Serpentine soils and chaparral habitat are absent from the Project Study Area.
Streptanthus glandulosus ssp. pulchellus Mt. Tamalpais bristly jewelflower	1B.2	Chaparral, valley and foothill grassland. Serpentine slopes. 125-670 m.	May-Jun	**No Potential.** Serpentine outcrops and chaparral are absent from the Project Study Area.
Trifolium amoenum Two-fork clover	FE	Valley and foothill grassland, coastal bluff scrub. Sometimes on serpentine soil, open sunny sites, swales. Most recently cited on roadside and eroding cliff face. 5-310 m.	Apr-Jun	**No Potential.** Open, mesic, coastal grassland habitat is absent from the Project Study Area.

Scientific Name/ Common Name	Status[1]	Habitat	Blooming Period	Potential for Occurrence
Triquetrella californica Coastal triquetrella	1B.2	Coastal bluff scrub, coastal scrub. Grows within 30m from the coast in coastal scrub, grasslands and in open gravels on roadsides, hillsides, rocky slopes, and fields. On gravel or thin soil over outcrops. 20-1175 m.	N/A (Moss)	**No Potential.** Suitable coastal habitat is absent from the Project Study Area.

[1] FE/FT – Federally endangered/ threatened
CE/CT – California endangered/threatened
California Rare Plant Rank
1A – Plants presumed extirpated in California and either rare or extinct elsewhere.
1B – Plants rare, threatened, or endangered in California and elsewhere.
2A – Plants presumed extirpated in California but common elsewhere.
2B – Plants rare, threatened, or endangered in California but more common elsewhere.

Table 2. Special Status Wildlife Species Potential for Occurrence

Scientific Name/ Common Name	Status[1]	Habitat	Potential for Occurrence
Fish			
Oncorhynchus mykiss irideus population 8 Steelhead – central California coast DPS	FT	Requires beds of loose, silt-free, well-oxygenated coarse gravel for spawning. After hatching, juveniles spend at least one summer in the freshwater rearing areas, so the stream must have either perennial flow or cool intermittent pools with subsurface flow, shade, food, and shelter during the dry season.	**High Potential.** Steelhead were found during electrofishing in Tamalpais Creek in 1969 and between 1998 and 2002 (Leidy, 2005).
Oncorhynchus kisutch pop. 4 Coho salmon – central California coast ESU	FE/SE	Require beds of loose, silt-free, coarse gravel for spawning. Also need cover, cool water, and sufficient dissolved oxygen.	**No Potential.** This species has been extirpated from streams in the vicinity of the Project Study Area.
Spirinchus thaleichthys Longfin smelt	FC/ST	Euryhaline, nektonic, and anadromous. Found in open waters of estuaries, mostly in the middle or the bottom of the water column. Prefer salinities of 15-30 ppt, but can be found in completely freshwater to almost pure seawater.	**No Potential.** Suitable estuaries are absent from the Project Study Area.
Eucyclogobius newberryi Tidewater goby	FE	Brackish water habitats along the California coast. Found in shallow lagoons and lower stream reaches. They need fairly still but not stagnant water and high oxygen levels.	**No Potential.** Suitable brackish lower stream reaches and/or still water is absent from the Project Study Area.
Reptiles and Amphibians			
Dicamptodon ensatus California giant salamander	SSC	Wet coastal forests near streams and seeps from Mendocino County south to Monterey County, and east to Napa County. Aquatic larvae found in cold, clear streams, occasionally in lakes and ponds. Adults occur in wet forests under rocks and logs near streams and lakes.	**Low Potential.** This species could occur in Tamalpais Creek-Areas 1 and 2. The nearest CNDDB record (#73) is for a salamander collected at a location approximately 1.3 miles southeast.

Scientific Name/ Common Name	Status[1]	Habitat	Potential for Occurrence
Rana draytonii California red-legged frog	FT, SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby, or emergent riparian vegetation.	**Low Potential.** There are no nearby CNDDB records for California red-legged frog (CRLF). Most of the Marin County records occur along the coast at Pt. Reyes National Seashore and Bolinas. However, there is marginal breeding habitat in Tamalpais Creek-Areas 1 and 2.
Rana boylii foothill yellow-legged frog	SSC	Prefers partly shaded, shallow streams and riffles with a rocky substrate; requires at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis.	**Low Potential.** There is marginally suitable breeding habitat in Tamalpais Creek-Areas 1 and 2. The nearest recent records are for frogs found in San Anselmo Creek (#2368) at a location approximately 0.5 miles north of Tamalpais Creek-Areas 1 and 2, and near Lake Lagunitas (#2365), approximately 0.7 miles west of Tamalpais Creek-Areas 2 and 3.
Emys marmorata Western pond turtle	SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches, usually with aquatic vegetation below 6,000 feet elevation. Needs basking sites and sandy banks or grassy open fields for upland breeding habitat.	**Low Potential.** There is no suitable breeding habitat present in the creeks in the Project Study Areas. However, this species could forage in the creeks and use them as a corridor. The nearest CNDDB record (#460) is approximately 0.3 miles west of the Project Study Areas in Phoenix Lake, where multiple adults were observed over multiple years.
Birds			
Baeolophus inornatus Oak titmouse	BCC	Inhabit oak woodlands or oak-pine woodland. Nests in cavities high in trees (20 to 40 feet above the ground).	**Moderate Potential.** There are suitable nesting trees at or near Project Study Areas.
Dryobates nuttallii Nuttall's woodpecker	BCC	Inhabits oak woodlands, wooded suburban areas and riparian corridors. Nests in cavities of primarily oaks, willows, cottonwoods, sycamores, or alders.	**Moderate Potential.** There are suitable nesting trees at or near Project Study Areas.

Scientific Name/ Common Name	Status[1]	Habitat	Potential for Occurrence
Rallus obsoletus obsoletus California Ridgway's rail	FE/SE	Salt water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. Associated with abundant growth of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs.	**No Potential.** Suitable salt water or brackish marsh and associated vegetation is absent from the Project Study Area.
Laterallus jamaicensis coturniculus California black rail	ST	Inhabits freshwater marshes, wet meadows, and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that do not fluctuate during the year and dense vegetation for nesting habitat.	**No Potential.** Suitable marshes, and standing water is absent from the Project Study Area.
Melospiza melodia samuelis San Pablo song sparrow	SSC	Resident of salt marshes along the north side of San Francisco and San Pablo bays. Inhabits tidal sloughs in the Salicornia marshes; nests in Grindelia bordering slough channels.	**No Potential.** Suitable salt marshes are absent from the Project Study Area.
Athene cunicularia Burrowing owl	SSC	Open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably the California ground squirrel.	**No Potential.** Suitable grasslands with associated burrowing mammals are absent from the Project Study Area.
Marbled murrelet	BCC	Fields near-shore. Nests along the coast from Eureka to Oregon border and from Half Moon Bay to Santa Cruz. Nests in old-growth redwood-dominated forests, up to six miles inland, often in Douglas-fir.	**No Potential.** The Project Study Area is outside the known range for the species.

Scientific Name/ Common Name	Status[1]	Habitat	Potential for Occurrence
Selasphorus sasin Allen's hummingbird	BCC	Resident to the coast of California and Oregon during the breeding season. Nests are constructed in trees or shrubs often near shady streams in both understory and tree canopy.	**No Potential.** Suitable nesting habitat is absent from the Project Study Area.
Mammals			
Reithrodontomys raviventris Salt-marsh harvest mouse	FE/SE	Only in the saline emergent wetlands of San Francisco Bay and its tributaries. Pickleweed is its primary habitat, but may occur in other marsh vegetation types and in adjacent upland areas. Does not burrow. Instead builds loosely organized nests.	**No Potential.** Suitable saline emergent wetlands and associated vegetation is absent from the Project Study Area.
Lasiurus cinereus Hoary Bat	WBWG	Prefers open habitats or mosaics with trees for cover within open areas or on habitat edges. Roosts in medium to large trees with dense foliage. Primary prey are moths. Requires water source.	**Moderate Potential.** While the Project Study Areas exhibit many suitable roosting trees for Hoary Bat. The nearest CNDDB record (#81) is 0.28 mile from the western most extent of the study area at Phoenix Lake, where a single adult was collected.
Antrozous pallidus Pallid bat	WBWG	Deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roost must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	**No Potential.** Suitable roosting habitat is absent from the Project Study Area. Additionally, the project is located within a residential neighborhood with relatively constant human activity.
Corynorhinus townsendii Townsend's big-eared bat	WBWG	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Extremely sensitive to human disturbance.	**No Potential.** Suitable roosting habitat is absent from the Project Study Area. Additionally, the project is located within a residential neighborhood with relatively constant human activity.

[1] FE/SE – Federal/State Endangered FT/ST – Federal/State Threatened BCC – Bird of Conservation Concern
FC – Federal Candidate Species CFP – California Fully Protected SSC – Species of Special Concern
WBWG – Western Bat Working Group – Medium or High Priority Species