

FINAL
INITIAL STUDY / MITIGATED NEGATIVE DECLARATION
Fiscal Year 2023/2024 Gravity Sewer Improvements Project
(#955)
Various Communities in Marin County, CA

Prepared for
Ross Valley Sanitary District
1111 Anderson Drive
San Rafael, CA 94901

Prepared by
The logo for Integral Consulting Inc. features the word "integral" in a bold, lowercase, sans-serif font. A thin, curved line starts from the bottom of the letter "i" and sweeps upwards and to the right, ending under the letter "l". Below the word "integral", the words "consulting inc." are written in a smaller, lowercase, sans-serif font.
2455 Bennett Valley Road
Suite C101
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February 2024

MITIGATED NEGATIVE DECLARATION

PROJECT TITLE

Fiscal Year 2023-2024 Gravity Sewer Improvements Project (#955)

LEAD AGENCY/NAME AND ADDRESS

Ross Valley Sanitary District, 1111 Anderson Drive, San Rafael, CA 94901

PROJECT LOCATION

The Fiscal Year 2023-2024 Gravity Sewer Improvements Project (Project) site is located in the Ross Valley Sanitary District's (RVSD's) service area within the town of San Anselmo, unincorporated community of Greenbrae, and the town of Fairfax, located within the County of Marin. The Project segments are located in several areas of Marin County, as detailed below:

Fairfax

The Town of Fairfax has a land area of approximately 2 square miles and in a series of small valleys created by streams with surrounding hillsides. Fairfax is bordered to the east by San Anselmo and to the north by unincorporated Sleepy Hollow.

The Project site in Fairfax includes multiple sewer line segments. The sewer line segments are located within the existing alignments along Sir Francis Drake Blvd between Miranda Dr and Claus Dr, Taylor Dr between Sir Francis Drake Blvd and Claus Dr, Coree Ln, Berry Trail, Main Ct, and on private property near Frustuck Ave and Live Oak Ave.

Land uses surrounding the Project site in San Anselmo mainly consist of single-family residential uses to the north, east, south, and west. Sir Francis Drake Boulevard, located near the Project site (Sir Francis Drake Blvd between Miranda Dr and Claus Dr), is a major traffic artery linking U.S. 101 with communities in the Fairfax area.

San Anselmo

The Town of San Anselmo has a land area of approximately 3 square miles and is situated in a series of small valleys created by streams, which are bordered by moderate to steep hillside slopes and ridge tops. The town is bordered by San Rafael to the east, Fairfax to the west, and Ross to the south.

The Project site in San Anselmo includes multiple sewer line segments. The sewer line segments are located within the existing alignments along Austin Ave between Kensington Rd and Oak Ave, Melville Ave between Vine Ave and Echo Ct, Ross Ave between Sir Francis Drake Blvd and Sunnyside Ave, Sunnyside Ave between Ross Ave and Austin Ave, and on Vine Ave.

Land uses surrounding the Project site in San Anselmo mainly consist of single-family residential uses to the north, east, south, and west. Sir Francis Drake Boulevard, located near the Project site (intersection of Sir Francis Drake Blvd and Ross Ave), is a major traffic artery linking U.S. 101 with communities in the San Anselmo area. Residences, businesses, and schools are located along Ross Ave.

Greenbrae

The unincorporated community of Greenbrae has a land area of approximately 6 square miles and is situated along hillsides and includes waterfront terrain. Greenbrae is located between the City of San Rafael to the north and the City of Larkspur to the south.

The Project site in Greenbrae includes multiple sewer line segments. The sewer line segments are located within the existing alignments along Sir Francis Drake Blvd between Manor Rd and Bon Air Rd, Manor Rd between Sir Francis Drake Blvd and Los Cerros Dr, Almenar Dr between 5 Almenar Dr and 79 Almenar Dr; near Los Cerros Dr between 525 Los Cerros Dr and 373 Los Cerros Dr, Bon Air Rd between Via Hidalgo and Schultz Memorial Dr, and on Corte Comoda.

Land uses surrounding the Project site in Greenbrae mainly consist of single-family residential uses to the north, east, and west. Sir Francis Drake Boulevard, located near the Project site (Sir Francis Drake Blvd between Manor Rd and Bon Air Rd), is a major traffic artery linking U.S. 101 with communities in the Greenbrae area. Residences, businesses, and schools are located along Sir Francis Drake Boulevard, east and west of the Project site. Specifically, Marin Catholic High School and Ross Valley Nursery School are located on Sir Francis Drake Blvd south of the sewer line segment.

PROJECT DESCRIPTION

The Ross Valley Sanitary District (RVSD) Fiscal Year 2023-2024 Gravity Sewer Improvements Project (#955) (Project) entails the construction and rehabilitation, within the existing alignment, of sanitary sewer mains, manholes, and related appurtenances within the town of San Anselmo, unincorporated community of Greenbrae, and the town of Fairfax, located within the County of Marin (Attachment B, Figure 1-1). The Project site encompasses approximately 0.19 acres and the total area disturbed would be approximately 8,100 square ft. The Project would rehabilitate approximately 15,384 linear feet (LF) of existing sewer pipeline ranging from 4 to 14 in. and install 264 LF of 8 in. new sewer main. Approximately 642 LF of existing sewer would be replaced via open cut and 14,742 LF would be replaced via pipe bursting methods. Work would

also include the installation of 39 sanitary sewer manholes to replace existing manholes and construction of one new manhole.

The Project would include rehabilitation of sanitary sewer mains in the following areas:

- Fairfax: Replace 4,067 LF of existing vitrified clay pipe (VCP) and cast iron pipe (CIP) with high-density polyethylene (HDPE) pipe.
 - Replace approximately 3,548 LF of existing sewer via pipe bursting methods.
 - Replace approximately 519 LF of existing sewer via open cut excavations.
 - Remove and replace 14 existing sanitary sewer manholes with new manholes.
- San Anselmo: Replace 5,259 LF of existing VCP and CIP with HDPE pipe.
 - Replace approximately 5,149 LF of existing sewer via pipe bursting methods.
 - Replace approximately 110 LF of existing sewer on Ross Ave via open cut excavations.
 - Remove and replace 8 existing sanitary sewer manholes with cleanouts and new manholes.
- Greenbrae: Replace 6,058 LF of existing VCP and CIP with HDPE pipe and install 264 LF of new sewer main.
 - Replace approximately 6,045 LF of existing sewer via pipe bursting methods.
 - Replace approximately 13 LF of existing sewer via pipe open cut excavations.
 - Remove and replace 17 existing sanitary sewer manholes with new manholes.
 - Construct one new manhole and install approximately 264 LF of new 8 in. sewer main via open cut excavation through paved public right-of-way on Los Cerros Dr.

Rehabilitation of all sanitary sewer mains would occur within the existing alignment with the exception of one new sewer main segment in Greenbrae. Most pipelines either fall within public right-of-way or in designated easements running through private property. For work in backyard easements, portable equipment would be used due to space restrictions and to minimize impact. Manhole locations would require excavation and backfill of an area of approximately 8 by 8 ft, with varying depths projected to range from approximately 5 to 12 ft.

The primary objective of this Project is to relieve hydraulic and structural deficiencies and reduce groundwater infiltration associated with aging RVSD infrastructure.

MITIGATION MEASURES

Mitigation Measure BIO-1

In the spring immediately prior to Project implementation, pre-construction floristic surveys would be conducted within the onsite undisturbed woodland habitat. If state or federally listed plants are observed onsite during floristic surveys, all compensatory mitigation requirements and additional avoidance and minimization measures identified by California Department of Fish and Wildlife (CDFW) and/or U.S. Fish and Wildlife Service would be implemented. If California Native Plant Society-ranked species are observed onsite during protocol-level rare plant surveys, salvage of seed and/or root stock shall be conducted under the direction of a qualified botanist and in coordination with a qualified plant conservation institution or native nursery.

Mitigation Measure BIO-2

Vegetation removal and ground disturbance (collectively referred to as construction activities) shall be scheduled to avoid the bird nesting season to the greatest extent possible. The nesting season for most birds and raptors in the San Francisco Bay Area is February 1 through September 15.

If construction activities cannot be scheduled to occur between September 16 and January 31, pre-construction surveys for nesting birds and raptors would be completed by a qualified ornithologist or biologist to ensure that no nests would be disturbed during project implementation. This survey would be completed no more than 14 days prior to the initiation of construction activities. During this survey, the qualified ornithologist/biologist would inspect all suitable nesting habitat on the Project site and within the zone of influence (the area immediately surrounding the Project site that supports suitable nesting habitat that could be impacted by the proposed Project due to visual or auditory disturbance associated with construction activities scheduled to occur during the nesting season).

If an active nest is found sufficiently close to the work areas to be disturbed by construction activities, the qualified ornithologist/biologist, in consultation with CDFW, will determine the extent of a construction free buffer zone to be established around the nest, to ensure that protected bird and raptor nests are not disturbed during project construction. This buffer would remain in place until such a time as the young have been determined (by a qualified ornithologist/biologist) to have fledged.

A report of findings will 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. The report would 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 16 to January 31) and continues uninterrupted according to the above criteria.

Mitigation Measure CUL-1

Prior to project implementation, a Cultural and Tribal Resources Testing and Monitoring 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 Federated Indians of Graton Rancheria (FIGR). Based on the results of the testing and in coordination with the RSVD and FIGR, monitoring by an archaeologist and tribal monitor may also be required to observe excavated soils that are removed during construction activities. If resources are identified during the testing or monitoring the Plan will detail the appropriate avoidance and/or treatment measures to be carried out in coordination with FIGR, as necessary.

Mitigation Measure CUL-2

Upon approval of the Cultural and Tribal Resources Testing and Monitoring Plan, archaeological testing will occur in areas determined to be highly 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 at project segments: Sir Francis Drake Boulevard, Main Court, and Taylor Drive in Fairfax, Ross Avenue, Sunnyside Avenue, and Austin Avenue in San Anselmo, and Manor Road in Greenbrae. Where testing is not feasible, monitoring will occur in accordance with Mitigation Measure CUL-1.

Mitigation Measure CUL-3

Construction crews shall be trained in “basic archaeological identification” and have access to an alert sheet. The alert sheet will photographically depict indicators of precontact 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 will 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 and tribal resources that have been encountered.

Mitigation Measure CUL-4

Upon discovery of suspected human remains, the Coroner Division of the Marin County Sheriff’s Office will be contacted for identification of human remains. The coroner has two 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 ancestral remains and associated funerary objects. 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 developed 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 1111 Anderson Drive, San Rafael, CA 94901, and are available online at www.rvsd.org.

2/20/2024

Philip Benedetti
Senior Engineer

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: Fiscal Year 2023-2024 Gravity Sewer Improvements Project (#955)		
PROJECT ADDRESS: Sir Francis Drake Blvd between Miranda Dr and Claus Dr; Taylor Dr, between Sir Francis Drake Blvd and Claus Dr; Coree Ln; Berry Trail; near Frustuck Ave; near Live Oak Ave; Main Ct Austin Ave between Kensington Rd and Oak Ave; Vine Ave; Melville Ave between Vine Ave and Echo Ct; Ross Ave between Sir Francis Drake Blvd and Sunnyside Ave; Sunnyside Ave between Ross Ave and Austin Ave	CITY: Town of Fairfax Town of San Anselmo	COUNTY: Marin
Sir Francis Drake Blvd between Manor Rd and Bon Air Rd; Corte Comoda; Manor Rd between Sir Francis Drake Blvd and Los Cerros Dr; Almenar Dr between 5 Almenar Dr and 79 Almenar Dr; near Los Cerros Dr between 525 Los Cerros Dr and 373 Los Cerros Dr; Bon Air Rd between Via Hidalgo and Schultz Memorial Dr	Unincorporated community of Greenbrae	
PROJECT SPONSOR: Ross Valley Sanitary District	CONTACT: Philip Benedetti	

LEAD AGENCY ADDRESS: 1111 Anderson Drive San Rafael, CA 94901	CONTACT: Philip Benedetti	PHONE: (415) 259-2949 x212
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APPROVAL ACTION UNDER CONSIDERATION: Implementation of sewer rehabilitation project.
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List of Attachments

- Attachment A. Abbreviations and Acronyms
- Attachment B. Figures
- Attachment C. Construction Plans
- Attachment D. Overview of Control Measures
- Attachment E. CalEEMod Input Tables and Output Report
- Attachment F. Protected Natural Resource Tables

Project Overview and Purpose

The Ross Valley Sanitary District (RVSD¹) Fiscal Year 2023-2024 Gravity Sewer Improvements Project (#955) (Project) entails the construction and rehabilitation, within the existing alignment, of sanitary sewer mains, manholes, and related appurtenances within the town of San Anselmo, unincorporated community of Greenbrae, and the town of Fairfax, located within the County of Marin (Attachment B, Figure 1-1). The Project site encompasses approximately 0.19 acres and the total area disturbed would be approximately 8,100 square ft. The Project would rehabilitate approximately 15,384 linear feet (LF) of existing sewer pipeline ranging from 4 to 14 in. and install 264 LF of 8 in. new sewer main. Approximately 642 LF of existing sewer would be replaced via open cut and 14,742 LF would be replaced via pipe bursting methods. Work would also include the installation of 39 sanitary sewer manholes to replace existing manholes and construction of one new manhole.

The Project would include rehabilitation of sanitary sewer mains in the following areas (Attachment B; Figures 1-2a through 1-2c):

- Fairfax: Replace 4,067 LF of existing vitrified clay pipe (VCP) and cast iron pipe (CIP) with high-density polyethylene (HDPE) pipe.
 - Replace approximately 3,548 LF of existing sewer via pipe bursting methods.
 - Replace approximately 519 LF of existing sewer via open cut excavations.
 - Remove and replace 14 existing sanitary sewer manholes with new manholes
- San Anselmo: Replace 5,259 LF of existing VCP and CIP with HDPE pipe.
 - Replace approximately 5,149 LF of existing sewer via pipe bursting methods.
 - Replace approximately 110 LF of existing sewer on Ross Ave via open cut excavations.
 - Remove and replace 8 existing sanitary sewer manholes with cleanouts and new manholes.
- Greenbrae: Replace 6,058 LF of existing VCP and CIP with HDPE pipe and install 264 LF of new sewer main.

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

- Replace approximately 6,045 LF of existing sewer via pipe bursting methods.
- Replace approximately 13 LF of existing sewer via pipe open cut excavations.
- Remove and replace 17 existing sanitary sewer manholes with new manholes.
- Construct one new manhole and install approximately 264 LF of new 8 in. sewer main via open cut excavation through paved public right-of-way on Los Cerros Dr.

Rehabilitation of all sanitary sewer mains would occur within the existing alignment with the exception of one new sewer main segment in Greenbrae. Most pipelines either fall within public right-of-way or in designated easements running through private property. For work in backyard easements, portable equipment would be used due to space restrictions and to minimize impact. Manhole locations would require excavation and backfill of an area of approximately 8 by 8 ft, with varying depths projected to range from approximately 5 to 12 ft.

The primary objective of this Project is to relieve hydraulic and structural deficiencies and reduce groundwater infiltration associated with aging RVSD infrastructure.

Project Location and Site Setting

The Project site is located in the RVSD's service area in Marin County. 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 and the Richmond-San Rafael Bridge. The Project segments are located in several areas of Marin County, as detailed below:

Fairfax

The town of Fairfax has a land area of approximately 2 square miles and in a series of small valleys created by streams with surrounding hillsides. Fairfax is bordered to the east by San Anselmo and to the north by unincorporated Sleepy Hollow.

The Project site in Fairfax includes multiple sewer line segments (Figure 1-2a). The sewer line segments are located within the existing alignments along Sir Francis Drake Blvd between Miranda Dr and Claus Dr, Taylor Dr between Sir Francis Drake Blvd and Claus Dr, Coree Ln, Berry Trail, Main Ct, and on private property near Frustuck Ave and Live Oak Ave.

Land uses surrounding the Project site in San Anselmo mainly consist of single-family residential uses to the north, east, south, and west. Sir Francis Drake Boulevard, located near the Project site (Sir Francis Drake Blvd between Miranda Dr and Claus Dr), is a major traffic artery linking U.S. 101 with communities in the Fairfax area.

San Anselmo

The Town of San Anselmo has a land area of approximately 3 square miles and is situated in a series of small valleys created by streams, which are bordered by moderate to steep hillside slopes and ridge tops. The town is bordered by San Rafael to the east, Fairfax to the west, and Ross to the south.

The Project site in San Anselmo includes multiple sewer line segments (Figure 1-2b). The sewer line segments are located within the existing alignments along Austin Ave between Kensington Rd and Oak Ave, Melville Ave between Vine Ave and Echo Ct, Ross Ave between Sir Francis Drake Blvd and Sunnyside Ave, Sunnyside Ave between Ross Ave and Austin Ave, and on Vine Ave.

Land uses surrounding the Project site in San Anselmo mainly consist of single-family residential uses to the north, east, south, and west. Sir Francis Drake Boulevard, located near the Project site (intersection of Sir Francis Drake Blvd and Ross Ave), is a major traffic artery linking U.S. 101 with communities in the San Anselmo area. Residences, businesses, and schools are located along Ross Ave.

Greenbrae

The unincorporated community of Greenbrae has a land area of approximately 6 square miles and is situated along hillsides and includes waterfront terrain. Greenbrae is located between the City of San Rafael to the north and the City of Larkspur to the south.

The Project site in Greenbrae includes multiple sewer line segments (Figure 1-2c). The sewer line segments are located within the existing alignments along Sir Francis Drake Blvd between Manor Rd and Bon Air Rd, Manor Rd between Sir Francis Drake Blvd and Los Cerros Dr, Almenar Dr between 5 Almenar Dr and 79 Almenar Dr; near Los Cerros Dr between 525 Los Cerros Dr and 373 Los Cerros Dr, Bon Air Rd between Via Hidalgo and Schultz Memorial Dr, and on Corte Comoda.

Land uses surrounding the Project site in Greenbrae mainly consist of single-family residential uses to the north, east, and west. Sir Francis Drake Boulevard, located near the Project site (Sir Francis Drake Blvd between Manor Rd and Bon Air Rd), is a major traffic artery linking U.S. 101 with communities in the Greenbrae area. Residences, businesses, and schools are located along Sir Francis Drake Boulevard, east and west of the Project site. Specifically, Marin Catholic High School and Ross Valley Nursery School are located on Sir Francis Drake Blvd south of the sewer line segment.

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. R2-2023-0003, NPDES No. CA0038628) to Central Marin Sanitation Agency 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 Project includes the replacement of existing sewer pipes and the installation of new pipes by open cut and pipe bursting. These methods are:

- **Open Cut:** Existing sewer line would be exposed and removed by means of construction excavation equipment. The excavation extent is typically 3 ft wide, and the length and depth will vary. A new pipe would then be installed, and the trench would be backfilled.
- **Pipe Bursting:** Pipe bursting is a trenchless method where a new pipe is inserted into an existing pipe by means of a hydraulic winch. First, an insertion pit (typically 4 ft wide, 10 ft long, and 5 ft deep) and a receiving pit (typically 4 ft wide, 4 ft long, 5 ft deep) are excavated at each end of a pipe segment. The locations of these pits are determined by the contractor in the field based on site access. Prior to insertion of the new pipe, existing lateral connections are excavated and disconnected. A new pipe is then attached to a bursting head and pulled into the existing pipe. The bursting head breaks apart the existing pipe and creates a cavity for the new pipe. Once the new pipe is installed, the existing laterals are reconnected and trenches are backfilled.

Approximately 906 LF of sewer main (264 LF of new sewer and 642 LF of existing sewer) would be constructed via open cut and 14,742 LF via pipe bursting. Forty manholes would also be constructed at various locations throughout the project to replace the existing ones. Manhole locations would require excavation and backfill of an area of approximately 8 by 8 ft, with varying depths. The Project locations and construction method for each pipe section is identified on the preliminary construction plans provided in Attachment C.

Most of the Project pipe sections are within the public right-of-way or in designated easements running through private property. For work in backyard easements, portable equipment would be used due to space restrictions and to minimize impact.

Work Hours and Schedule

Construction is expected to begin in spring 2024 and is anticipated to be completed by October 2024. Work hours would generally be 8:00 a.m. to 5:00 p.m.; however, hours will be dependent on location-specific constraints. It is anticipated that the project would take approximately 260 consecutive calendar days for construction.

Construction Staging

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

Bypass Pumping

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

Site Restoration

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

Several sewer main segments are located on private properties, including segments located near Live Oak Ave, Frustuck Ave, Fawn Ridge, Wood Lane, Almenar Dr, Manor Rd, and Los Cerros Dr. RVSD will coordinate with private property owners to access and rehabilitate these sewer main 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, and motorists. The contractor would be required to comply with all conditions set forth in the encroachment permits and corresponding RVSD standards.

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

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

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

Technical reports to support the evaluation of potential impacts to air quality (Attachment E), biological resources (Attachment F), and cultural resources (Far Western 2023²) 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

Far Western. 2023. Cultural Resources Inventory for the Ross Valley Sanitary District 23-24 Gravity Sewer Projects, Marin County, California. Far Western Anthropological Research Group, Inc. December.

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

Regional Water Board. 2018. Order No. R2-2018-0003. San Francisco Bay Regional Water Quality Control Board. January 10.

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.

² Because the report contains confidential information about the locations and characteristics of archaeological sites and tribal cultural resources, the technical report is not included as an attachment to this document; the report can be made available to agencies and other professionals for review as necessary.

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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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:

Each Project segment, located in various areas, was evaluated to identify its visual character. This information is summarized as follows:

Fairfax

The project segments contain a mix of single-family residential homes and landscaping along with central commercial development. The Project site is visually characterized by the following features:

- Sir Francis Drake Boulevard is characterized by paved two-lane roads that are flanked by commercial use buildings and educational facilities including the Ross Valley Charter School. Sir Francis Drake Boulevard includes sidewalks on either side as well as crosswalks and traffic lights.
- Taylor Drive is a narrow local street with sidewalks flanking either side. The street primarily serves residential homes with some commercial spaces near the intersection with Sir Francis Drake Boulevard.
- Bolinas Road, Fawn Ridge/ Wood Lane, Coree Lane/ Frustuck Avenue, and Berry Trail are all two-way residential streets that are flanked on either side by single-family residential homes with landscaped vegetation as well as occasionally interspersed spaces of non-landscaped vegetation.
- Main Court is a cul-de-sac that features single-family residences with landscaping without sidewalks on either side of the road entering the cul-de-sac.

San Anselmo

The Project segments are dominated by views of surrounding single-family residential homes with landscaping (San Anselmo 2019). The Project site is visually characterized by paved two-lane roads that are flanked by private residences and vegetation.

- Ross Avenue is a collector street that connects to Sir Francis Drake Boulevard. Ross Avenue is flanked by commercial spaces, schools, and residential single family homes and apartment/condo buildings.
- Austin Avenue and Sunnyside Avenue are local two-lane streets with sidewalks. Melville Avenue and Vine Avenue are narrow local roads that primarily serve residential homes and do not have sidewalks.
- Vine Avenue is a cul-de-sac that features single-family residences with landscaping without sidewalks on either side of the road entering the cul-de-sac.

Greenbrae

The Project segments are located within neighborhoods identified as Single Family Residential (Marin County 2007).

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

- Sir Francis Drake Boulevard is a main east-to-west thoroughfare in Marin County that has been developed with a four-lane road, crosswalks, traffic lights, and a landscaped median.
- Manor Road, Los Cerros Drive, Corte Comoda, Almenar Drive, and Bon Air Road are all characterized by two-way residential roads that are flanked by single-family residential homes with landscaped vegetation. Sidewalks and crosswalks are largely absent but are present particularly where the aforementioned streets intersect with Sir Francis Drake Boulevard, with the exception of Los Cerros and Almenar Drive which do not have sidewalks.

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.

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 in the Project segments 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 residents and other locals. 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 impact. Construction activities would be temporary and limited to daylight hours for all Project work.

References Used:

1. Caltrans. 2023. Caltrans List of Designated Scenic Highways. Available at: <https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways>. California Department of Transportation.
2. Marin County. 2007. Marin Countywide Plan. Last amendment January 24, 2023. Available at: <https://www.marincounty.org/depts/cd/divisions/planning/countywide-plan>. County of Marin, CA.

2. Agricultural and Forestry 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Conflict with existing zoning or agriculture use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Result in the loss of forestland or conversion of forestland to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Project Activities Likely to Create an Impact:

No impact.

Description of Baseline Environmental Conditions:

The Project site is located at various areas within Marin County (see Attachment B). The Project segments are largely built out with residential and some commercial uses.

According to the Protected Agricultural Lands Map (Map 2-20; Marin County 2007), no agricultural or forest lands exist within the Project site. In addition, the California Department of Conservation Farmland Mapping and Monitoring Program (FMMP) classifies all Project segments 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 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, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Codes section 51104(g))?

No impact. The Project would not conflict with existing zoning or cause rezoning of forestland or timber.

- d. Result in the loss of forest land or conversion of forest land or conversion of forest land 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 forest land 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. 2022. 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 January 24, 2023. Available at: <https://www.marincounty.org/userdata/cda/planning/cwp2023.pdf> 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Result in other emissions (such as those leading to odors adversely affecting a substantial number of people)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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 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 ($\mu\text{g}/\text{m}^3$). 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 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 2017).

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 (O₃), nitrogen dioxide (NO₂), respirable particulate matter with a diameter less than 10 microns (PM₁₀), fine particulate matter with a diameter less than 2.5 microns (PM_{2.5}), sulfur dioxide (SO₂), 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 Matter (PM10)	50 µg/m ³	150 µg/m ³	2017	94	6/0
24-hour			2018	166	6/1
			2019	33	5/0
Respirable Particulate Matter (PM10)	20 µg/m ³	none	2017	17.7	0/0
Annual			2018	19	0/0
			2019	14.3	0/0
Fine Particulate Matter (PM2.5)	None	35 µg/m ³	2017	74.7	0/18
24-hour			2018	167.6	0/18
			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 (PM2.5)	12 µg/m ³	12.0 µg/m ³	2017	9.7	0/0
Annual			2018	11.1	0/0
			2019	6.4	0/0

Source: BAAQMD (2019)

Notes:

µg/m³ = 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 that measures criteria pollutants in Marin County (BAAQMD 2023a). 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 O₃ 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 (DPM), 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 O₃ and PM2.5. EPA has classified the region as marginal nonattainment for 8-hour O₃. 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 PM_{2.5} 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 O₃ and particulate matter (PM₁₀ and PM_{2.5}), 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 2017). 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, O₃, and TACs) and to decrease emissions of carbon dioxide (CO₂) 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 O₃ and PM_{2.5} 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 2023b). 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 2023b).

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 O₃ standards, nonattainment for the state 24-hour and annual PM₁₀ standards, and nonattainment for the state annual PM_{2.5} standard. It is also designated as nonattainment for the national 8-hour O₃ 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; 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 areas. The overall Project activities would occur for approximately 9 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 2023b):

- PM₁₀ = 82 lb/day; 15 ton/year
- PM_{2.5} = 54 lb/day; 10 ton/year
- Reactive organic gases (ROG) = 54 lb/day; 10 ton/year
- Oxides of nitrogen (NO_x) = 54 lb/day; 10 ton/year

Construction emissions of O₃ precursors ROG and NO_x, and PM₁₀ and PM_{2.5} were estimated for the project-related activities based on updated information obtained from RVSD and using the California Emissions Estimate Model (CalEEMod), an air quality modeling program that estimates air pollutant emissions in tons per year (CAPCOA 2022). 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 E.

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	0.23	10	1.29	54	No
CO	0.41	NA	2.26	NA	No
SO ₂ ^a	<0.005	NA	<0.005	NA	No
NOx	0.17	10	0.92	54	No
PM10 ^b	5.58	15	30.6	82	No
PM2.5 ^b	0.57	10	3.10	54	No

Source of input parameters: Phil Benedetti, Associate Engineer (RVSD), December 2023.

Notes:

NA = not applicable

^a SO₂ emissions are expected to be negligible due to use of ultra-low sulfur diesel fuel.

^b 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.

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; therefore, 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, people with asthma, the elderly, and the chronically ill) that is at greater risk than the general population to the effects of air pollutants are likely to be exposed. These locations include residences, schools, playgrounds, childcare centers, retirement homes, hospitals, and medical clinics. The Project is mostly within residential areas and there are several sensitive receptors, including residences, schools, hospitals and medical clinics 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. 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 (approximately 9 months) and the Project would be utilizing only 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 0.01 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 9 months or less.
 - Combustion emissions from vehicles and equipment are below the significance thresholds from the BAAQMD guidelines.
 - Control measures such as minimizing idle times, as well as others listed under “Dust Control” and “Air Quality” in Attachment D, will be implemented to control emissions and limit 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. Sanitary sewer lines would be replaced and rehabilitated in-place via pipe bursting methods. Control measures listed in Attachment D under “Odors” would serve to minimize dispersal of odor and provide for control, as well as to address odor complaints if received.

References Used:

1. BAAQMD. 2017. 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.
2. 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.
3. 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.
4. BAAQMD. 2023a. 2023 Annual Air Monitoring Network Plan. Available at: https://www.baaqmd.gov/~media/files/technical-services/2023_network_plan-pdf.pdf?rev=8de9f6f74a2143a994734a3a870bd999&sc_lang=en. Bay Area Air Quality Management District. June.
5. BAAQMD. 2023b. California Environmental Quality Act Air Quality Guidelines. Available at: <https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines>. Bay Area Air Quality Management District. April.
6. CAPCOA. 2022. California Emissions Estimator Model. Available at: <https://www.caleemod.com/>. California Air Pollution Control Officers Association.

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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Project Activities Likely to Create an Impact:

- Equipment used for construction activities
- Excavation of open-cut trenches and bore/receiving pits

- Project site restoration, including backfill of all excavated areas with native soil.

Description of Baseline Environmental Conditions:

The Project site consists largely of in-road rights-of-way within moderately to highly trafficked urban and residential roadways in Fairfax, San Anselmo, and Greenbrae. Biological resources associated with the Project site were identified through a review of available background information and two field reconnaissance surveys. Available documentation was reviewed to provide information on natural resources in the Fairfax, San Anselmo, and Greenbrae areas, including presence of special-status species, sensitive natural communities, and other protected biological resources, and/or plans, policies, or ordinances that protected natural resources therein. Information about protected natural resources that could occur on or near the Project site was obtained from the following sources:

- California Natural Diversity Database (CNDDDB) RareFind 5 (CDFW 2023)
- California Native Plant Society (CNPS) Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2023)
- U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) resource list report (USFWS 2023)
- Existing literature as cited in the text

The protected natural resources identified in these searches were compiled into tables (Attachment F) and evaluated for likelihood of occurrence within the limits of construction disturbance associated with the Project. Integral personnel, Sadie McGarvey (wildlife biologist and regulatory specialist) and Paula Gill (botanist and regulatory specialist), conducted a general survey of the Project site on October 19 and 25, 2023 to record biological resources and to assess the likelihood of resource agency regulated areas and special status species and habitats in the vicinity of the Project site. All publicly accessible portions of the Project site were assessed during the field survey.

Fairfax

The sewer alignment within Fairfax occurs primarily within the roadways in commercial and residential neighborhoods. Landscaping adjacent to the roadways consists of a mix of ornamental and native trees and shrubs including Sycamore (*Platanus racemose*), olive (*Olea europaea*), oaks (*Quercus agrifolia* and *Q. kelloggii*), loquat (*Eriobotrya japonica*), dawn redwood (*Metasequoia glyptostroboides*), oleander (*Nerium oleander*), firethorn (*Pyracantha* sp.), lantana (*Lantana camara*), Himalayan blackberry (*Rubus armeniacus*) and crimson bottlebrush (*Callistemon citrinus*).

Approximately 500 LF of the sewer alignment occurs within the partially paved Berry Trail, and approximately 600 LF of the sewer alignment occurs within off-road rights-of-way below largely undeveloped portions of private property. Vegetation adjacent to and within the ROW of these portions of the alignment is dominated by primarily native trees and shrubs such as California bay laurel (*Umbellularia californica*), coast redwood (*Sequoia sempervirens*), California buckeye (*Aesculus californica*), Douglas fir (*Pseudotsuga menziesii*), and oaks (*Quercus wislizeni* and *Q. kelloggii*), toyon (*Heteromeles arbutifolia*), and French broom (*Genista monspessulana*); with an understory dominated by non-native grasses and native herbs such as ripgut brome (*Bromus diandrus*), dogtail grass (*Cynosurus echinatus*), and ferns (*Pentagramma triangularis*, *Adiantum jordanii*, and *Polystichum californicum*).

A small, partially vegetated hill occurs adjacent to the portion of in-road alignment along Sir Francis Drake Boulevard. Vegetation consists of ruderal species such as yellow star thistle (*Centaurea solstitialis*), fennel (*Foeniculum vulgare*), and slender-leaf plantain (*Plantago lanceolata*). Evidence of

small burrowing mammals, presumed to be California voles (*Microtus californicus*), was observed throughout this hill.

San Anselmo

The sewer alignment within San Anselmo occurs entirely within the roadways in a primarily residential neighborhood. Landscaping adjacent to the roadways consists of a mix of ornamental and native trees and shrubs including crapemyrtle (*Lagerstroemia indica*), oaks (*Quercus agrifolia* and *Q. kelloggii*), sycamore, redwood, magnolia (*Magnolia grandiflora*), callery pear (*Pyrus calleryana*), box trees (*Pittosporum* spp.), French lavender (*Lavandula stoechas*), rosemary (*Rosmarinus officinalis*), bamboo (*Phyllostachys* sp.), firethorn, oleander, French broom, and toyon.

Greenbrae

The sewer alignment within Greenbrae occurs primarily within off-road rights-of-way below sidewalks and landscaped areas on public and private properties. Vegetation within these areas is dominated by primarily non-native and ornamental trees and shrubs including blue gum (*Eucalyptus globulus*), Acacias (*Acacia* spp.), privet (*Ligustrum* sp.), redwood, coast live oak (*Quercus agrifolia*), Pyracantha, English ivy (*Hedera helix*), cotoneaster (*Cotoneaster* sp.), rosemary, Mexican bush sage (*Salvia leucantha*), and star jasmine (*Jasminum multiflorum*).

Roughly 100 LF of the sewer alignment occurs within and/or adjacent to the Greenbrae Redwoods Park/Open Space riparian habitat, approximately 100 ft east of an unnamed drainage that remains intact (while up- and downstream portions appear to have been culverted and underground). Undeveloped portions of the alignment were dominated by native trees, shrubs and herbaceous species such as California bay laurel, redwood, Himalayan blackberry, sword fern, as well as English ivy.

The Project site provides marginal wildlife habitat, and few species were observed during the October 2023 site visits. Wildlife observed in proximity to the less heavily trafficked portions of the Project site included chestnut-backed chickadee (*Poecile rufescens*), western scrub jay (*Aphelocoma californica*), California towhee (*Melospiza crissalis*), golden-crowned sparrow (*Zonotrichia atricapilla*), Anna's hummingbird (*Calypte anna*), western fence lizard (*Sceloporus occidentalis*), and eastern fox squirrel (*Sciurus niger*). All of these species are known to be easily acclimated to human activity. Most of the Project site and surrounding area provides very little in terms of wildlife habitat given its developed condition as roadway and adjacent urban uses. The limited vegetation cover, intensity of human disturbance and activity, and risk of vehicle strikes limits the Project site and surrounding area's capacity to support foraging and dispersal habitat. No evidence of nesting bird activity (remnant nest material, egg fragments, etc.) was observed on or adjacent to the Project site during the October 2023 site visits.

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 incorporated. Special-status species are plants and animal species considered to be rare by federal and/or state resource agencies (USFWS, National Marine Fisheries Service [NMFS], California Department of Fish and Wildlife [CDFW]) and/or the scientific community (CNPS) and are accordingly legally protected pursuant to federal, state, and/or local laws in addition to CEQA. These species are considered rare enough by the scientific community and trustee agencies to warrant special consideration, particularly with regard to protection of isolated populations, nesting or denning locations, communal roosts, and other essential habitat. The attached species lists from

CNDDDB, CNPS, and USFWS (Attachment F) detail the broad range of special-status species known to occur or to have previously occurred in the vicinity of the Project site. None of these species have been documented as occurring on the Project site. Project activities would not have significant adverse effects of any special-status species.

Plants

According to the CNDDDB, the CNPS Inventory of Rare, Threatened, and Endangered Plants of California, and the USFWS IPac tool, 58 special-status plant species are known to occur or to have previously occurred within the same U.S. Geological Survey quadrangle (quad) as the Project site (San Rafael quad). All of these species require specialized habitats that *do not* occur within the developed portions of the Project site, including, but not limited to, chaparral, bogs and fens, marshes and swamps, meadows and seeps, riparian and coastal habitats, woodlands, and forests. The Project site is generally highly disturbed by past grading, installation of pavement, ornamental landscaping, and existing sewer line facilities, which precludes the possibility of presence of any special-status plant species these areas.

While no special-status species were observed during the October 2023 site visits, the undeveloped lands adjacent to Berry Trail and within the Greenbrae Redwood Park/Open Space could potentially provide suitable habitat for special-status plants known to occur within upland woodlands, forests, and riparian habitats including Napa false indigo (*Amorpha californica* var. *napensis*), bent-flowered fiddleneck (*Amsinckia lunaris*), coast rockcress (*Arabis blepharophylla*), Carlotta Hall's lace fern (*Aspidotis carlotta-halliae*), Brewer's milk-vetch (*Astragalus breweri*), Oakland star-tulip (*Calochortus umbellatus*), Mount Tamalpais thistle (*Cirsium hydrophilum* var. *vaseyi*), California bottle-brush grass (*Elymus californicus*), Tiburon buckwheat (*Eriogonum luteolum* var. *caninum*), thin-lobed horkelia (*Horkelia tenuiloba*), harlequin lotus (*Hosackia gracilis*), bristly leptosiphon (*Leptosiphon aureus*), large-flowered leptosiphon (*Leptosiphon grandifloras*), woolly-headed lessingia (*Lessingia hololeuca*), white-rayed pentachaeta (*Pentachaeta bellidiflora*), Gairdner's yampah (*Perideridia gairdneri* ssp. *gairdneri*), Lobb's aquatic buttercup (*Ranunculus lobbii*), Santa Cruz microseris (*Stebbinsoseris decipiens*), and marsh Zigadenus (*Toxicoscordion fontanum*).

Wildlife

According to the CNDDDB, the CNPS Inventory of Rare, Threatened, and Endangered Plants of California, and the USFWS IPac tool, 32 special-status wildlife species are known to occur to have previously occurred within the San Rafael quad. All of these species require specialized habitats that *do not* occur on or adjacent to the Project site, including, but not limited to, open Bay and ocean, marshes and swamps, permanent waters (and/or proximity thereto), open grassland slopes, freshwater wetlands, rocky streams, and old growth forests.

The onsite and site-adjacent trees, shrubs, and herbaceous vegetation provide suitable nesting habitat for a variety of common bird species including passerines and raptors, protected pursuant to the federal Migratory Bird Treaty Act and State Fish and Game code. However, the intensity of regular disturbance on and adjacent to the Project site limits the likelihood that any special-status bird species would nest on or near the Project site. No nests were observed during the October 2023 site assessment; however, owing to the mobile nature of birds and the seasonality of their nesting cycle, and in light of the presence of abundant marginal nesting habitat onsite, it is possible that birds could nest on or adjacent to the Project site during future nesting seasons.

Rare Plants

Project activities within undisturbed woodland habitat, including trenching, excavating, and test borings associated with cultural resource investigations, can be expected to result in temporary disturbance to suitable habitat for rare plants. While no special-status plant species were observed on the Project site

during the October 2023 site investigations, protocol-level rare plant surveys have not been completed on the Project site. In the absence of protocol-level rare plant surveys on the Project site, it is possible the proposed Project may result in adverse impacts to special-status plants. Mitigation Measure BIO-1 would serve to avoid this potential for violation of federal and state regulations by conducting preconstruction surveys and implementing appropriate avoidance measures should any special-status plants be present on the Project site. With implementation of control measures in Attachment D and Mitigation Measure BIO-1, impacts to special-status plants would be less than significant.

Mitigation Measure BIO-1

In the spring immediately prior to Project implementation, pre-construction floristic surveys would be conducted within the onsite undisturbed woodland habitat. If state or federally listed plants are observed onsite during floristic surveys, all compensatory mitigation requirements and additional avoidance and minimization measures identified by CDFW and/or USFWS would be implemented. If CNPS-ranked species are observed onsite during protocol-level rare plant surveys, salvage of seed and/or root stock shall be conducted under the direction of a qualified botanist and in coordination with a qualified plant conservation institution or native nursery.

Nesting Birds

Project activities including trenching, excavating, and test borings associated with cultural resource investigations can be expected to result in temporary disturbance to suitable habitat for nesting birds. While no evidence of nesting bird activity has been observed on or adjacent to the Project site, there remains a remote possibility that new bird nests could be established in the trees and other vegetation on and near the Project site. If construction is initiated during the bird nesting season (February 1–September 15), construction-related disturbance could result in abandonment of the nests if any are present in the immediate vicinity. If construction-related noise and disturbance results in destruction or abandonment of a nest in active use and loss of any eggs or young in the nest, this would be a significant adverse impact and violation of the federal Migratory Bird Treaty Act and State Fish and Game Code sections. Mitigation Measure BIO-2 would serve to avoid this potential for violation of federal and state regulations by ensuring a preconstruction survey is conducted and appropriate construction restrictions are implemented if any active nests are encountered until any young birds have successfully fledged. With implementation of Mitigation Measure BIO-2, impacts to special-status wildlife would be less than significant.

Mitigation Measure BIO-2

Vegetation removal and ground disturbance (collectively referred to as construction activities) shall be scheduled to avoid the bird nesting season to the greatest extent possible. The nesting season for most birds and raptors in the San Francisco Bay Area is February 1 through September 15.

If construction activities cannot be scheduled to occur between September 16 and January 31, pre-construction surveys for nesting birds and raptors would be completed by a qualified ornithologist or biologist to ensure that no nests would be disturbed during project implementation. This survey would be completed no more than 14 days prior to the initiation of construction activities. During this survey, the qualified ornithologist/biologist would inspect all suitable nesting habitat on the Project site and within the zone of influence (the area immediately surrounding the Project site that supports suitable nesting habitat that could be impacted by the proposed Project due to visual or auditory disturbance associated with construction activities scheduled to occur during the nesting season).

If an active nest is found sufficiently close to the work areas to be disturbed by construction activities, the qualified ornithologist/biologist, in consultation with the CDFW, will determine the extent of a construction free buffer zone to be established around the nest, to ensure than protected bird and

raptor nests are not be disturbed during project construction. This buffer would remain in place until such a time as the young have been determined (by a qualified ornithologist/biologist) to have fledged.

A report of findings will 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. The report would 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 16 to January 31) and continues uninterrupted according to the above criteria.

- 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 impact. According to CNDDDB, four Sensitive Natural Communities are known to occur or to have previously occurred within the San Rafael quad: coastal brackish marsh, coastal terrace prairie, northern coastal salt marsh, and serpentine bunchgrass. None of these natural communities occur on or adjacent to the Project site.

As much as 1,200 LF of the sewer alignment within the towns of Fairfax and Greenbrae occurs within habitats identified by both the Marin County Vegetation and Land Cover mapping and field confirmation as California Bay Forest and Woodland Sensitive Natural Community (Code 74.100.00). The approximately 100 LF of sewer alignment within/adjacent to the Greenbrae Redwoods Park/Open Space (included in the 1,200 LF total) is likewise within/adjacent to riparian habitat. Riparian habitat is generally identified as a sensitive natural community by CDFW. Due to the highly and regularly disturbed nature of the remainder of the Project site, no other Sensitive Natural Communities have been documented occurring onsite.

Project activities would not have significant adverse effects on any riparian habitat or other Sensitive Natural Communities. While project activities are proposed to occur within and/or adjacent to riparian habitat and California Bay Forest and Woodland Sensitive Natural Community, these activities would be limited in scope to excavation of bore/receiving pits and test borings associated with cultural resource investigations. No trees would be removed as a result of Project implementation. Due to the limited extent of Project activities proposed to occur within/adjacent to Sensitive Natural Communities, and the proposed post-construction site restoration, impacts to riparian habitat or other Sensitive Natural Communities would be less than significant.

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

No impact. Jurisdictional waters are regulated by state and federal resource agencies (U.S. Army Corps of Engineers [USACE], California State Water Resources Control Board [SWRCB], and CDFW) and are accordingly legally protected via the federal and/or state laws in addition to CEQA.

USACE implements the Clean Water Act, which establishes a program that regulates the discharge of dredge or fill material into waters of the U.S. (WOTUS), which generally include tidal waters, lakes, ponds, rivers, streams (including intermittent streams), and wetlands. Wetlands are defined as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” [33 CFR § 328.3(b), 51 FR 41251, November 13, 1986]. The limit of USACE jurisdiction for non-tidal watercourses is defined in 33 CFR § 328.4(c)(1) as the “ordinary high water mark” (OHWM). The OHWM is defined as the “line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of

litter and debris, or other appropriate means that consider the characteristics of the surrounding areas” [33 CFR § 328.3(e), 51 FR 41251, November 13, 1986]. The bank-to-bank extent of the channel that contains the water-flow during a normal rainfall year generally serves as a good first approximation of the lateral limit of USACE jurisdiction. The upstream limits of other waters are defined as the point where the OHWM is no longer perceptible.

The Porter-Cologne Water Quality Control Act (Water Code § 13000 et seq.) is the principal law governing water quality regulation in California. It establishes a comprehensive program to protect water quality and the beneficial uses of waters of the state, and applies to surface waters, wetlands, and groundwater and to both point and nonpoint sources of pollution. The Porter-Cologne Act also implements many provisions of the Clean Water Act, such as the NPDES permitting program. The 401 Water Quality Certification and Wetlands Program regulates discharges of fill and dredged material into “waters of the State” pursuant to the CWA Section 401 and the State of California Porter-Cologne Water Quality Control Act. All WOTUS in California are also “waters of the State” (defined by the Porter-Cologne Water Quality Control Act as “any surface water or ground water, including saline waters, within the boundaries of the state.” [Water Code Section 13050(e)]).

While a review of the National Wetland Inventory identifies a riverine feature along the section of sewer alignment between Berry Trail and Frustuck Avenue in Fairfax, field observations could not confirm the existence of any WOTUS at this or any other locations along the sewer alignment. State or federally protected wetlands do not occur on or adjacent to the Project site; therefore, Project activities would have no impact to state or federally protected wetlands.

- 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?

Less than significant impact. A wildlife corridor is a portion of land that adjoins two or more larger areas of similar natural environment, often connecting wildlife populations separated by natural or created activities, disturbances, or structures. Wildlife corridors are used for dispersal and migration of wildlife, allowing for genetic exchange, population growth, and access to larger stretches of suitable habitats, and reducing habitat fragmentation. The undeveloped portions of the Project site and adjacent areas provide suitable resting and roosting habitat; however, much of this area is subject to regular disturbance and occurs within a matrix of single-family homes surrounded by fences and other barriers to dispersal for terrestrial species. Similarly, while riparian habitat is often considered a wildlife corridor, the riparian habitat associated with the Greenbrae Redwoods Park/Open Space is highly truncated and isolated from both up- and downstream reaches of the watershed by dense residential development. Accordingly, the Project site and area immediately surrounding it would not function as a wildlife corridor.

A nursery site is an area where juveniles occur at higher densities, avoid predation more successfully, or grow faster there than in a different habitat (Beck et al. 2001). It is possible that the undeveloped portions of the Project site occurring within California bay woodland and riparian habitat may act as a nursery site, providing increased nesting and roosting opportunities in a semi-protected environment adjacent to primarily residential development.

The Project site does not act as a wildlife corridor due to its location within a matrix of fenced, single family residential and otherwise urban development; therefore, Project activities would not have significant adverse effects on wildlife movement opportunities.

It is possible that the undeveloped portions of the Project site occurring within California bay woodland and riparian habitat may act as nursery sites. However, Project activities would be limited in scope to excavation of bore/receiving pits and test borings associated with cultural resource investigations. No trees would be removed as a result of Project implementation. Due to the limited extent of Project

activities proposed to occur within the potential nursery site (temporal and size of disturbance), the proposed post-construction site restoration, and construction restrictions to avoid impacts to active nests (see Mitigation Measure BIO-3), impacts to nursery sites would be less than significant.

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

Less than significant impact. The Project site occurs within unincorporated Marin County and is subject to the Marin Countywide Plan (2007; amended most recently in 2023), which was developed to help guide the conservation and development of Marin County. The Marin Countywide Plan addresses the protection of sensitive biological and wetland resources, including creeks, trees, threatened and endangered species habitat, riparian vegetation, and other resources.

Similarly, as the Project site occurs within unincorporated Marin County, it is subject to the County of Marin Native Tree Preservation and Protection Ordinance (Tree Ordinance), which establishes regulations for the preservation and protection of native trees in the unincorporated areas of Marin County by limiting tree removal. No tree removal is proposed as part of the Project. The contractor shall exercise due diligence and implement necessary precautions to avoid needlessly damaging or destroying trees, shrubs, or other landscaping within/adjacent to the Project site. Any required pruning of existing trees would be completed by a certified arborist.

The Project would not conflict with policies in the Marin Countywide Plan. In addition, the Project does not include tree removal and would therefore not conflict with the Tree Ordinance. No major conflicts with local plans and policies are anticipated, and potential impact would be less than significant.

- 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. Beck, M.W., K.L. Heck, K.W. Able, D.L. Childers, D.B. Eggleston, B.M. Gillanders, B. Halpern, C.G. Hays, K. Hoshino, T.J. Minello, R.J. Orth, P.F. Sheridan, and M.P. Weinstein. 2001. The Identification, Conservation, and Management of Estuarine and Marine Nurseries for Fish and Invertebrates: A better understanding of the habitats that serve as nurseries for marine species and the factors that create site-specific variability in nursery quality will improve conservation and management of these areas. *BioScience* 51(8):633–641, [https://doi.org/10.1641/0006-3568\(2001\)051\[0633:TICAMO\]2.0.CO;2](https://doi.org/10.1641/0006-3568(2001)051[0633:TICAMO]2.0.CO;2)
2. CDFW. 2023. California Natural Diversity Database (CNDDDB) – Commercial versions dated September 5 and October 3, 2023. <https://map.dfg.ca.gov/rarefind/view/RareFind.aspx>.
3. CNPS. 2023. Rare Plant Inventory (online edition, v9.5). Website <https://www.rareplants.cnps.org> (accessed 8 November 2023).
4. Marin County. 2007. Marin Countywide Plan. Last revised on January 24, 2023. Available at: <https://www.marincounty.org/depts/cd/divisions/planning/countywide-plan>. County of Marin, CA.
5. USFWS. 2023. Information for Planning and Consultation (IPaC) Resource List. Available at: <https://ipac.ecosphere.fws.gov/>. U.S. Fish and Wildlife Service.

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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Cause a substantial adverse change in the significance of an archeological resource pursuant to § 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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. The project will employ the method of pipe bursting to repair the existing line and will also involve open cut trench excavation in areas deemed necessary for the rehabilitation of existing manholes, construction of one new manhole, repair of sags, and potholes for lateral tie-ins.

While the Project has the potential to impact unrecorded archaeological resources, the construction methods, previous disturbances, and logistical concerns have been taken into consideration. The Project construction pipe bursting method (trenchless) has a minimal potential impact (see below), whereas construction of a new sewer manhole, repair of sags, and potholing for lateral tie-ins will require open cut excavations.

Disturbance from pipe bursting is limited to the soils within and immediately surrounding the existing sewer footprint. While the pipe bursting method is employed, the immediate soils around the existing sewer footprint are only expected to be displaced in situ a few centimeters outward to accommodate the new pipe but will reach an expected depth of five ft. Removal of soils is expected to occur for entry and exit pits, construction of one new sewer manhole, repair of sags, and potholes for lateral tie-ins and would involve excavating soils immediately surrounding the pipe as well as all soils above it to an expected depth of six to eight ft. While the excavated soil would be solely or primarily backfill from the initial installation of the existing sewer, and thus should not contain an intact archaeological deposit, the new manhole sewer and associated pipes may encounter native soils if the new trench does not exactly correspond with the depth or width of any previously excavated trench.

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

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 December 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 qualified professionals for review as necessary.

The cultural study included a cultural resources records search, consultation with the Federated Indians of Graton Rancheria (FIGR), buried site sensitivity assessment, and a pedestrian survey of the Project site. The records search identified 89 previously recorded cultural resources within the quarter-mile records search buffer, the majority of which are historic-era built environment resources, none of which intersect the area of direct impact (ADI). No previously documented archaeological sites have been documented within the ADI.

As part of this study, and presented above, an archaeological resources sensitivity analysis was conducted to assess the potential for encountering unrecorded deposits at the proposed sewer line repair locations. The ADI was noted for possible early roadbed iterations or roadside features associated with many of the original travel/roadway alignments within and intersecting the ADI, which may be encountered subsurface during project activities, however, overall, there is low potential to encounter historic-era archaeological deposits within the ADI.

Based on the results of this assessment, there are locations within the ADI that are sensitive for subsurface precontact deposits, as such it is recommended that an archaeological testing program is carried out in areas determined to have high sensitivity within the ADI. These locations include:

- Sir Francis Drake Boulevard, Main Court, and Taylor Drive in Fairfax (open cut trench and pipe bursting).
- Ross Avenue, Sunnyside Avenue, and Austin Avenue in San Anselmo (open cut trench and pipe bursting).
- Manor Road in Greenbrae (open cut trench and pipe bursting).

No cultural resources were observed during the pedestrian survey conducted for this study.

The District initiated Native American outreach on this Project in accordance with Assembly Bill 52. The Native American Heritage Commission did not identify any sacred sites. FIGR formally requested consultation and that testing occur in culturally sensitive areas prior to the start of construction. See Section 18, "Tribal Cultural Resources," for a detailed discussion of AB 52 and consultation efforts.

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 and tribal resources in the ADI. 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 of Historic Places (National Register), the

California Register of Historical Resources (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 that 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. See Section 18, “Tribal Cultural Resources”, for definition of Tribal Cultural Resources (TCR). 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 as defined in §15064.5?

Less than significant with mitigation. An archaeological resource’s significance is determined by its potential eligibility to be listed on the California Register of Historical Resources (California Register). The California Register is a listing of properties that are important to the history of California and the nation. To be eligible for listing on the California Register, a property must typically be 50 years of age or older; it must possess historical significance; and it must possess integrity of location, design, setting, materials, workmanship, feeling, and association. Historical significance is the importance of a property to the history, architecture, archaeology, engineering, or cultural aspects of a community.

The cultural resources inventory report did not result in the identification of any historical resources.

Due to the results of the buried site sensitivity assessment 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 proposed ground disturbance including: manholes, sags, potholes, and the entry and exit pits for pipe bursting, where feasible. 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. Even if much of the excavation has been previously disturbed, as deposits may be visible in trench walls and re-deposited 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 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 RSVD and FIGR, monitoring by an archaeologist and tribal monitor may also be required to observe excavated soils that are removed during construction activities. If resources are identified during the testing or monitoring the Plan will detail the appropriate avoidance and/or treatment measures to be carried out in coordination with FIGR, as necessary.

Mitigation Measure CUL-2

Upon approval of the Cultural and Tribal Resources Testing and Monitoring Plan, archaeological testing will occur in areas determined to be highly 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 at project segments: Sir Francis Drake Boulevard, Main Court, and Taylor Drive in Fairfax, Ross Avenue, Sunnyside Avenue, and Austin Avenue in San Anselmo, and Manor Road in Greenbrae. Where testing is not feasible, monitoring will occur in accordance with Mitigation Measure CUL-1.

Mitigation Measure CUL-3

Construction crews shall be trained in “basic archaeological identification” and have access to an alert sheet. The alert sheet will photographically depict indicators of precontact 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 will 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 and tribal resources that have been encountered.

Mitigation Measure CUL-4

Upon discovery of suspected human remains, the Coroner Division of the Marin County Sheriff’s Office will be contacted for identification of human remains. The coroner has two 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 ancestral remains and associated funerary objects. 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 developed 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. With the implementation of mitigation measure CUL-1 through CUL-4, impacts to archaeological 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 PRC §5097.98, the appropriate procedures would be followed in the event that human remains and associated cemetery/funerary items are encountered. Associated cemetery/funerary 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. 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 23-24 Gravity Sewer Projects, Marin County, California. Far Western Anthropological Research Group, Inc. December.

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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

Assembly Bill (AB) 32, the Global Warming Solutions Act, addresses greenhouse gas (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 third update to the scoping plan in 2022 (CARB 2022). Locally, the Marin County Climate Action Plan provides emissions reduction goals and measures for unincorporated Marin County, with the overall target of reducing emissions to 30 percent below 2005 levels by 2030 and drawdown GHG emissions below zero by 2045 (Marin County 2020). Efficient energy use is a key component to achieving these emission reduction goals.

Analysis as to whether or not project activities would:

- a. 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. Would the project 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. Therefore, the Project would not conflict with or obstruct state or local plans for renewable energy or energy efficiency.

References Used:

1. CARB. 2022. California’s 2022 Climate Change Scoping Plan. Available at: <https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf> California Air Resources Board. October.
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.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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 conducted 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-to-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 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 that segments of the Project site may be within a mapped zone of high susceptibility to liquefaction (Marin County 2007, Map 2-11).

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

Groundwater

The Project includes maximum excavation depths of 12 ft for construction of various improvements including replacement of manholes. While the Project is not located adjacent to or crossing any creeks, 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 Project sites according to published geologic maps. The Project site is not located within an identified Alquist-Priolo Earthquake Hazard Zone. Because the 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 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. Some segments of Project site are 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 sewer mains 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 2023). 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?

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

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. The 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 mains 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 in Section 5, "Cultural Resources," the Project site might contain paleontological resources or unique geologic features of paleontological value. However, mitigation measures listed in 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 January 24, 2023. Available at: <https://www.marincounty.org/userdata/cda/planning/cwp2023.pdf> County of Marin, CA.
4. ABAG. 2023. 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
g. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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 CO₂, methane, and nitrous oxide. Carbon dioxide is the most common reference gas for climate change. To account for warming potential, GHGs are often quantified and reported as CO₂ equivalents (CO₂e), based on their warming potential relative to CO₂.

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 third update to the scoping plan in 2022 (CARB 2022). 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 2023):

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 CalEEMod 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}	74.5	1,100	No

^a Based on the threshold of significance for operations-related GHG emissions (BAAQMD 2023b)

The Air Quality Guidelines (BAAQMD 2023) 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 (74.5 MT/year) that could be generated during construction are well below 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 2019 were 389,023 MTCO_{2e} (Marin Climate 2021a).³ 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 constitute 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 2017) 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. 2017. 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.
2. BAAQMD. 2023. California Environmental Quality Act Air Quality Guidelines. Available at: <https://www.baaqmd.gov/plans-and-climate/california-environmental-quality-act-ceqa/updated-ceqa-guidelines>. Bay Area Air Quality Management District. April.
3. CARB. 2022. California’s 2022 Climate Change Scoping Plan. Available at: <https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf> California Air Resources Board. October.
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.

³ GHG emissions for unincorporated Marin County were used because most of the Project segments are locations within unincorporated areas. For reference, the GHG emissions for San Anselmo in 2019 were 55,078 MTCO_{2e}, respectively (Marin Climate 2021b,c). The Project would constitute less than 1 percent of emissions generated.

5. SMAQMD. 2015. Thresholds of Significance Table. Available at: https://files.ceqanet.opr.ca.gov/123569-2/attachment/UL9obk_yjl5aUBxUryQ9P3HVyfSLoCEnhvRpgSHGIQmRUgvfjw0ZXCCdqPM73IOOUtFc8RI7yl_48800. Sacramento Metropolitan Air Quality Management District.
6. Marin Climate. 2021a. Unincorporated County of Marin – Greenhouse Gas Inventory for the year 2019. Available at: <https://marinclimate.org/wp-content/uploads/2021/08/Larkspur-2019-GHG-Inventory-Report.pdf>. City of Larkspur. August.
7. Marin Climate. 2021b. Town of San Anselmo – Greenhouse Gas Inventory for the year 2019. Available at: <https://marinclimate.org/wp-content/uploads/2021/08/Larkspur-2019-GHG-Inventory-Report.pdf>. City of Larkspur. May.

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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Project Activities Likely to Create an Impact:

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

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

Description of Baseline Environmental Conditions:

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

Several regulatory agency databases were consulted regarding the presence of hazardous materials release sites within the Project site, including the SWRCB GeoTracker website and the Department of Toxic Substances Control (DTSC) Cortese List. No sites on the SWRCB GeoTracker website (SWRCB 2023) or the Cortese List (DTSC 2023) are located in the Project site.

While there are no hazardous materials release sites within the Proposed Project site, consultation with the DTSC Cortese List revealed that there is an active cleanup site within 0.25 mile of the project. The site, the Fain-Anselm Center, is located in Fairfax and has been an active cleanup site since 2009. The site is located approximately 300 meters from the proposed project site on Rocca Drive.

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 at 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. While there are no hazardous materials release sites within the Project site, consultation with the DTSC Cortese List revealed that there is an active cleanup site within 0.25 mile of the Project. The site, the Fain-Anselm Center, is located in Fairfax and has been an active cleanup site since 2009. The site is located approximately 300 meters from the proposed project site on Rocca Drive.

However, 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 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.

- a. 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. 2023. Hazardous Waste and Substances Site List (Cortese). Available at: [https://www.envirostor.dtsc.ca.gov/public/search?cmd=search&reporttype=CORTESE&site_type=C_SITES,OPEN,FUDS,CLOSE&status=ACT,BKLG,COM,COLUR&reporttitle=HAZARDOUS+WASTE+AND+SUBSTANCES+SITE+LIST+\(CORTESE\)](https://www.envirostor.dtsc.ca.gov/public/search?cmd=search&reporttype=CORTESE&site_type=C_SITES,OPEN,FUDS,CLOSE&status=ACT,BKLG,COM,COLUR&reporttitle=HAZARDOUS+WASTE+AND+SUBSTANCES+SITE+LIST+(CORTESE)). Department of Toxic Substances Control.
2. SWRCB. 2023. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i) result in substantial erosion or siltation on- or off-site	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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.

Pipe bursting would be used throughout 14,742 LF of the Project site. Pipe bursting is a trenchless method and does not require open exposure from the surface along the entire segment. The other 906 LF (264 LF of new sewer and 642 LF of existing sewer) of the proposed Project would involve cut and cover construction, which would involve trenching and open-cut construction methods.

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 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 Hazard Zone X is described by FEMA as an area that has minimal flooding. Areas in which the Project are not in FEMA Flood Hazard Zone X are as follows:

- The segment at Fawn Ridge/Wood Lane in Fairfax goes through a FEMA-designated 0.2 percent annual chance flood hazard area.
- The segment along Berry Trail in Fairfax is located within a FEMA Flood Hazard Zone X; however, the segment ends directly adjacent to a FEMA-designated 1 percent annual chance flood hazard area as the alignment approaches Sir Francis Drake Boulevard.
- The segment of the proposed Project occurring on Main Court in Fairfax is within a FEMA-designated 1 percent annual chance flood hazard area.
- The segment of the proposed project on Ross Avenue in San Anselmo consists of areas within both a FEMA-designated 1 percent annual chance flood hazard area, 0.2 percent annual chance flood hazard area, and FEMA Flood Hazard Zone X.
- The segments of the proposed Project on Manor Road, Sir Francis Drake Boulevard, Corte Comoda, and Bon Air Road are all within a FEMA-designated 0.2 percent chance flood hazard area (FEMA 2009).

Groundwater

The Project is located within the Central Basin of San Francisco Bay. The basin is not used for municipal drinking water or for major agricultural use. As discussed in Section 7, "Geology and Soils," studies performed in the vicinity of the Project site found that groundwater occurs from 10 to 12 ft below ground surface. Groundwater may be encountered during excavation activities along the Project alignments. With the implementation of control measures listed in Attachment D under "Dewatering," any potentially significant impacts to groundwater would be less than significant.

Analysis as to whether or not project activities would:

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

Less than significant impact. The Project is one of a series of RVSD projects that address 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. R2-2023-0003, NPDES No. CA0038628, and is a beneficial impact.

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. A plan containing construction BMPs (as listed in control measures under "Stormwater and Erosion Control" and "Site Management Practices" in Attachment D) would be prepared and implemented for the Project to reduce construction-related stormwater discharges and minimize potential downstream water quality impacts.

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

The Project does not propose the use of groundwater and therefore no long-term extraction of groundwater at the Project site is expected. There may be short-term dewatering of shallow groundwater associated with soil removal and filling activities. Short-term dewatering activities would not be expected to have any significant long-term effect on groundwater resources because any pumping activities would be of limited duration. 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 impact. 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 impact. The Project would require short-term construction-related disturbances, including 906 LF of open-cut construction that would require trenching and would result in exposure of soil to runoff. However, these activities would be temporary and site conditions would return to preexisting conditions upon project completion. However, implementation of the construction BMPs outlined in Attachment D would ensure that any temporary impacts during construction are less than significant.

- 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 impact. 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 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 impact. 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 a 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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 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 January 24, 2023. Available at: <https://www.marincounty.org/userdata/cda/planning/cwp2023.pdf> County of Marin, CA.
2. San Anselmo. 2019. San Anselmo General Plan. Last Amendment February 12, 2019. Available at: <https://www.townofsananselmo.org/DocumentCenter/View/5210/General-Plan-includes-Feb-2019-amendment>. Town of San Anselmo, CA.
3. Fairfax. 2012. Fairfax 2010-2030 General Plan. Last amendment December 2021. Available at https://storage.googleapis.com/proudcity/fairfaxca/uploads/2022/04/2010-2030-GenPlan_2015HE_2021TextAmend.pdf. Town of Fairfax, 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Project Activities Likely to Create an Impact:

None.

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). Furthermore, the Project site does not contain any Mineral Resource Preservation Sites (Marin County 2007, Map 3-5).

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.
3. Marin County. 2007. Marin Countywide Plan. Last amendment January 24, 2023. Available at: <https://www.marincounty.org/userdata/cda/planning/cwp2023.pdf> 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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, schools, hospitals, and medical clinics within 1,000 ft of the Project site.

Local Noise Regulations

The Project site is within Marin County and is subject to noise regulations of Marin County. Work in Project segments located in the unincorporated community of Greenbrae would be subject to the Marin County noise regulations. 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 a.m. to 6 p.m.
 - ii. Saturday: 9 a.m. to 5 p.m.
 - iii. Prohibited on Sundays and Holidays (New Year's Day, Presidents' Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day.)
- b. Loud noise-generating construction-related equipment (e.g., backhoes, generators, jackhammers) can be maintained, operated, or serviced at a construction site for permits administered by the community development agency from 8 a.m. to 5 p.m. Monday through Friday only.
- c. Special exceptions to these limitations may occur for:
 - i. Emergency work as defined in Section 22.130.030 of this code provided written notice is given to the community development director within 48 hours of commencing work
 - ii. Construction projects of city, county, state, other public agency, or other public utility
 - iii. When written permission of the community development director has been obtained, for showing of sufficient cause
 - iv. Minor jobs (e.g., painting, hand sanding, sweeping) with minimal/no noise impacts on surrounding properties
 - v. Modifications required by the review authority as a discretionary permit condition of approval.

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

Level	Daytime (7 a.m. to 10 p.m.)	Nighttime (10 p.m. to 7 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

Project segments located within San Anselmo would be subject to the Town of San Anselmo noise regulations. The Town of San Anselmo, Chapter 7, Article 2, Section 4-7.203 Construction and Demolition states that:

- It shall be unlawful to operate any powered equipment if the operation of such equipment emits a noise level of 80 dBA when measured at the loudest point 50 ft away from the equipment.
- Impact tools and equipment shall have intake and exhaust mufflers recommended by the manufacturers thereof; and provided, further, pavement breakers and jackhammers shall also be

equipped with acoustically attenuating shields or shrouds recommended by the manufacturers thereof. In lieu of or in the absence of manufacturers' recommendations, the Director of Public Works shall have the authority to prescribe such means of accomplishing maximum noise attenuation as he deems to be in the public interest, considering the available technology and economic feasibility.

- Construction or demolition work may be performed during the following times:
 - Mondays through Fridays from 7:00 a.m. to 7:00 p.m.
 - Saturdays from 9:00 a.m. to 5:00 p.m.
 - Sundays from 12:00 p.m. to 5:00 p.m.
 - Such hours shall be extended until 8:00 p.m. for work performed by homeowners or residents upon their own property.
- Construction or demolition work shall be allowed at any time provided the noise level does not exceed 5 dBA above the ambient at the nearest property plane with allowance for correction factors.

Project segments located within Fairfax would be subject to the Town of Fairfax Ordinance No. 770 which regulates construction related noise. The Town of Fairfax Ordinance No. 770 states:

- Operating or permitting the operation of any mechanically powered tools between the hours of 6:00 p.m. and 8:00 a.m. Monday through Friday and between 4:00 p.m. and 9:00 a.m. on weekends and holidays is prohibited.

The Fairfax General Plan contains benchmarks for allowable noise exposure based on land use. In single-family residential areas, exterior noise exposure is acceptable below 60 dB, conditionally acceptable between 60 dB and 75 dB, and unacceptable above 75 dB.

As a condition of permit approval for projects generating significant construction noise 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 impact. 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."

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

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

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

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 January 24, 2023. Available at: <https://www.marincounty.org/userdata/cda/planning/cwp2023.pdf> County of Marin, CA.
3. Fairfax. 2012. Fairfax 2010-2030 General Plan. Last amendment December 2021. Available at https://storage.googleapis.com/proudcity/fairfaxca/uploads/2022/04/2010-2030-GenPlan_2015HE_2021TextAmend.pdf. Town of Fairfax, CA.

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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

rights-of-way. 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 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.

- 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:				
b. Fire Protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Police Protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Other Public Facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Project Activities Likely to Create an Impact:

None.

Description of Baseline Environmental Conditions:

The Project segments are 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. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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. 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. Include recreational facilities or require 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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.

Project site roadways affected include the following:

- Fairfax: Bolinas Road, Fawn Ridge, Wood Lane, Coree Lane, Frustruck Avenue, Berry Trail, Main Court, Sir Francis Drake Boulevard, Taylor Drive, and Rocca Drive
- San Anselmo: Ross Avenue, Sunnyside Avenue, Melville Avenue, Vine Avenue, and Austin Avenue.
- Greenbrae: Manor Road, Los Cerros Drive, Corte Comoda, Almenar Drive, and Bon Air Road.

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 impact. 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 would not overload traffic flow. However, the intrusion of construction equipment and vehicles into the local street system of residential areas at the Project site can result in traffic circulation and safety impacts. The contractor will prepare a traffic control plan and submit it to RVSD and the County of Marin for review and approval at least 3 weeks prior to start of construction. The traffic control plan will include, at minimum, the measures listed in Attachment D under "Traffic Management" to minimize traffic flow overload.

- b. Would the project be 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 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 impact. 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 traffic control plan 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. Kentfield/Greenbrae and Marin County. 1987. Kentfield/Greenbrae Community Plan. Available at: https://www.marincounty.org/-/media/files/departments/cd/planning/currentplanning/publications/communityandareaplans/kentfield_greenbrae_community_plan_1987.pdf. Kentfield/Greenbrae Community Planning Group and Marin County Planning Department.
2. Marin County. 2007. Marin Countywide Plan. Last amendment January 24, 2023. Available at: <https://www.marincounty.org/userdata/cda/planning/cwp2023.pdf> County of Marin, CA.
3. San Anselmo. 2019. San Anselmo General Plan. Last amendment February 12, 2019. Available at: <https://www.townofsananselmo.org/DocumentCenter/View/5210/General-Plan-includes-Feb-2019-amendment>. Town of San Anselmo, CA.

18. Tribal Cultural Resources

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
<p>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:</p> <p>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</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>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.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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. The project will employ the method of pipe bursting to repair the existing line and will also involve open cut trench excavation in areas deemed necessary for the rehabilitation of existing manholes, construction of one new manhole, repair of sags, and potholes for lateral tie-ins.

While the Project has the potential to impact unrecorded archaeological resources, the construction methods, previous disturbances, and logistical concerns have been taken into consideration. The Project construction pipe bursting method (trenchless) has a minimal potential impact (see below), whereas construction of a new sewer manholes, repair of sags, and potholing for lateral tie-ins will require open cut excavations.

Disturbance from pipe bursting is limited to the soils within and immediately surrounding the existing sewer footprint. While the pipe bursting method is employed, the immediate soils around the existing sewer footprint are only expected to be displaced in situ a few centimeters outward to accommodate the new pipe but will reach an expected depth of five ft. Removal of soils is expected to occur for entry and exit pits, construction of one new sewer manholes, repair of sags, and potholes for lateral tie-ins and would involve excavating soils immediately surrounding the pipe as well as all soils above it to an expected depth of six to eight ft. While the excavated soil would be solely or primarily backfill from the initial installation of the existing sewer, and thus should not contain an intact archaeological deposit, the new manhole sewer and associated pipes may encounter native soils if the new trench does not exactly correspond with the depth or width of any previously excavated trench.

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

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 December 2023. Because the report contains confidential information about the locations and characteristics of archeological 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 qualified professionals for review as necessary.

The cultural study included a cultural resources records search, consultation with the Federated Indians of Graton Rancheria (FIGR), buried site sensitivity assessment, and a pedestrian survey of the Project site.

The records search identified 89 previously recorded cultural resources within the quarter-mile records search buffer, the majority of which are historic-era built environment resources, none of which intersect the ADI. No archaeological sites have been previously documented within the ADI.

As part of this study, and presented above, an archaeological resources sensitivity analysis was conducted to assess the potential for encountering unrecorded deposits at the proposed sewer line repair locations. The ADI was noted for possible early roadbed iterations or roadside features associated with many of the original travel/roadway alignments within and intersecting the ADI, which may be encountered subsurface during project activities, however, overall, there is low potential to encounter historic-era archaeological deposits within the ADI.

Based on the results of this assessment, there are locations within the ADI that are sensitive for subsurface precontact deposits, as such it is recommended that an archaeological testing program is carried out in areas determined to have high sensitivity within the ADI. These locations include:

- Sir Francis Drake Boulevard, Main Court, and Taylor Drive in Fairfax (open cut trench and pipe bursting).
- Ross Avenue, Sunnyside Avenue, and Austin Avenue in San Anselmo (open cut trench and pipe bursting).
- Manor Road in Greenbrae (open cut trench and pipe bursting).

No cultural resources were observed during the pedestrian survey conducted for this study.

The District initiated Native American outreach on this Project in accordance with Assembly Bill 52. The Native American Heritage Commission did not identify any sacred sites. FIGR formally requested consultation and a meeting between the RVSD and FIGR was held on December 7, 2023.

Ethnographic Context

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

In 1958, Congress passed the California Rancheria Act, terminating all 41 Rancherias, extinguishing the recognition of their residents as American Indians, and removing the land from Federal Trust. As with many other California Tribes, federal recognition for the Coast Miwok was not restored until decades later, after tribal members raised money to travel to Washington to campaign for restoration of federal status and rights. For the Graton Rancheria, campaigning began in 1990, with recognition restored in 2000, 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, FIGR 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 Hookoeko. 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 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 and tribal resources in the ADI. The Project requires approval by local and state agencies, thereby mandating that it adheres to CEQA and its implementing guidelines and

regulations in 14 CCR § 15000 et seq. In addition, 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 the 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 behalf of RVSD, Integral sent a letter to FIGR on September 11, 2023, pursuant to AB 52. The tribe responded on October 4, 2023, within the 30-day consultation window, with a formal request for consultation. RVSD, Integral, and FIGR met on December 7, 2023, to discuss 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. It is anticipated that FIGR will participate in the testing fieldwork. On January 2, 2024, FIGR was provided with copies of the ADI, records search results, and buried site sensitivity maps.

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 tribal cultural resource, object, building, structure, site, area, place, record, or manuscript that 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 substantial adverse change in the significance of a tribal cultural resource, defined in Public Resource Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:
- 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)?

Less than significant with mitigation. 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 and tribal 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, “Cultural Resources,” the cultural resources inventory study did not result in the identification of any archaeological or tribal cultural resources.

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 Section 5024.1? In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significant of the resource to a California Native American Tribe?

Less than significant with mitigation. Due to the overall poor surface visibility of the Project site, the results of the 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 proposed ground disturbance including manholes, sags, potholes, and the entry and exit pits for pipe bursting, where feasible. With the implementation of Mitigation Measures CUL-1, CUL-2, CUL-3, and CUL-4, impacts to tribal cultural resources would be less than significant.

References Used:

1. Far Western. 2023. Cultural Resources Inventory for the Ross Valley Sanitary District 23-24 Gravity Sewer Projects, Marin County, California. Far Western Anthropological Research Group, Inc. December.
2. FIGR. 2019. Federated Indians of Graton Rancheria Coast Miwok and Southern Pomo. www.gratonrancheria.com/home/. Accessed June 2022. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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. The 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 that is associated with water truck use for dust suppression during soil removal and filling activities.

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

Analysis as to whether or not project activities would:

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

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 impact. The construction activities would not significantly increase the consumption of water on the Project site. A temporary increase of water consumption may occur that is 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 providers 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 impact. 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. Landfill approval would take place before the planned soil removal thus, 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 impact. 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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 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.

Each Project segment located in various areas was evaluated to identify if it was in an SRA, LRA, or FRA along with its fire hazard classification (Marin GeoHub 2020, CalFire 2023). This information is summarized as follows:

- **Fairfax:** The Project segments are located in residential/urban areas served by the Ross Valley Fire Department in both a CalFire SRA and LRA. This area is classified as having a high fire risk.
- **San Anselmo:** The Project segments are located in residential areas served by the Ross Valley Fire Department in both a CalFire SRA and LRA. This area is classified having high/moderate fire risk.
- **Greenbrae:** The Project segments are located in a residential/urban area served by the Central Marin Fire Department in an LRA. This area is classified as having low fire risk.

Analysis as to whether or not project activities would:

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

- a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

Less than significant impact. 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. The proposed open cut excavation and cover of 264 LF of new sewer on Los Cerros Drive in Greenbrae would not impair the emergency evacuation plan established for the area (Fire Safe Marin 2023).

- 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 impact. 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 impact. 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. 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 impact. 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. 2023. 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. Fire Safe Marin. 2023. Evacuation Maps. Available at: <https://firesafemarin.org/prepare-yourself/evacuation-guide/evacuation-maps/#gsc.tab=0>. County of Marin.
4. Marin GeoHub. 2020. Available at: <https://gisopendata.marincounty.org/datasets/fire-hazard-severity-zone/explore>. County of Marin.

21. Report Preparers

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Mandatory Findings of Significance

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

- a. The project has does not have the potential substantially to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory.

The short-term disturbance of the Project site during the construction activities would not impact the adjacent habitat. There are no identified special-status species on the Project site. Based on the information presented within 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 new bird nests could be established in the trees and other vegetation in and near the Project site before construction activities commence. With implementation of the Mitigation Measures BIO-1 and BIO-2, impacts to biological resources would be less than significant.

As discussed in Section 5, the cultural resources inventory report did not result in the identification of any historical resources. Due to the results of the buried site sensitivity assessment 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 take place prior to project implementation and will be coordinated in advance with FIGR. Testing will occur at project segments: Sir Francis Drake Boulevard, Main Court, and Taylor Drive in Fairfax, Ross Avenue, Sunnyside Avenue, and Austin Avenue in San Anselmo, and Manor Road in Greenbrae. 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. With implementation of Mitigation Measures CUL-1, CUL-2, CUL-3, and CUL-4 impacts to cultural resources would be less than significant.

- g. 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 result in the construction of no new structures/buildings, and would return the ground surface in outdoor areas to pre-Project conditions. Therefore, the cumulative impact from Project activities is less than significant.

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

Worker and public health and safety were discussed in various sections of this Initial Study, including air quality, geology and soils, hazards and hazardous materials, noise and vibration, transportation/traffic, and utilities and service systems. In all instances, specific control measures have been included as necessary in the Project to reduce impacts to worker and public health and safety to less-than-significant levels. It should be noted that the Project 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:

2/20/2024

Philip Benedetti
Senior Engineer

Date

Attachment A

Abbreviations and Acronyms

ATTACHMENT A ABBREVIATIONS AND ACRONYMS

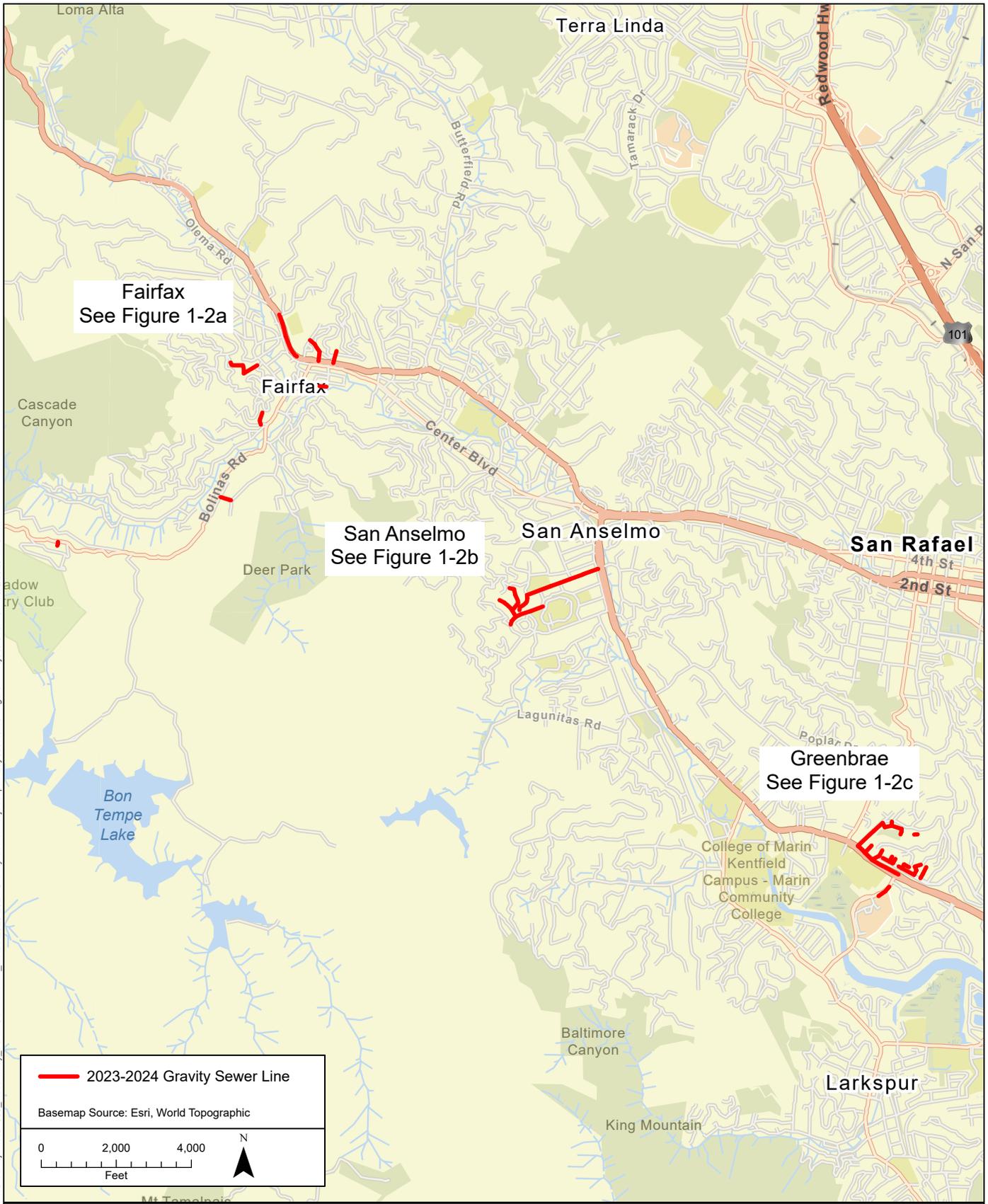
AB	Assembly Bill
ADI	area of direct impact
BAAQMD	Bay Area Air Quality Management District
bgs	below ground surface
BMP	best management practice
CAA	Clean Air Act
CalEEMod	California Emissions Estimate Model
CalFire	California Department of Forestry and Fire Protection
California Register	California 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
CIP	cast iron pipe
CFGC	CDFW Fish and Game Code
CFR	Code of Federal Regulations
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CO ₂	carbon dioxide
CO _{2e}	carbon dioxide equivalents
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
FIGR	Federated Indians of Graton Rancheria
FMMP	Farmland Mapping and Monitoring Program

FRA	federal responsibility area
GHG	greenhouse gas
HDPE	high-density polyethylene
I&I	inflow and infiltration
IAMP	Infrastructure Asset Management Plan
Integral	Integral Consulting Inc.
IPaC	Information for Planning and Consultation
L _{eq}	equivalent sound pressure level
LF	linear feet
LRA	local responsibility area
MLD	most likely descendant
MRZ	mineral resource zone
MT/year	metric tonne per year
NAHC	Native American Heritage Commission
National Register	National Register of Historic Places
NMFS	National Marine Fisheries Service
NO ₂	nitrogen dioxide
NO _x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
O ₃	ozone
OHWM	ordinary high water mark
PM _{2.5}	fine particulate matter with a diameter less than 2.5 microns
PM ₁₀	respirable particulate matter with a diameter less than 10 microns
ppm	parts per million
PRC	Public Resources Code
Project	Gravity Sewer Improvements Project (#955)
Regional Water Board	San Francisco Bay Regional Water Quality Control Board
ROG	reactive organic gases
RVSD	Ross Valley Sanitary District
SFBAAB	San Francisco Bay Area Air Basin
SIP	State Implementation Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO ₂	sulfur dioxide
SRA	State Responsibility Area
SSO	sewer system overflow
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant

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
WOTUS	waters of the U.S.
µg/m ³	micrograms per cubic meter

Attachment B

Figures



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Figure 1-1.
 Project Location Map
 2023-2024 Gravity Sewer Improvements Project
 Ross Valley Sanitary District

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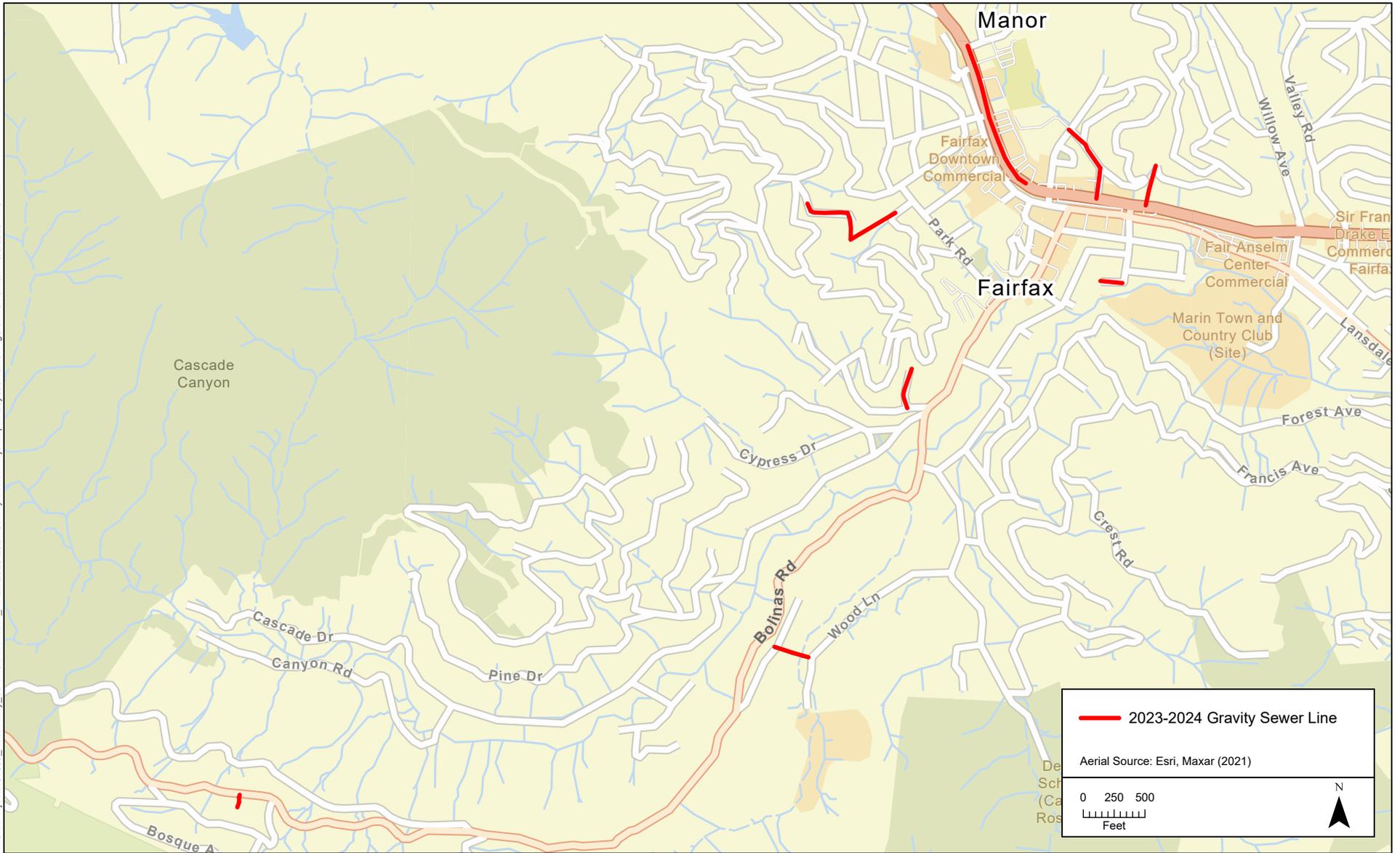


Figure 1-2a.
Project Location Map – Fairfax
2023-2024 Gravity Sewer Improvements Project
Ross Valley Sanitary District

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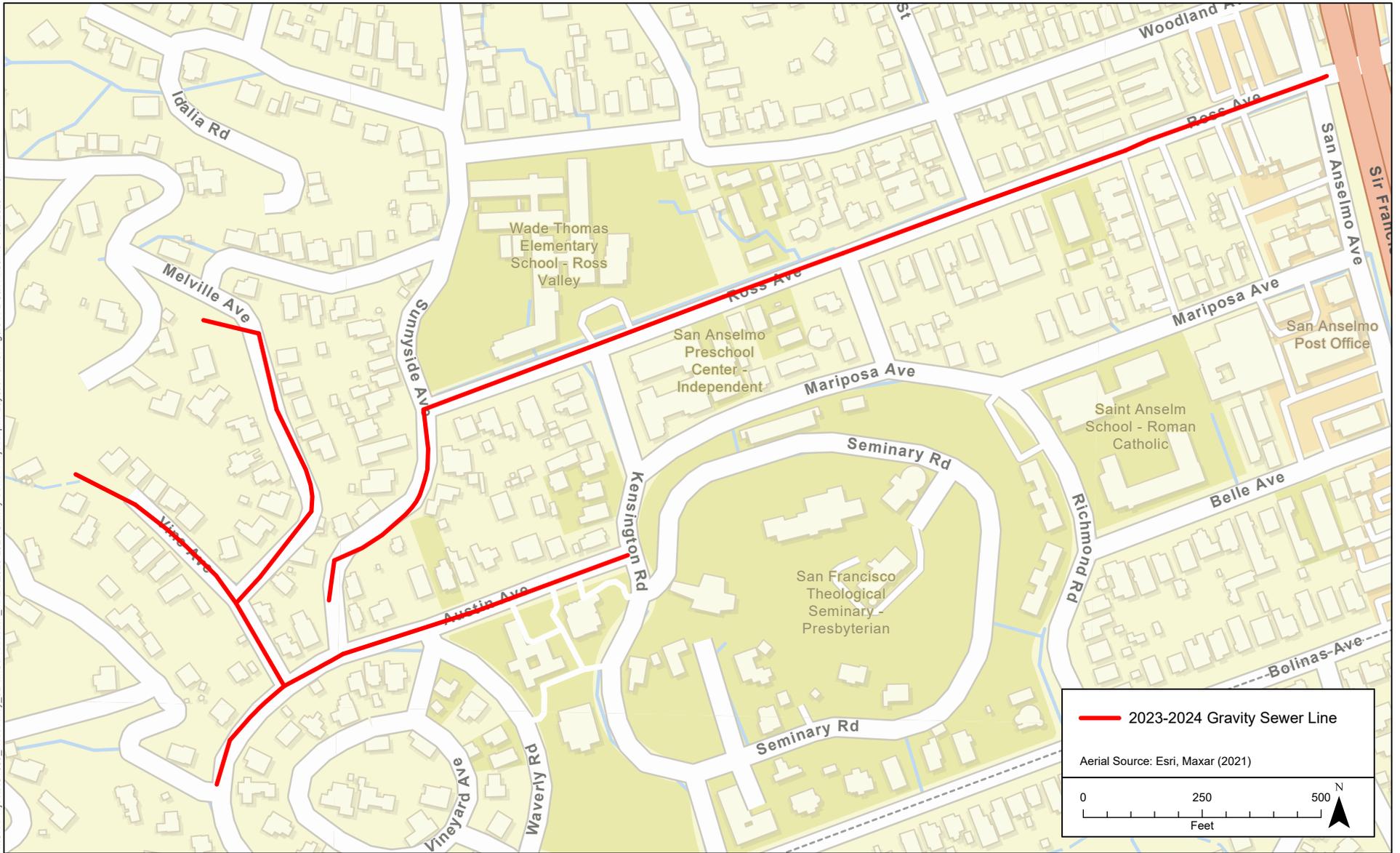


Figure 1-2b.
Project Location Map – San Anselmo
2023-2024 Gravity Sewer Improvements Project
Ross Valley Sanitary District

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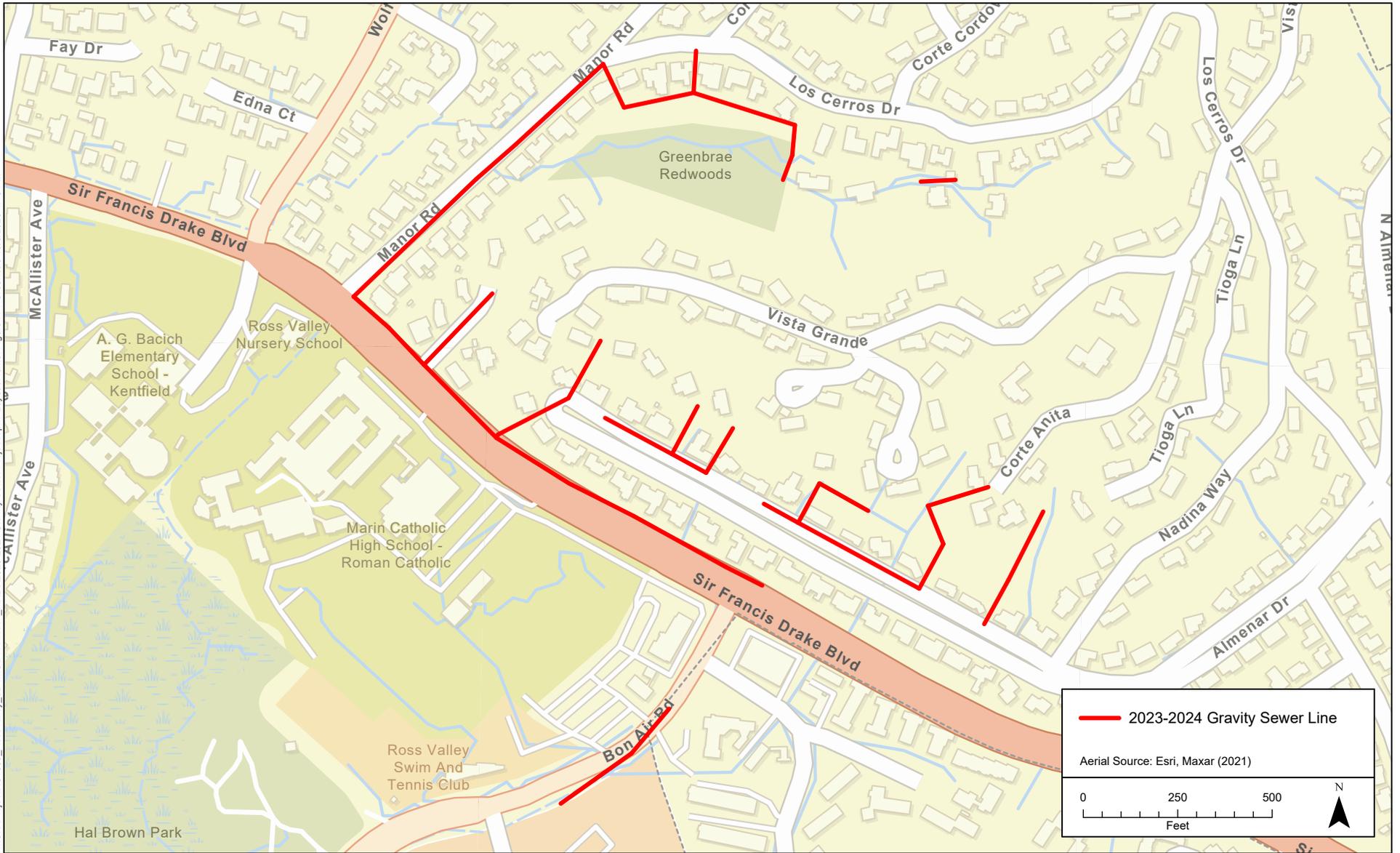


Figure 1-2c.
Project Location Map – Greenbrae
2023-2024 Gravity Sewer Improvements Project
Ross Valley Sanitary District

Attachment C

Construction Plans

ROSS VALLEY SANITARY DISTRICT

MARIN COUNTY, CALIFORNIA

PLANS

FOR THE CONSTRUCTION OF

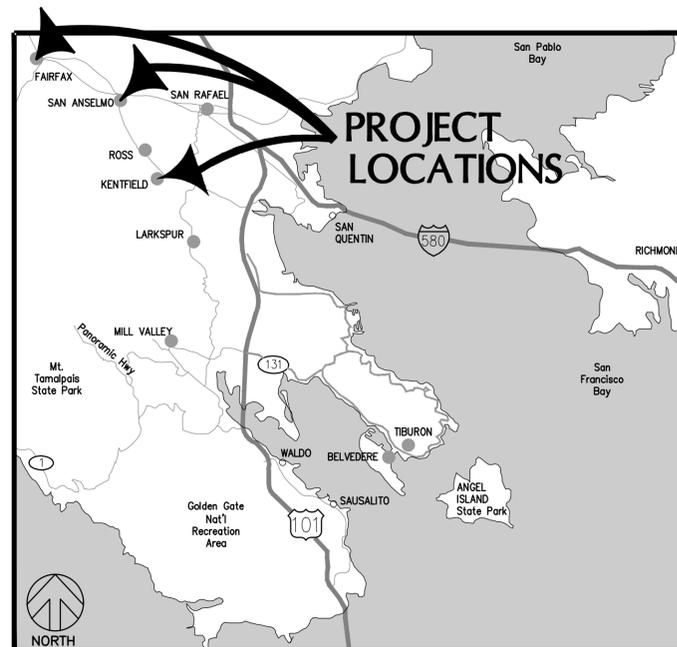
FY 2023/24 GRAVITY SEWER IMPROVEMENTS PROJECT (#955)

INDEX OF DRAWINGS

SHT #	DWG #	DESCRIPTION
1	T-01	TITLE SHEET
2	N-01	NOTES, LEGENDS AND ABBREVIATIONS
3	K-01	VARIOUS LOCATIONS KEY MAP
4	K-02	VARIOUS LOCATIONS KEY MAP
<u>PLAN AND PROFILE</u>		
5	PP-01	SIR FRANCIS DRAKE BLVD
6	PP-02	SIR FRANCIS DRAKE BLVD
7	PP-03	SIR FRANCIS DRAKE BLVD
8	PP-04	TAYLOR DR
9	PP-05	TAYLOR DR
10	PP-06	SIR FRANCIS DRAKE BLVD/LIVE OAK EASEMENT
11	PP-07	MAIN CT
12	PP-08	BERRY TRAIL
13	PP-09	BERRY TRAIL
14	PP-10	BERRY TRAIL
15	PP-11	COREE LN
16	PP-12	WOOD LN EASEMENT
17	PP-13	BOLINAS RD EASEMENT
18	PP-14	AUSTIN AVE
19	PP-15	AUSTIN AVE
20	PP-16	AUSTIN AVE
21	PP-17	MELVILLE AVE AND VINE AVE
22	PP-18	VINE AVE
23	PP-19	MELVILLE AVE
24	PP-20	MELVILLE AVE
25	PP-21	ROSS AVE
26	PP-22	ROSS AVE
27	PP-23	ROSS AVE
28	PP-24	ROSS AVE
29	PP-25	ROSS AVE
30	PP-26	ROSS AVE AND SUNNYSIDE AVE
31	PP-27	SUNNYSIDE AVE
<u>PLAN AND PROFILE CONTINUED</u>		
32	PP-28	SIR FRANCIS DRAKE BLVD
33	PP-29	SIR FRANCIS DRAKE BLVD
34	PP-30	SIR FRANCIS DRAKE BLVD
35	PP-31	SIR FRANCIS DRAKE BLVD
36	PP-32	CORTE COMODA
37	PP-33	BON AIR RD
38	PP-34	ALMENAR DR
39	PP-35	ALMENAR DR
40	PP-36	ALMENAR DR
41	PP-37	ALMENAR DR
42	PP-38	ALMENAR DR
43	PP-39	ALMENAR DR
44	PP-40	ALMENAR DR
45	PP-41	MANOR RD
46	PP-42	MANOR RD
47	PP-43	MANOR RD
48	PP-44	LOS CERROS EASEMENT
49	PP-45	LOS CERROS EASEMENT
50	PP-46	LOS CERROS EASEMENT
51	PP-47	LOS CERROS EASEMENT
<u>CONSTRUCTION DETAILS</u>		
52	D-01	CONSTRUCTION DETAILS

DATUM

HORIZONTAL DATUM IS NAD 83, CALIFORNIA COORDINATE SYSTEM ZONE 3, ITRF 2011
 VERTICAL DATUM IS NAVD 88



VICINITY MAP



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Prepared By:
Harris & Associates

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 THOMAS GAFFNEY
 MARY SYLLA
 PAMELA MEIGS
 DOUG KELLY

GENERAL MANAGER
 STEVE MOORE, P.E.

[Signature]

DESIGN ENGINEER
 KOUROSH IRANPOUR, P.E.

DATE



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TITLE SHEET

ROSS VALLEY
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 FY2023/24 GRAVITY SEWER
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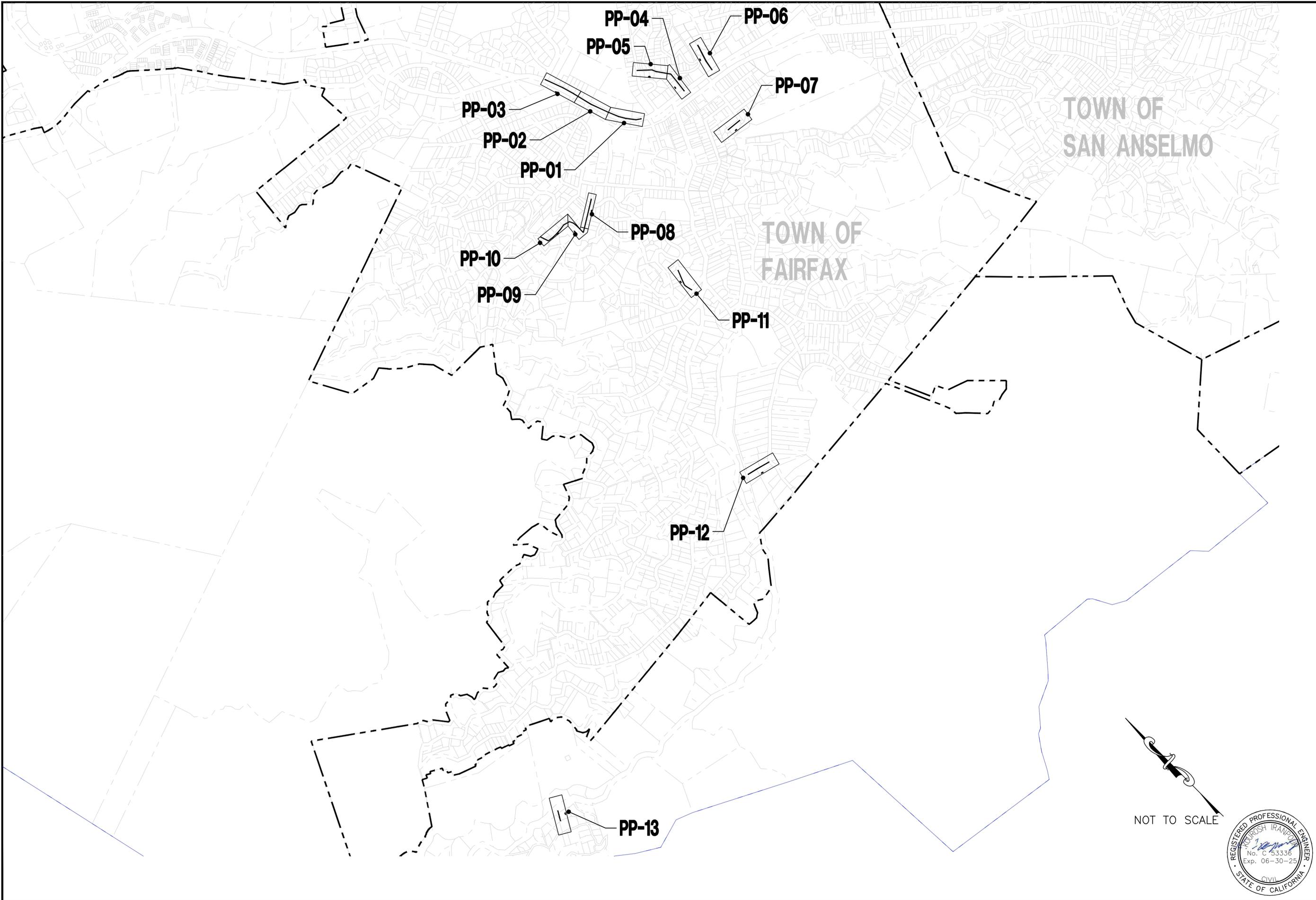


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 JOB NO. 120-0743.006
 DWG NO.

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SHEET 1 OF 52

H:\Ross Valley Sanitary District (RSD)\FY 2023-24 Gravity Sewer\03-04 k-01 To K-02 KEY MAP.dwg Save Date: 11/21/2023 3:56 PM Plot Date: 11/21/2023 3:56 PM Kchow



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**VARIOUS LOCATIONS
KEY MAPS**

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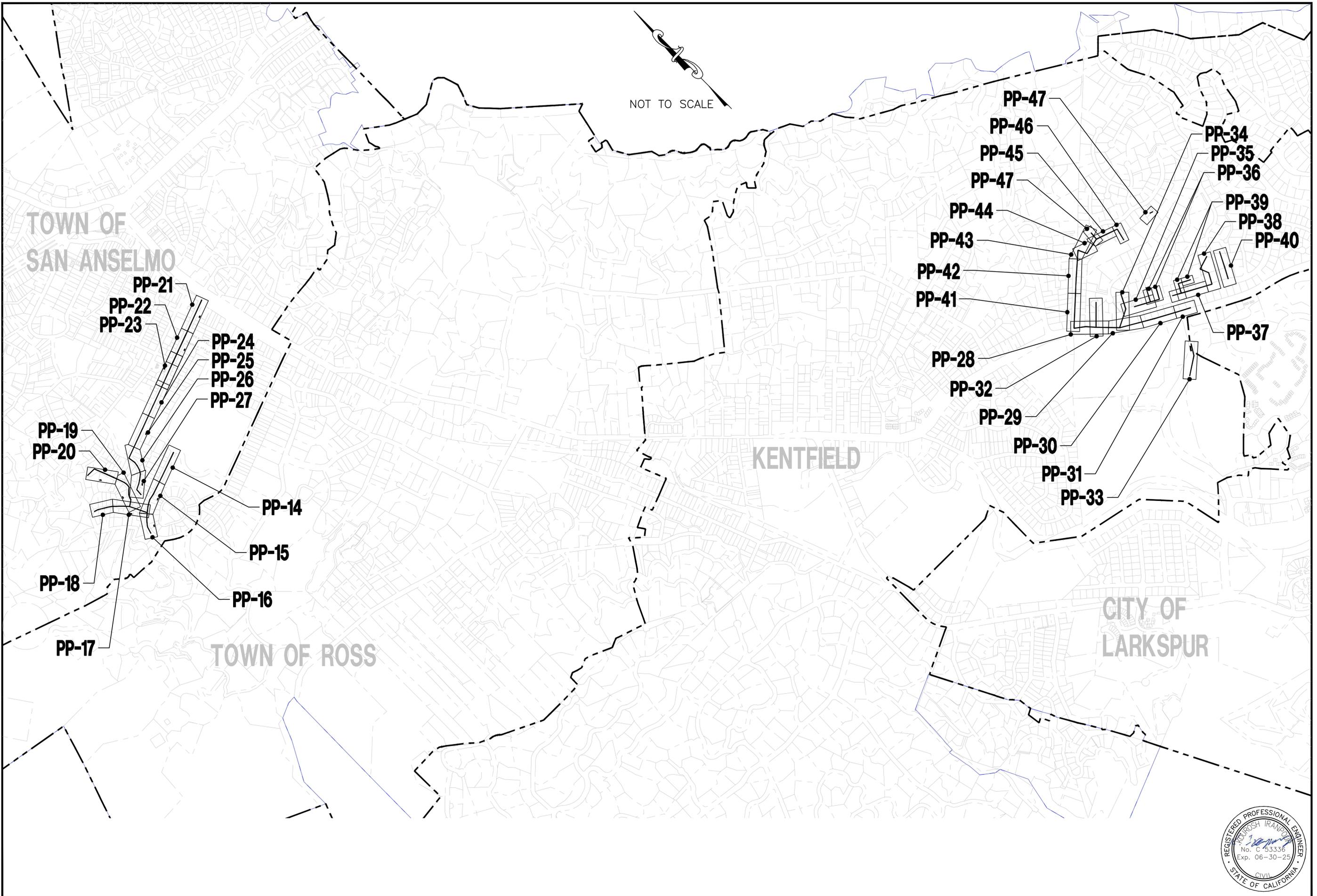
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SHEET **3** OF **52**



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**VARIOUS LOCATIONS
KEY MAPS**

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FY2023/24 GRAVITY SEWER
IMPROVEMENTS PROJECT**



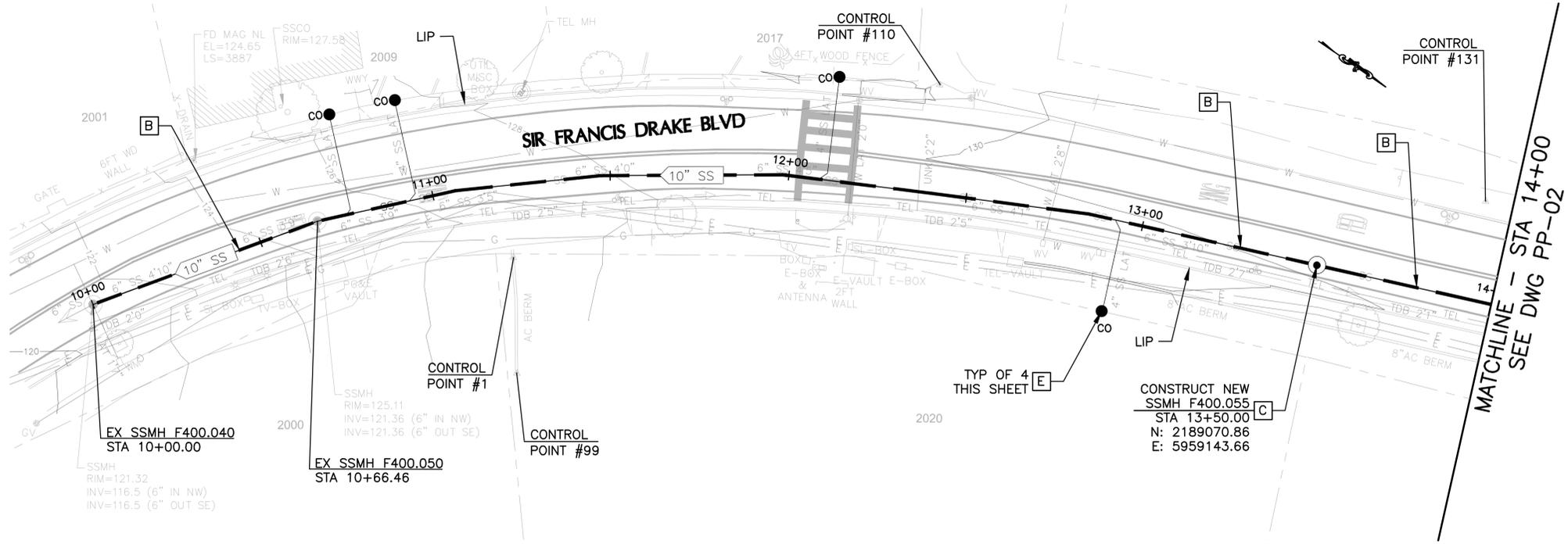
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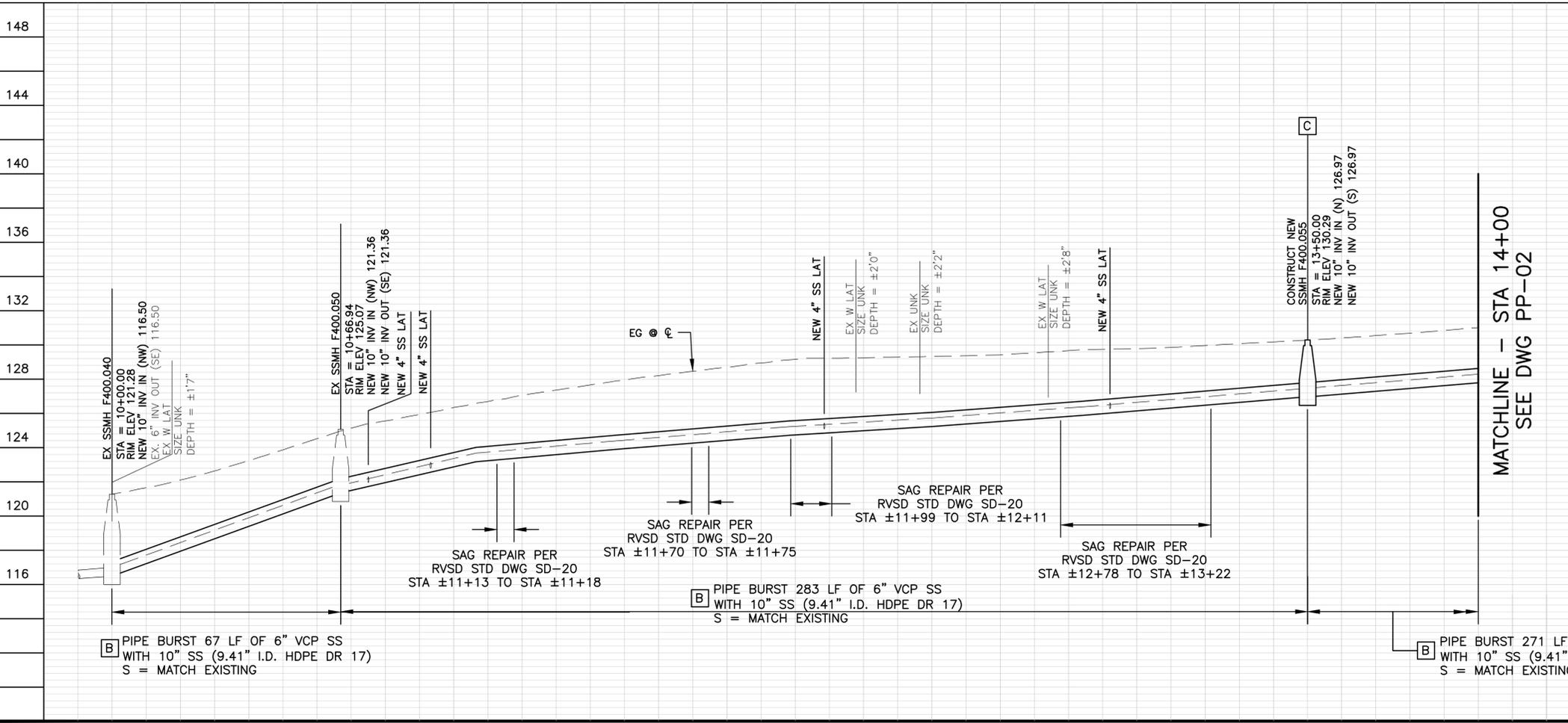
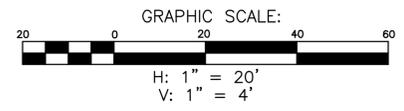


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SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	2188883.82	5959268.41	127.41	MAG NL ON AC BERM
99	2188902.83	5959294.57	128.01	MAG NL ON AC BERM
110	2188955.29	5959161.39	129.54	MAG NL
131	2189099.83	5959102.33	131.11	MAG HUB



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.
SEE NOTE 38 ON DWG N-01
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:**
- 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.
 - 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.
 - 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.
 - FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS, SEE GENERAL NOTE 23 AND 24 ON DWG N-01 FOR HDPE SLEEVE REQUIREMENTS.
 - BENDING OF NEW PIPING AND/OR JOINT DEFLECTIONS SHALL BE IN ACCORDANCE WITH AWWA AND PIPE MANUFACTURER'S RECOMMENDATIONS.
 - 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

**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
IMPROVEMENTS PROJECT**

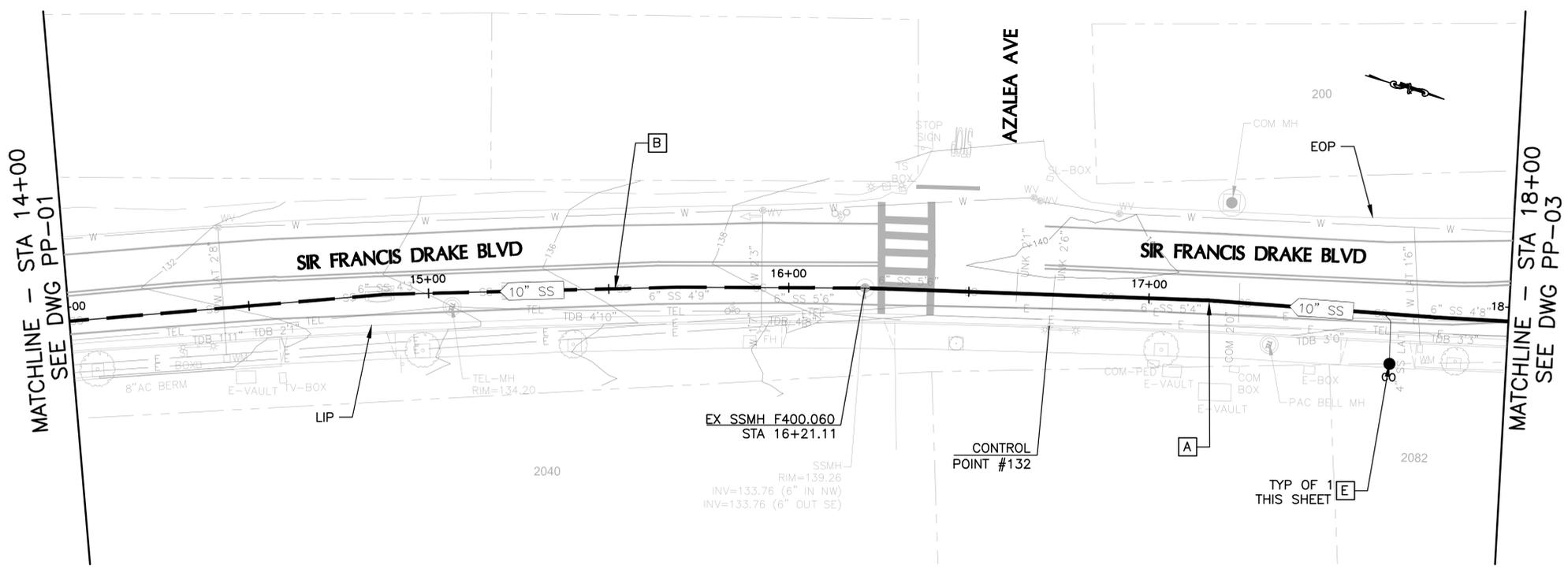
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CHECKED BY **KI**
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DWG NO. **PP-01**

**REGISTERED PROFESSIONAL ENGINEER
KOROSH IRANPOUR
No. C 53336
Exp. 06-30-25
CIVIL
STATE OF CALIFORNIA**

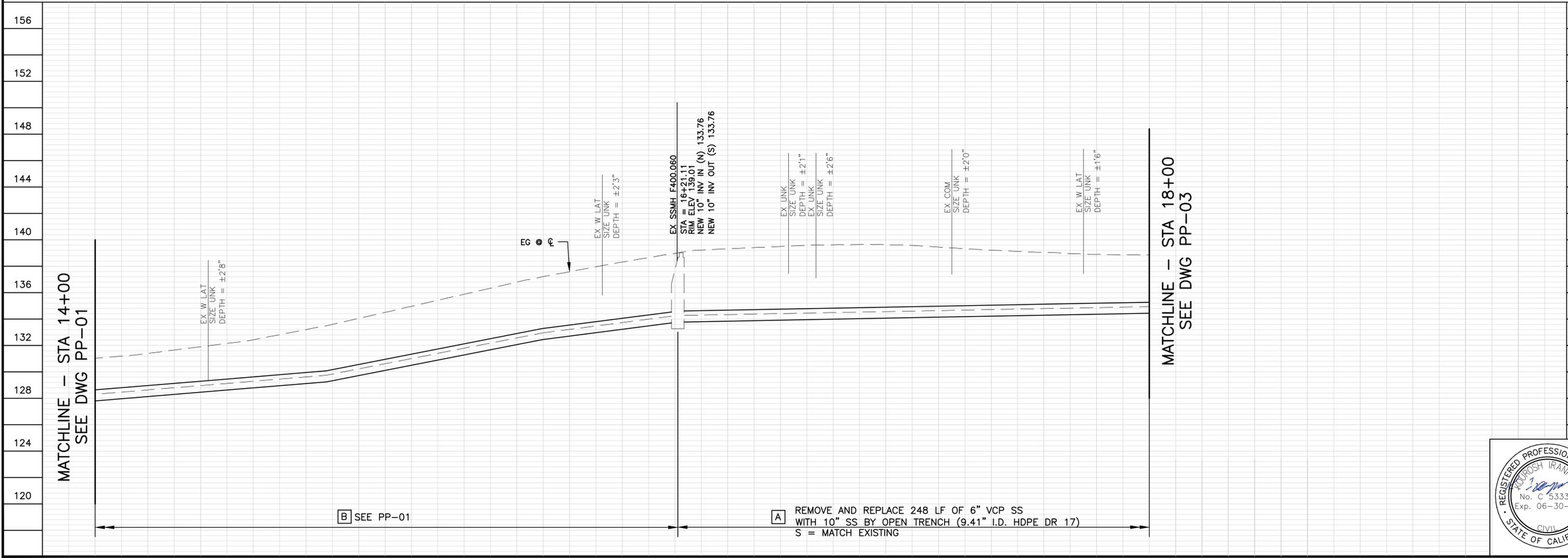
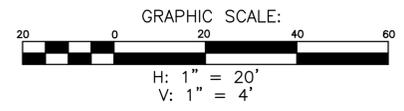
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SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
132	2189378.14	5959048.22	139.64	CUT + ON TC



LEGEND OF REHABILITATION METHODS

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- NOTES:**
- 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.
 - 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.
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NO.	BY	DATE	REVISION

**SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
SIR FRANCIS DRAKE BLVD**

**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
IMPROVEMENTS PROJECT**

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

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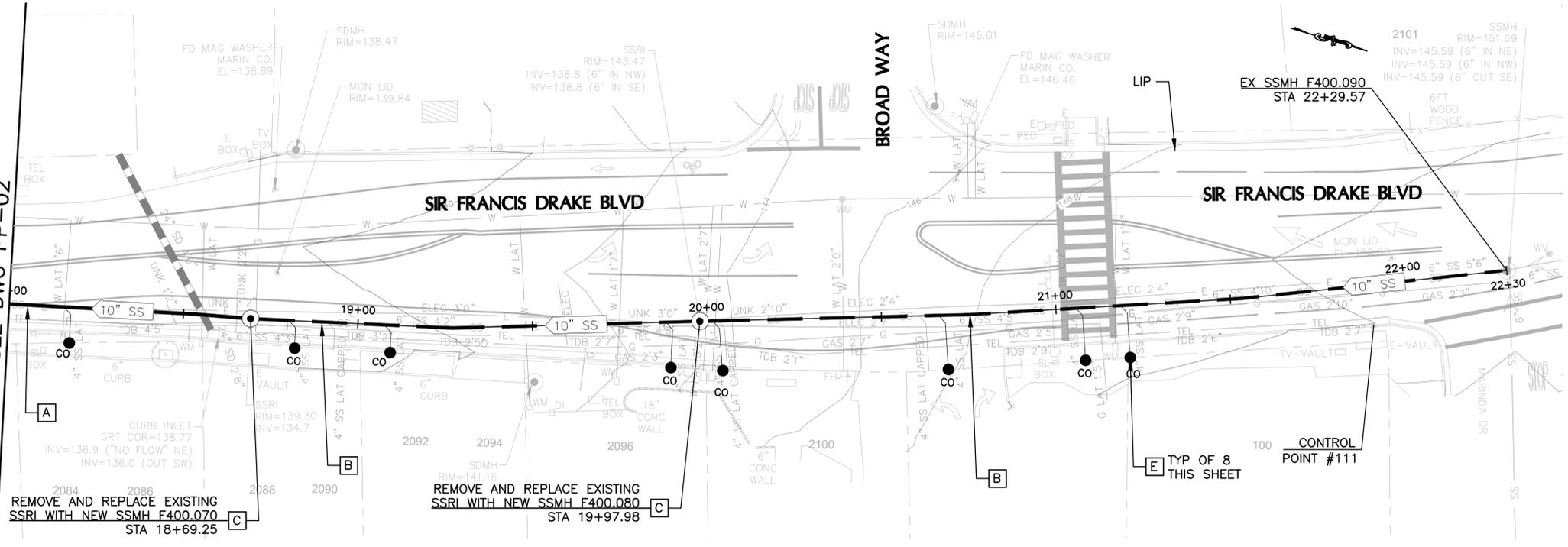
DESIGNED BY **KLC/CM**
DRAWN BY **KLC/CM**
CHECKED BY **KI**
DATE ISSUED **11/27/2023**
JOB NO. **120-0743.006**
DWG NO. **PP-02**
SHEET **6** OF **52**



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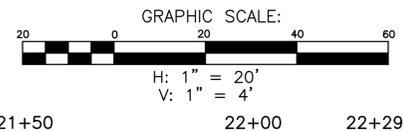
MATCHLINE - STA 18+00
SEE DWG PP-02

MATCHLINE - STA 18+00
SEE DWG PP-02



SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
111	2189875.68	5958903.37	150.34	CP CUT + TC



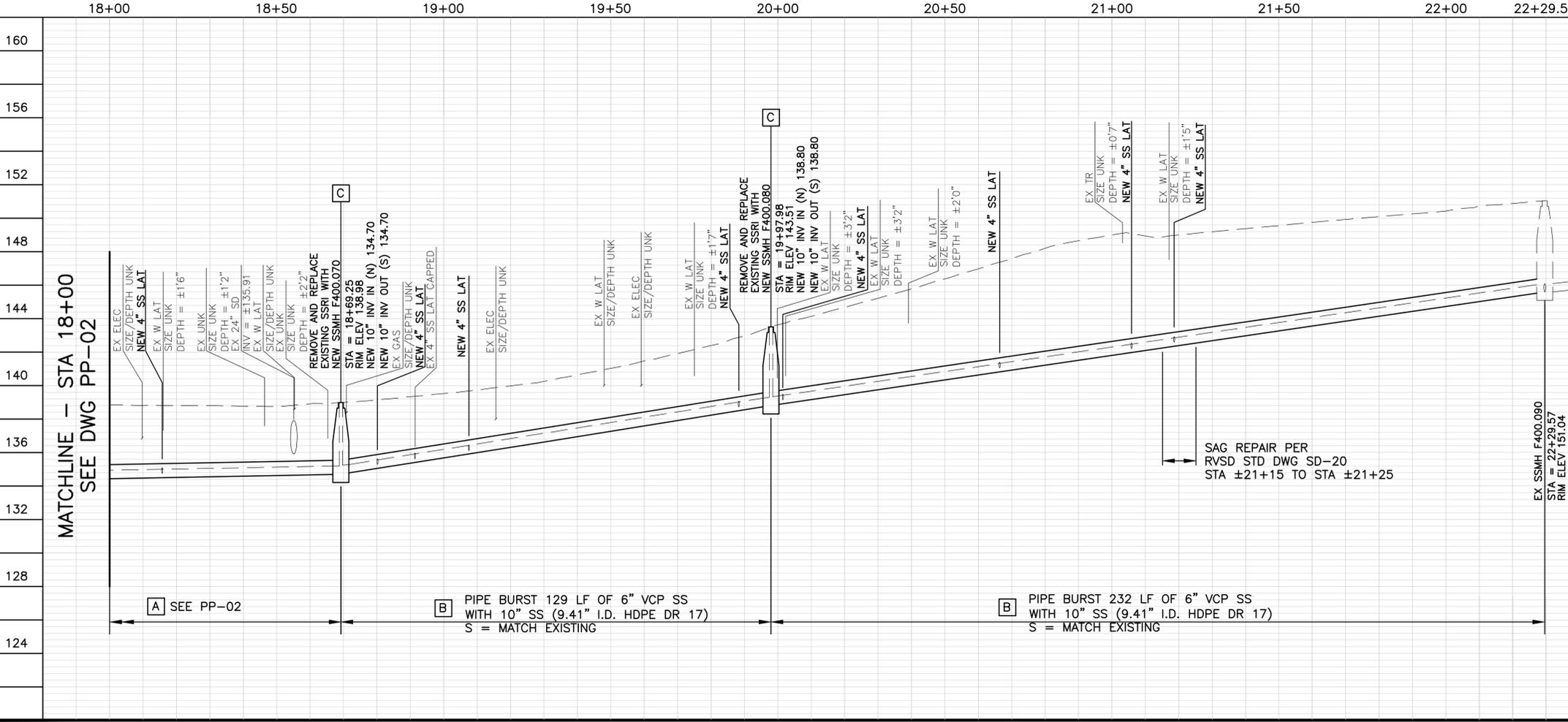
LEGEND OF REHABILITATION METHODS

- 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.

SEE NOTE 38 ON DWG N-01
REPAIR SURFACE UPHEAVAL AND SAG REPAIR PER RVSD STD DWG SD-22 AND SD-20 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT.
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- 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.
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A SEE PP-02

B PIPE BURST 129 LF OF 6" VCP SS WITH 10" SS (9.41" I.D. HDPE DR 17) S = MATCH EXISTING

B PIPE BURST 232 LF OF 6" VCP SS WITH 10" SS (9.41" I.D. HDPE DR 17) S = MATCH EXISTING

NO.	BY	DATE	REVISION

**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
IMPROVEMENTS PROJECT**



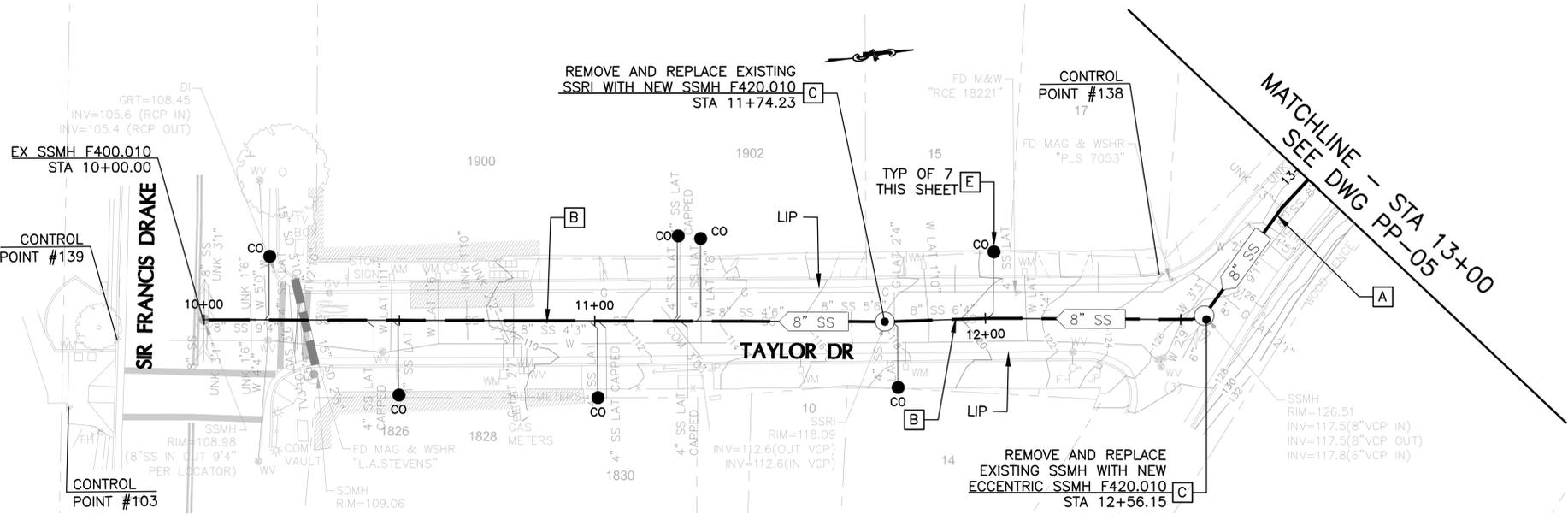
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DESIGNED BY KLC/CM
DRAWN BY KLC/CM
CHECKED BY KI
DATE ISSUED 11/27/2023
JOB NO. 120-0743.006
DWG NO. PP-03
SHEET 7 OF 52

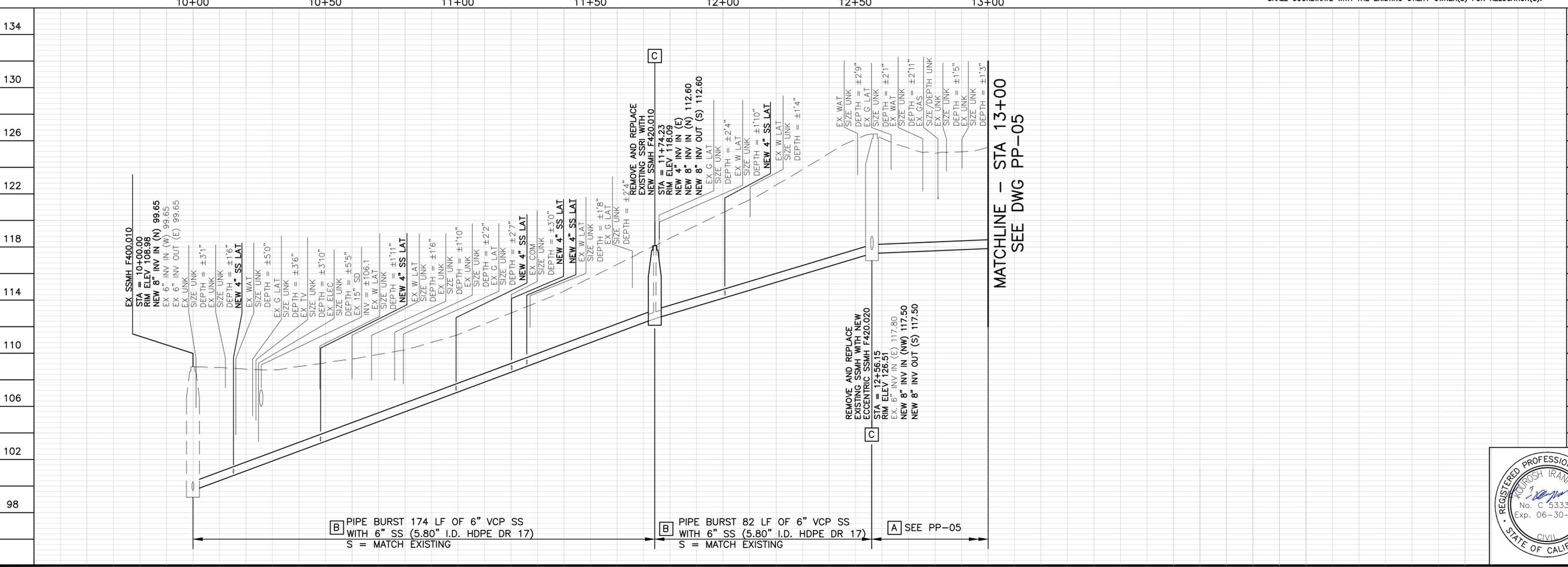
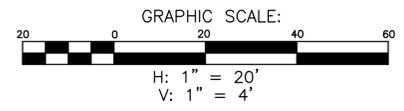


H:\Ross Valley Sanitary District (RSD)\FY 2023-24 Gravity Sewer\08-09 -- PP-04 To PP-05 -- Fairfax_Taylor Dr.dwg Save Date: 11/27/2023 4:02 PM Plot Date: 11/27/2023 4:02 PM Kchow



SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
103	2963769.80	5614896.67	109.16	CUT + BSW
138	2964048.98	5614862.60	124.52	CUT + ON TC
139	2963782.20	5614840.29	109.12	CUT + ON TC



B PIPE BURST 174 LF OF 6" VCP SS WITH 6" SS (5.80" I.D. HDPE DR 17) S = MATCH EXISTING

B PIPE BURST 82 LF OF 6" VCP SS WITH 6" SS (5.80" I.D. HDPE DR 17) S = MATCH EXISTING

A SEE PP-05

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.
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NO.	BY	DATE	REVISION

**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
IMPROVEMENTS PROJECT**

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www.harris.com (925) 827-4900

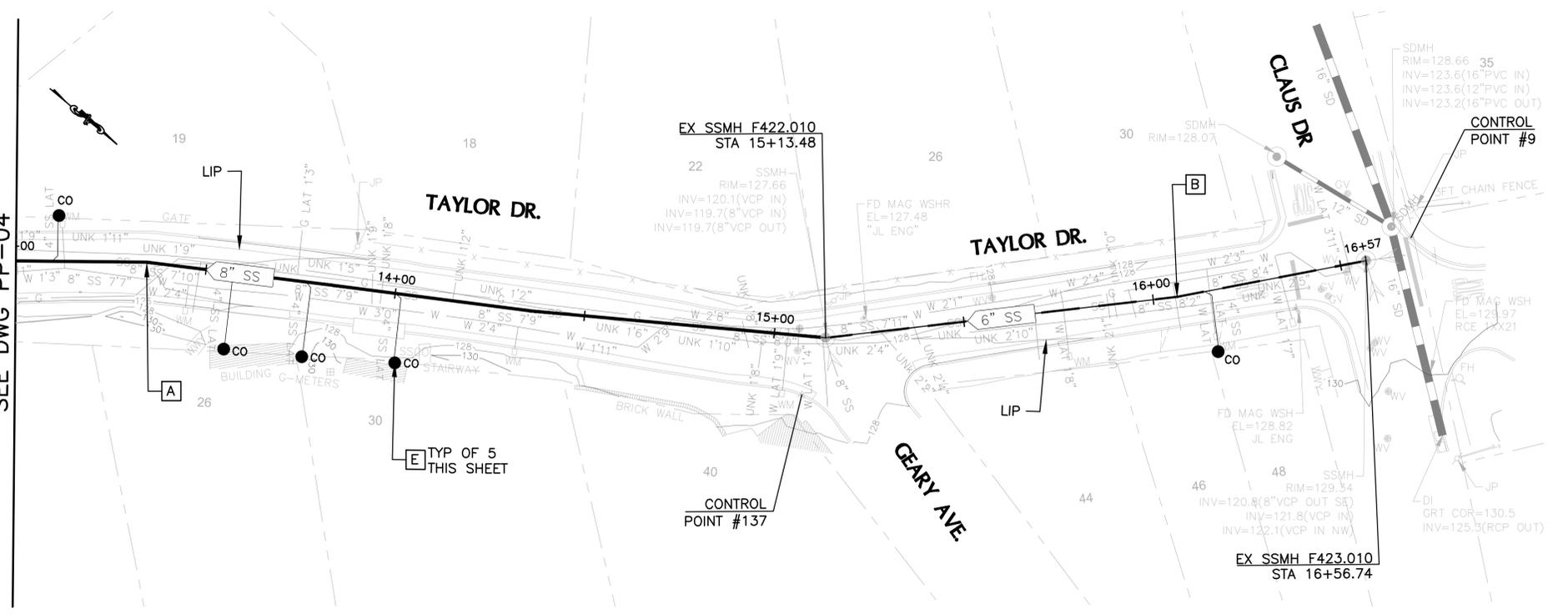
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DESIGNED BY **KLC/CM**
DRAWN BY **KLC/CM**
CHECKED BY **KI**
DATE ISSUED **11/27/2023**
JOB NO. **120-0743.006**
DWG NO. **PP-04**
SHEET **8** OF **52**

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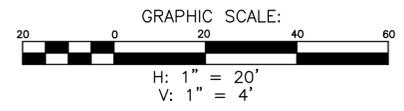
MATCHLINE - STA 13+00
SEE DWG PP-04

MATCHLINE - STA 13+00
SEE DWG PP-04



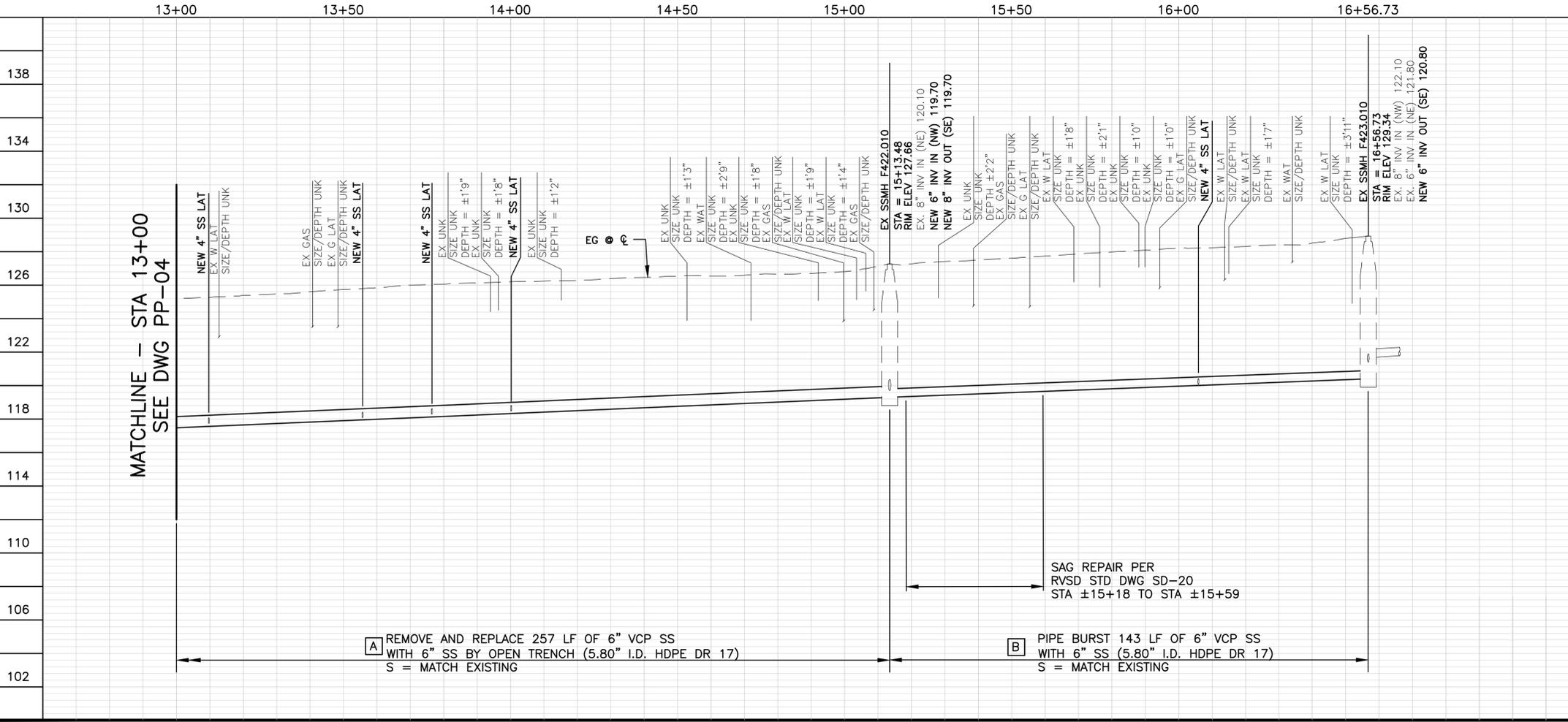
SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
9	2117633.98	5985501.35	129.31	CUT + ON TC
137	2117793.80	5985542.62	127.43	CUT + ON TC



LEGEND OF REHABILITATION METHODS

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A REMOVE AND REPLACE 257 LF OF 6" VCP SS WITH 6" SS BY OPEN TRENCH (5.80" I.D. HDPE DR 17) S = MATCH EXISTING

B PIPE BURST 143 LF OF 6" VCP SS WITH 6" SS (5.80" I.D. HDPE DR 17) S = MATCH EXISTING

SAG REPAIR PER RVSD STD DWG SD-20 STA ±15+18 TO STA ±15+59



NO.	BY	DATE	REVISION

**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
IMPROVEMENTS PROJECT**



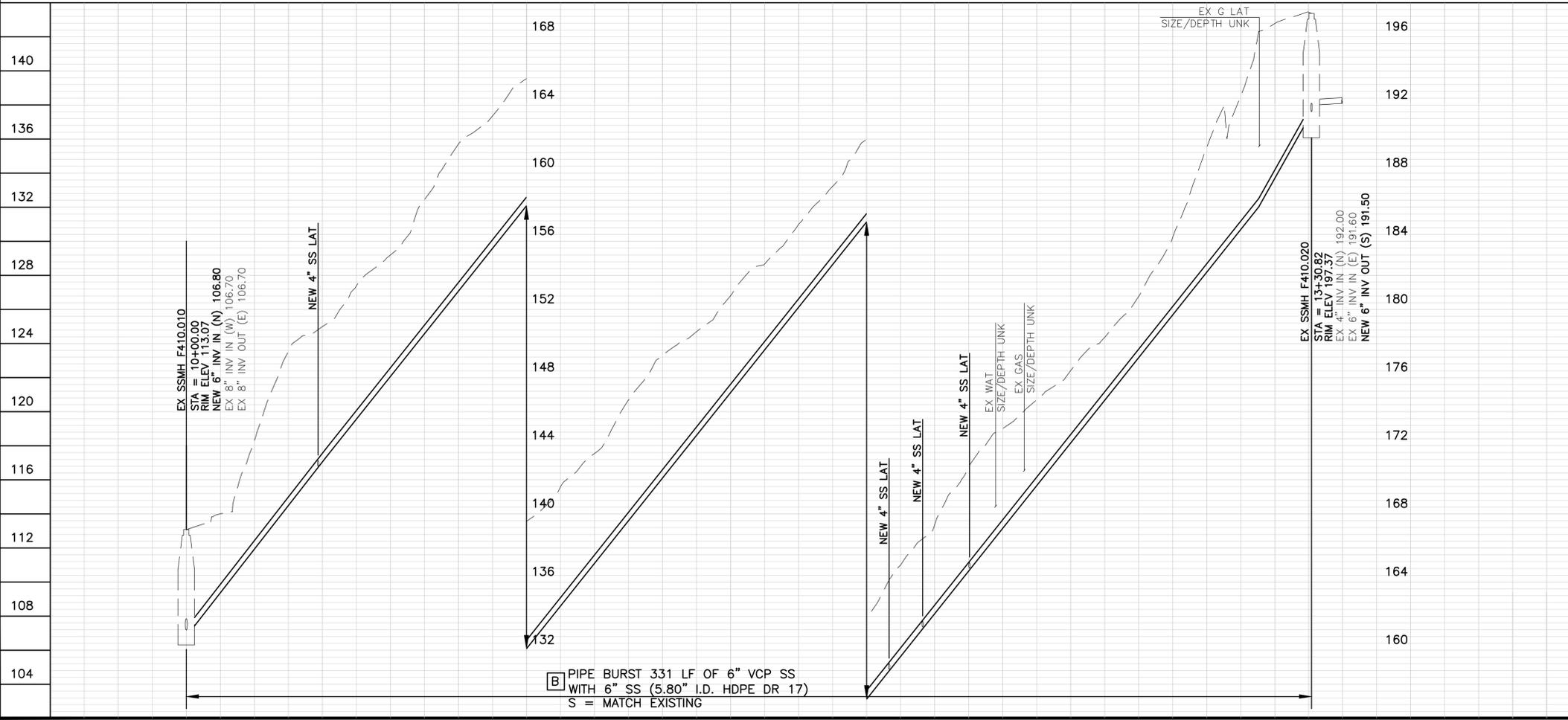
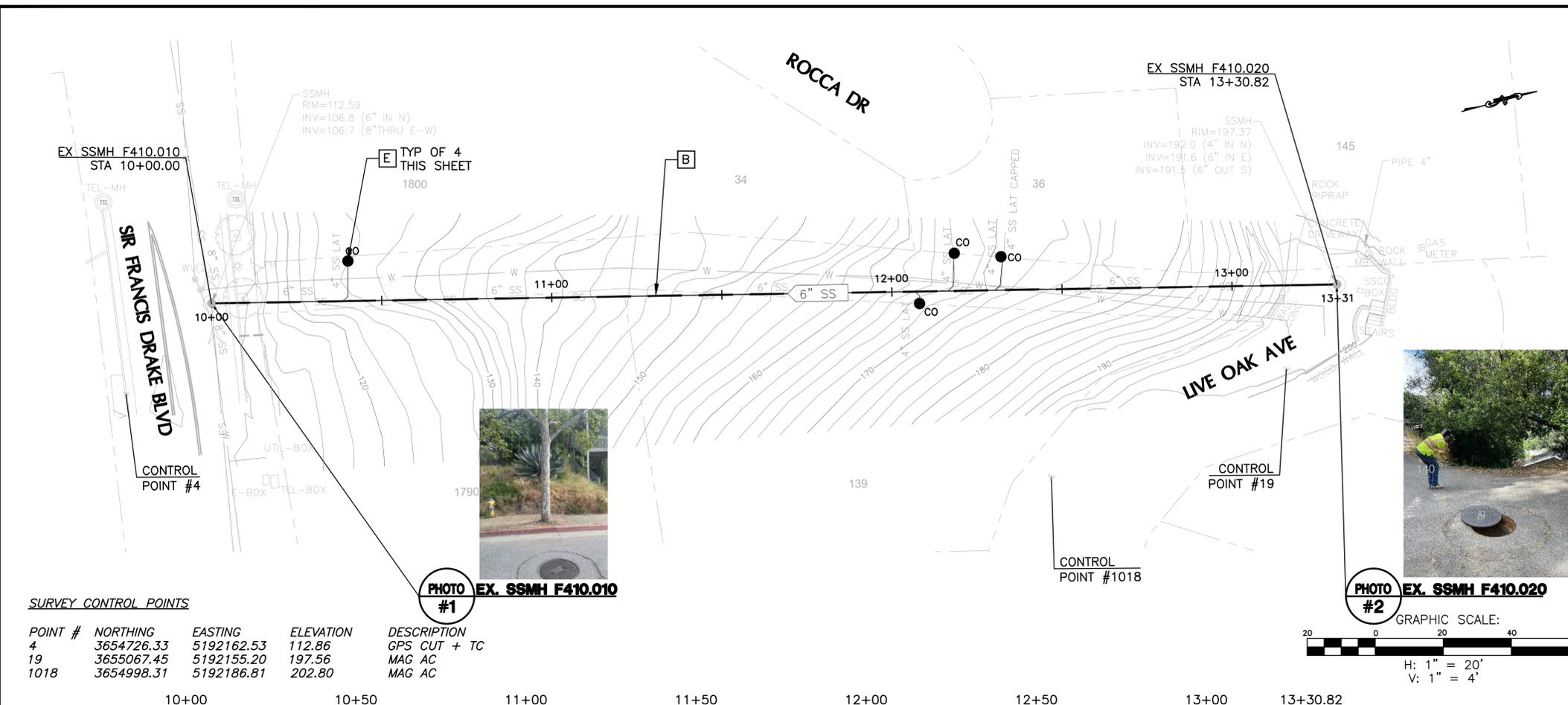
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DESIGNED BY: KLC/CM
DRAWN BY: KLC/CM
CHECKED BY: KI
DATE ISSUED: 11/27/2023
JOB NO.: 120-0743.006
DWG NO.: **PP-05**
SHEET 9 OF 52

H:\Ross Valley Sanitary District (RSD)\FY 2023-24 Gravity Sewer\10 - PP-06 - Fairfax_SFD_Live Oak Easement.dwg Save Date: 11/21/2023 4:05 PM Plot Date: 11/21/2023 4:05 PM K:\know

SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
4	3654726.33	5192162.53	112.86	GPS CUT + TC
19	3655067.45	5192155.20	197.56	MAG AC
1018	3654998.31	5192186.81	202.80	MAG AC

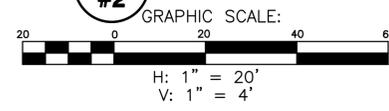


LEGEND OF REHABILITATION METHODS

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NO.	BY	DATE	REVISION

**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
IMPROVEMENTS PROJECT**

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

DESIGNED BY **KLC/CM**
DRAWN BY **KLC/CM**
CHECKED BY **KI**
DATE ISSUED **11/27/2023**
JOB NO. **120-0743.006**
DWG NO. **PP-06**

SHEET 10 OF 52



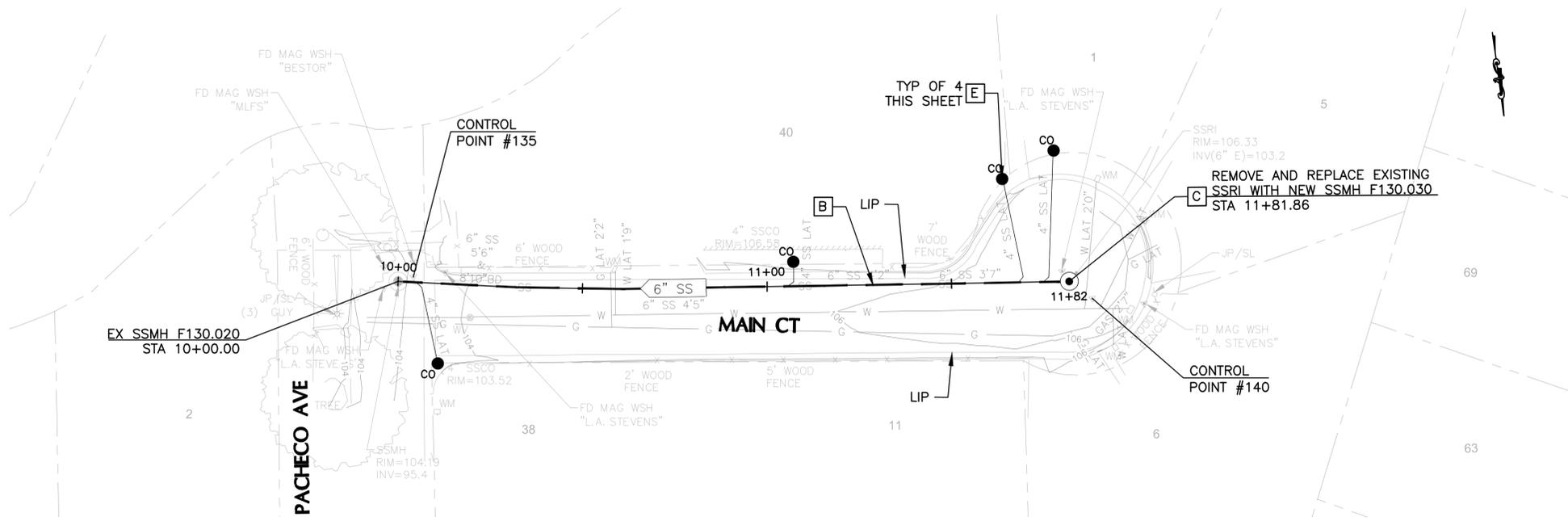
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LEGEND OF REHABILITATION METHODS

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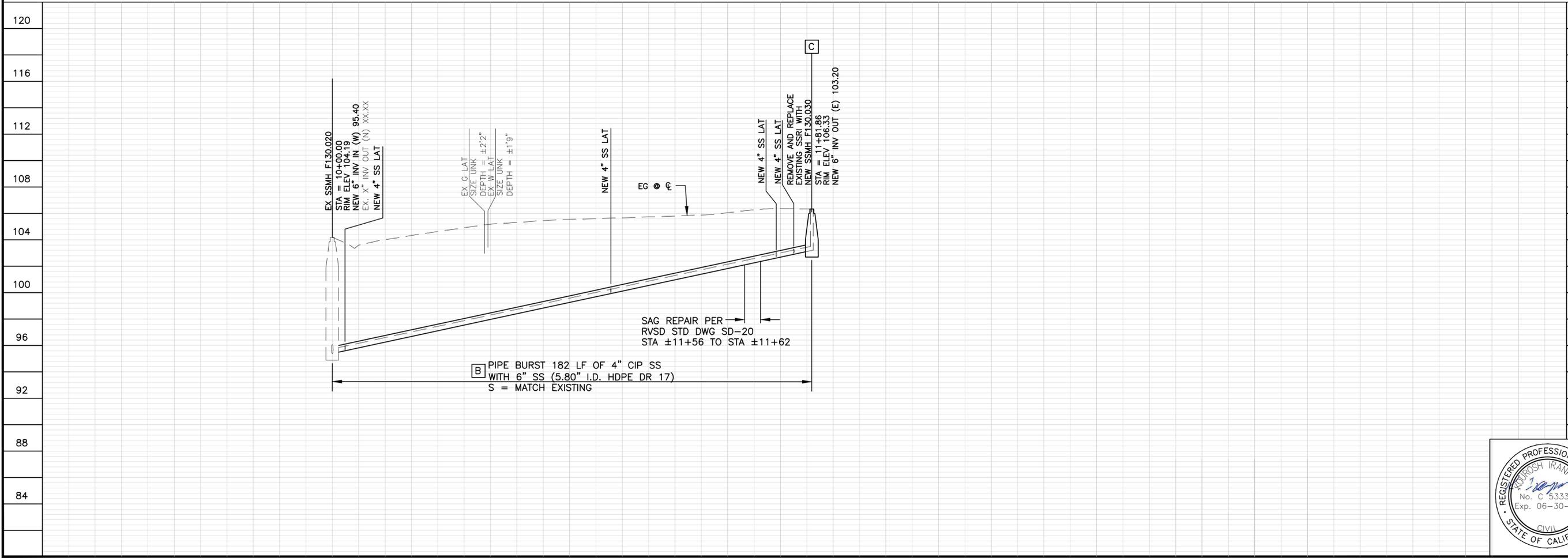
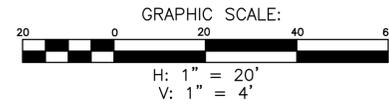
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SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
135	2982550.09	5604889.73	103.86	MAG
140	2982555.97	5604705.79	106.22	MAG



**SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
MAIN CT**

**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
IMPROVEMENTS PROJECT**



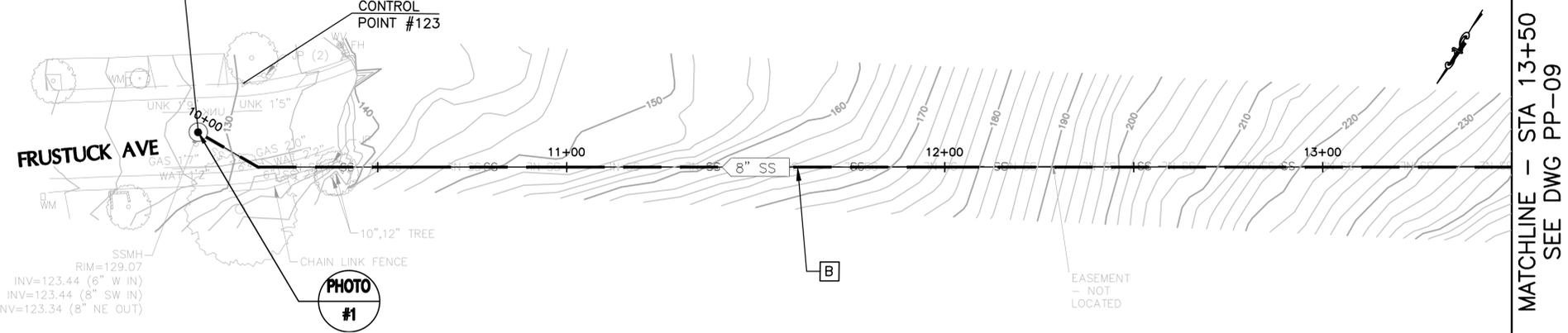
Harris & Associates
 1401 Willow Pass Rd, Suite 500 Concord, CA 94520
 www.harris.com (925) 827-4900



DESIGNED BY **KLC/CM**
 DRAWN BY **KLC/CM**
 CHECKED BY **KI**
 DATE ISSUED **11/27/2023**
 JOB NO. **120-0743.006**
 DWG NO. **PP-07**
 SHEET **11** OF **52**

H:\Ross Valley Sanitary District (RSD)\FY 2023-24 Gravity Sewer\12-14 - PP-08 To PP-10 - Fairfax_Berry Trail.dwg Save Date: 11/21/2023 4:09 PM Plot Date: 11/21/2023 4:09 PM Kchow

REMOVE AND REPLACE EXISTING SSMH WITH NEW SSMH F510.010 STA 10+00.00



MATCHLINE - STA 13+50
SEE DWG PP-09

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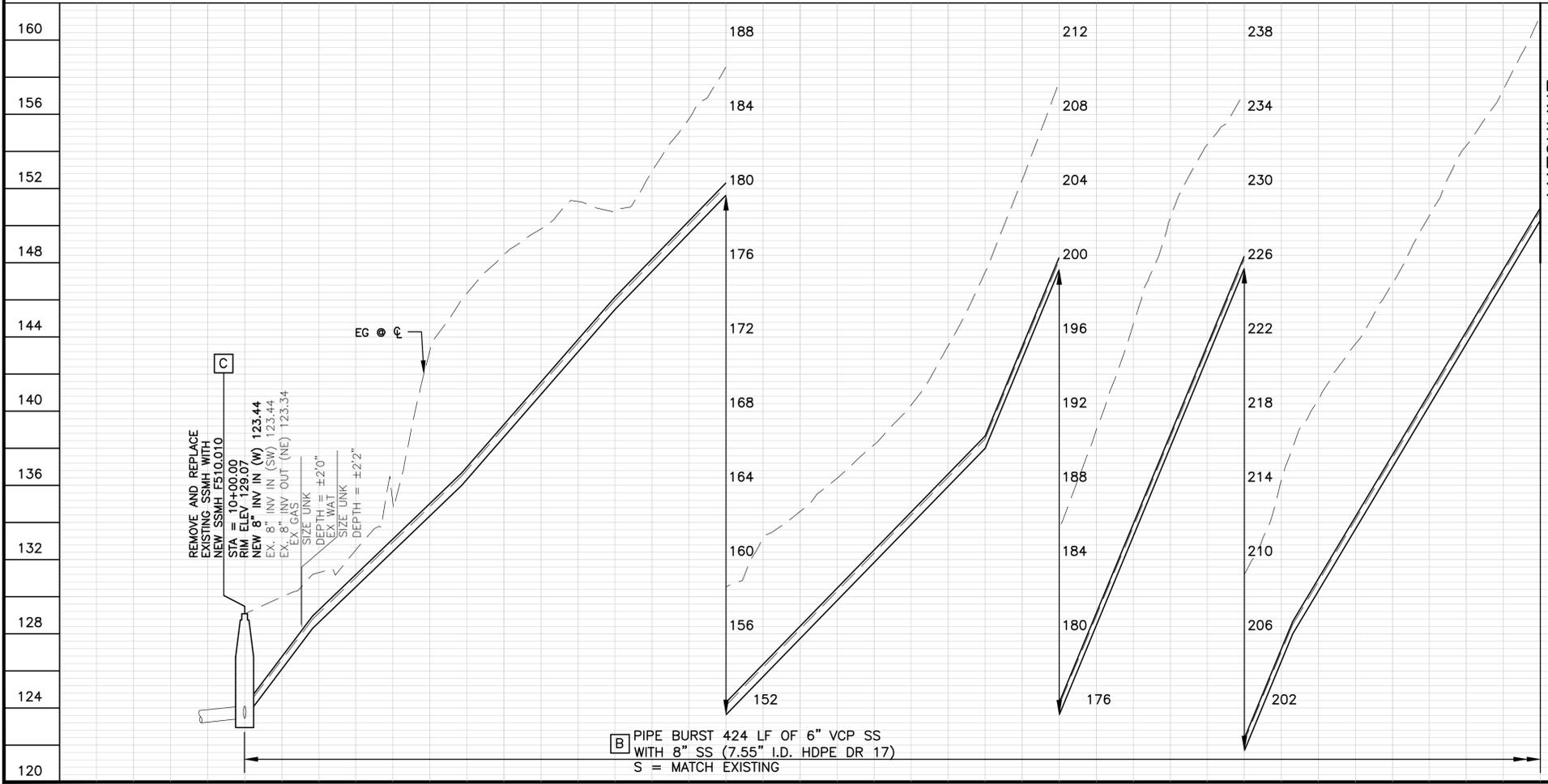
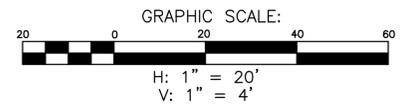
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SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
123	1276045.44	6217921.16	130.26	MAG



MATCHLINE - STA 13+50
SEE DWG PP-09



PHOTO #1 EX. SSMH F510.010

NO.	BY	DATE	REVISION

**SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
BERRY TRAIL**

**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
IMPROVEMENTS PROJECT**

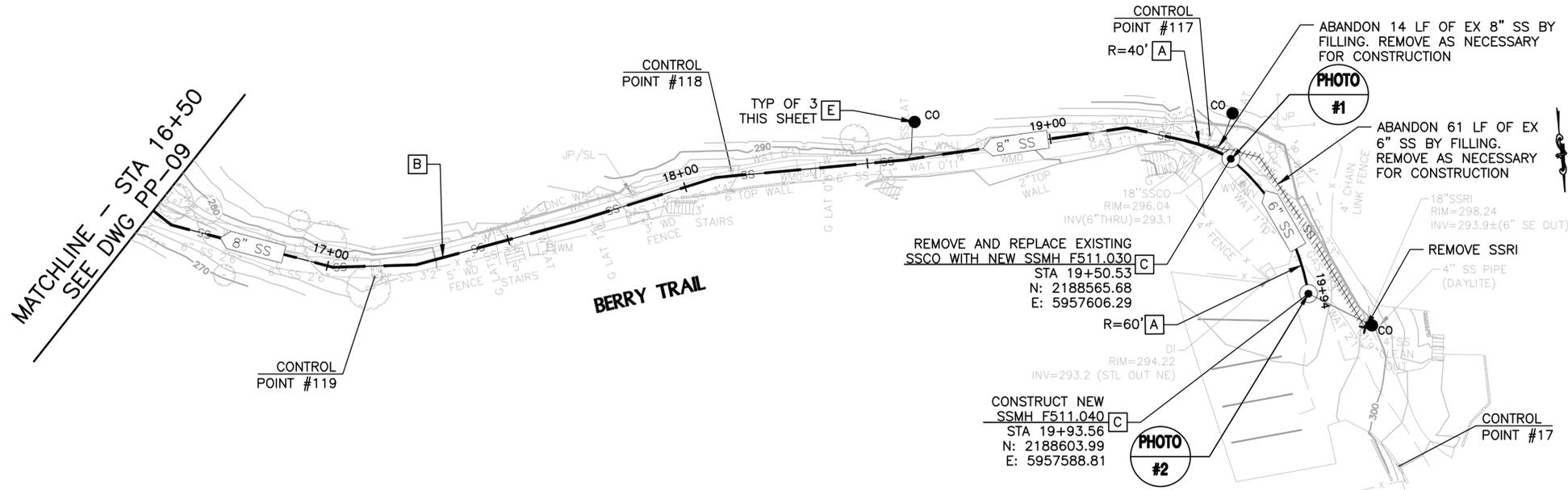
Harris & Associates
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DESIGNED BY: KLC/CM
DRAWN BY: KLC/CM
CHECKED BY: KI
DATE ISSUED: 11/27/2023
JOB NO.: 120-0743.006
DWG NO.: **PP-08**
SHEET 12 OF 52



H:\Ross Valley Sanitary District (RSVD)\FY 2023-24 Gravity Sewer\12-14 - PP-08 To PP-10 - PP-08 To PP-10 - Fairfax_Berry Trail.dwg Save Date: 11/21/2023 4:10 PM Plot Date: 11/21/2023 4:10 PM Kchow



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SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
17	2194507.84	5963407.77	303.85	FD MAG WASHER
117	2194441.58	5963335.12	295.56	MAG
118	2194530.71	5963454.04	285.87	MAG
119	2194553.23	5963454.42	277.74	MAG

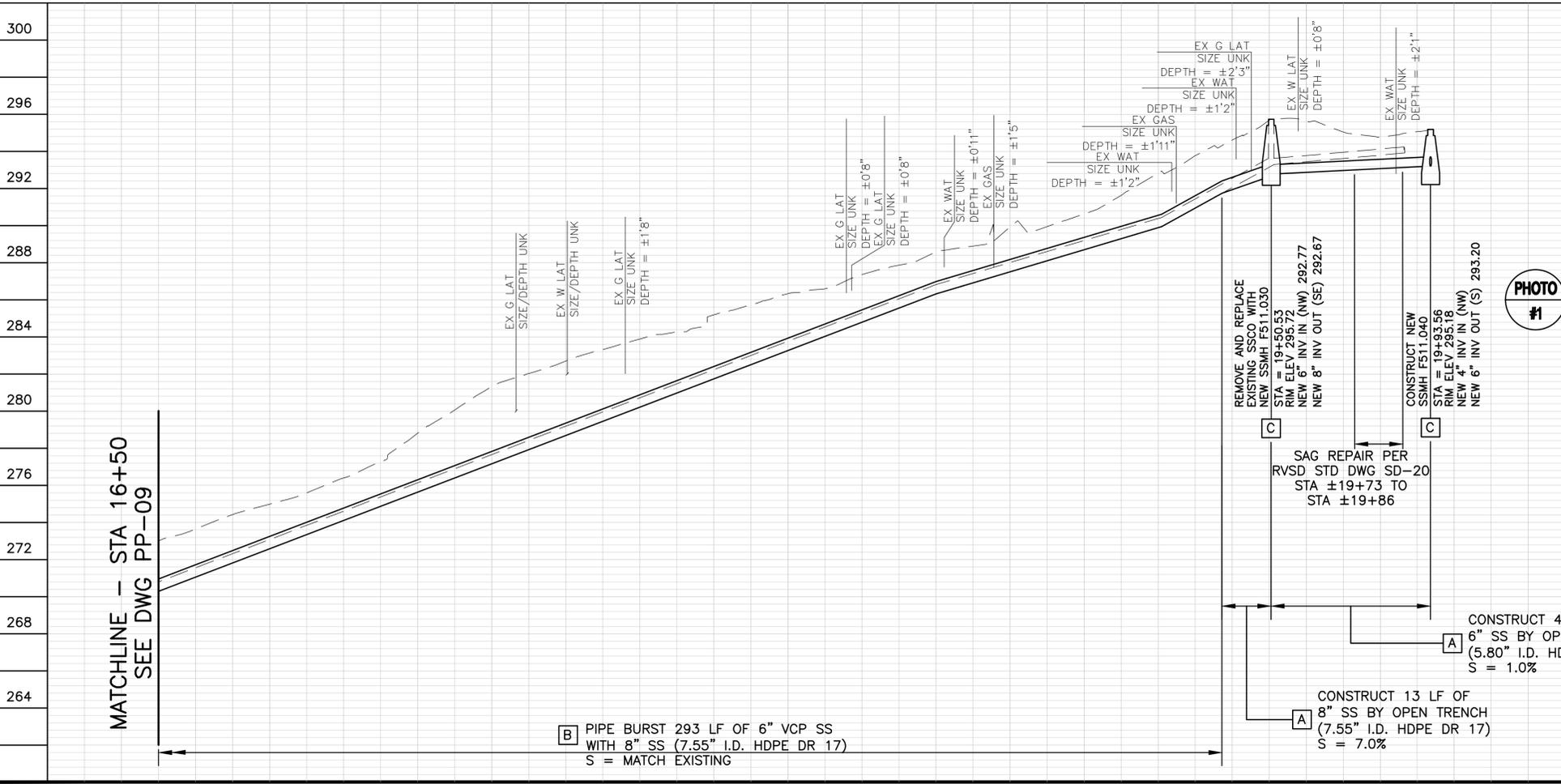
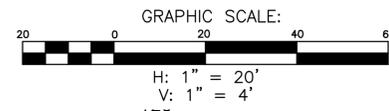


PHOTO #1 EX. SSMH G511030

PHOTO #2 EX. SSMH G511040

**SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
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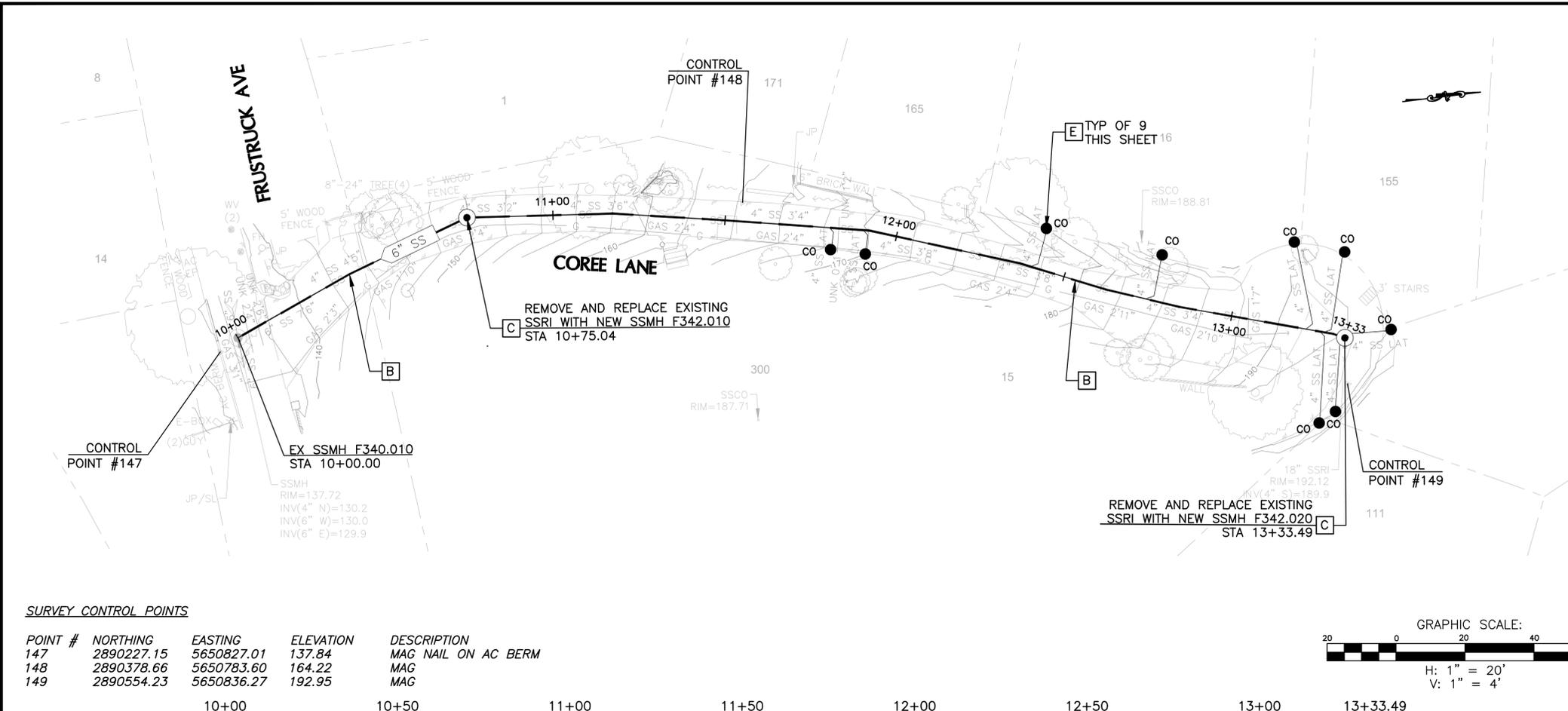
**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
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DESIGNED BY KLC/CM
DRAWN BY KLC/CM
CHECKED BY KI
DATE ISSUED 11/27/2023
JOB NO. 120-0743.006
DWG NO. PP-10
SHEET 14 OF 52

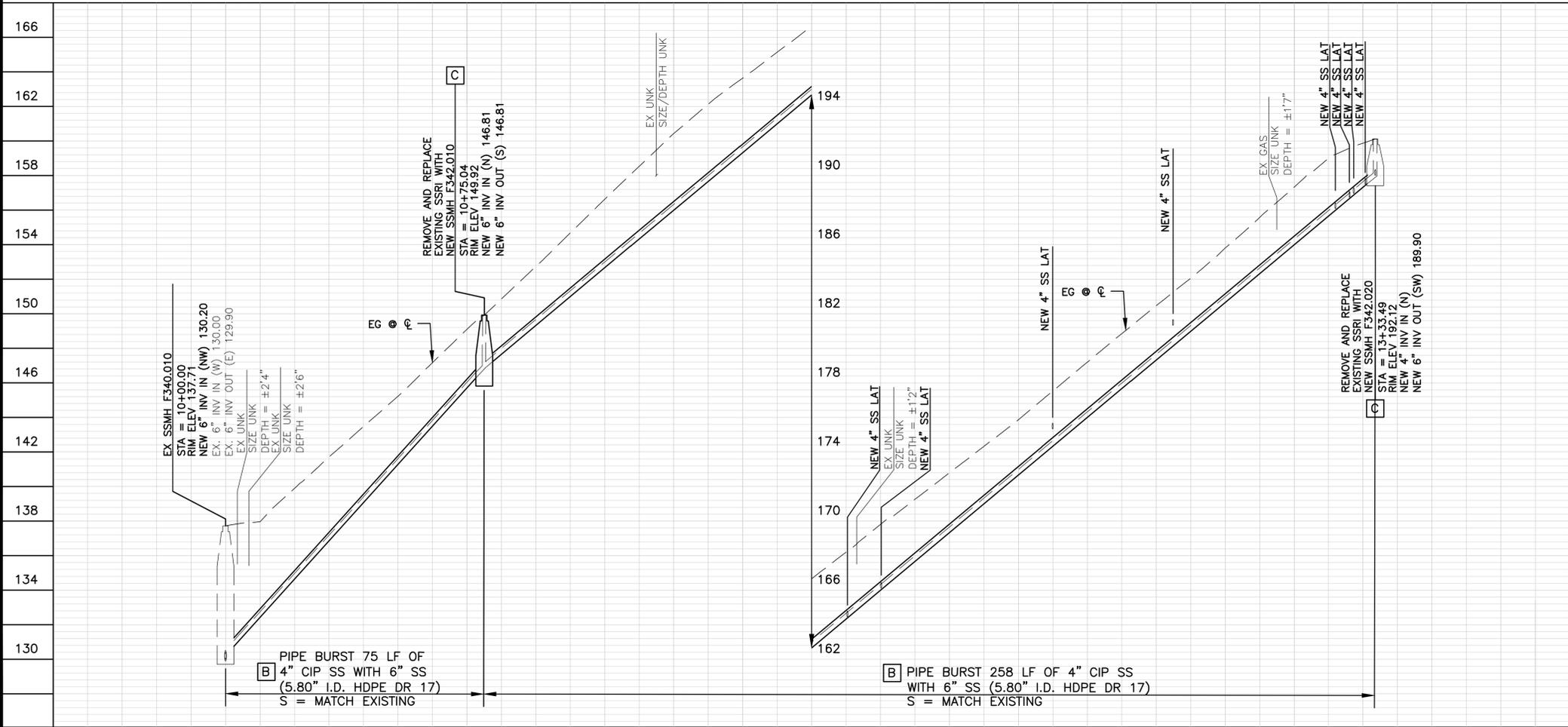
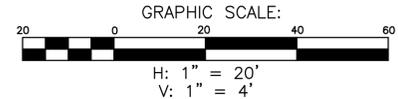


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SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
147	2890227.15	5650827.01	137.84	MAG NAIL ON AC BERM
148	2890378.66	5650783.60	164.22	MAG
149	2890554.23	5650836.27	192.95	MAG



LEGEND OF REHABILITATION METHODS

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 - 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.
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- NOTES:**
- 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.
 - 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.
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 - FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS, SEE GENERAL NOTE 23 AND 24 ON DWG N-01 FOR HDPE SLEEVE REQUIREMENTS.
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NO.	BY	DATE	REVISION

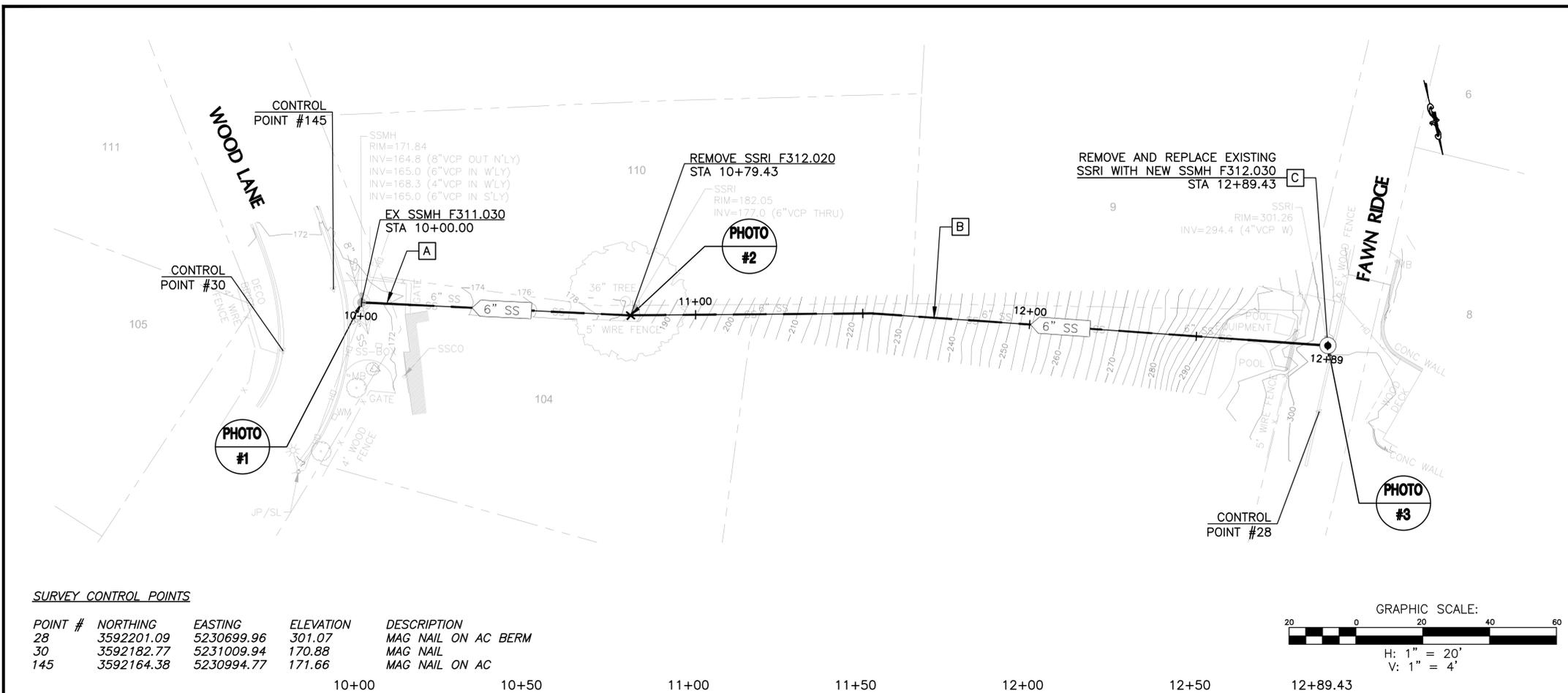
**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
IMPROVEMENTS PROJECT**

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

DESIGNED BY **KLC/CM**
DRAWN BY **KLC/CM**
CHECKED BY **KI**
DATE ISSUED **11/27/2023**
JOB NO. **120-0743.006**
DWG NO. **PP-11**
SHEET **15** OF **52**



H:\Ross Valley Sanitary District (RVS)\FY 2023-24 Gravity Sewer\16 - PP-12 - Fairfax\Wood Ln Easement.dwg Save Date: 11/21/2023 4:15 PM Plot Date: 11/21/2023 4:15 PM Kchou



SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
28	3592201.09	5230699.96	301.07	MAG NAIL ON AC BERM
30	3592182.77	5231009.94	170.88	MAG NAIL
145	3592164.38	5230994.77	171.66	MAG NAIL ON AC

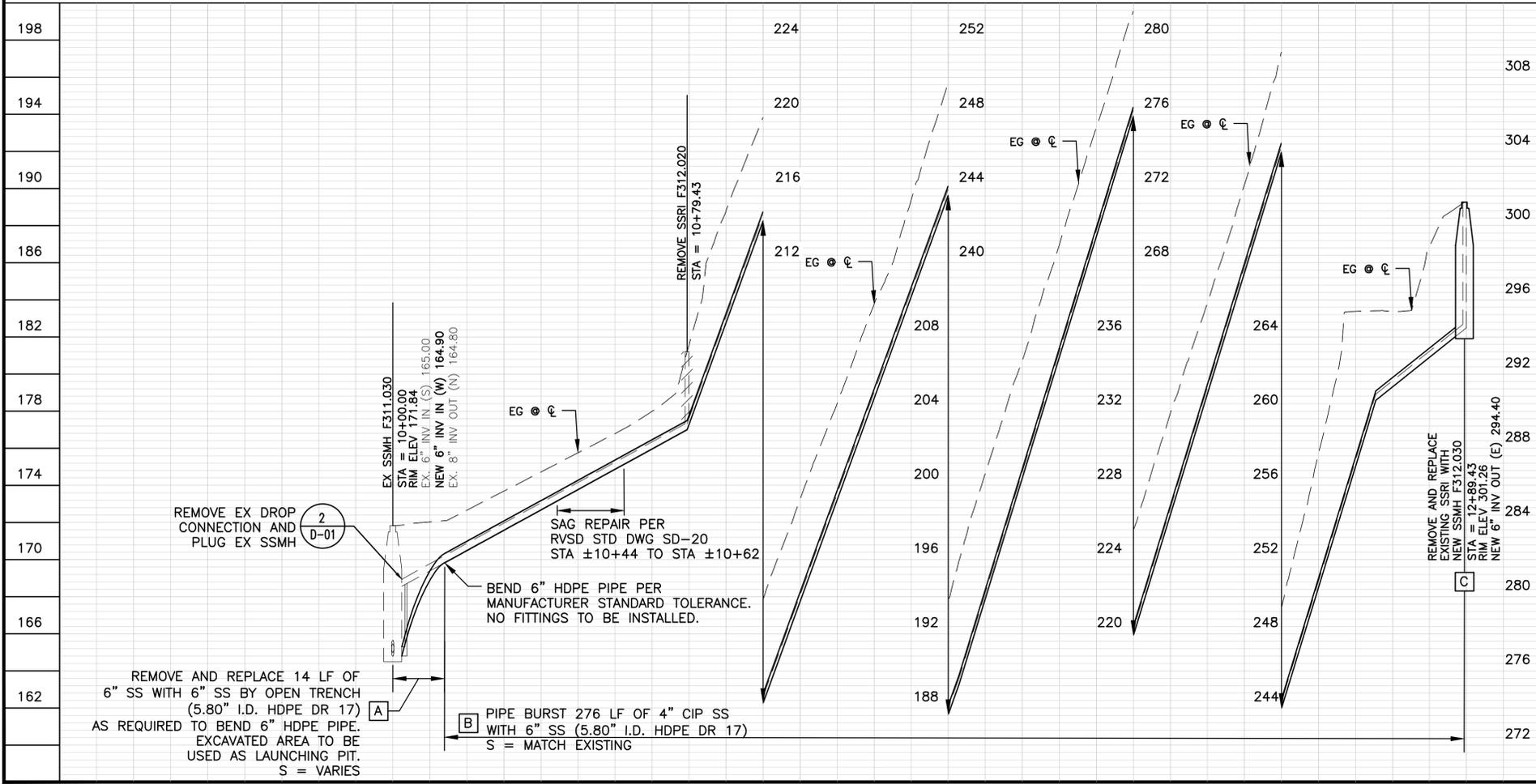
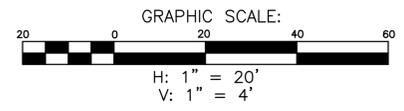


PHOTO #1 EX. SSMH F311.030



PHOTO #2 EX. SSMH G312.020



PHOTO #3 EX. SSMH G312.030

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.
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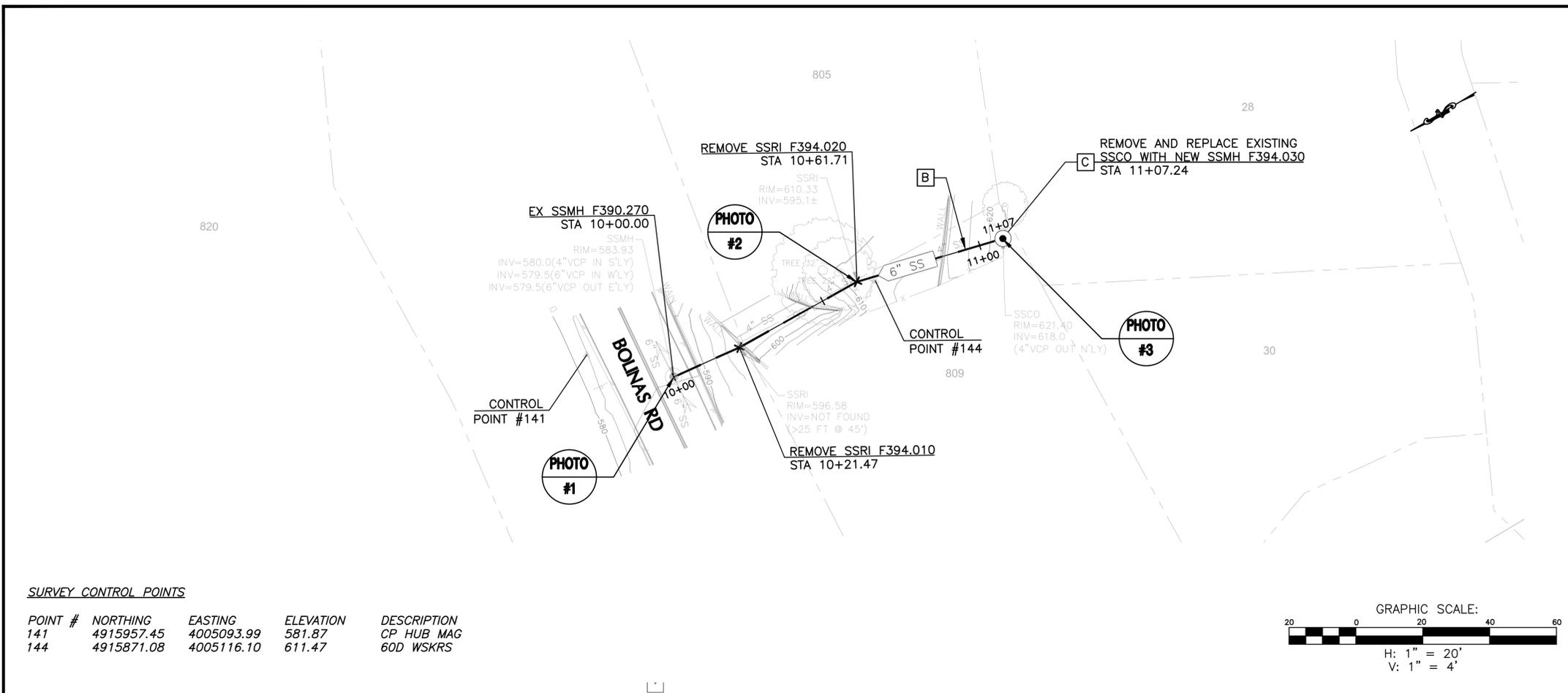
NO.	BY	DATE	REVISION

**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
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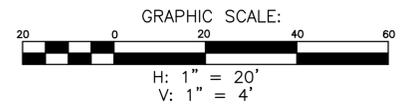
DESIGNED BY KLC/CM
DRAWN BY KLC/CM
CHECKED BY KI
DATE ISSUED 11/27/2023
JOB NO. 120-0743.006
DWG NO. PP-12
SHEET 16 OF 52

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SURVEY CONTROL POINTS

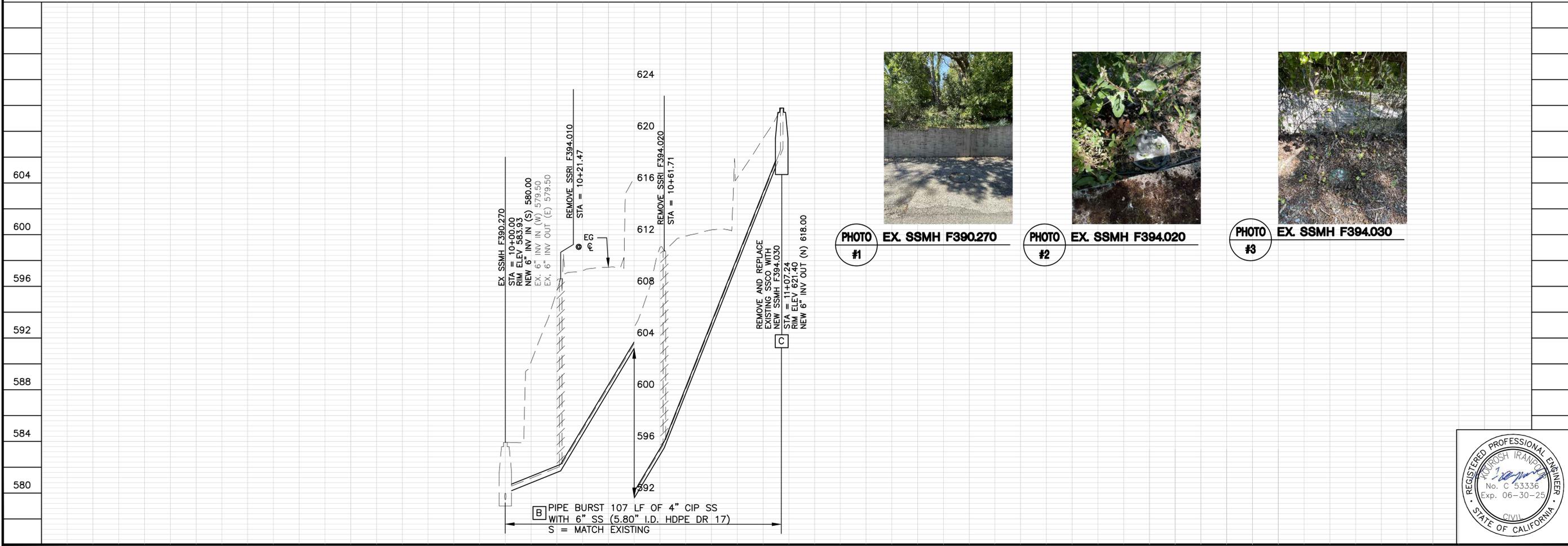
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
141	4915957.45	4005093.99	581.87	CP HUB MAG
144	4915871.08	4005116.10	611.47	60D WSKRS



LEGEND OF REHABILITATION METHODS

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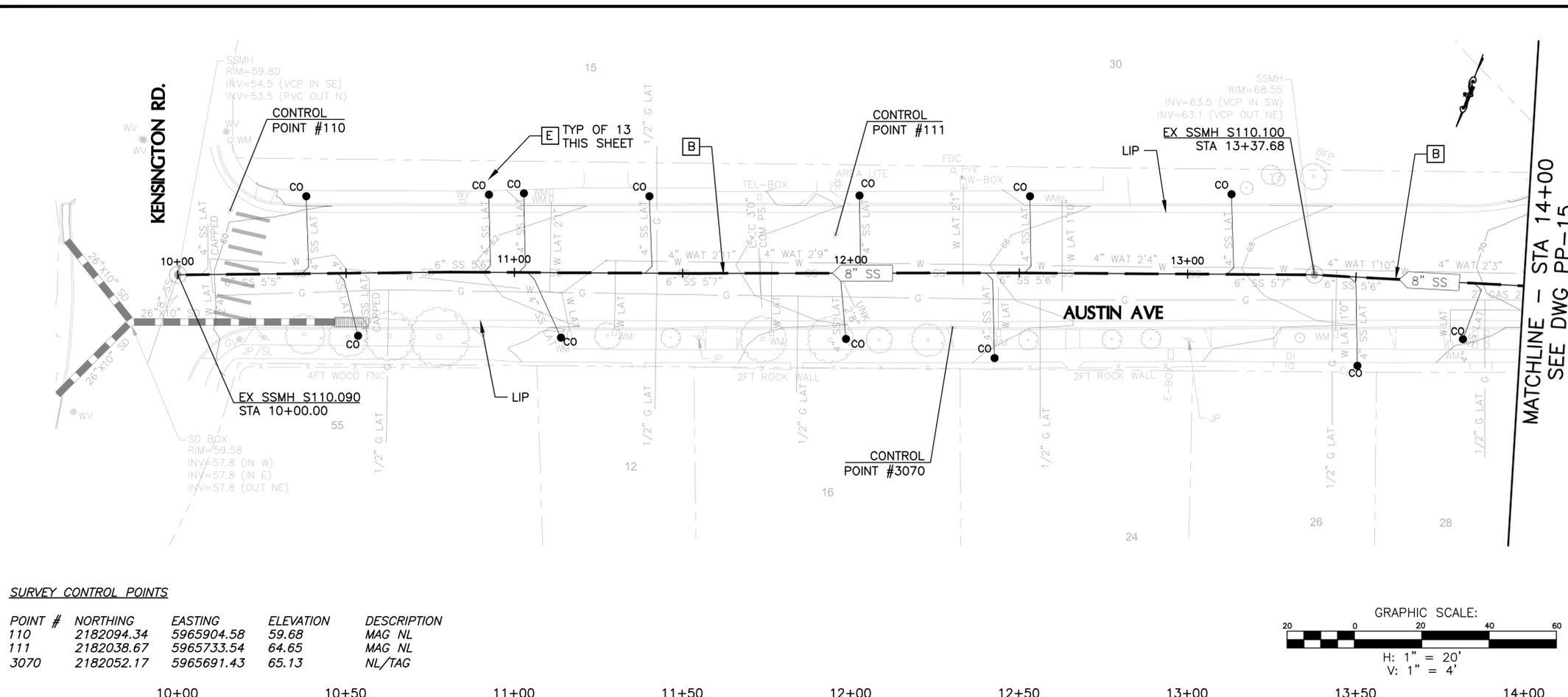
**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
IMPROVEMENTS PROJECT**

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

DESIGNED BY **KLC/CM**
DRAWN BY **KLC/CM**
CHECKED BY **KI**
DATE ISSUED **11/27/2023**
JOB NO. **120-0743.006**
DWG NO. **PP-13**
SHEET **17** OF **52**

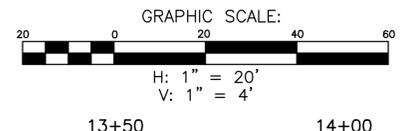


H:\Ross Valley Sanitary District (RSD)\FY 2023-24 Gravity Sewer\18-20 - PP-14 To PP-16 - SA_Austin Avedwg Sove Date: 11/21/2023 4:19 PM Plot Date: 11/21/2023 4:19 PM Know



SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
110	2182094.34	5965904.58	59.68	MAG NL
111	2182038.67	5965733.54	64.65	MAG NL
3070	2182052.17	5965691.43	65.13	NL/TAG



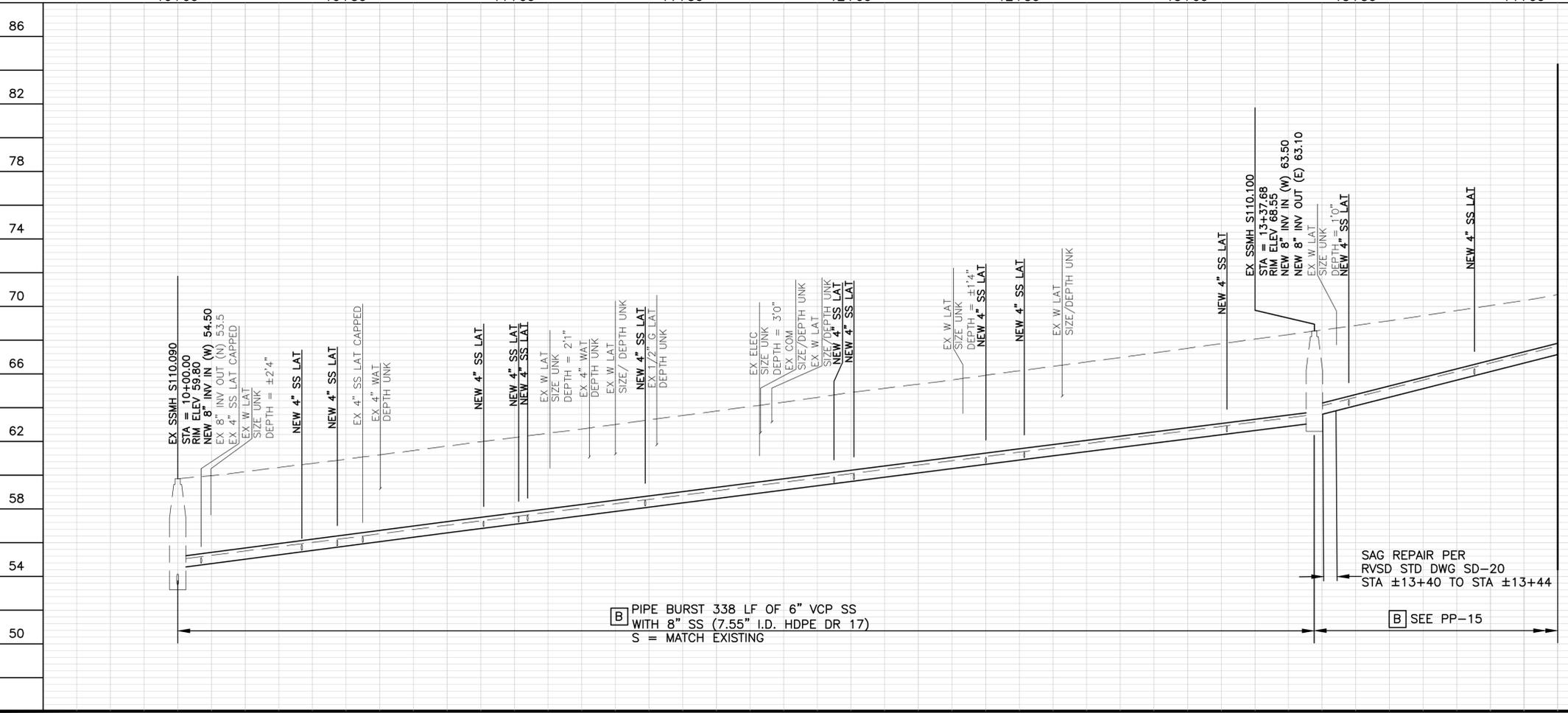
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B PIPE BURST 338 LF OF 6" VCP SS WITH 8" SS (7.55" I.D. HDPE DR 17) S = MATCH EXISTING

SAG REPAIR PER RVSD STD DWG SD-20 STA ±13+40 TO STA ±13+44

B SEE PP-15

MATCHLINE - STA 14+00
SEE DWG PP-15

NO.	BY	DATE	REVISION

**SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
AUSTIN AVE**

**ROSS VALLEY
SANITARY DISTRICT**
FY2023/24 GRAVITY SEWER
IMPROVEMENTS PROJECT

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

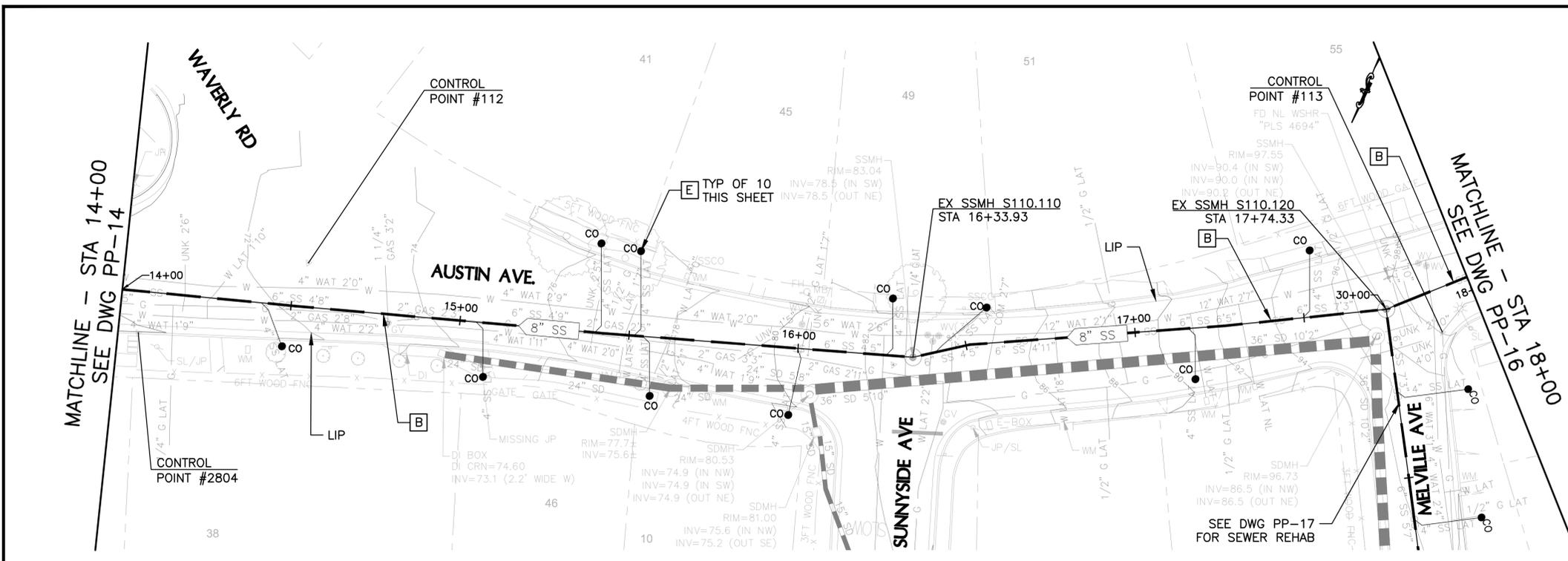
THESE DRAWINGS AND SPECIFICATIONS ARE NOT TO BE REPRODUCED OR COPIED IN ANY MANNER WITHOUT THE WRITTEN AGREEMENT OF HARRIS & ASSOCIATES. ANY OTHER WORK EXCEPT BY WRITTEN AGREEMENT WITH THE ENGINEER SHALL BE AT THE RISK OF THE USER. THE USER SHALL BE RESPONSIBLE FOR VERIFYING ALL DIMENSIONS AND FIELD DIMENSIONS SHALL BE VERIFIED BY THE USER PRIOR TO THE START OF ANY WORK.

DESIGNED BY **KLC/CM**
DRAWN BY **KLC/CM**
CHECKED BY **KI**
DATE ISSUED **11/27/2023**
JOB NO. **120-0743.006**
DWG NO. **PP-14**

PP-14
SHEET 18 OF 52

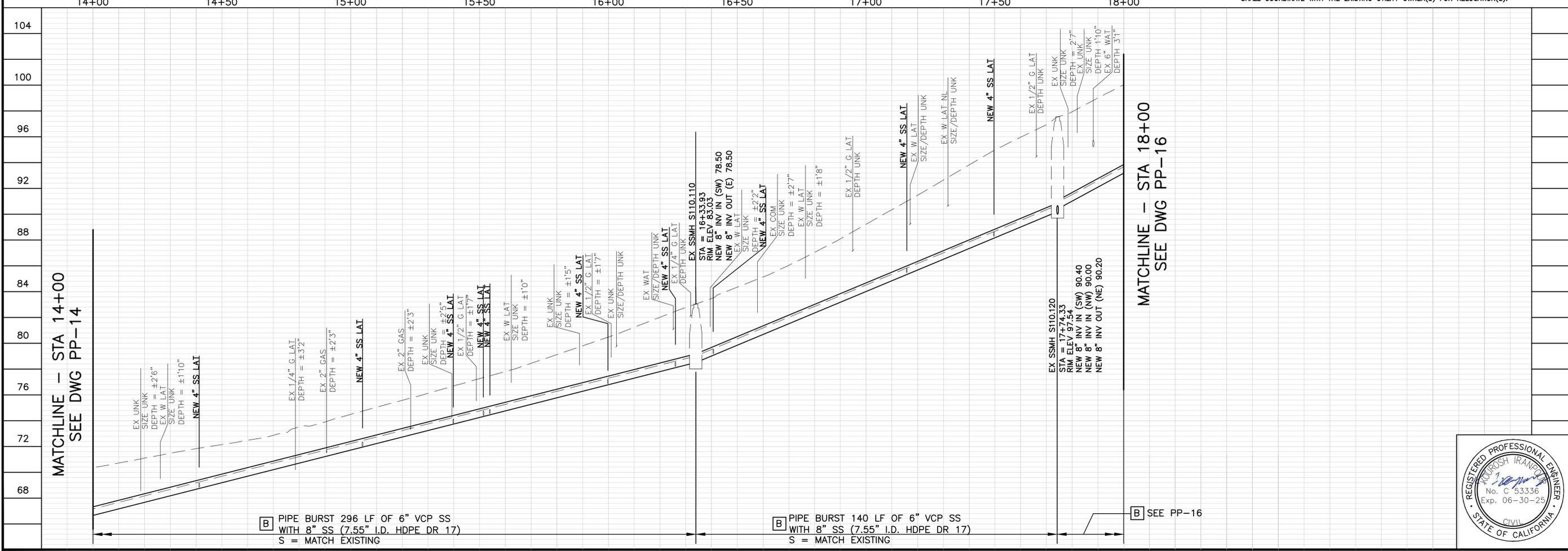
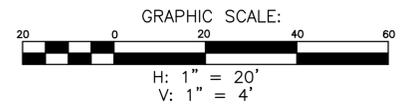


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SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
112	2181953.31	5965488.98	72.54	MAG NL
113	2181842.47	5965172.98	98.05	MAG NL
2804	2181991.76	5965527.24	70.34	MAG TAG



LEGEND OF REHABILITATION METHODS

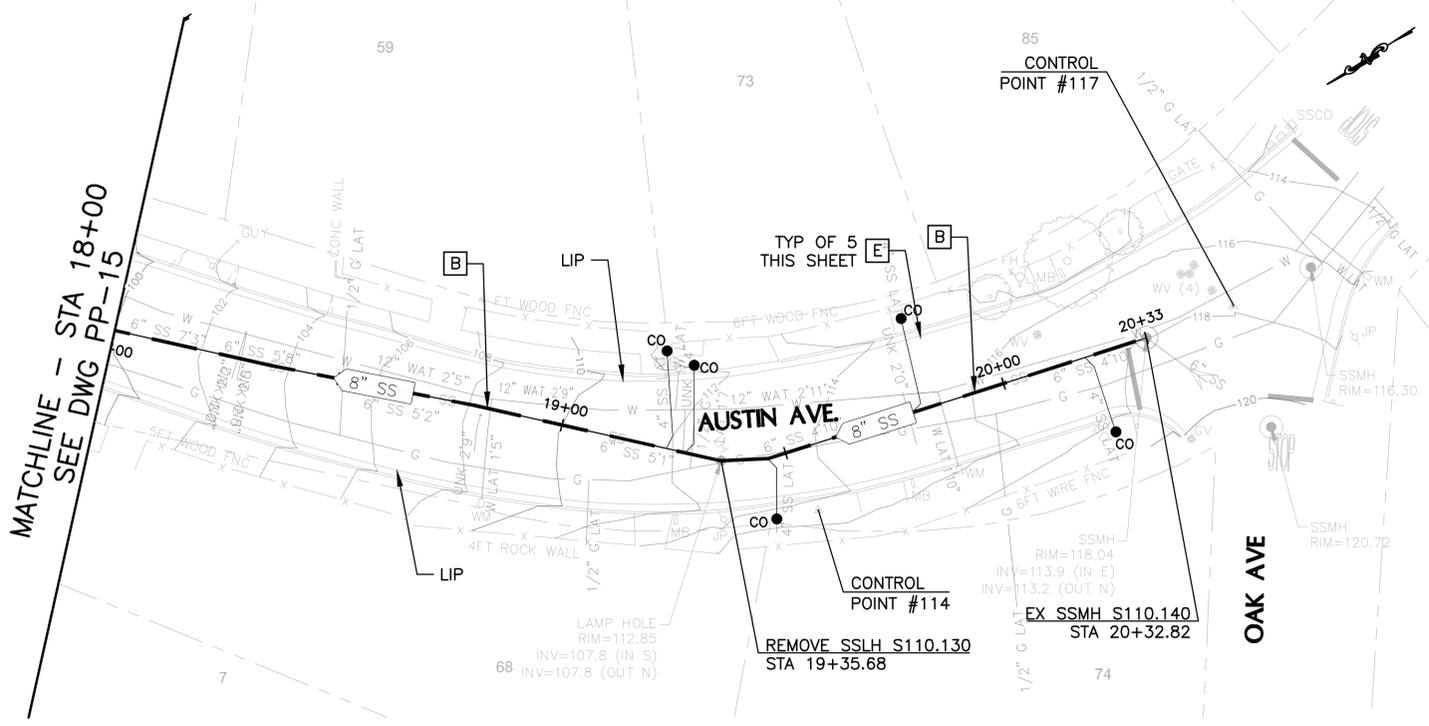
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 - C** REMOVE AND REPLACE EX SSMH, SSLH, SSCO WITH NEW SSMH OR CONSTRUCT NEW SSMH PER RVSD STD DWG SD-01, SD-02, SD-03, SD-04, SD-05 AND SD-06. FINAL PAVING SHALL BE PER DETAIL 2/D-01.
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- NOTES:**
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NO.	BY	DATE	REVISION		
				SANITARY SEWER IMPROVEMENTS PLAN AND PROFILE AUSTIN AVE	
ROSS VALLEY SANITARY DISTRICT FY2023/24 GRAVITY SEWER IMPROVEMENTS PROJECT					
<p>Harris & Associates 1401 Willow Pass Rd, Suite 500 Concord, CA 94520 www.harris.com (925) 827-4800</p> <p><small>THESE DRAWINGS AND SPECIFICATIONS ARE NOT BE PROPERTY OF HARRIS & ASSOCIATES. ANY OTHER WORK EXCEPT BY WRITTEN AGREEMENT WITH THE ENGINEER SHALL BE VOID. SCALE DIMENSIONS AND FIELD DIMENSIONS SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER PRIOR TO THE START OF ANY WORK.</small></p>					
<p>DESIGNED BY KLC/CM DRAWN BY KLC/CM CHECKED BY KI DATE ISSUED 11/27/2023 JOB NO. 120-0743.006 DWG NO. PP-15</p>					
<p>REGISTERED PROFESSIONAL ENGINEER KORUSH IRANPOOR No. C 53336 Exp. 06-30-25 CIVIL STATE OF CALIFORNIA</p>					
<p>SHEET 19 OF 52</p>					

H:\Ross Valley Sanitary District (RSD)\FY 2023-24 Gravity Sewer\18-20 - PP-14 To PP-16 - SA_Austin Awdwg Sowe Date: 11/21/2023 4:19 PM Plot Date: 11/21/2023 4:19 PM Know



LEGEND OF REHABILITATION METHODS

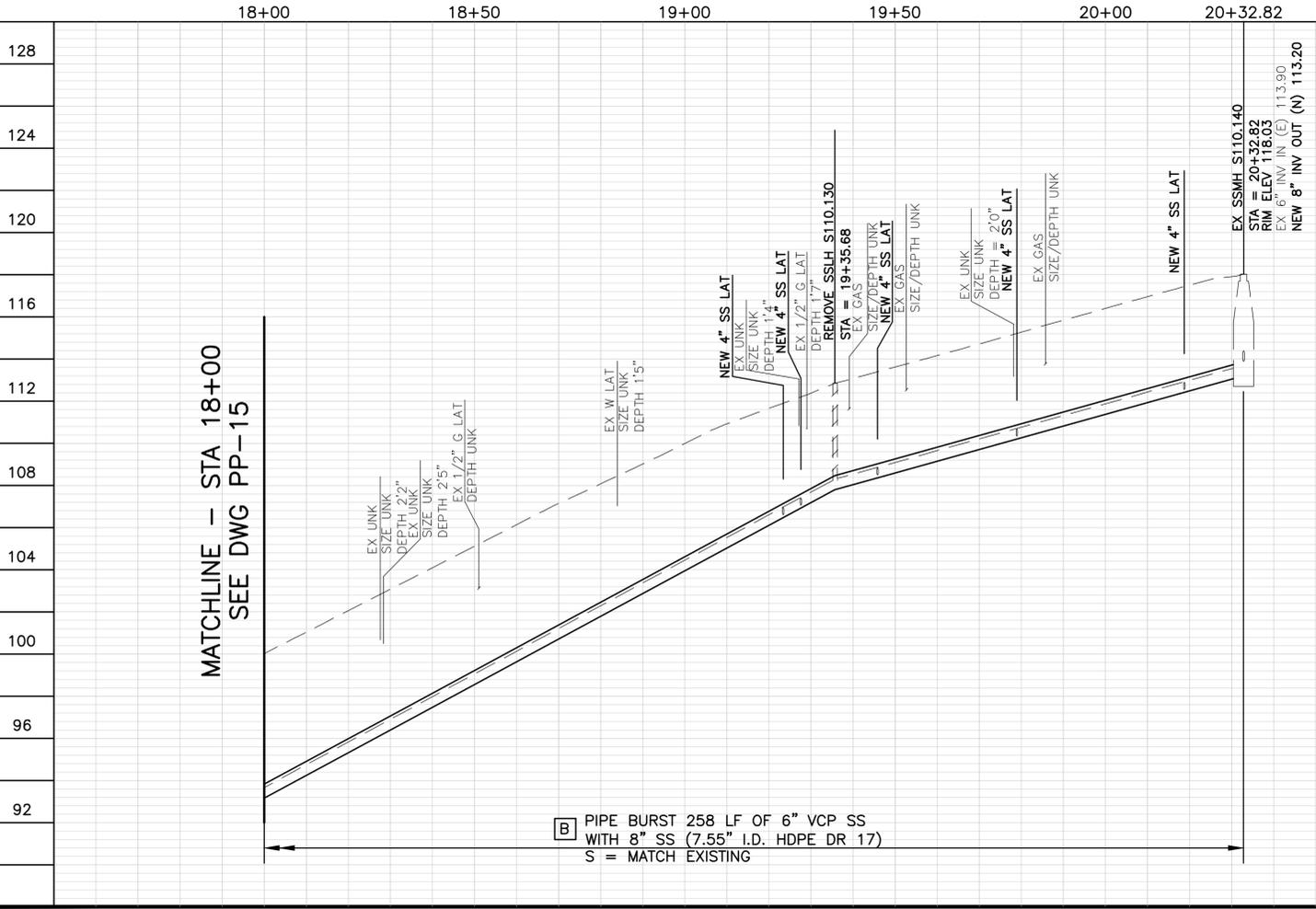
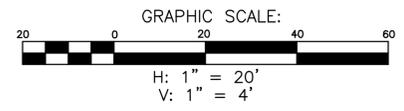
- A** REMOVE AND REPLACE OR CONSTRUCT NEW PIPE BY OPEN TRENCH PER RVSD STD DWG SD-16. FOR MANHOLES NOT BEING REPLACED MODIFY EX MANHOLE BASES PER RVSD STD DWG SD-09. FINAL PAVING SHALL BE PER DETAIL 2/D-01. INSTALL TRENCH DAM PER RVSD STD DWG SD-17.
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SURVEY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

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
114	2181716.55	5965056.12	114.75	HUB+MAG
117	2181616.18	5965044.39	117.87	MAG NL



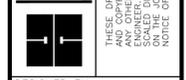
B PIPE BURST 258 LF OF 6" VCP SS WITH 8" SS (7.55" I.D. HDPE DR 17) S = MATCH EXISTING

SANITARY SEWER IMPROVEMENTS PLAN AND PROFILE AUSTIN AVE

**ROSS VALLEY SANITARY DISTRICT
FY2023/24 GRAVITY SEWER IMPROVEMENTS PROJECT**



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

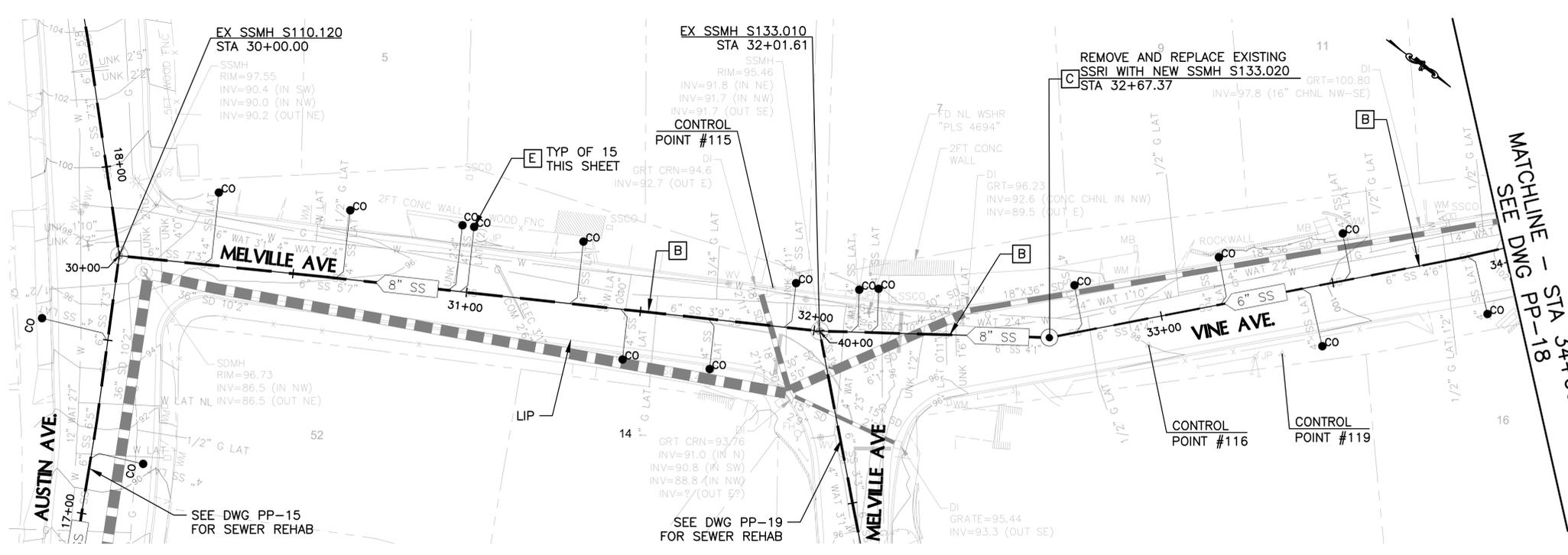


DESIGNED BY **KLC/CM**
DRAWN BY **KLC/CM**
CHECKED BY **KI**
DATE ISSUED **11/27/2023**
JOB NO. **120-0743.006**
DWG NO.



PP-16
SHEET 20 OF 52

H:\Ross Valley Sanitary District (RSD)\FY 2023-24 Gravity Sewer\21-22 - PP-17 To PP-18 - SA_Melville Ave And Vine Ave.dwg Save Date: 11/21/2023 4:21 PM Plot Date: 11/21/2023 4:21 PM Kchow



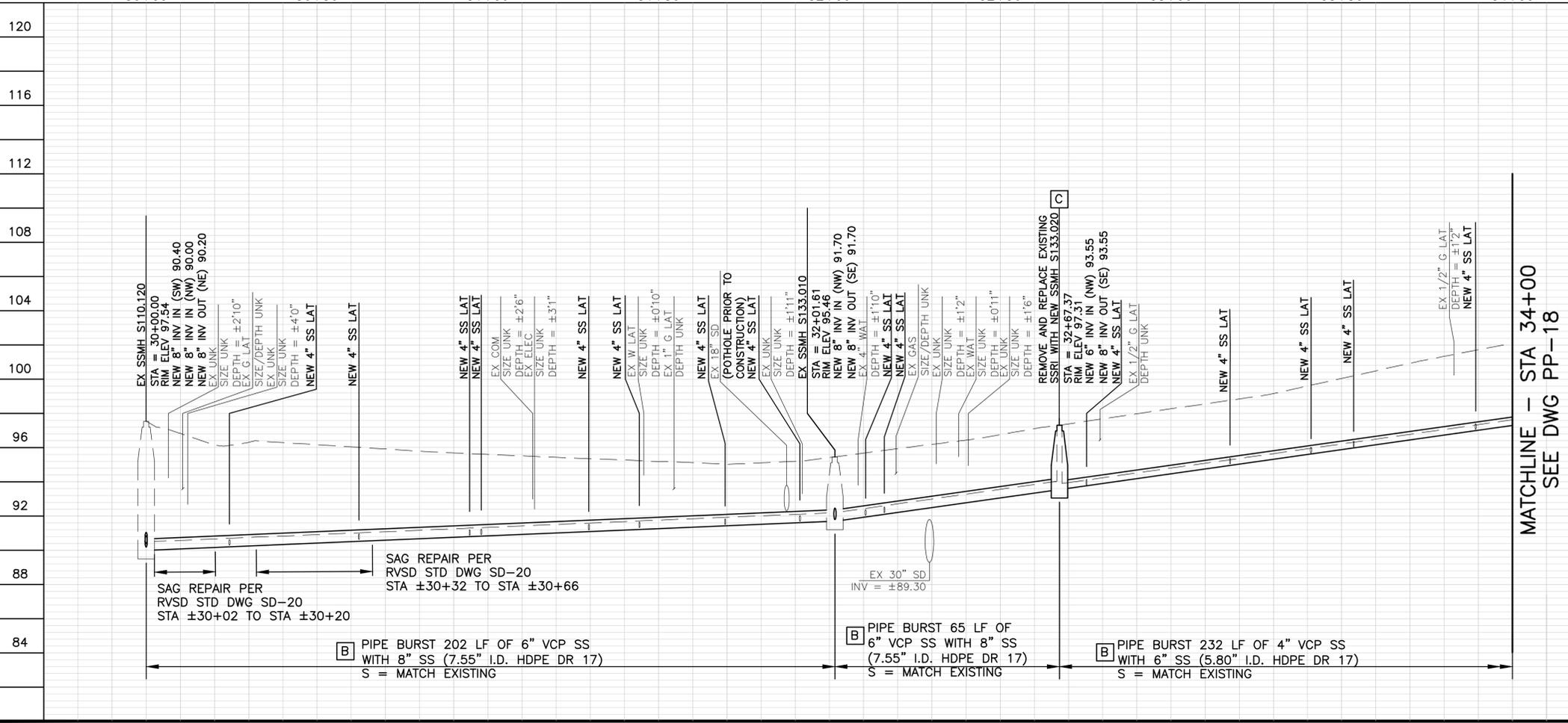
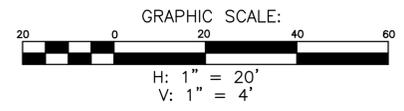
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SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
115	2194553.23	5963545.42	95.33	CUT + ON TC
116	2194553.23	5963545.42	98.0	MAG NL
119	2194553.23	5963545.42	102.49	60D CHSR



NO.	BY	DATE	REVISION

**SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
MELVILLE AVE AND VINE AVE**

**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
IMPROVEMENTS PROJECT**

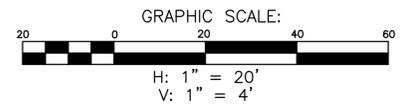
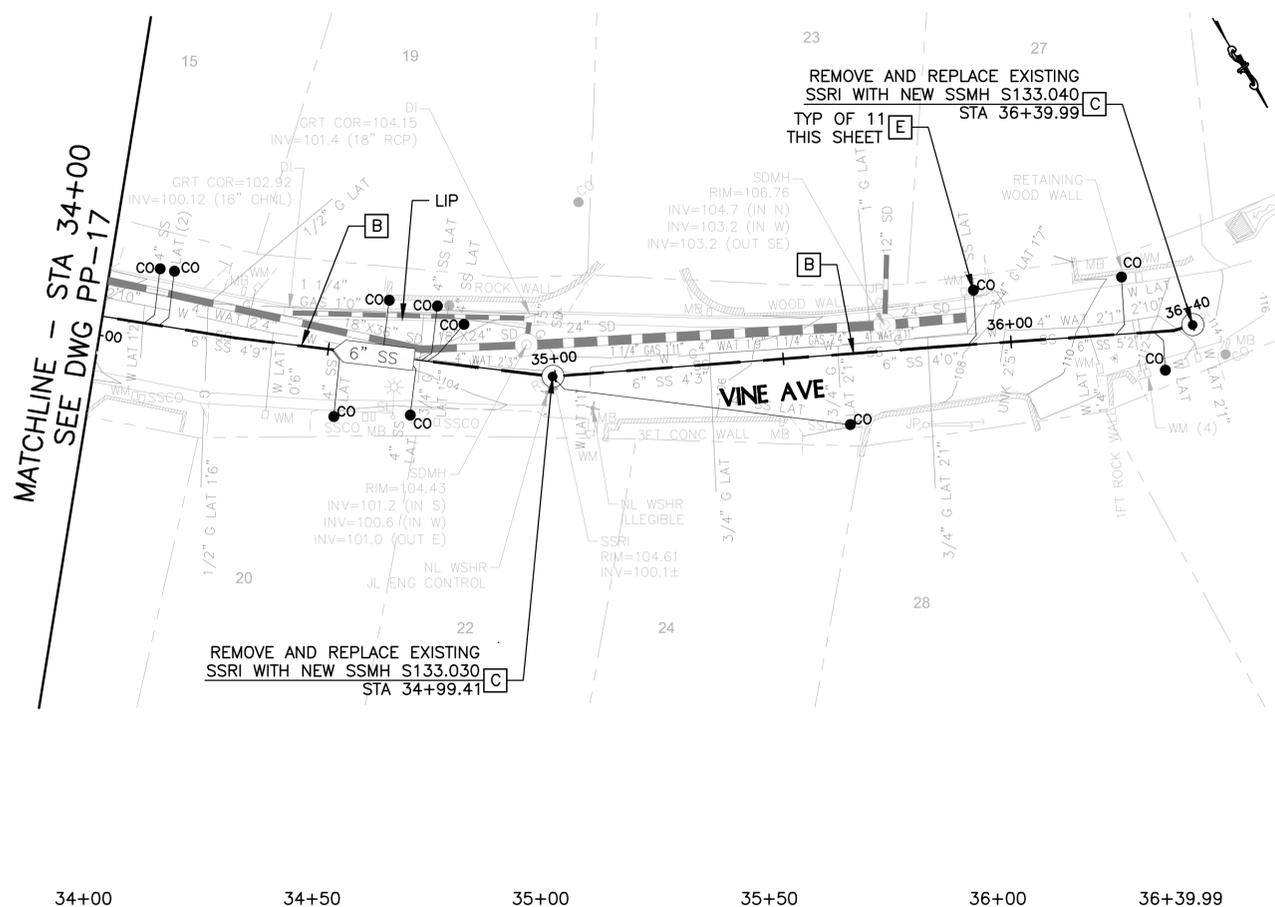
Harris & Associates
1401 Willow Pass Rd, Suite 500 Concord, CA 94520
www.harris.com (925) 827-4900

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DESIGNED BY **KLC/CM**
DRAWN BY **KLC/CM**
CHECKED BY **KI**
DATE ISSUED **11/27/2023**
JOB NO. **120-0743.006**
DWG NO. **PP-17**

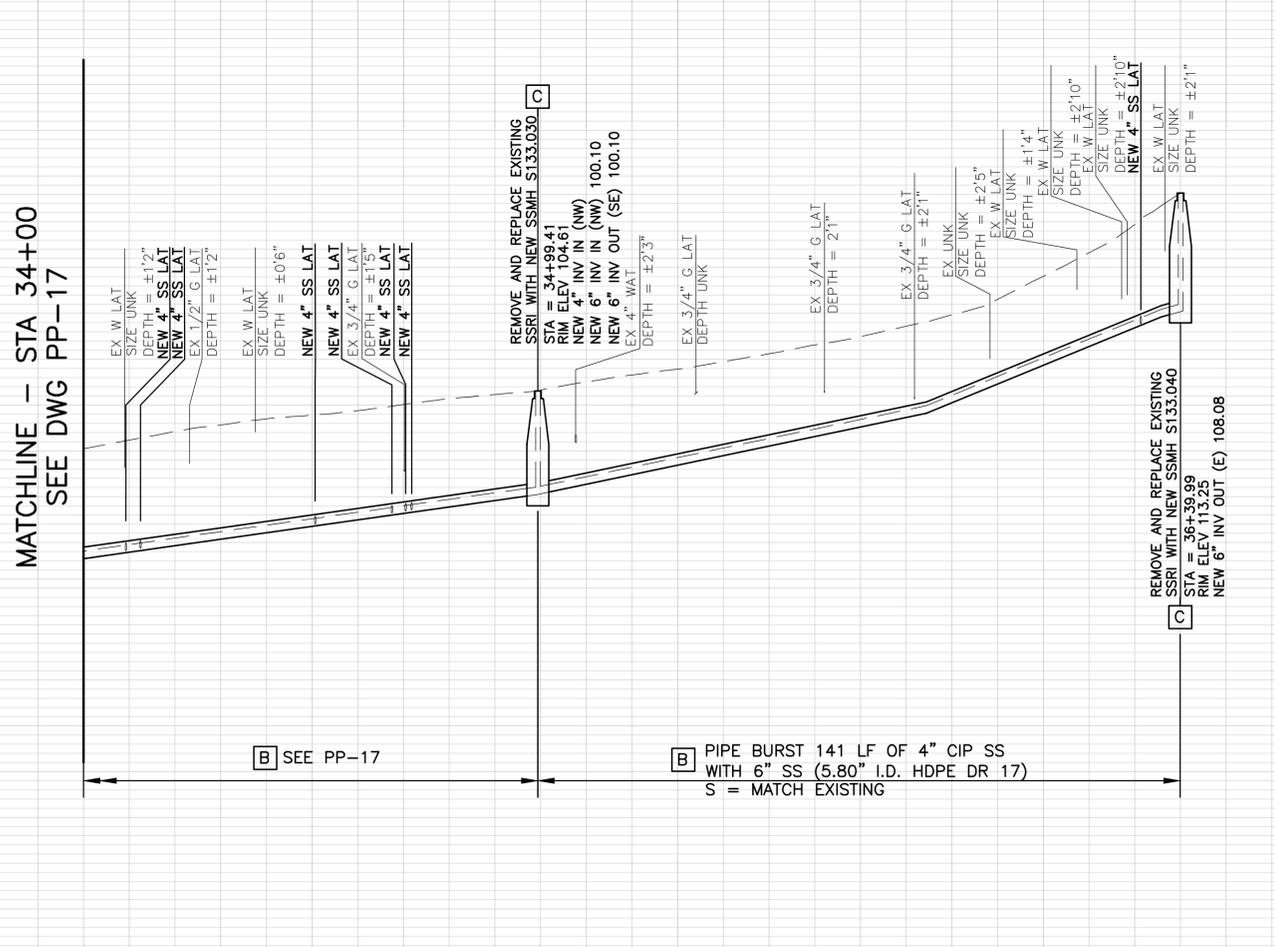
**REGISTERED PROFESSIONAL ENGINEER
KORUSH IRANPOUR
No. C 53336
Exp. 06-30-25
CIVIL
STATE OF CALIFORNIA**

PP-17
SHEET 21 OF 52



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MATCHLINE - STA 34+00
SEE DWG PP-17

B SEE PP-17

B PIPE BURST 141 LF OF 4" CIP SS WITH 6" SS (5.80" I.D. HDPE DR 17) S = MATCH EXISTING

REMOVE AND REPLACE EXISTING SSRI WITH NEW SSMH S133.040
STA = 36+39.99
RIM ELEV 113.25
NEW 6" INV OUT (E) 108.08

REMOVE AND REPLACE EXISTING SSRI WITH NEW SSMH S133.030
STA = 34+99.41
RIM ELEV 104.61
NEW 4" INV IN (NW) 100.10
NEW 6" INV IN (NW) 100.10
NEW 6" INV OUT (SE) 100.10
EX 4" WAT
DEPTH = ±2.3"

EX W L AT
SIZE UNK
DEPTH = ±1.2"
NEW 4" SS L AT
DEPTH = ±1.2"
EX 1.72" G L AT
DEPTH = ±1.2"
EX W L AT
SIZE UNK
DEPTH = ±0.6"
NEW 4" SS L AT
NEW 4" SS L AT
EX 3/4" G L AT
DEPTH = ±1.5"
NEW 4" SS L AT
NEW 4" SS L AT

EX 3/4" G L AT
DEPTH UNK

EX 3/4" G L AT
DEPTH = 2.1"

EX UNK
SIZE UNK
DEPTH = ±2.5"
EX W L AT
SIZE UNK
DEPTH = ±1.4"
EX W L AT
SIZE UNK
DEPTH = ±2.10"
EX W L AT
SIZE UNK
DEPTH = ±2.10"
NEW 4" SS L AT

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**ROSS VALLEY
SANITARY DISTRICT**

**FY2023/24 GRAVITY SEWER
IMPROVEMENTS PROJECT**

**SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
VINE AVE**

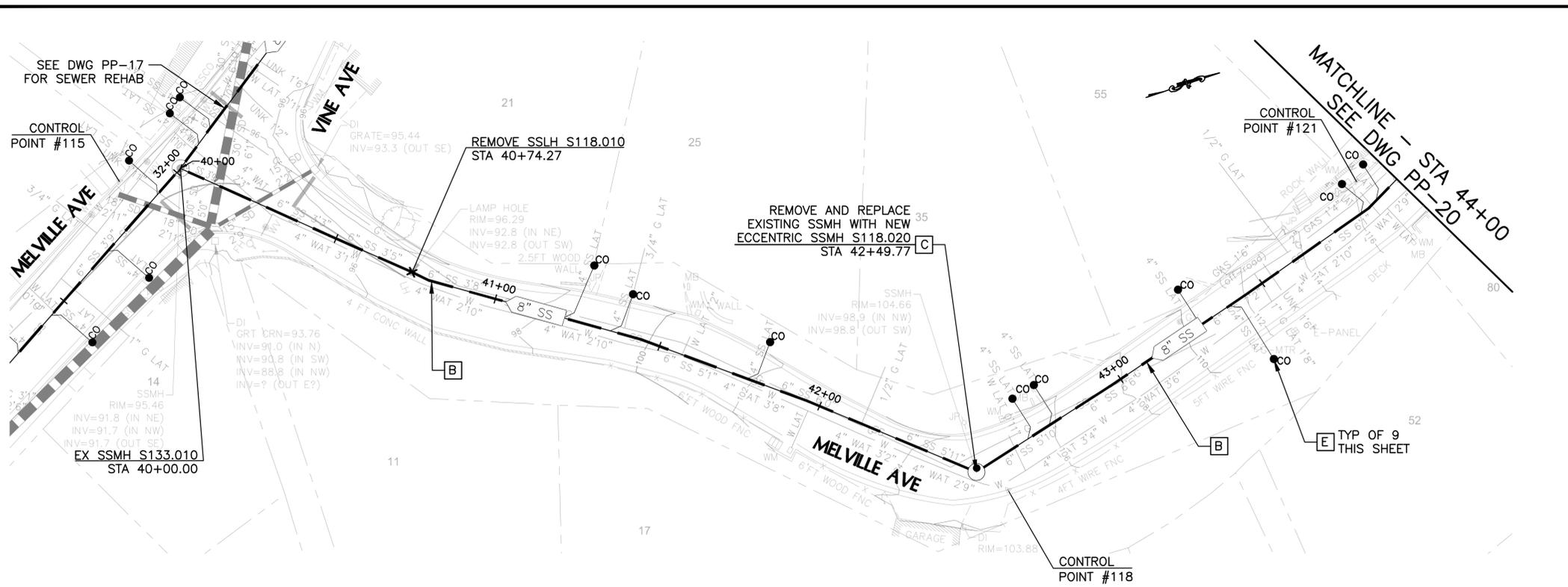
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JOB NO. **120-0743.006**
DWG NO. **PP-18**

SHEET **22** OF **52**

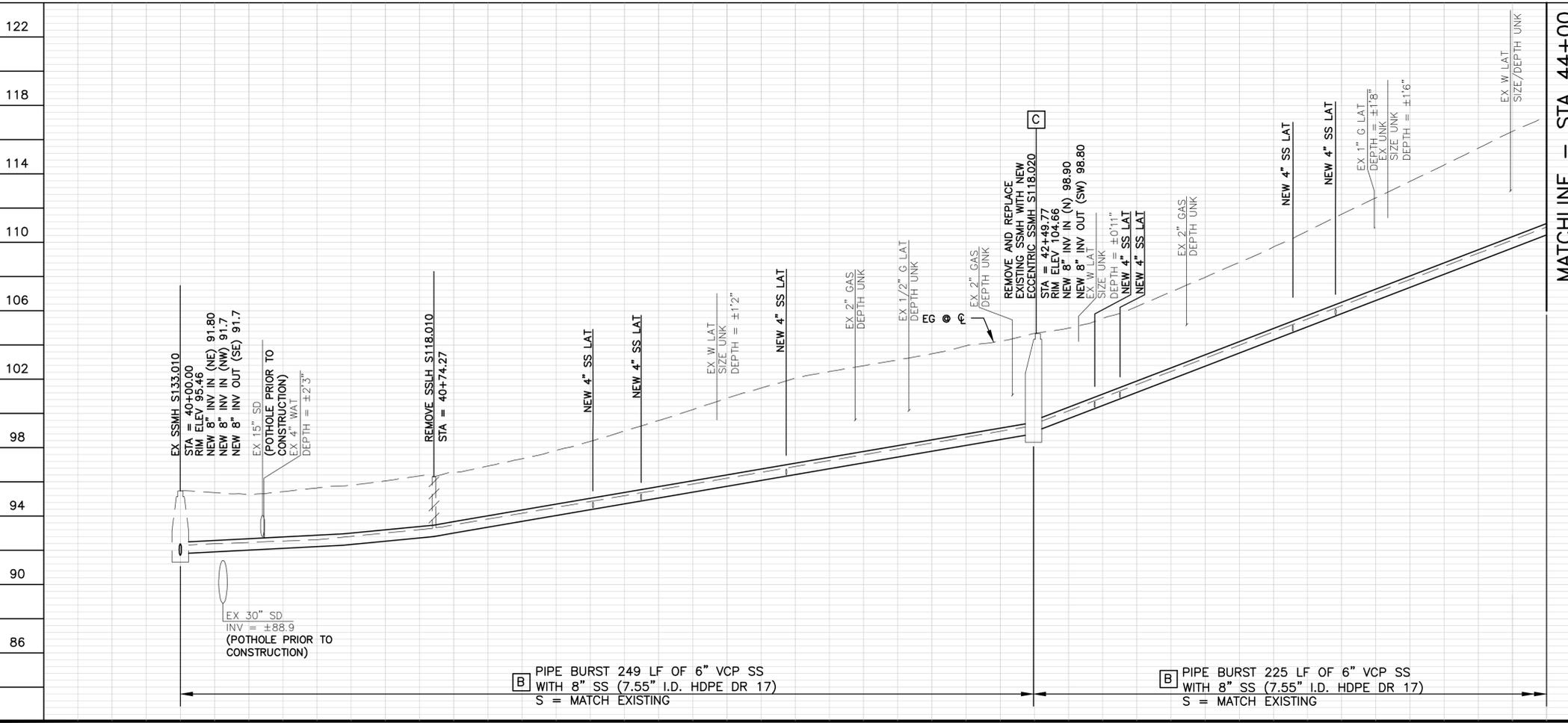
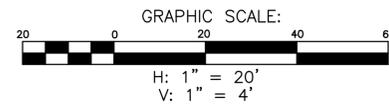


H:\Ross Valley Sanitary District (RSD)\FY 2023-24 Gravity Sewer\23-24 - PP-19 To PP-20 - SA_Melville Ave.dwg Save Date: 11/21/2023 4:22 PM Plot Date: 11/21/2023 4:22 PM Kchow



SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
115	2181998.64	5965087.10	95.33	CUT + ON TC
118	2182216.59	5965255.39	104.92	MAG NL
121	2182341.92	5965202.35	116.56	CUT + ON TC



B PIPE BURST 249 LF OF 6" VCP SS WITH 8" SS (7.55" I.D. HDPE DR 17) S = MATCH EXISTING

B PIPE BURST 225 LF OF 6" VCP SS WITH 8" SS (7.55" I.D. HDPE DR 17) S = MATCH EXISTING

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.
SEE NOTE 38 ON DWG N-01
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.
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- NOTES:**
- 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
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 - FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS, SEE GENERAL NOTE 23 AND 24 ON DWG N-01 FOR HDPE SLEEVE REQUIREMENTS.
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NO.	BY	DATE	REVISION

**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
IMPROVEMENTS PROJECT**

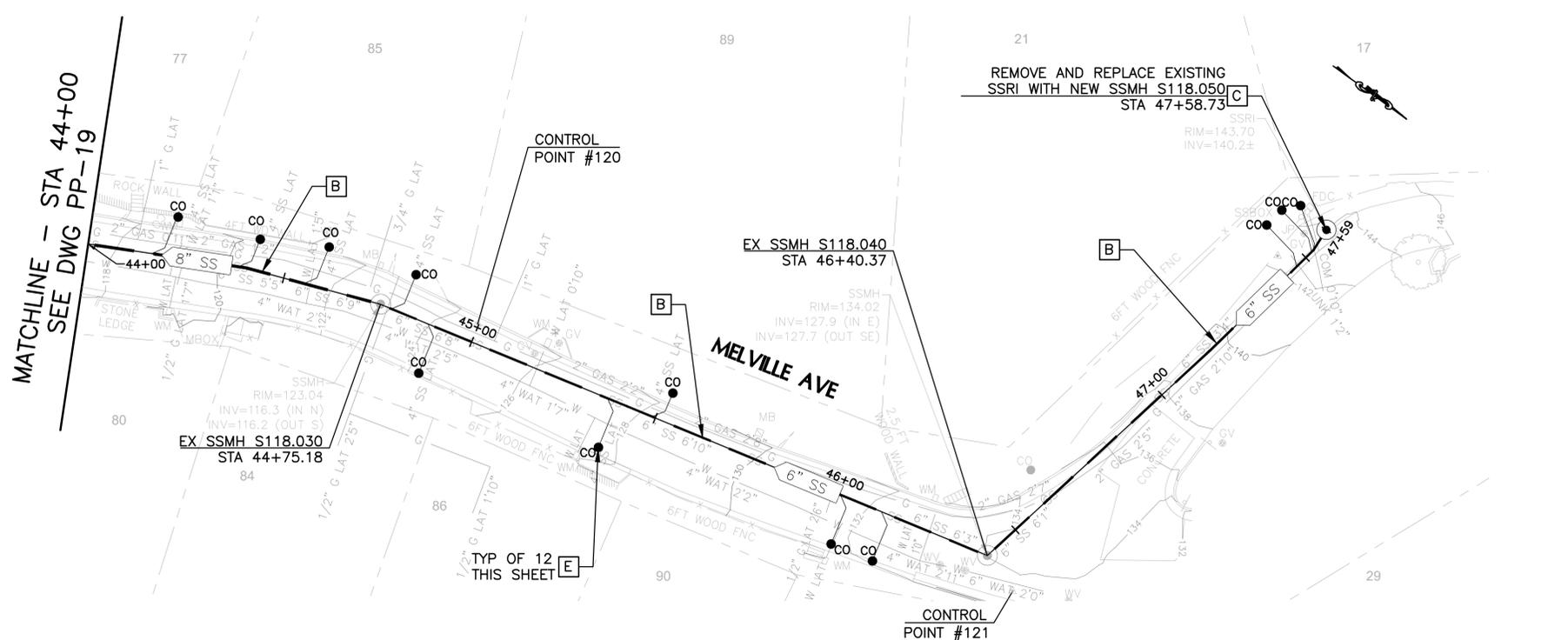
Harris & Associates
1401 Willow Pass Rd, Suite 500 Concord, CA 94520
www.harris.com (925) 827-4900

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DESIGNED BY **KLC/CM**
DRAWN BY **KLC/CM**
CHECKED BY **KI**
DATE ISSUED **11/27/2023**
JOB NO. **120-0743.006**
DWG NO. **PP-19**
SHEET **23** OF **52**

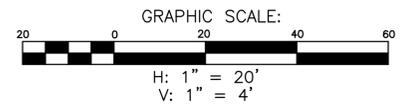


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SURVEY CONTROL POINTS

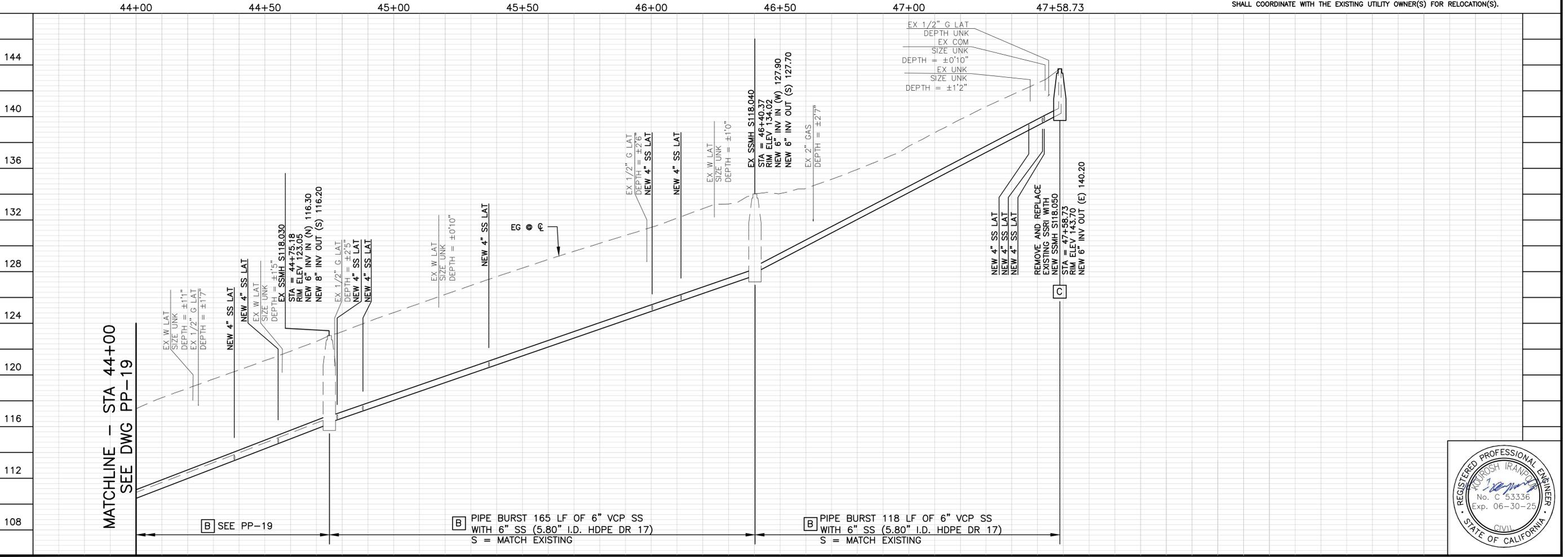
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
120	2182444.67	5965164.43	124.49	MAG GLIP
121	2182593.07	5965140.21	133.67	MAG AC



LEGEND OF REHABILITATION METHODS

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- B** SEE PP-19
- B** PIPE BURST 165 LF OF 6" VCP SS WITH 6" SS (5.80" I.D. HDPE DR 17) S = MATCH EXISTING
- B** PIPE BURST 118 LF OF 6" VCP SS WITH 6" SS (5.80" I.D. HDPE DR 17) S = MATCH EXISTING

NO.	BY	DATE	REVISION

**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
IMPROVEMENTS PROJECT**

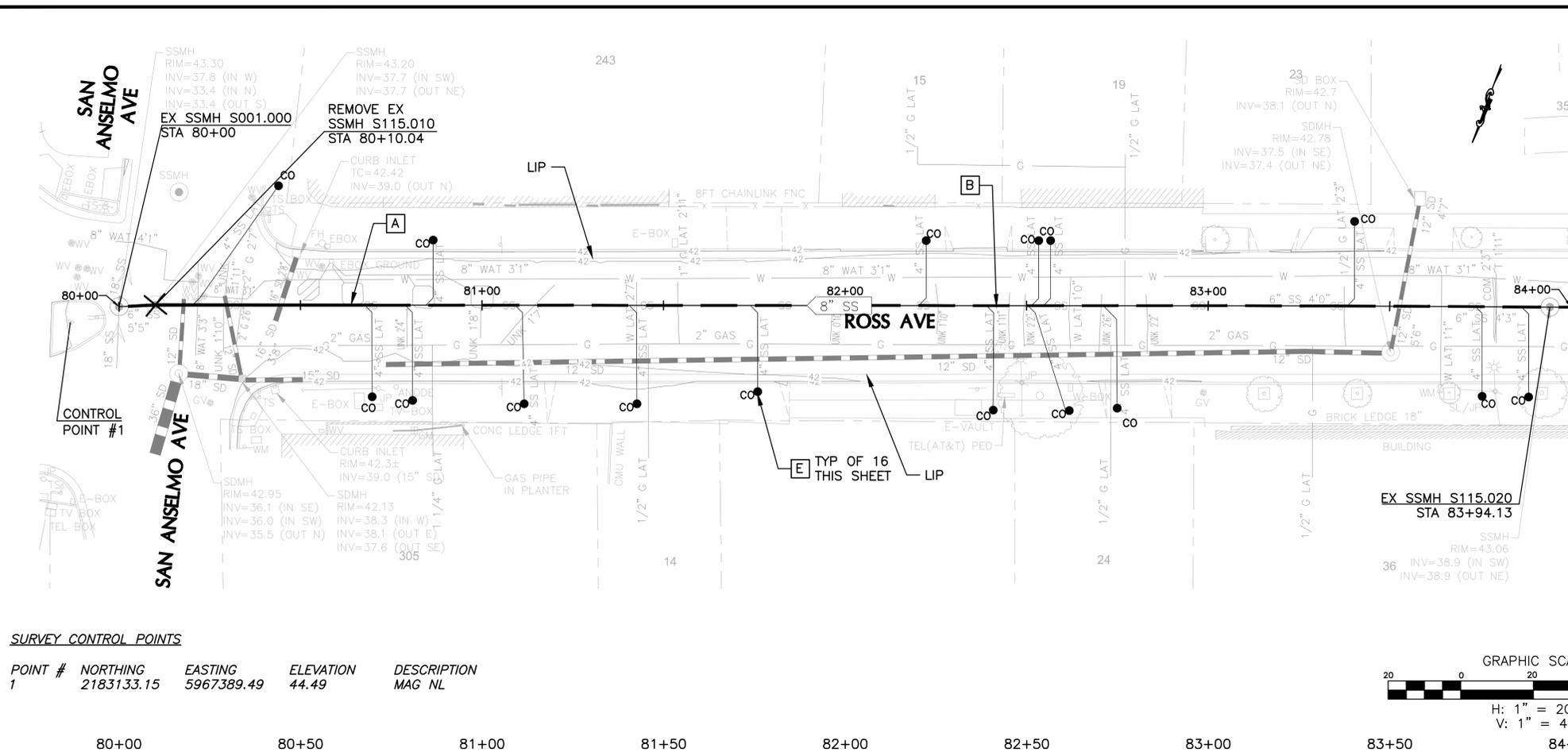
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DESIGNED BY **KLC/CM**
DRAWN BY **KLC/CM**
CHECKED BY **KI**
DATE ISSUED **11/27/2023**
JOB NO. **120-0743.006**
DWG NO. **PP-20**
SHEET **24** OF **52**



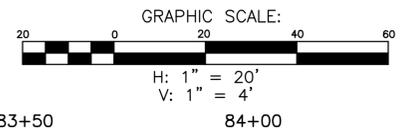
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MATCHLINE - STA 84+00
SEE DWG PP-22

SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	2183133.15	5967389.49	44.49	MAG NL

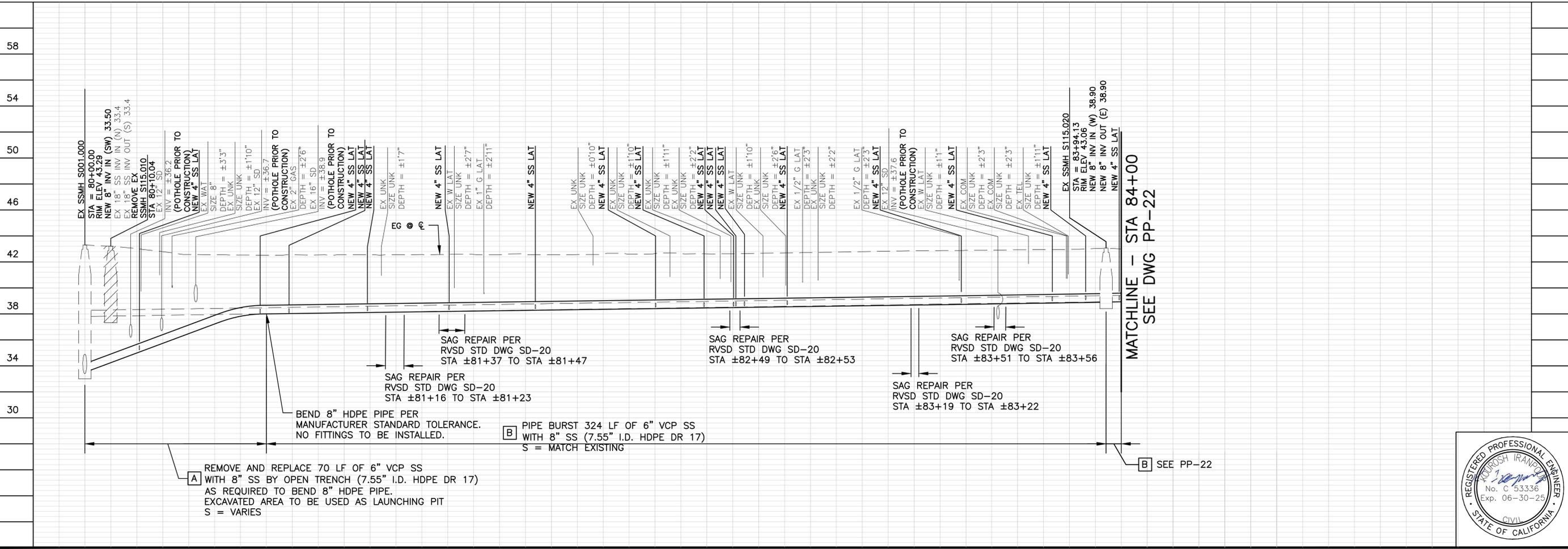


LEGEND OF REHABILITATION METHODS

- 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.
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MATCHLINE - STA 84+00
SEE DWG PP-22

NO.	BY	DATE	REVISION

**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
IMPROVEMENTS PROJECT**

**SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
ROSS AVE**



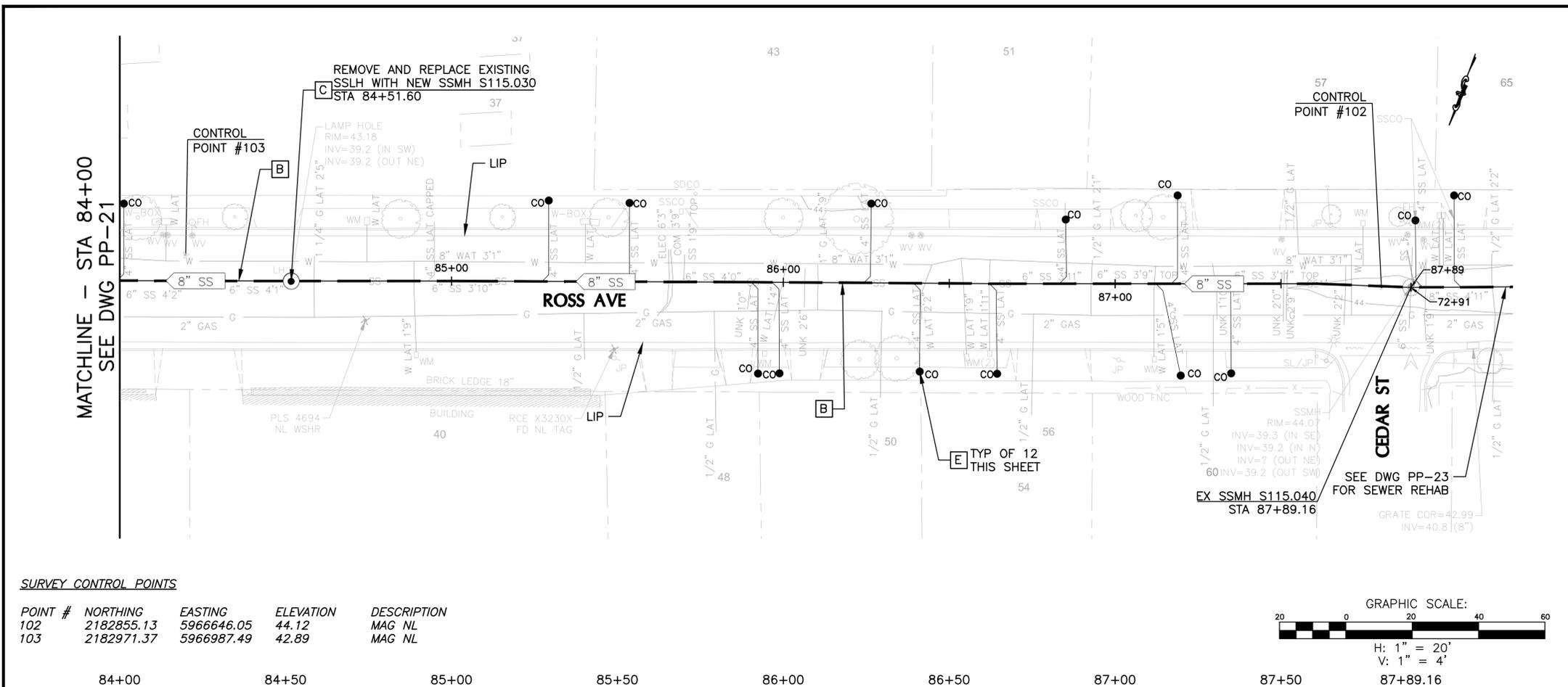
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CHECKED BY KI
DATE ISSUED 11/27/2023
JOB NO. 120-0743.006
DWG NO. PP-21
SHEET 25 OF 52

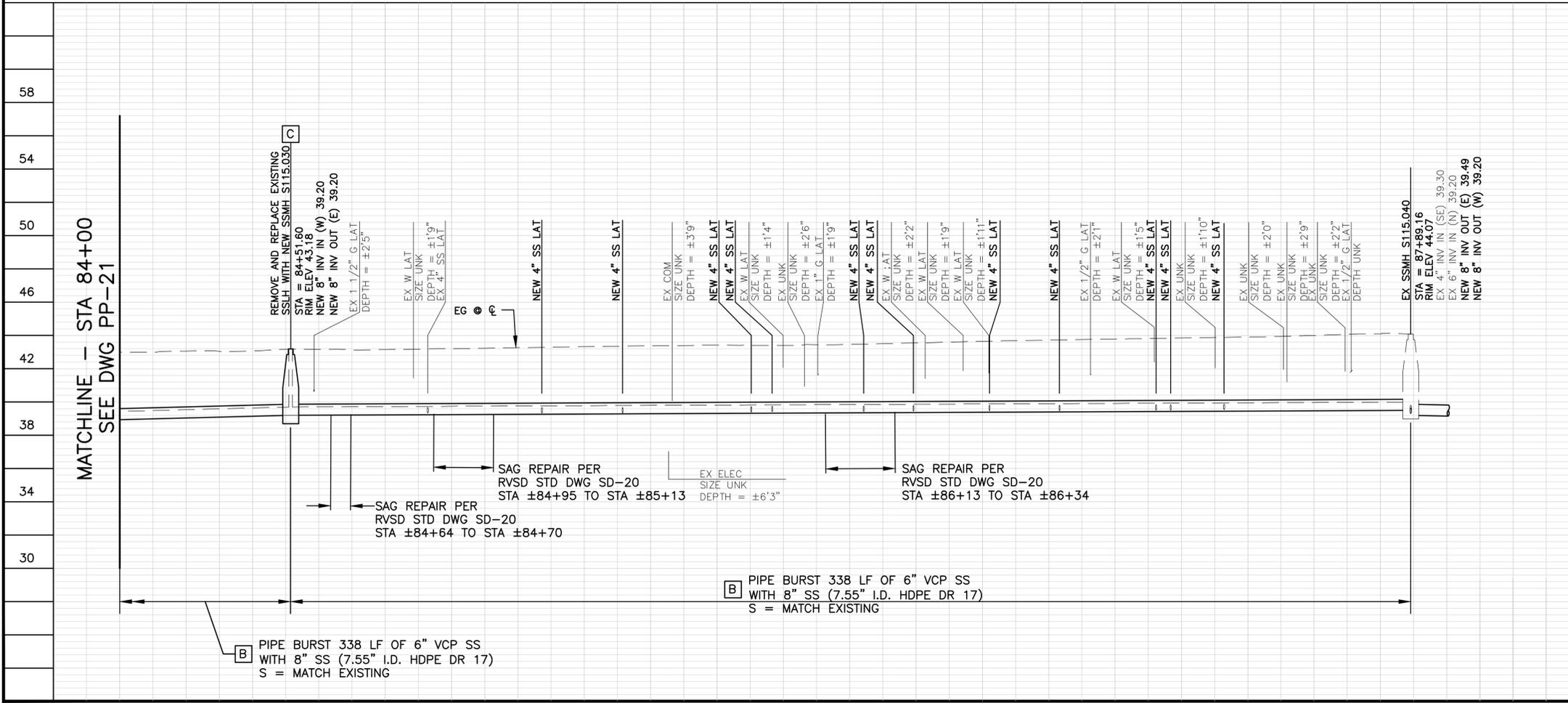
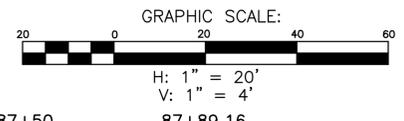


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SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
102	2182855.13	5966646.05	44.12	MAG NL
103	2182971.37	5966987.49	42.89	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.
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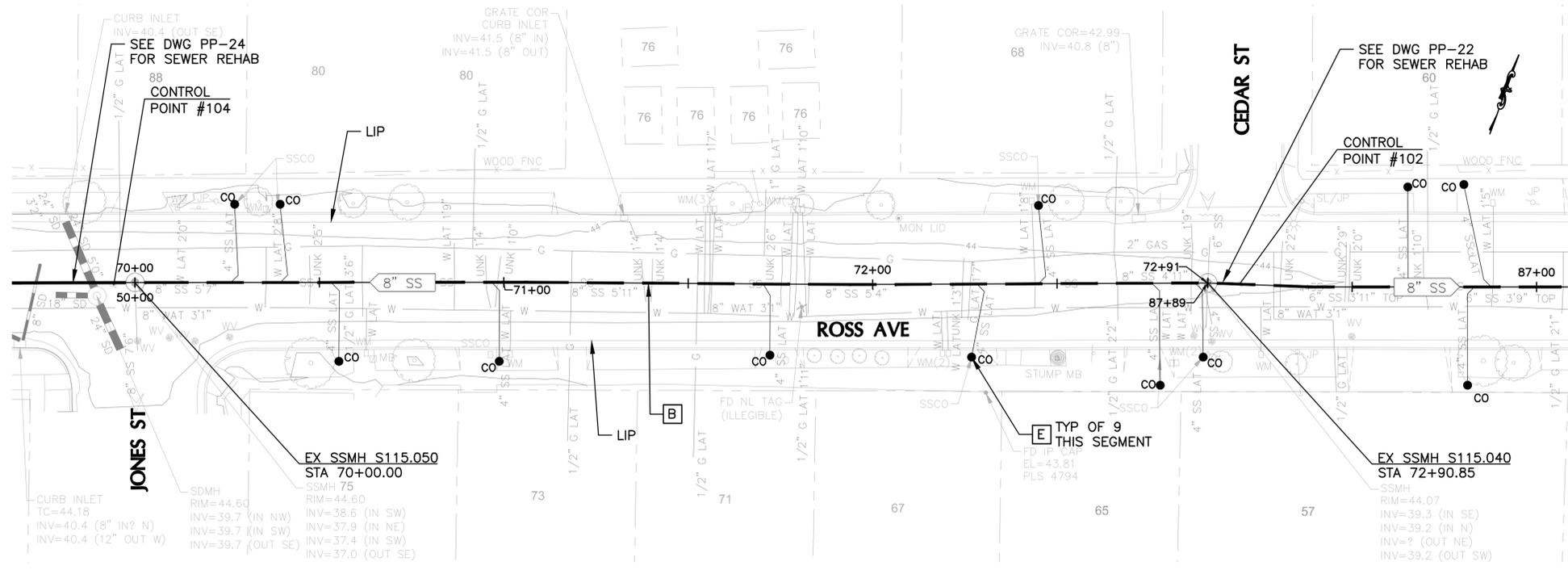
**SANITARY SEWER IMPROVEMENTS
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**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
IMPROVEMENTS PROJECT**

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

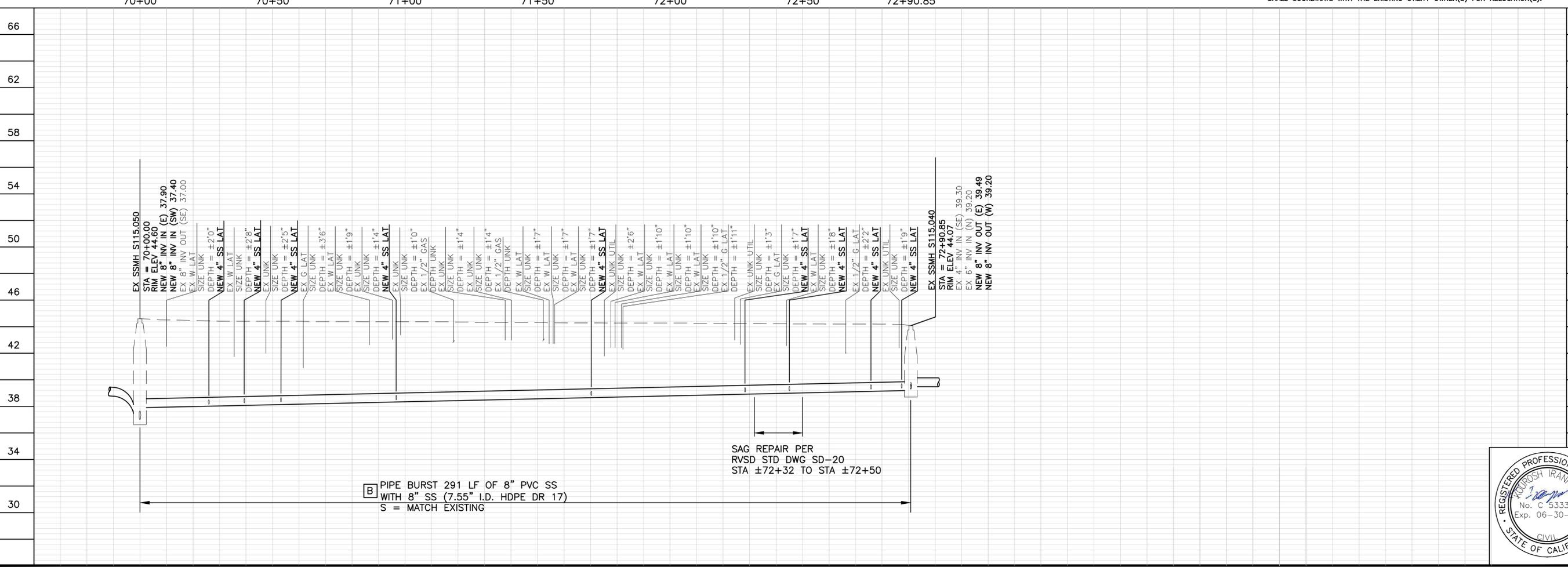
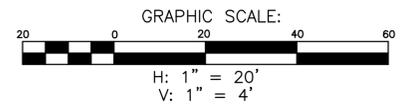
DESIGNED BY: KLC/CM
DRAWN BY: KLC/CM
CHECKED BY: KI
DATE ISSUED: 11/27/2023
JOB NO.: 120-0743.006
DWG NO.: PP-22
SHEET 26 OF 52

H:\Ross Valley Sanitary District (RSD)\FY 2023-24 Gravity Sewer\27 - PP-23 - SA_Ross Ave.dwg Save Date: 11/21/2023 4:25 PM Plot Date: 11/21/2023 4:25 PM Kchow



SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
102	2182855.13	5966646.05	44.12	MAG NL
104	2182748.72	5966359.82	44.62	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.
SEE NOTE 38 ON DWG N-01
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.
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- 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
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NO.	BY	DATE	REVISION

**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
IMPROVEMENTS PROJECT**



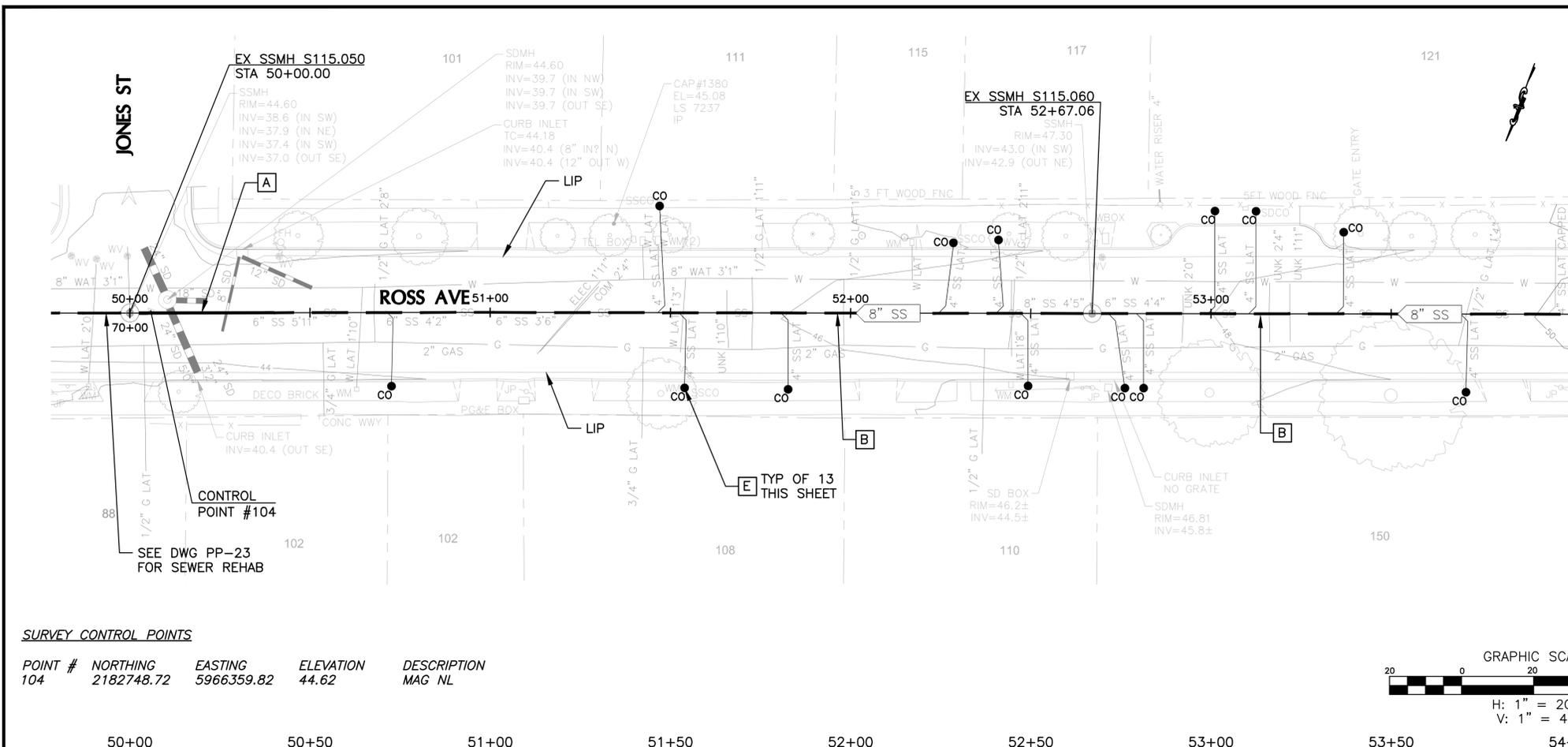
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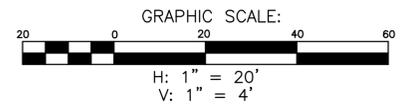
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MATCHLINE - STA 54+00
SEE DWG PP-25

SURVEY CONTROL POINTS

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LEGEND OF REHABILITATION METHODS

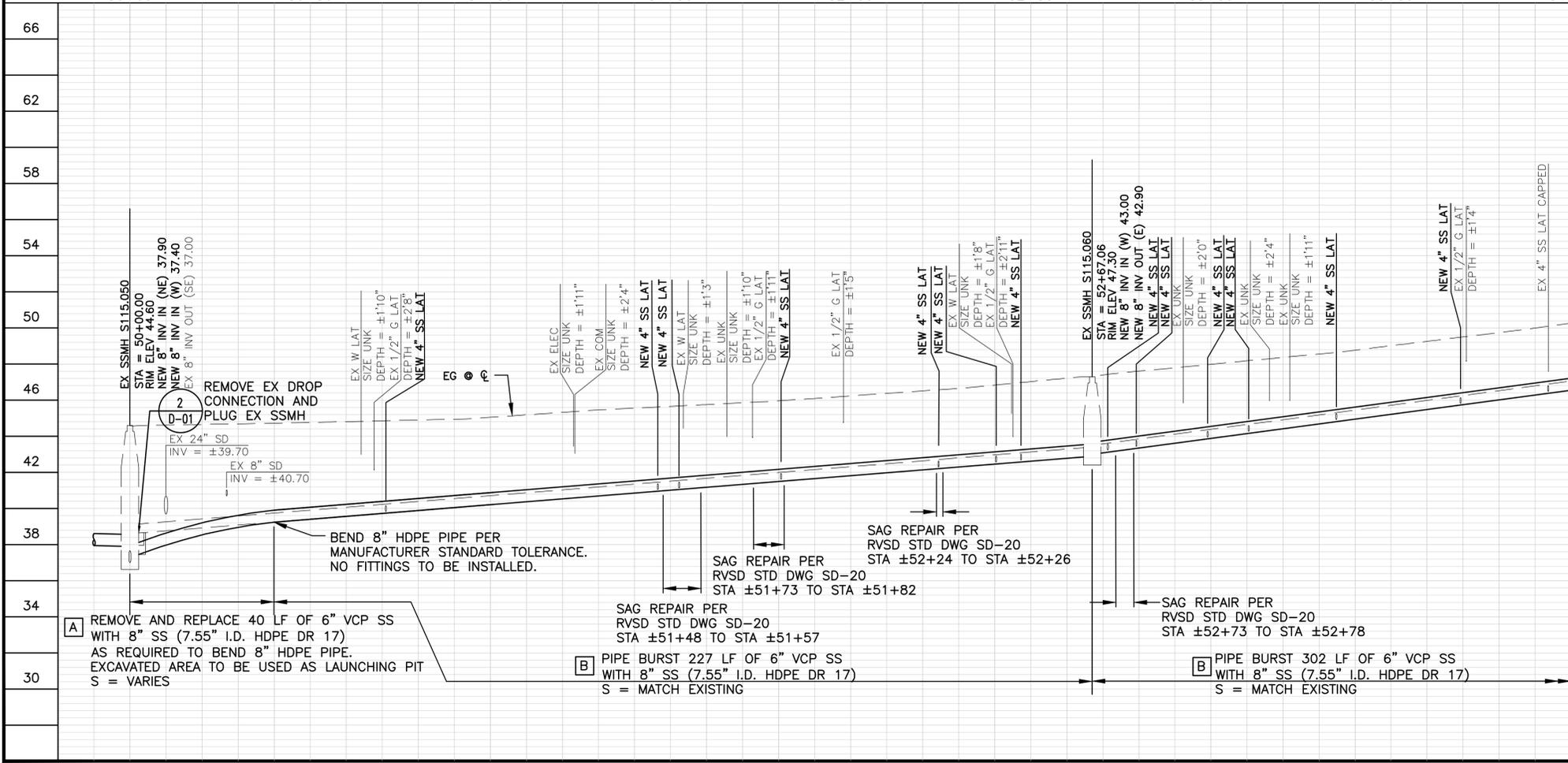
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MATCHLINE - STA 54+00
SEE DWG PP-25

SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
ROSS AVE

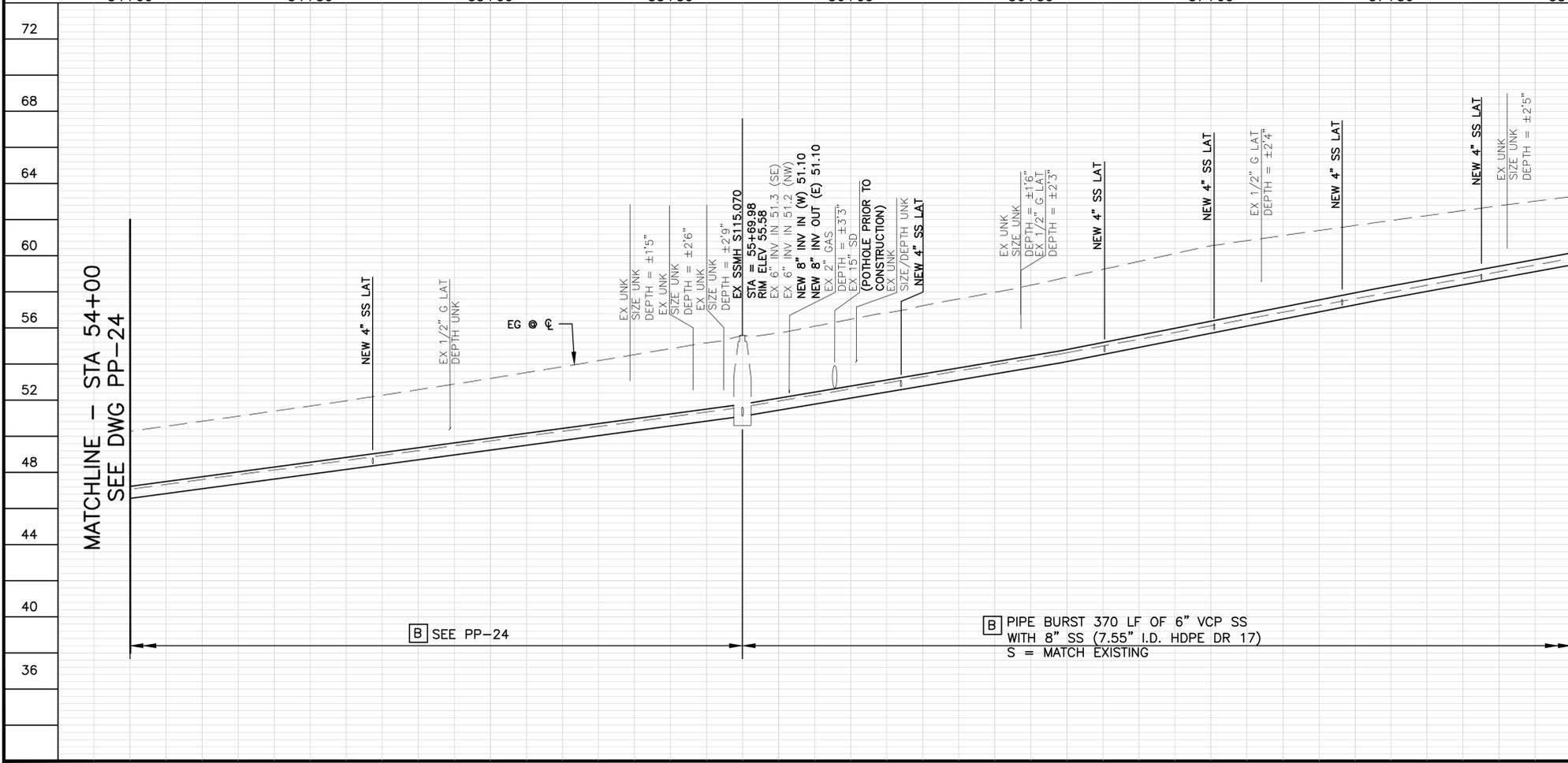
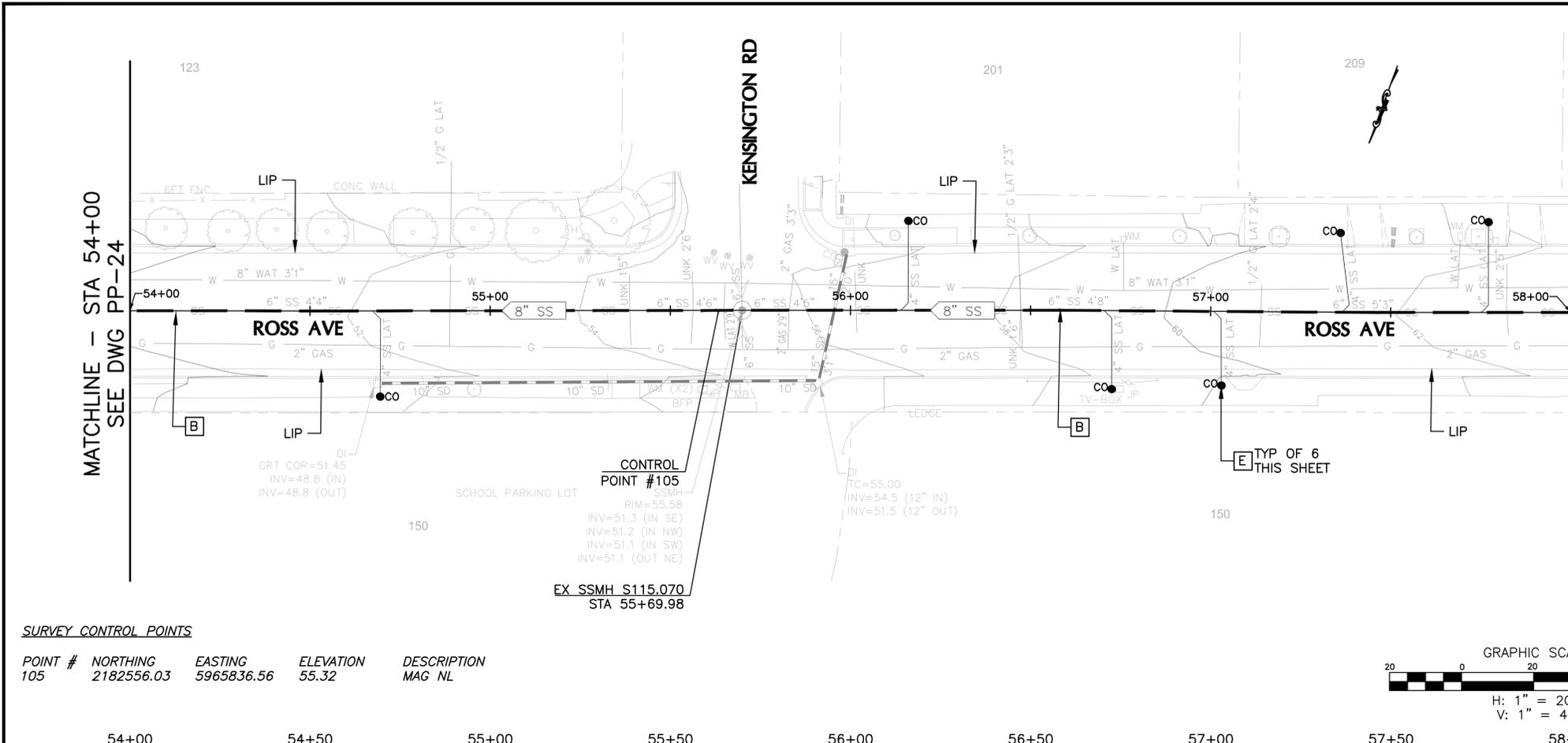
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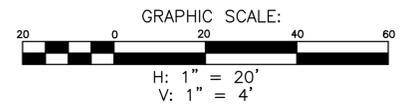


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SURVEY CONTROL POINTS

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**SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
ROSS AVE**

**ROSS VALLEY
SANITARY DISTRICT**
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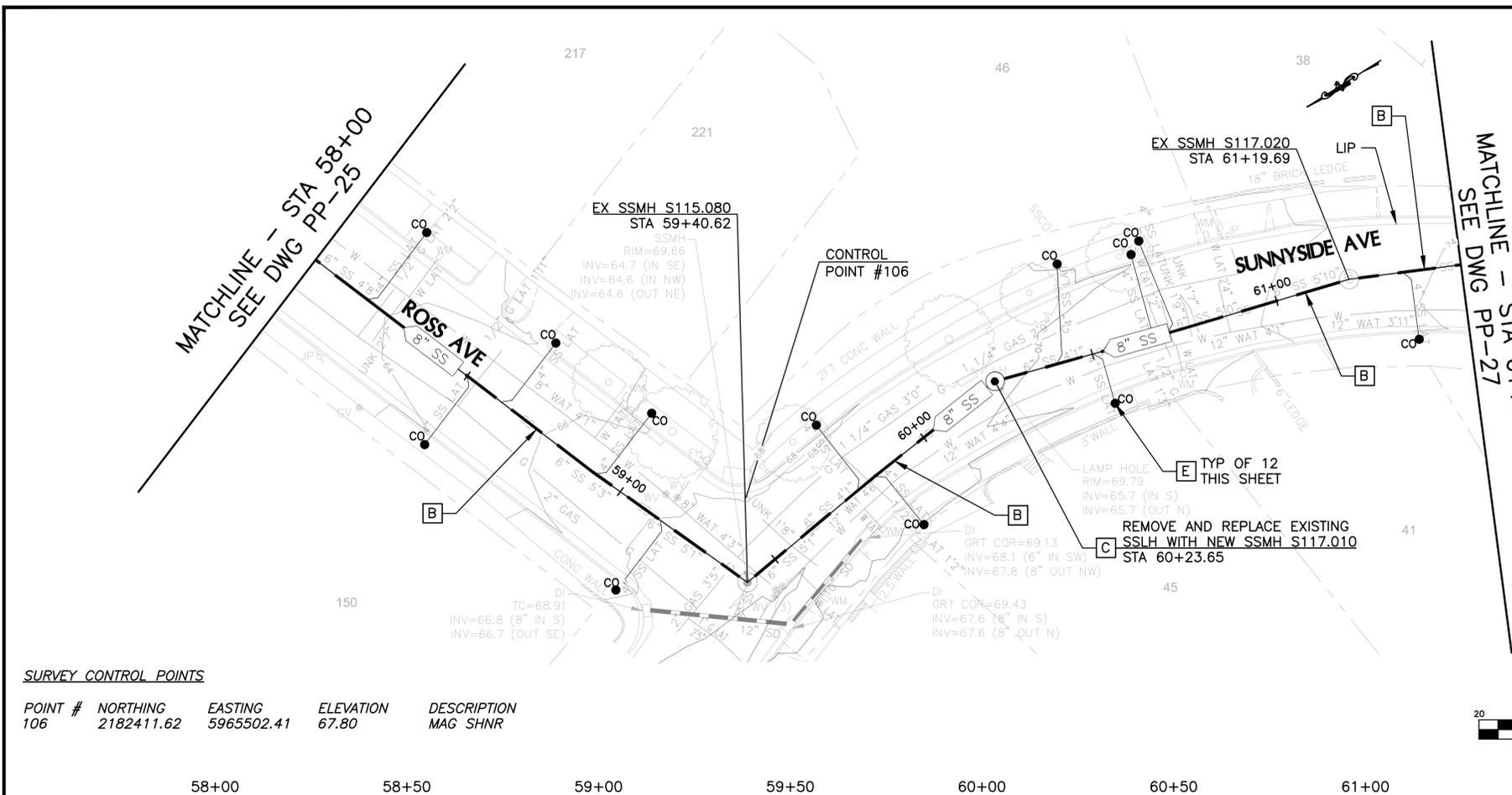
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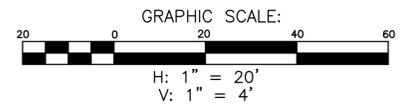


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106	2182411.62	5965502.41	67.80	MAG SHNR



LEGEND OF REHABILITATION METHODS

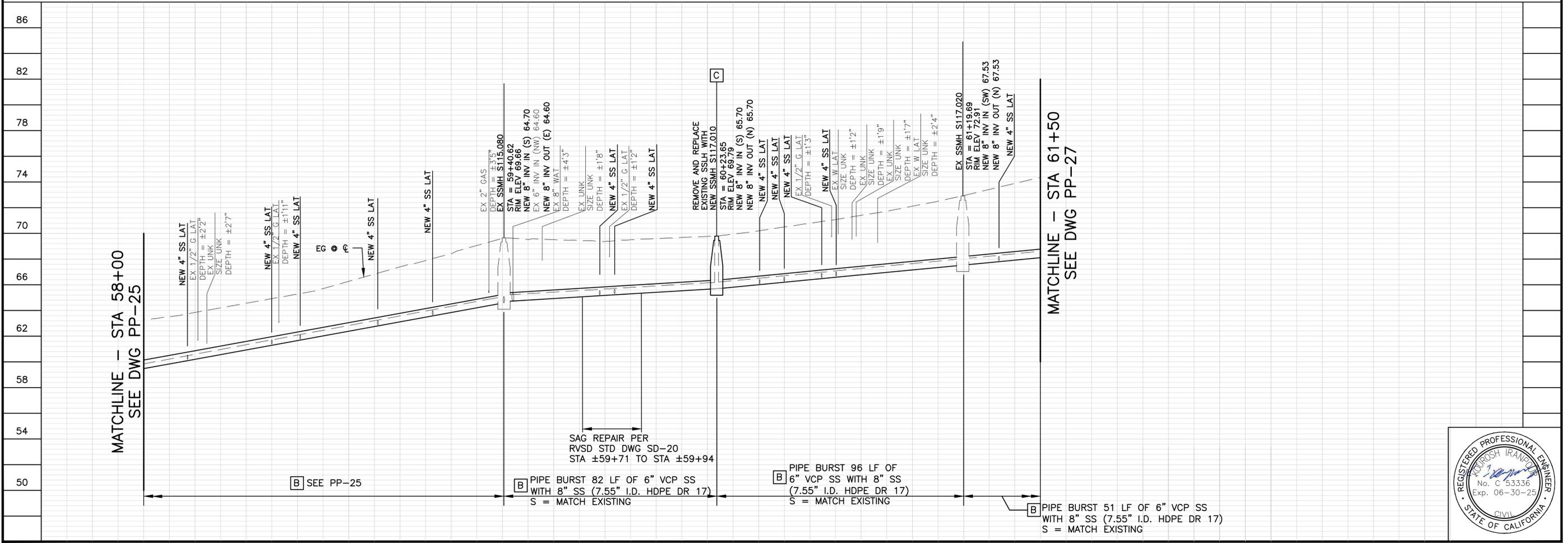
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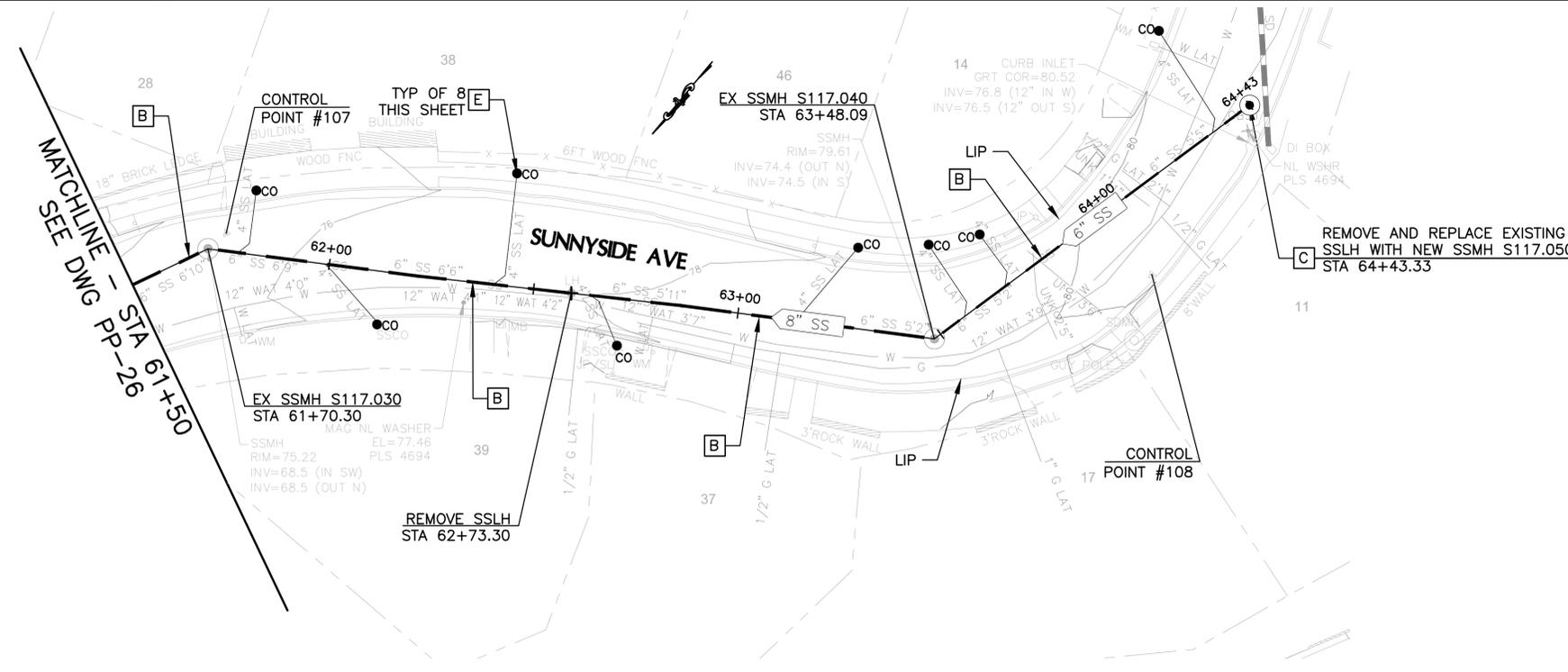
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CHECKED BY **KI**
DATE ISSUED **11/27/2023**
JOB NO. **120-0743.006**
DWG NO. **PP-26**

REGISTERED PROFESSIONAL ENGINEER
KORUSH IRANPOUR
No. C 53336
Exp. 06-30-25
CIVIL
STATE OF CALIFORNIA

SHEET **30** OF **52**

H:\Ross Valley Sanitary District (RSD)\FY 2023-24 Gravity Sewer\28-31 - PP-24 To PP-27 - SA_Ross Ave And Sunnyside Avedwg Save Date: 11/21/2023 4:27 PM Plot Date: 11/21/2023 4:27 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.

SEE NOTE 38 ON DWG N-01

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

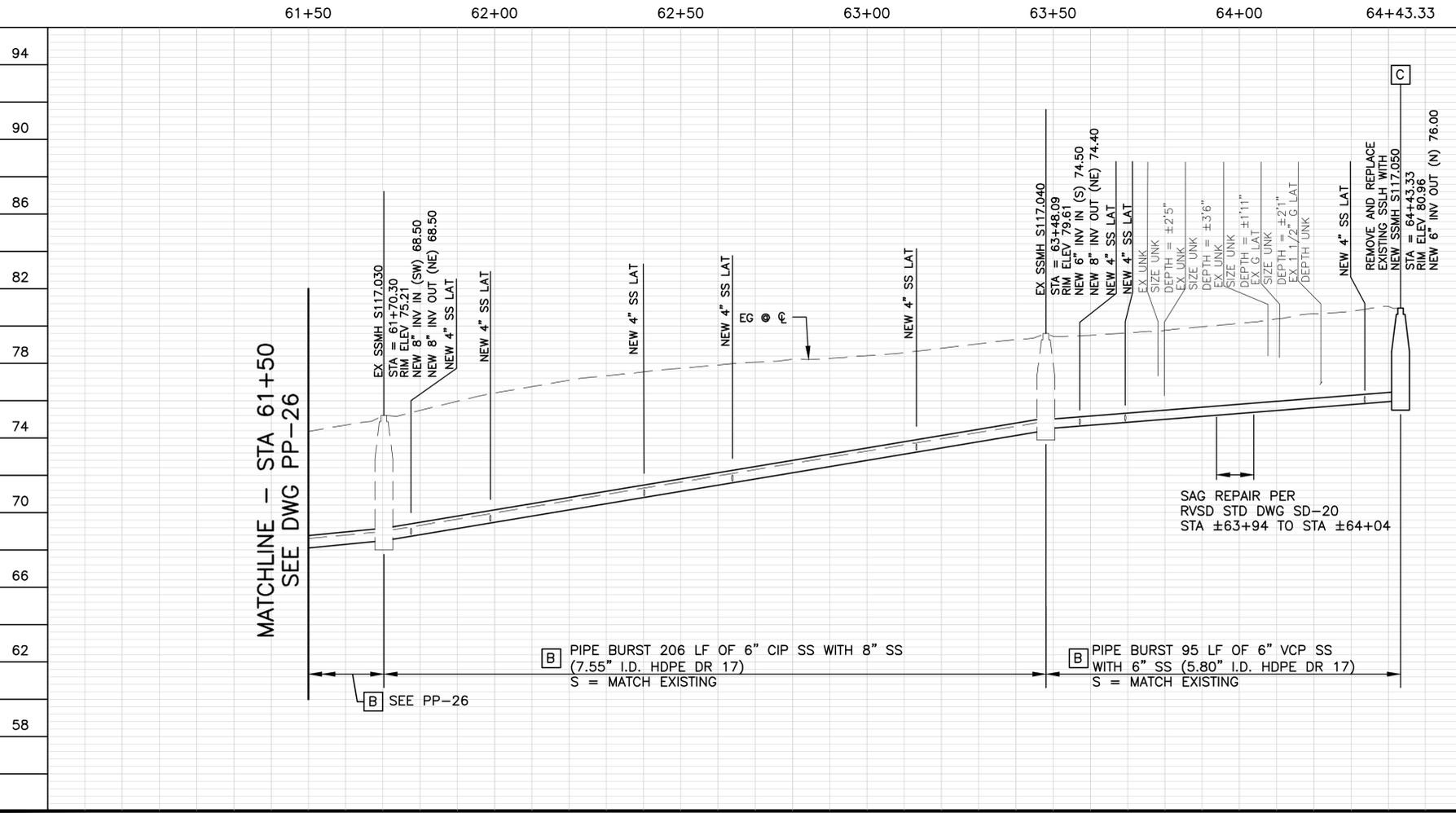
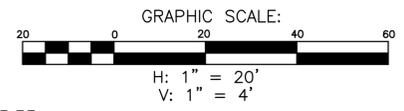
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- CONTRACTOR SHALL LOCATE AND VERIFY ALL EXISTING LIVE SANITARY SEWER LATERALS ALONG SEWER MAINS BY DYE TESTING AND SONDE AND REINSTATE LIVE LATERALS TO NEW SEWER MAIN.
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SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
107	2182196.76	5965444.36	75.15	MAG NL
108	2182060.74	5965265.09	80.28	MAG NL



**SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
SUNNYSIDE AVE**

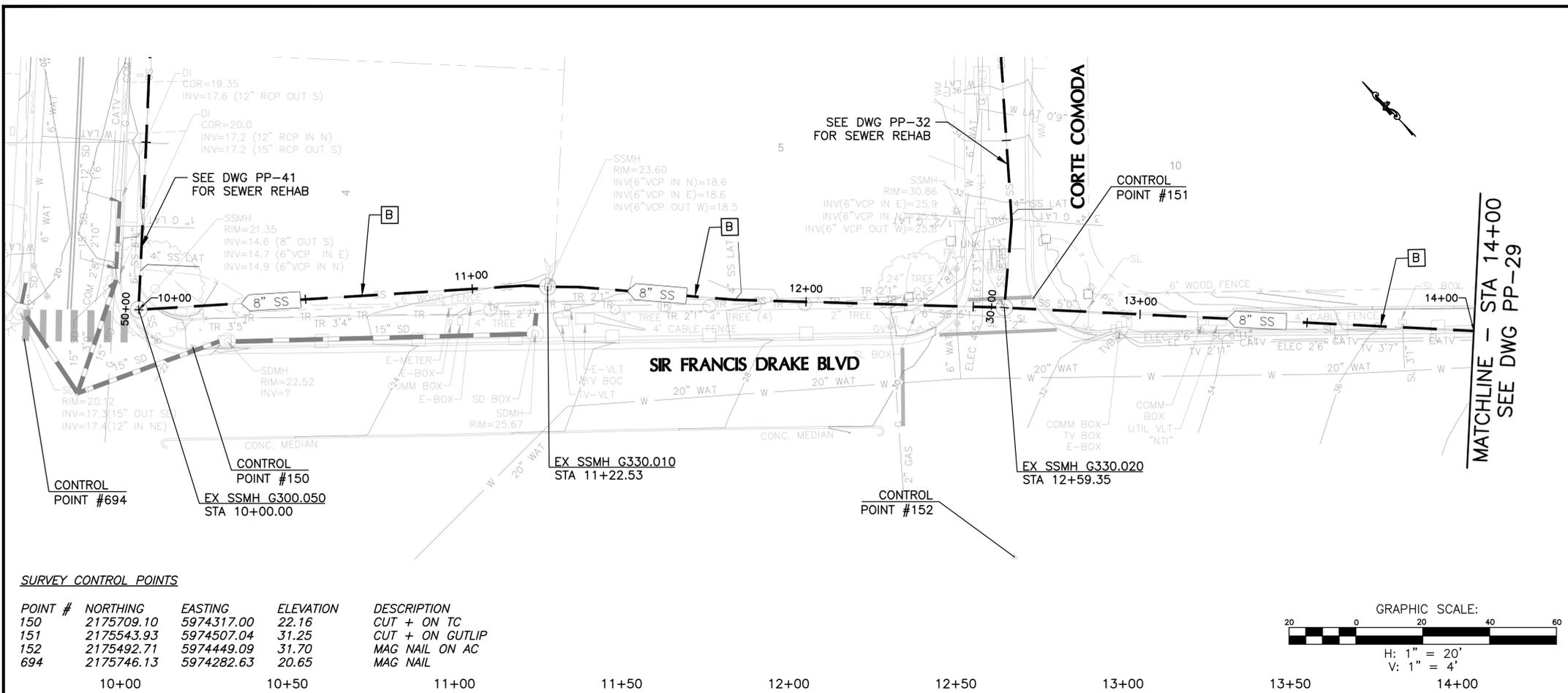
**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
IMPROVEMENTS PROJECT**

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

DESIGNED BY: KLC/CM
DRAWN BY: KLC/CM
CHECKED BY: KI
DATE ISSUED: 11/27/2023
JOB NO.: 120-0743.006
DWG NO.: **PP-27**
SHEET 31 OF 52

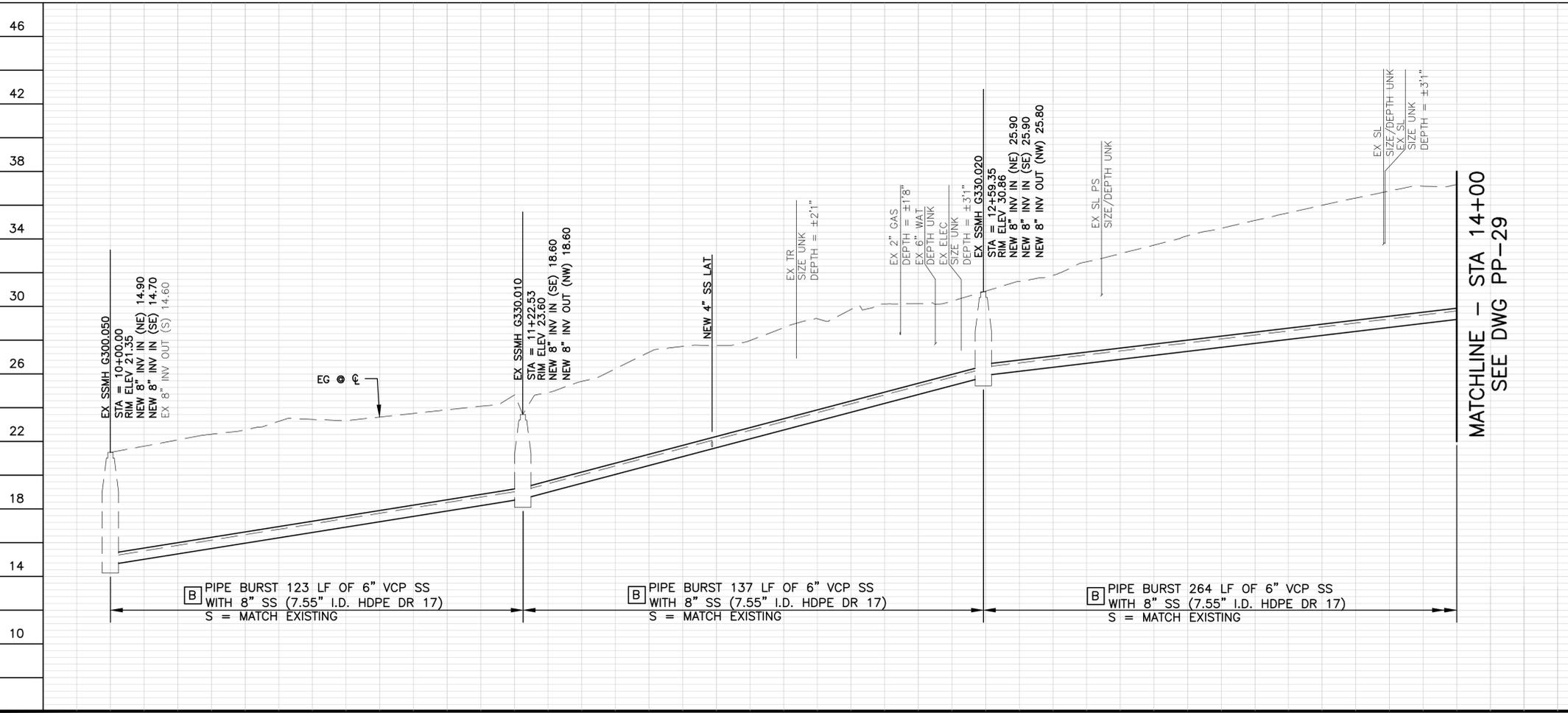
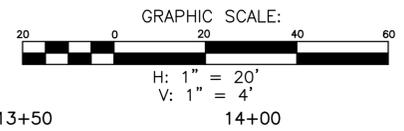


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SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
150	2175709.10	5974317.00	22.16	CUT + ON TC
151	2175543.93	5974507.04	31.25	CUT + ON GUTLIP
152	2175492.71	5974449.09	31.70	MAG NAIL ON AC
694	2175746.13	5974282.63	20.65	MAG NAIL



LEGEND OF REHABILITATION METHODS

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NO.	BY	DATE	REVISION

**SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
SIR FRANCIS DRAKE BLVD**

**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
IMPROVEMENTS PROJECT**

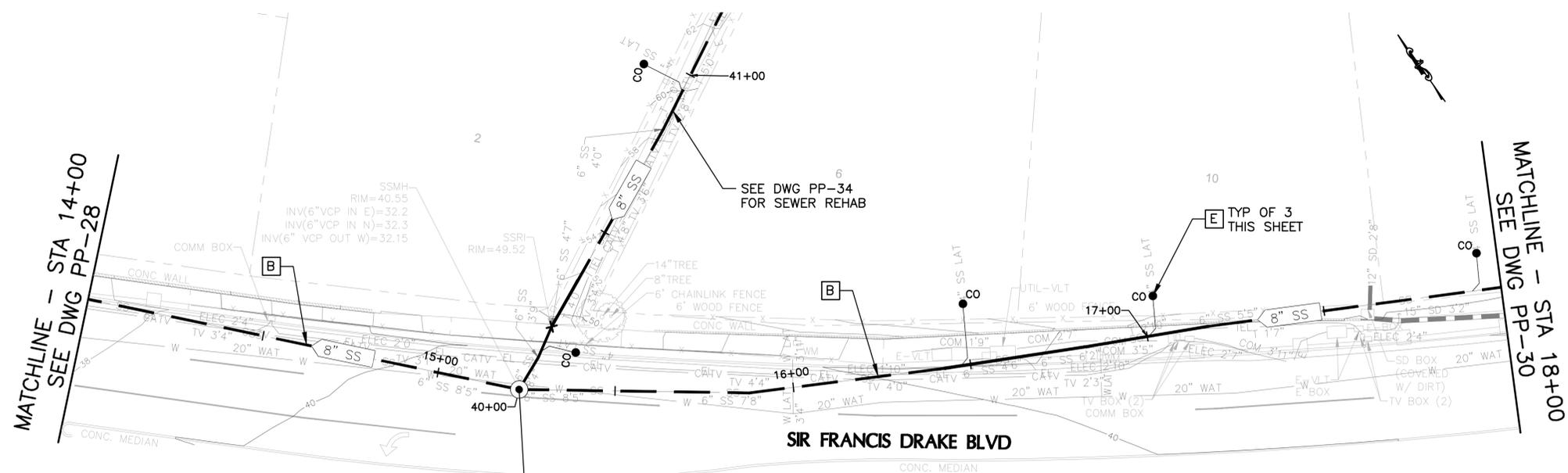
Harris & Associates
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www.harris.com (925) 827-4800

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DESIGNED BY **KLC/CM**
DRAWN BY **KLC/CM**
CHECKED BY **KI**
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DWG NO. **PP-28**
SHEET **32** OF **52**



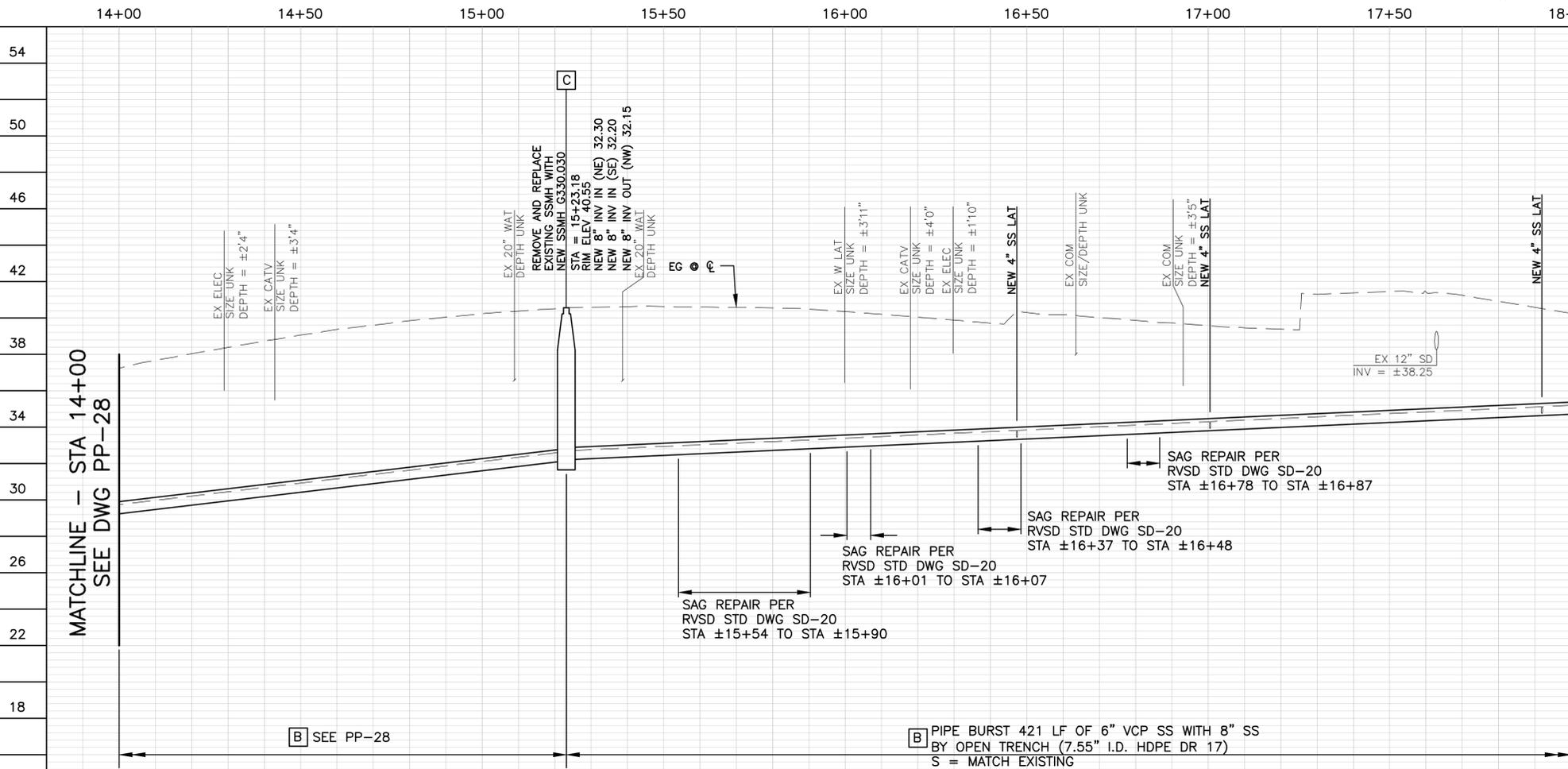
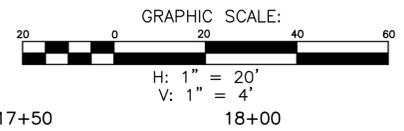
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REMOVE AND REPLACE EXISTING SSMH WITH NEW SSMH G330.030 STA 15+23.18 [C]
CONTROL POINT #153

SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
153	2175320.14	5974680.30	41.66	CUT + ON MEDIAN



[B] SEE PP-28
[B] PIPE BURST 421 LF OF 6" VCP SS WITH 8" SS BY OPEN TRENCH (7.55" I.D. HDPE DR 17) S = MATCH EXISTING

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FY2023/24 GRAVITY SEWER
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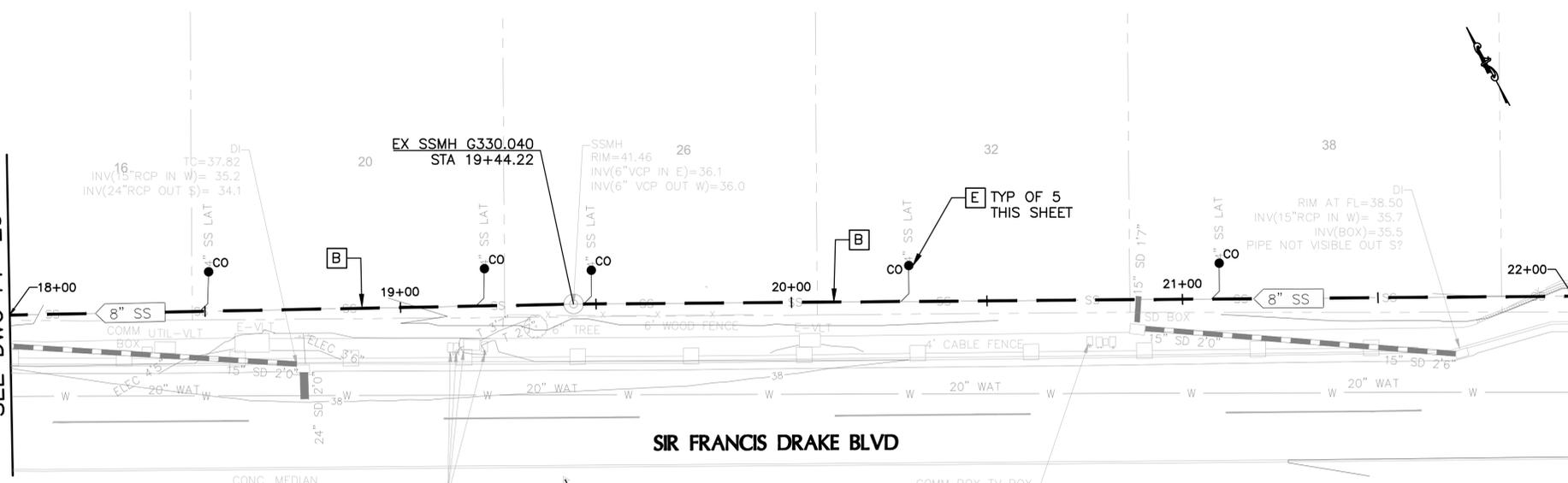
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SHEET **33** OF **52**



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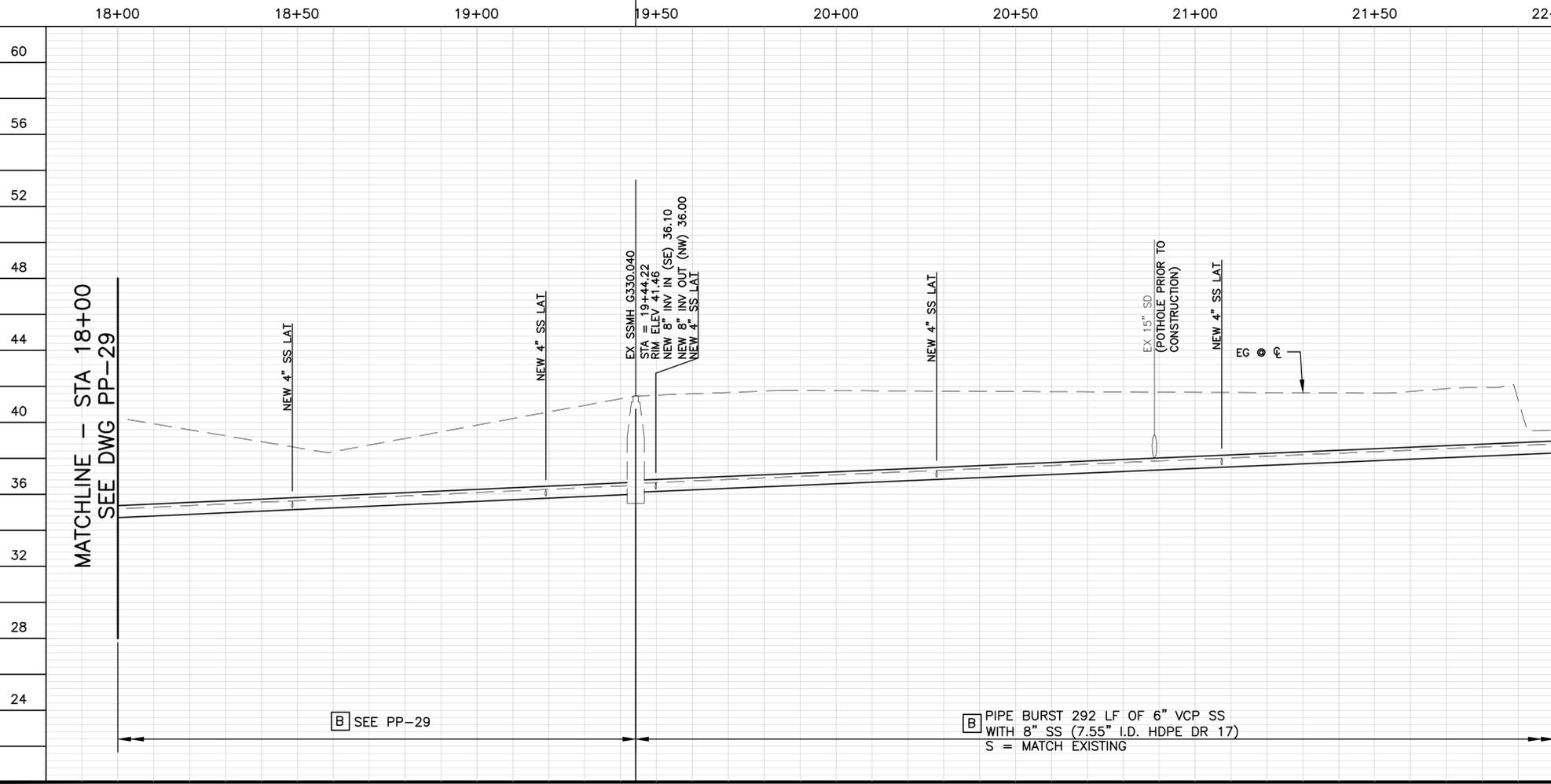
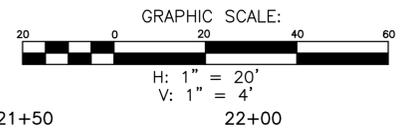
MATCHLINE - STA 18+00
SEE DWG PP-29

MATCHLINE - STA 22+00
SEE DWG PP-31



SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
165	2175113.32	5975022.97	39.40	60D CHSR



[B] SEE PP-29

[B] PIPE BURST 292 LF OF 6" VCP SS WITH 8" SS (7.55" I.D. HDPE DR 17) S = MATCH EXISTING

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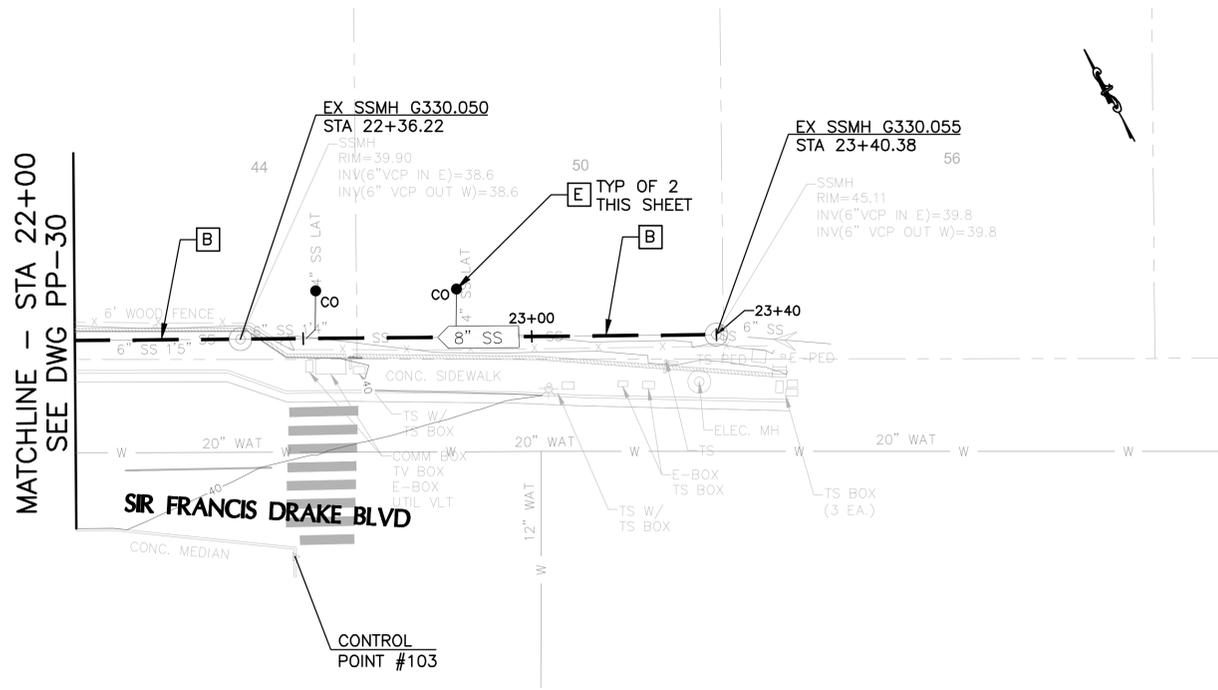
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DESIGNED BY: KLC/CM
DRAWN BY: KLC/CM
CHECKED BY: KI
DATE ISSUED: 11/27/2023
JOB NO.: 120-0743.006
DWG NO.: **PP-30**
SHEET 34 OF 52



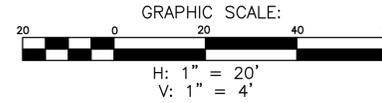
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SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
103	2174965.27	5975290.87	40.94	CUT + ON TC

22+00 22+50 23+00 23+40.38



64
60
56
52
48
44
40
36
32
28

MATCHLINE - STA 22+00
SEE DWG PP-30



[B] SEE PP-30 [B] PIPE BURST 104 LF OF 6" VCP SS WITH 8" SS (7.55" I.D. HDPE DR 17) S = MATCH EXISTING

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.

SEE NOTE 38 ON DWG N-01

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.
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- 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.
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NO.	BY	DATE	REVISION

**SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
SIR FRANCIS DRAKE BLVD**

**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
IMPROVEMENTS PROJECT**

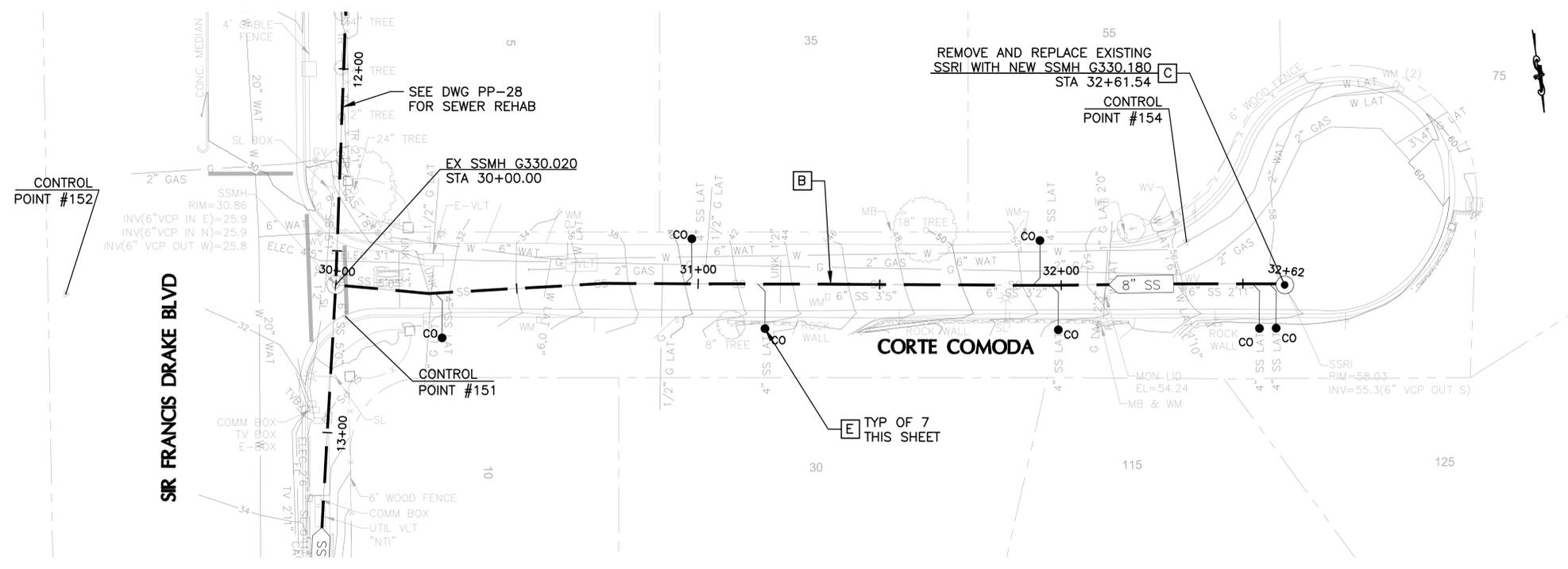
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CHECKED BY: KI
DATE ISSUED: 11/27/2023
JOB NO.: 120-0743.006
DWG NO.: PP-31
SHEET 35 OF 52



H:\Ross Valley Sanitary District (RSD)\FY 2023-24 Gravity Sewer\36 - PP-32 - Greenbrae_Corte Comoda.dwg Save Date: 11/21/2023 4:34 PM Plot Date: 11/21/2023 4:34 PM Kchow



LEGEND OF REHABILITATION METHODS

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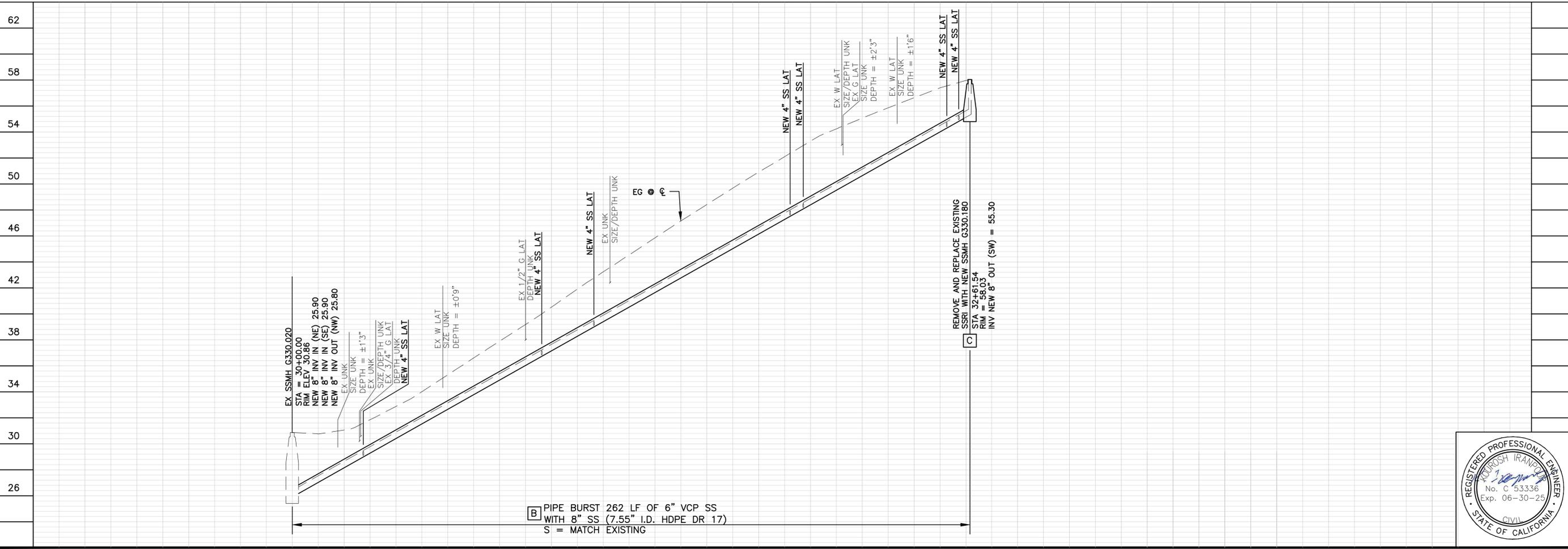
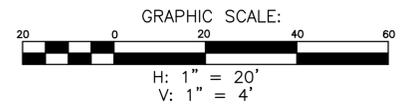
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SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
151	2175543.93	5974507.04	31.25	CUT + ON GUTLIP
152	2175492.71	5974449.09	31.70	MAG NAIL ON AC
154	2175725.05	5974652.73	56.38	MAG NAIL ON AC



**SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
CORTE COMODA**

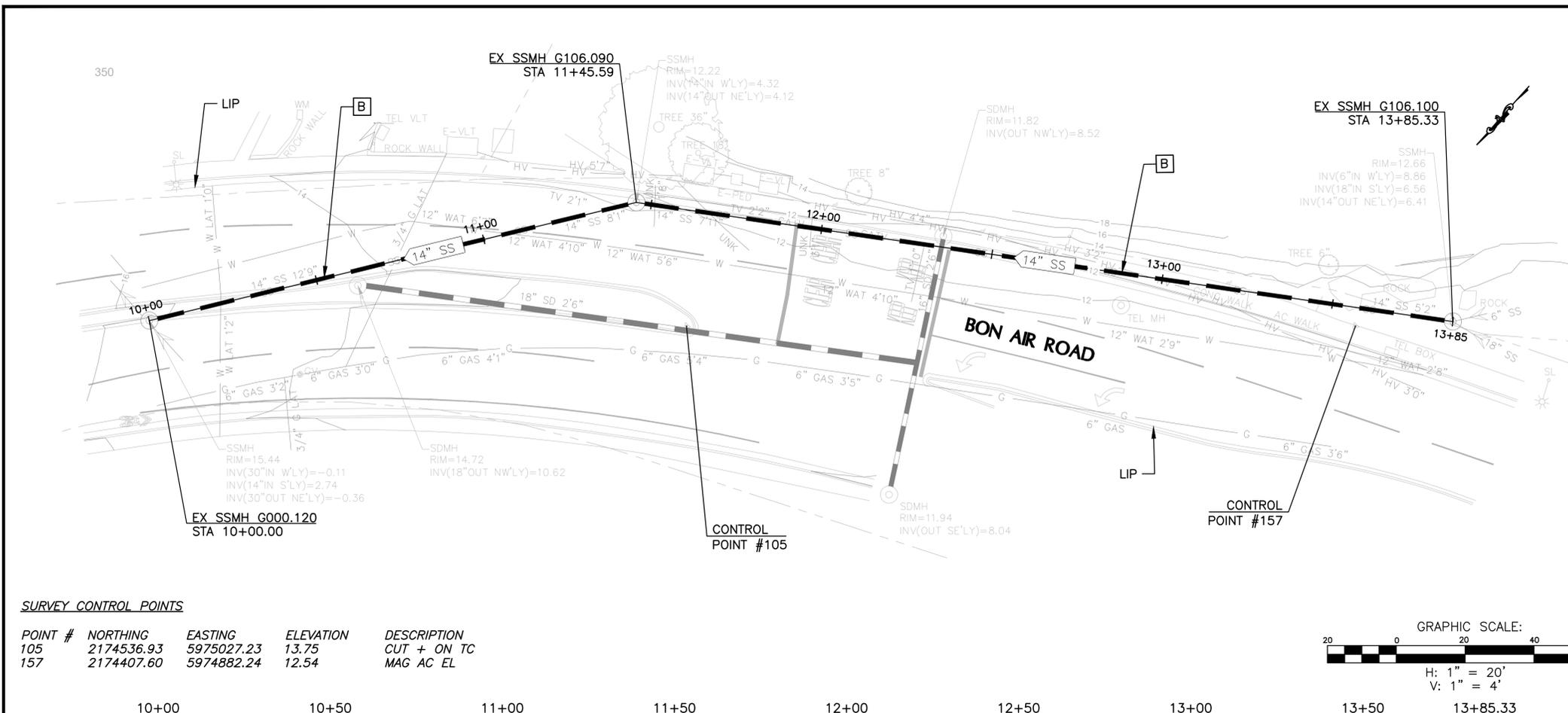
**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
IMPROVEMENTS PROJECT**

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

DESIGNED BY **KLC/CM**
DRAWN BY **KLC/CM**
CHECKED BY **KI**
DATE ISSUED **11/27/2023**
JOB NO. **120-0743.006**
DWG NO.
PP-32
SHEET **36** OF **52**

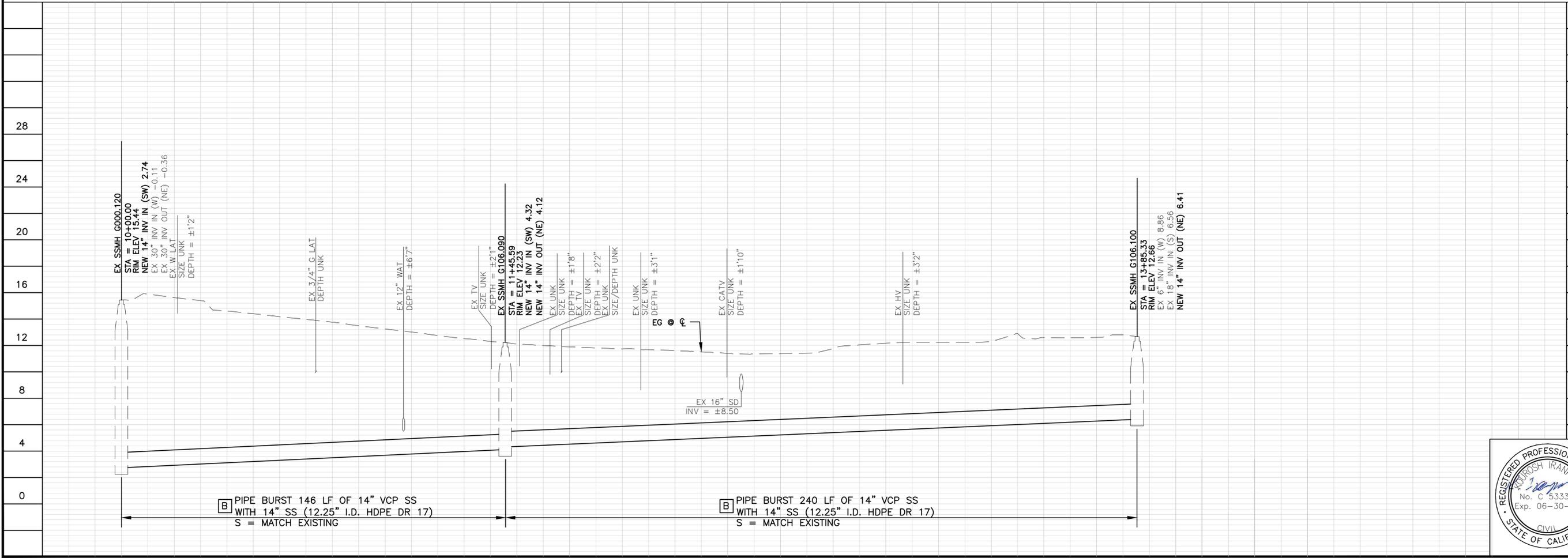
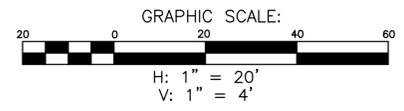


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SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
105	2174536.93	5975027.23	13.75	CUT + ON TC
157	2174407.60	5974882.24	12.54	MAG AC EL



[B] PIPE BURST 146 LF OF 14" VCP SS WITH 14" SS (12.25" I.D. HDPE DR 17) S = MATCH EXISTING

[B] PIPE BURST 240 LF OF 14" VCP SS WITH 14" SS (12.25" I.D. HDPE DR 17) S = MATCH EXISTING

LEGEND OF REHABILITATION METHODS

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**ROSS VALLEY
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FY2023/24 GRAVITY SEWER
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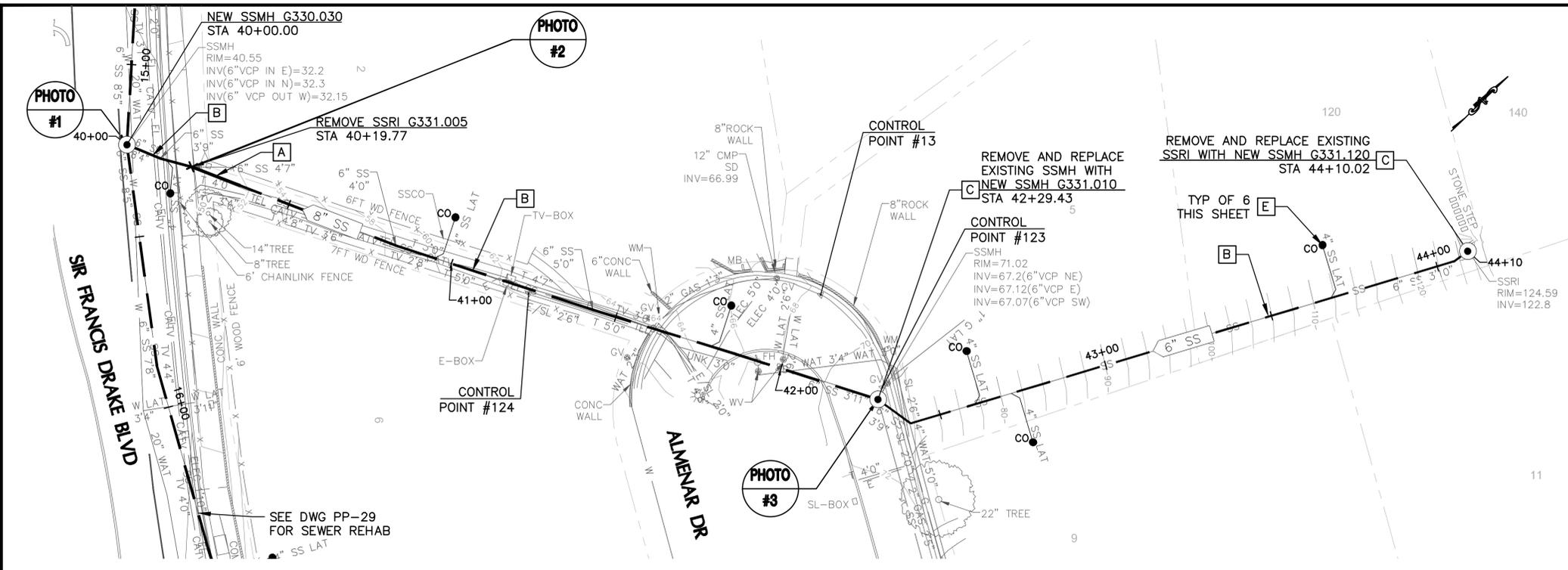
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SHEET **37** OF **52**

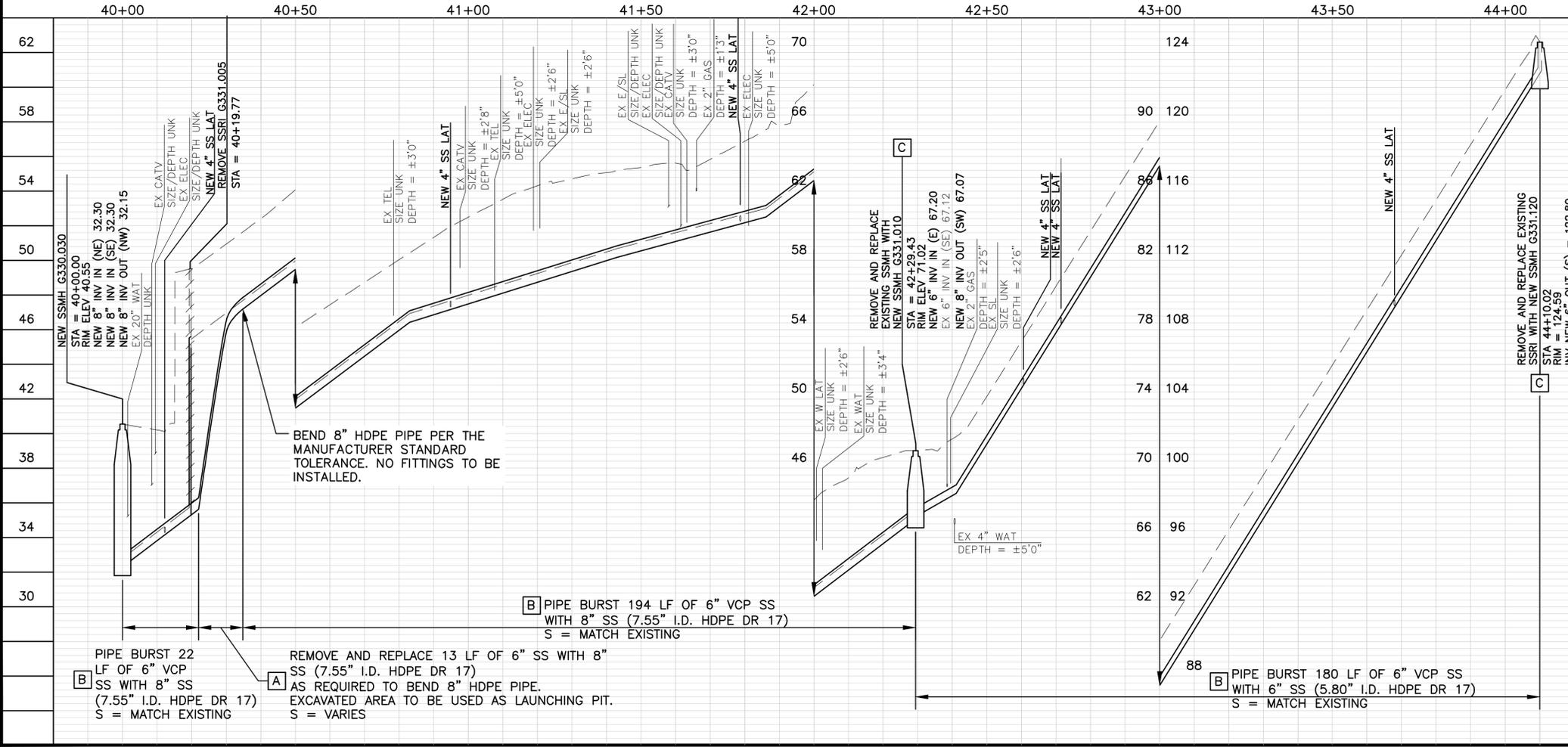
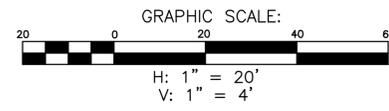


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SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
123	2175469.04	5974848.62	68.33	MAG NAIL AC
124	2175463.34	5974880.24	70.87	MAG NAIL AC
124	2175408.53	5974789.66	62.58	MAG NAIL AC



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PHOTO #1 EX. SSMH G330.030

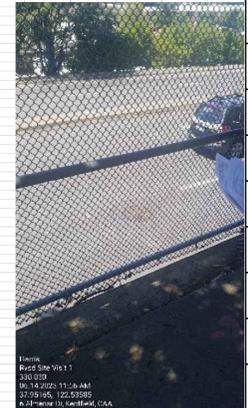


PHOTO #2 EX. SSMH G331.005



PHOTO #3 EX. SSMH G331.010

NO.	BY	DATE	REVISION

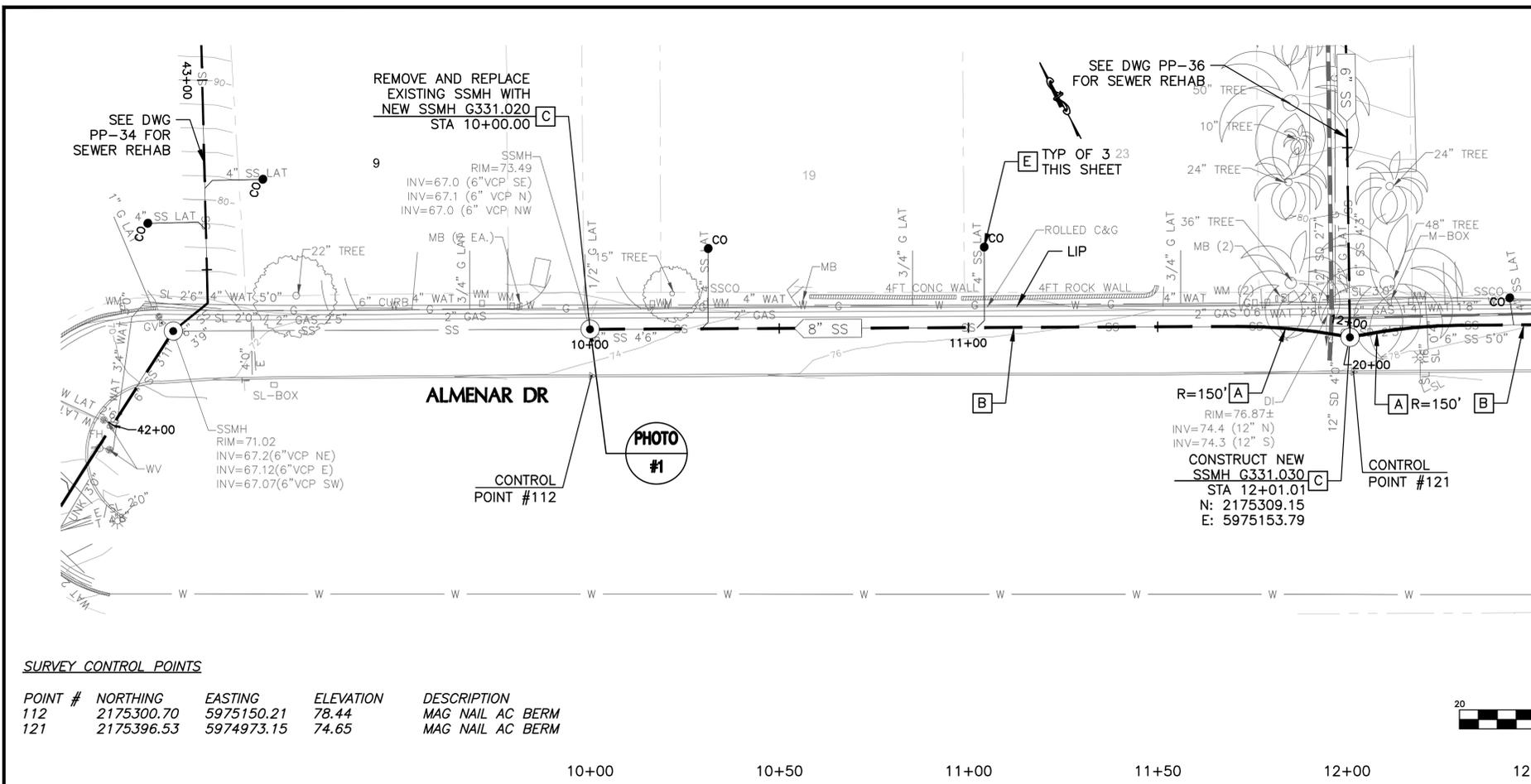
**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
IMPROVEMENTS PROJECT**

Harris & Associates
1401 Willow Pass Rd, Suite 500 Concord, CA 94520
www.harris.com (925) 827-4800

DESIGNED BY KLC/CM
DRAWN BY KLC/CM
CHECKED BY KI
DATE ISSUED 11/27/2023
JOB NO. 120-0743.006
DWG NO. PP-34
SHEET 38 OF 52



H:\Ross Valley Sanitary District (RSD)\FY 2023-24 Gravity Sewer\38-44 - PP-34 To PP-40 - Greenbrae-Almenar Dr.dwg Save Date: 11/21/2023 4:42 PM Plot Date: 11/21/2023 4:42 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.
SEE NOTE 38 ON DWG N-01
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.
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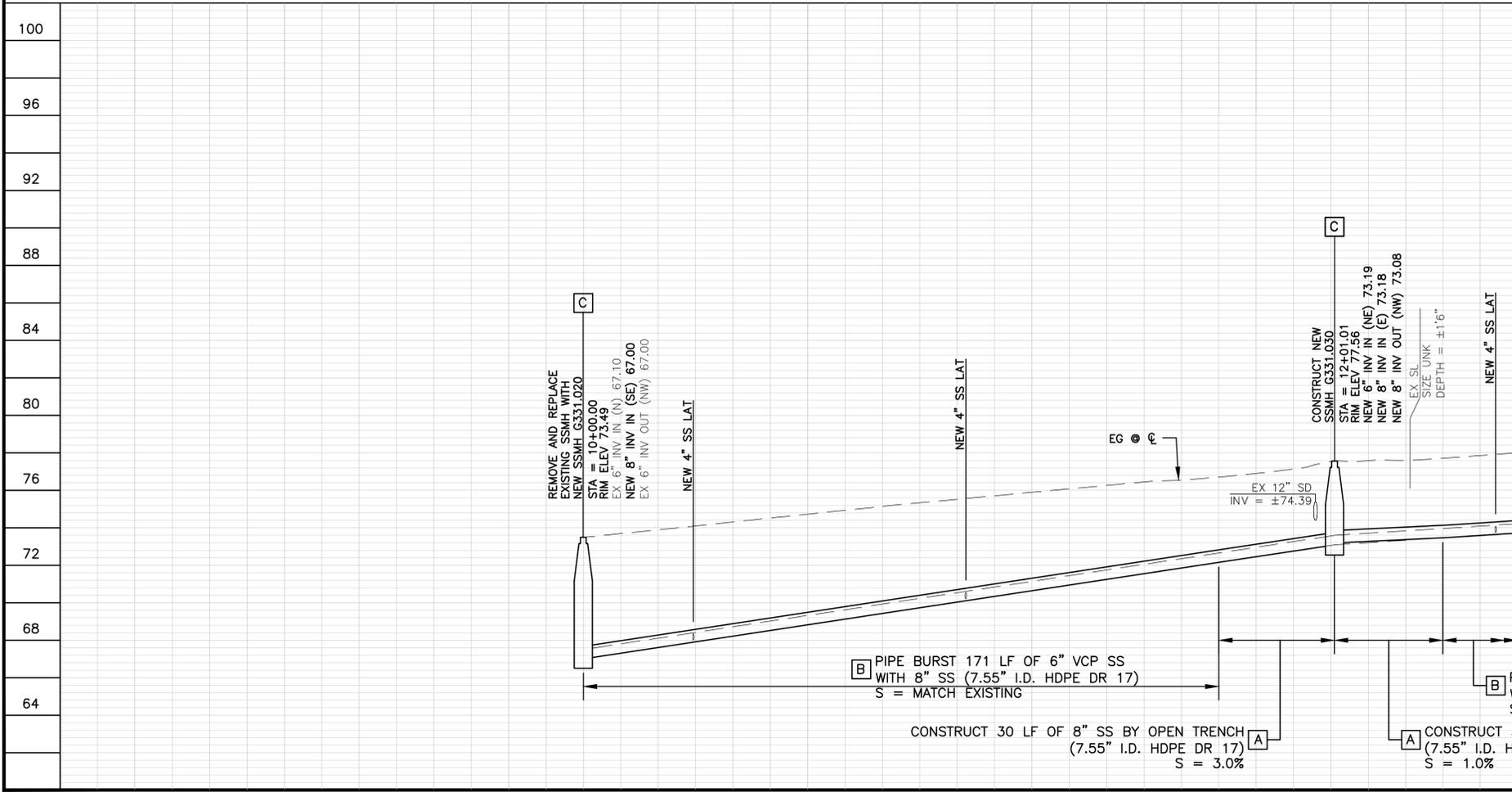


PHOTO #1

REMOVE AND REPLACE EXISTING SSMH WITH NEW SSMH G331.020
 STA = 10+00.00
 RIM ELEV 73.49
 INV 67.0 (6" VCP SE)
 INV 67.1 (6" VCP N)
 INV 67.0 (6" VCP NW)

PHOTO #1

CONSTRUCT NEW SSMH G331.030
 STA = 12+01.01
 RIM ELEV 77.56
 NEW 6" INV IN (NE) 73.19
 NEW 8" INV IN (E) 73.18
 NEW 8" INV OUT (NW) 73.08

CONSTRUCT 30 LF OF 8" SS BY OPEN TRENCH (7.55" I.D. HDPE DR 17) S = 3.0%

PIPE BURST 171 LF OF 6" VCP SS WITH 8" SS (7.55" I.D. HDPE DR 17) S = MATCH EXISTING

CONSTRUCT 30 LF OF 8" SS BY OPEN TRENCH (7.55" I.D. HDPE DR 17) S = 1.0%

PIPE BURST 73 LF OF 6" VCP SS WITH 8" SS (7.55" I.D. HDPE DR 17) S = MATCH EXISTING

PHOTO #1

EX. SSMH G331.020

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**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
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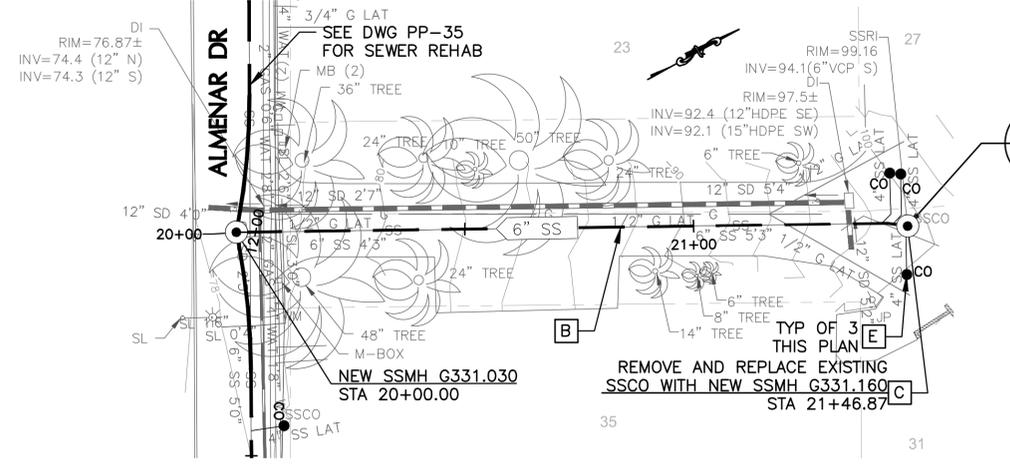
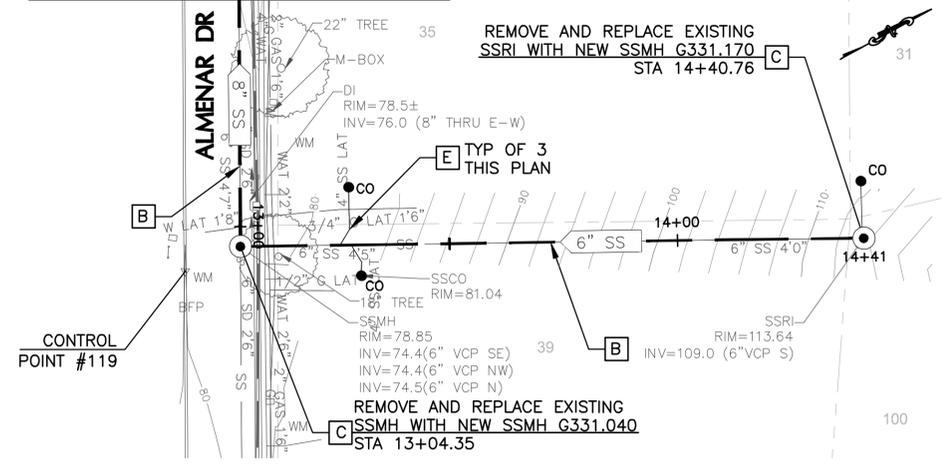
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 SHEET 39 OF 52



H:\Ross Valley Sanitary District (RSD)\FY 2023-24 Gravity Sewer\38-44 -- PP-34 To PP-40 -- Greenbrae-Almenar Dr.dwg Save Date: 11/21/2023 4:43 PM Plot Date: 11/21/2023 4:43 PM Kchow

MATCHLINE - STA 12+50
SEE DWG PP-36



LEGEND OF REHABILITATION METHODS

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SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
119	2175249.57	5975244.84	80.14	MAG NAIL AC BERM
121	2175396.53	5974973.15	74.65	MAG NAIL AC BERM

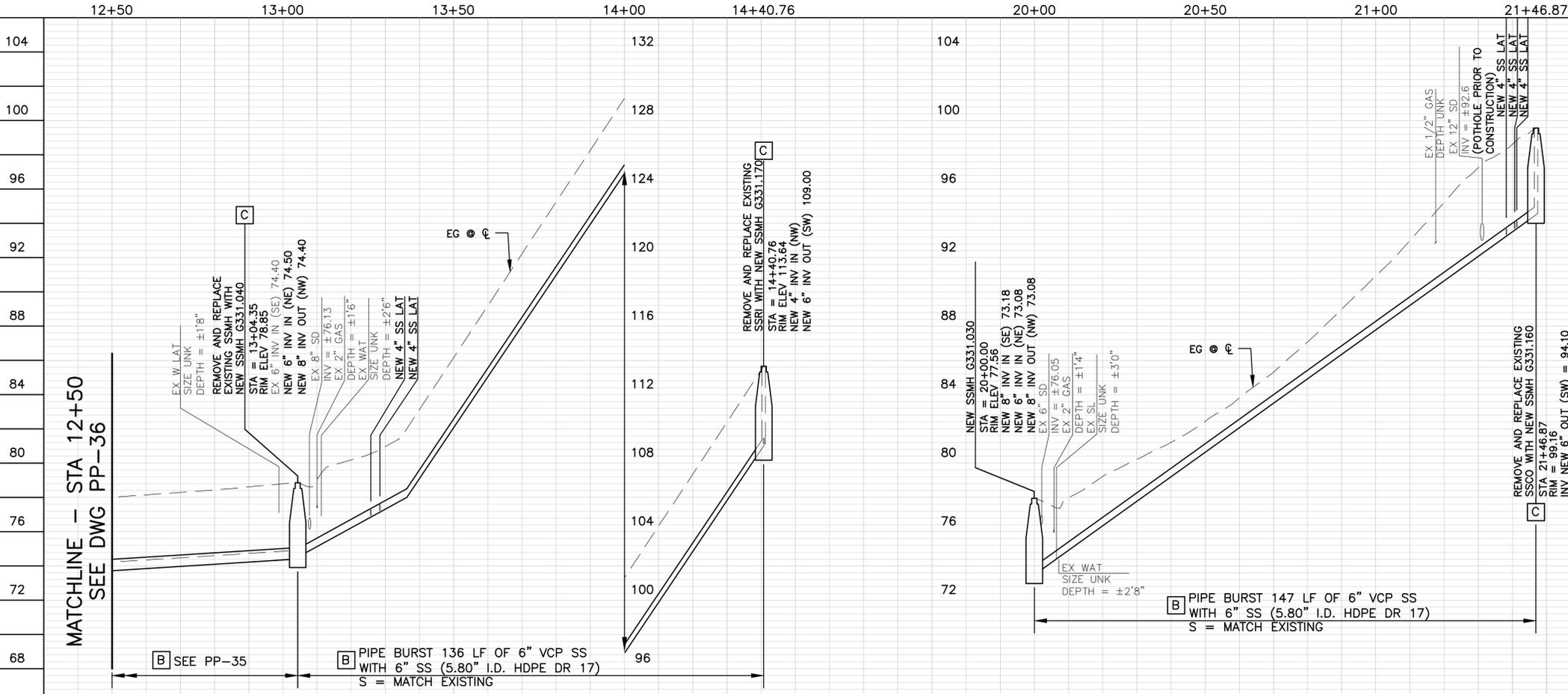
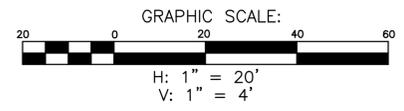


PHOTO #1 EX. SSMH G331.160

NO.	BY	DATE	REVISION

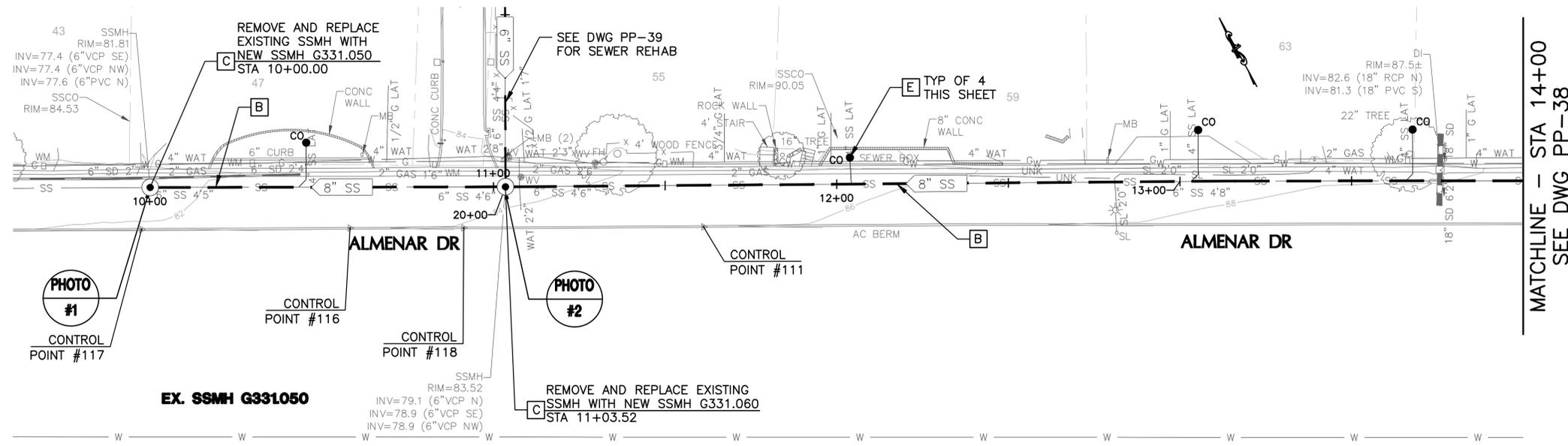
**SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
ALMENAR DR**

**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
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DWG NO.: **PP-36**
SHEET 40 OF 52

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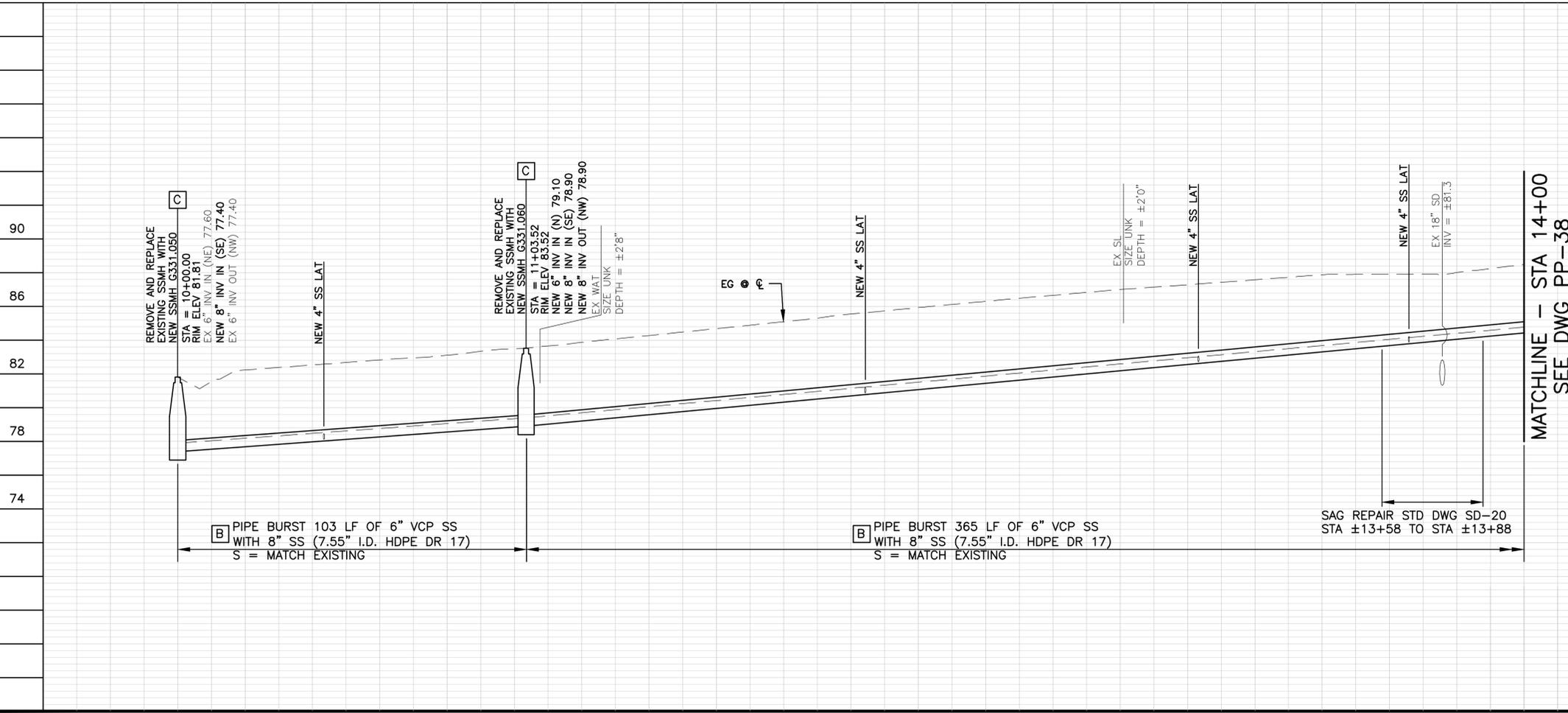
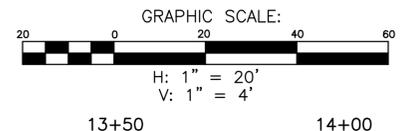
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SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
111	2175092.62	5975534.66	85.63	MAG NAIL AC BERM
116	2175141.83	5975444.13	83.75	MAG NAIL AC BERM
117	2175170.64	5975390.69	82.97	MAG NAIL AC BERM
118	2175125.97	5975473.23	84.51	MAG NAIL AC BERM



EX. SSMH G331.050



EX. SSMH G331.060

NO. BY DATE REVISION
 SANITARY SEWER IMPROVEMENTS
 PLAN AND PROFILE
 ALMENAR DR

ROSS VALLEY
 SANITARY DISTRICT
 FY2023/24 GRAVITY SEWER
 IMPROVEMENTS PROJECT

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 DWG NO. PP-37
 SHEET 41 OF 52



MATCHLINE - STA 14+00
SEE DWG PP-37

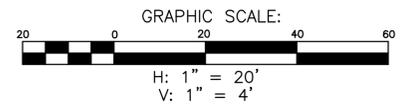
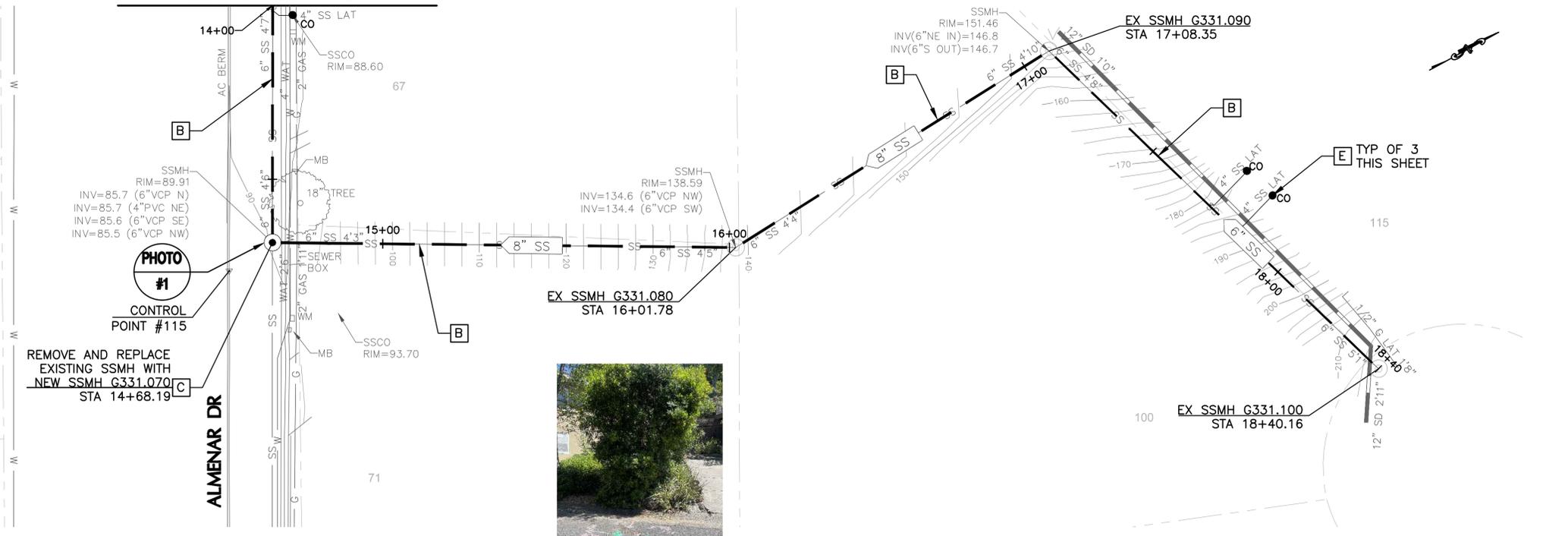
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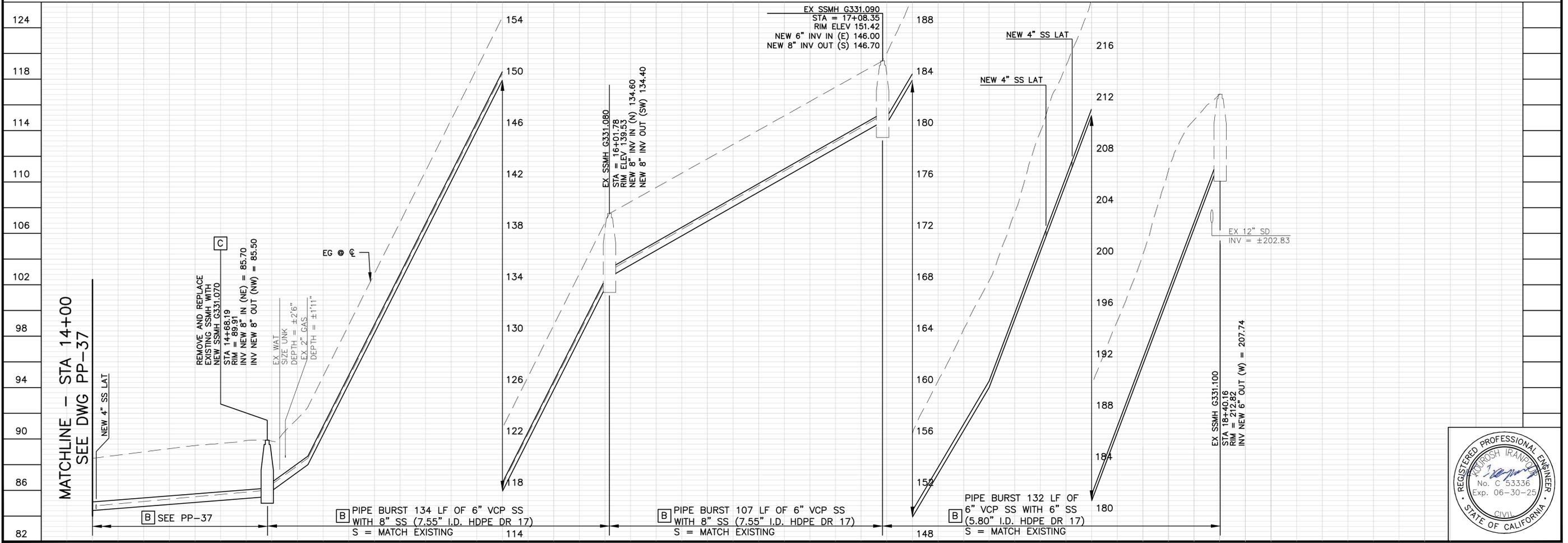
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SURVEY CONTROL POINTS

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115	2174941.98	5975811.38	90.94	MAG NAIL AC BERM



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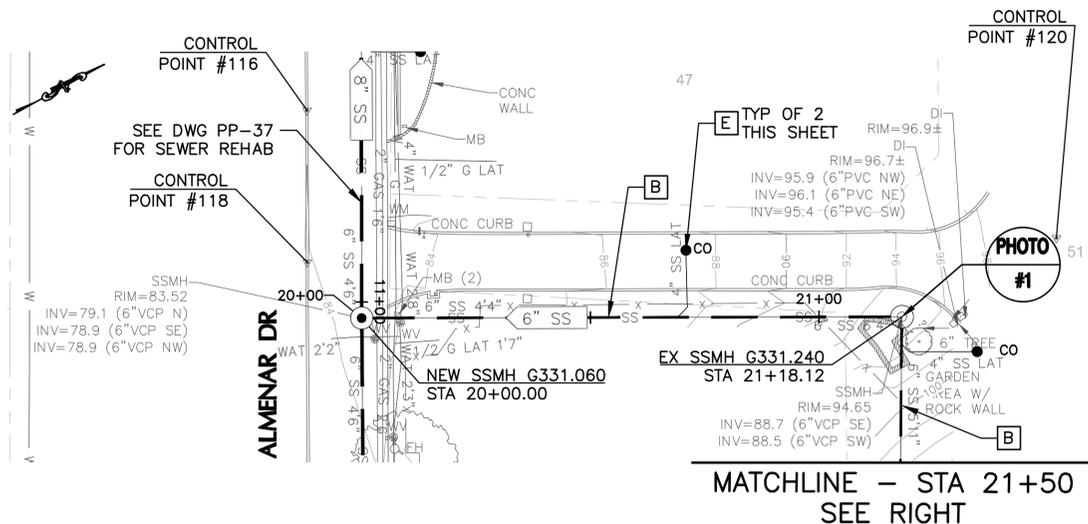
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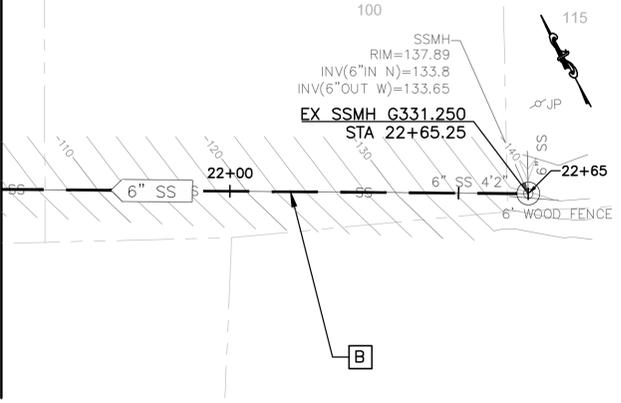
DESIGNED BY: KLC/CM
DRAWN BY: KLC/CM
CHECKED BY: KI
DATE ISSUED: 11/27/2023
JOB NO.: 120-0743.006
DWG NO.: **PP-38**
SHEET 42 OF 52

H:\Ross Valley Sanitary District (RSD)\FY 2023-24 Gravity Sewer\38-44 - PP-34 To PP-40 - Greenbrae-Almenar Dr.dwg Save Date: 11/27/2023 11:31 AM Plot Date: 11/27/2023 11:31 AM Kchow

H:\Ross Valley Sanitary District (RSD)\FY 2023-24 Gravity Sewer\38-44 - PP-34 To PP-40 - Greenbrae-Almenar Dr.dwg Save Date: 11/27/2023 11:36 AM Plot Date: 11/27/2023 11:36 AM Kchow



MATCHLINE - STA 21+50
SEE LEFT



MATCHLINE - STA 21+50
SEE RIGHT

LEGEND OF REHABILITATION METHODS

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 - 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.

SEE NOTE 38 ON DWG N-01
REPAIR SURFACE UPHEAVAL AND SAG REPAIR PER RVSD STD DWG SD-22 AND SD-20 AFTER PIPE BURSTING IF DIRECTED BY THE DISTRICT.
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 - 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.

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SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
116	2175141.83	5975444.13	83.75	MAG NAIL AC BERM
118	2175125.97	5975473.23	84.51	MAG NAIL AC BERM
120	2175272.18	5975547.31	100.47	INK DOT AT PRIVATE DWY

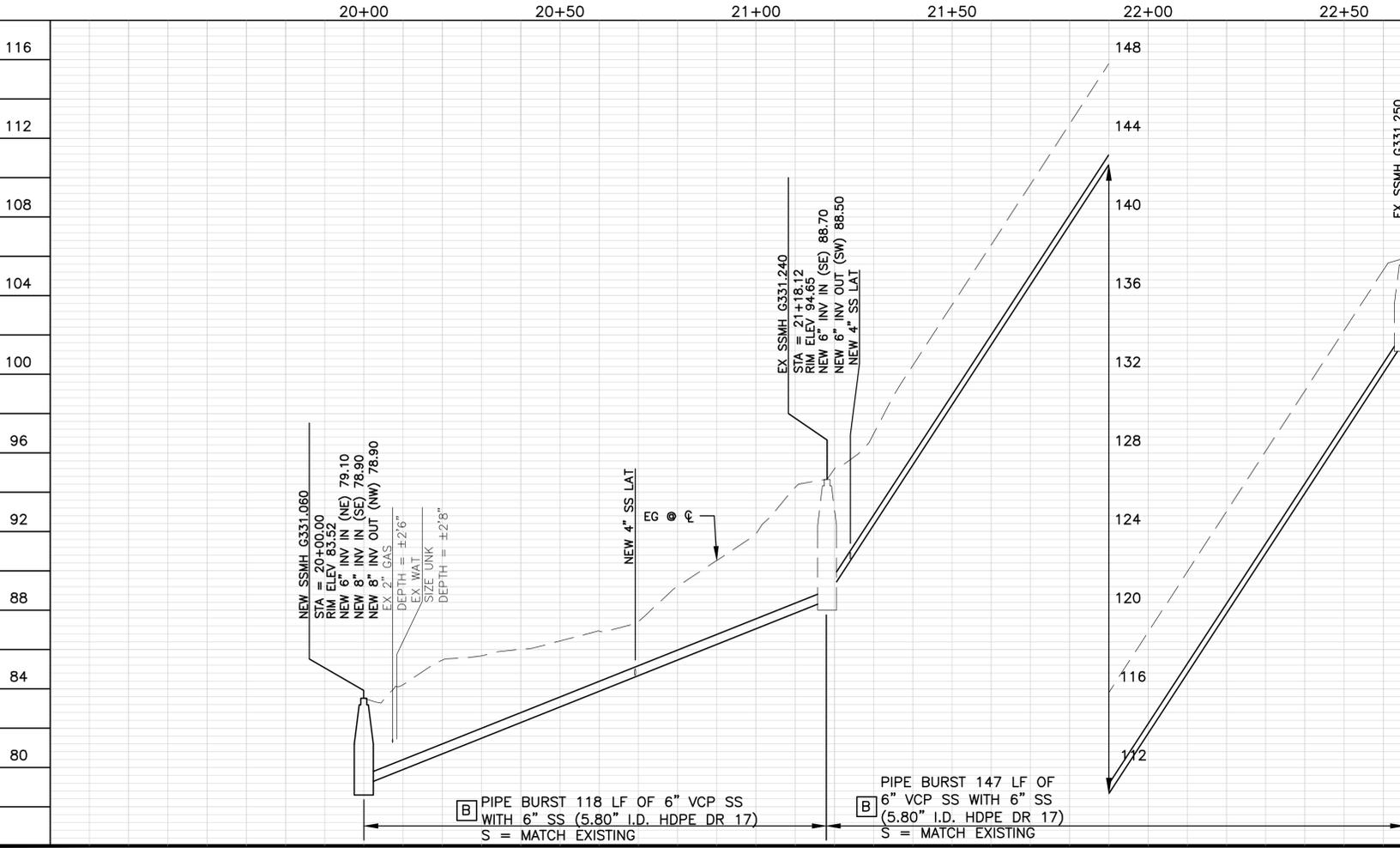
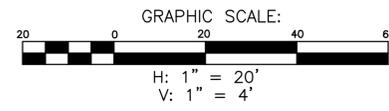


PHOTO #1
EX. SSMH G331240



NO.	BY	DATE	REVISION

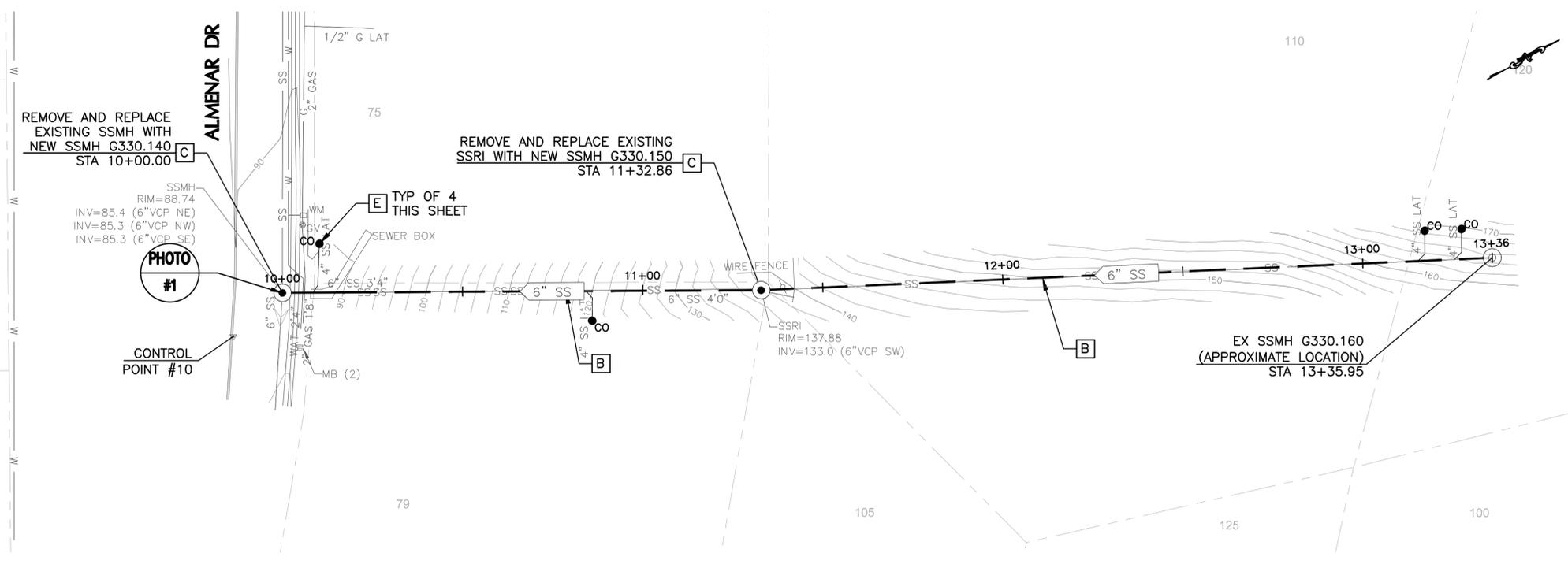
**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
IMPROVEMENTS PROJECT**

Harris & Associates
1401 Willow Pass Rd, Suite 500 Concord, CA 94520
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DESIGNED BY: KLC/CM
DRAWN BY: KLC/CM
CHECKED BY: KI
DATE ISSUED: 11/27/2023
JOB NO.: 120-0743.006
DWG NO.:
PP-39
SHEET 43 OF 52

H:\Ross Valley Sanitary District (RVD)\FY 2023-24 Gravity Sewer\38-44 - PP-40 - Greentree-Almenar Dr.dwg Save Date: 11/21/2023 4:44 PM Plot Date: 11/21/2023 4:44 PM Khow



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SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
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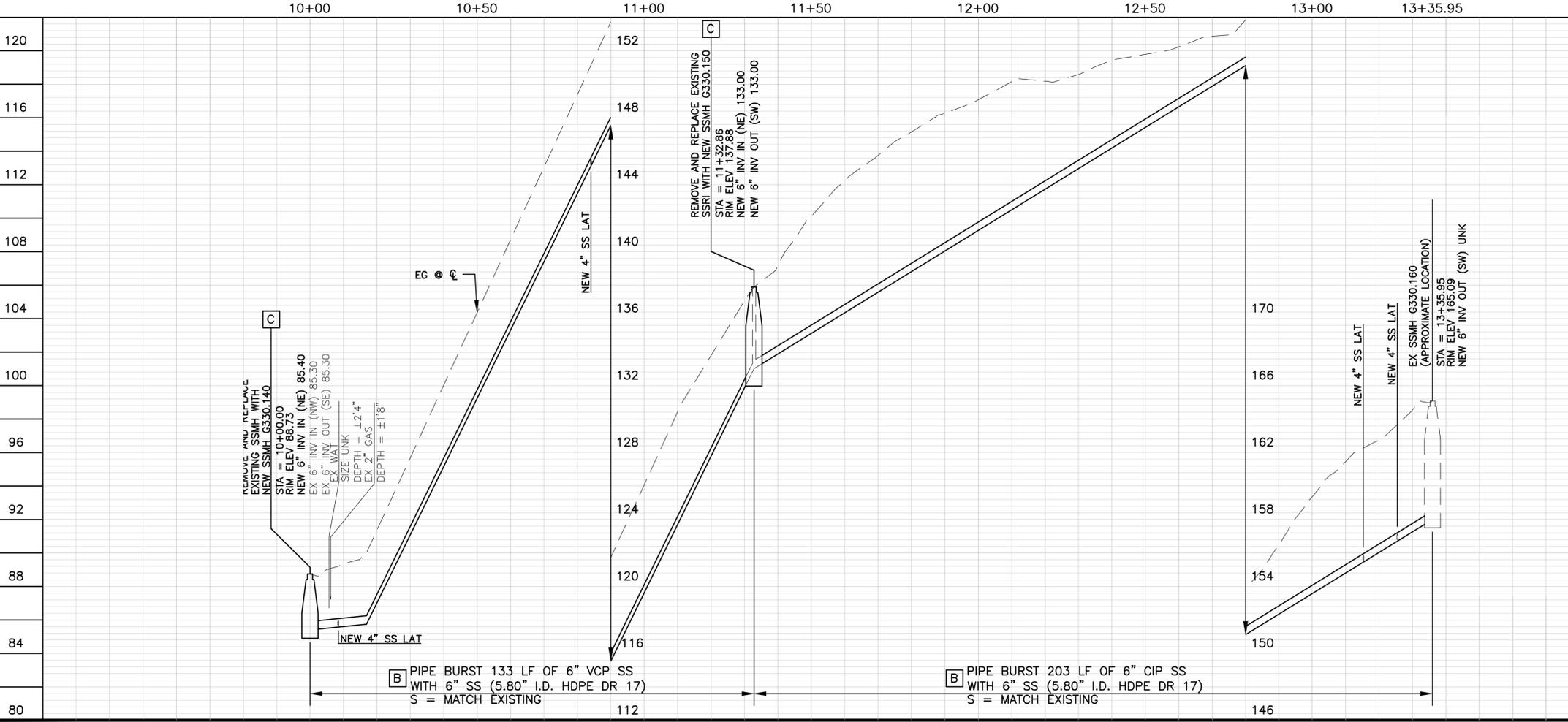
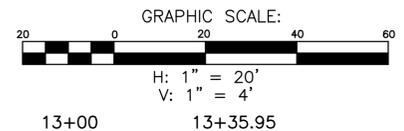


PHOTO #1 EX SSMH G333.140

**SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
ALMENAR DR**

**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
IMPROVEMENTS PROJECT**

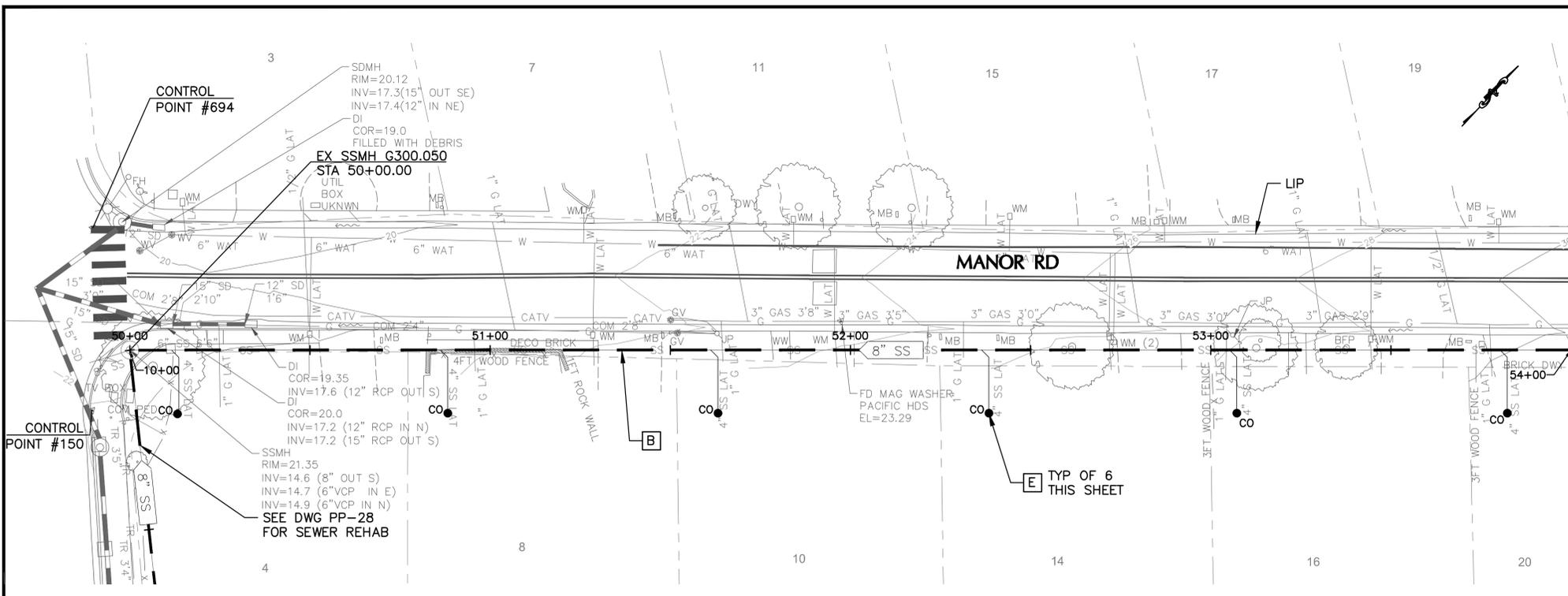
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DESIGNED BY KLC/CM
DRAWN BY KLC/CM
CHECKED BY KI
DATE ISSUED 11/27/2023
JOB NO. 120-0743.006
DWG NO. **PP-40**
SHEET 44 OF 52

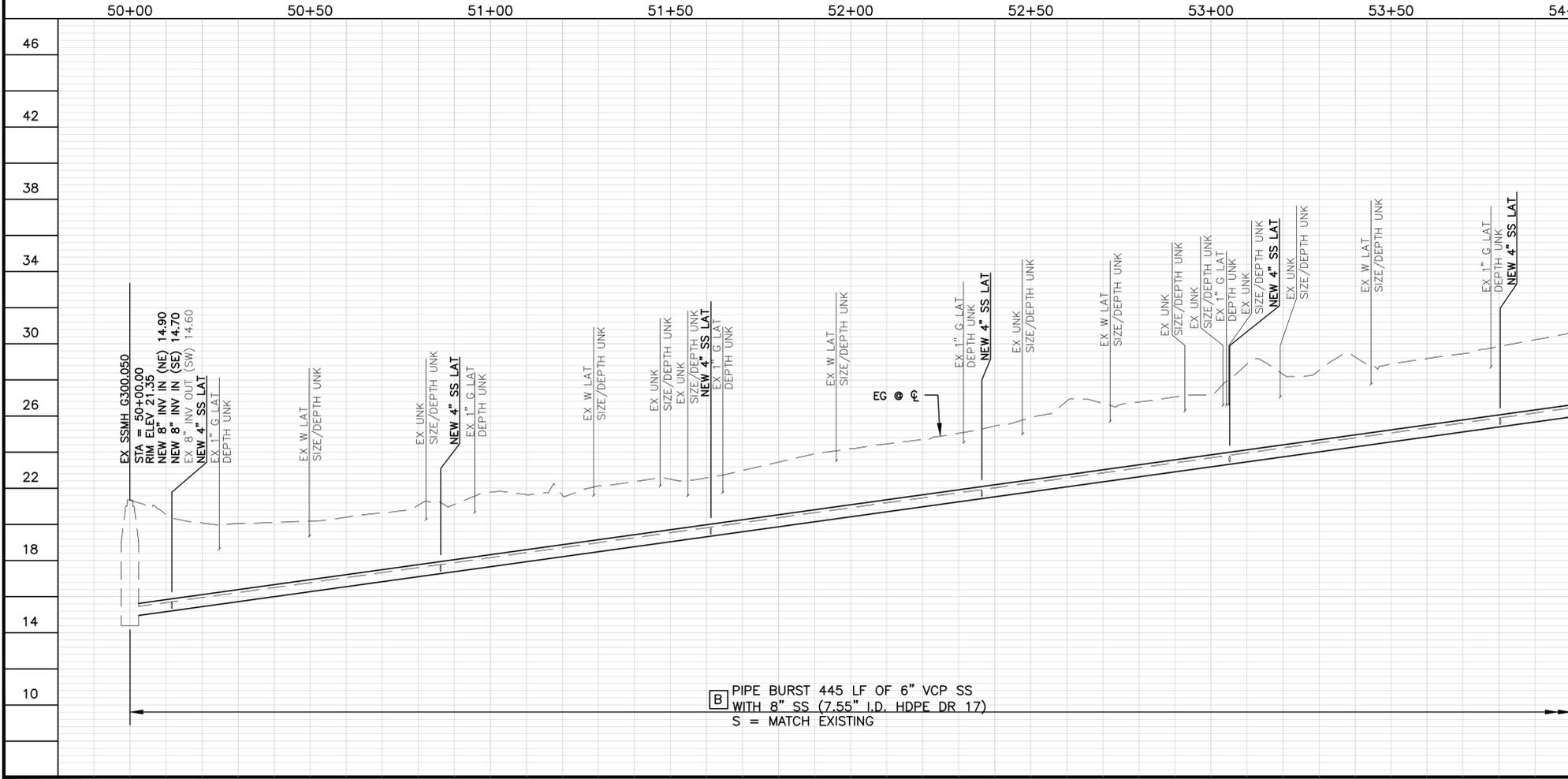
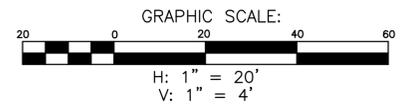


H:\Ross Valley Sanitary District (RSD)\FY 2023-24 Gravity Sewer\45-47 - PP-41 To PP-43 - Greenbrae_Manor Rd.dwg Save Date: 11/21/2023 4:48 PM Plot Date: 11/21/2023 4:48 PM Kchow



SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
694	2175746.13	5974282.63	20.65	MAG NL
150	2175709.10	5974317.00	22.16	CUT + ON TC



MATCHLINE - STA 54+00
SEE DWG PP-42

MATCHLINE - STA 54+00
SEE DWG PP-42

LEGEND OF REHABILITATION METHODS

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NO.	BY	DATE	REVISION

**SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
MANOR RD**

**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
IMPROVEMENTS PROJECT**

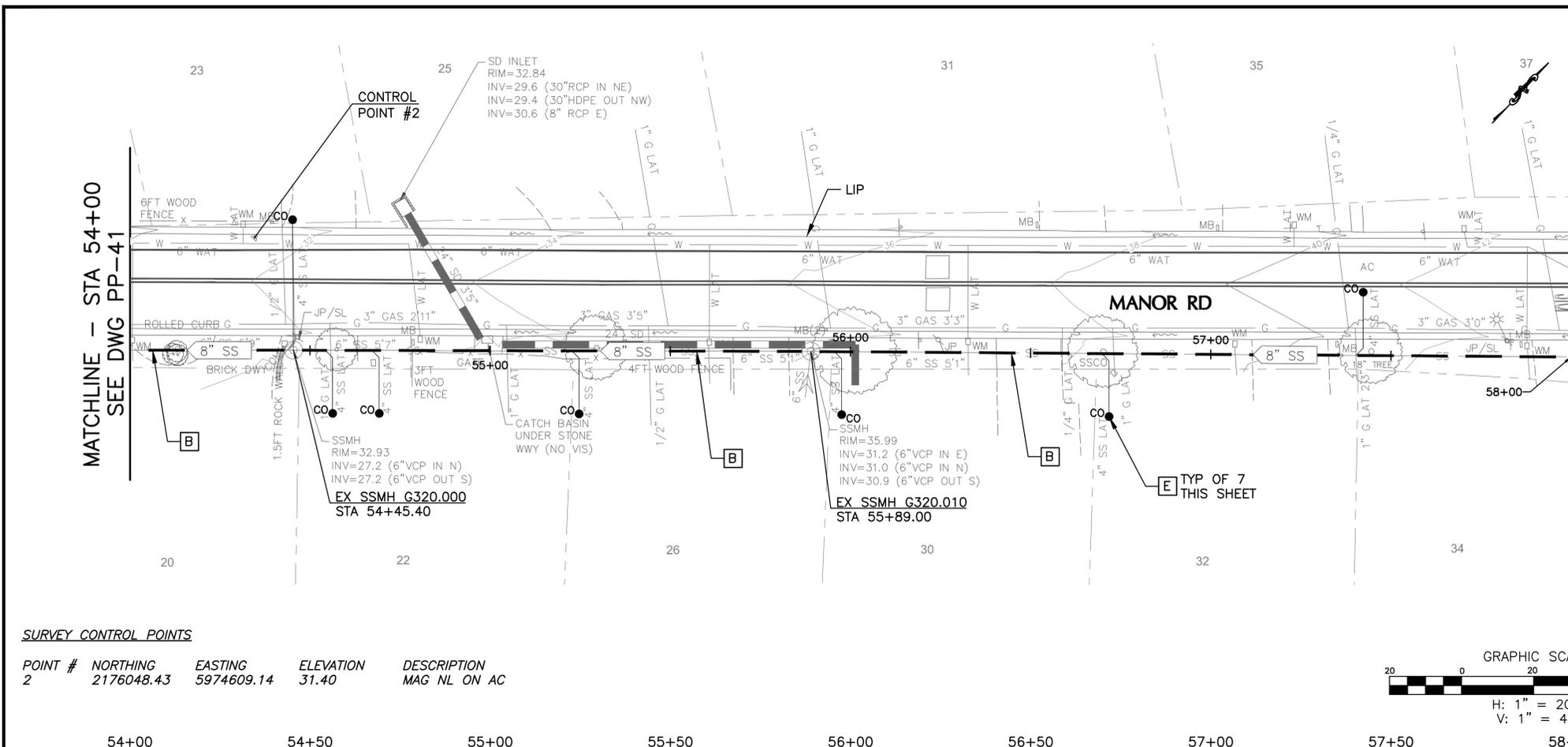
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DESIGNED BY: KLC/CM
DRAWN BY: KLC/CM
CHECKED BY: KI
DATE ISSUED: 11/27/2023
JOB NO.: 120-0743.006
DWG NO.: PP-41
SHEET 45 OF 52

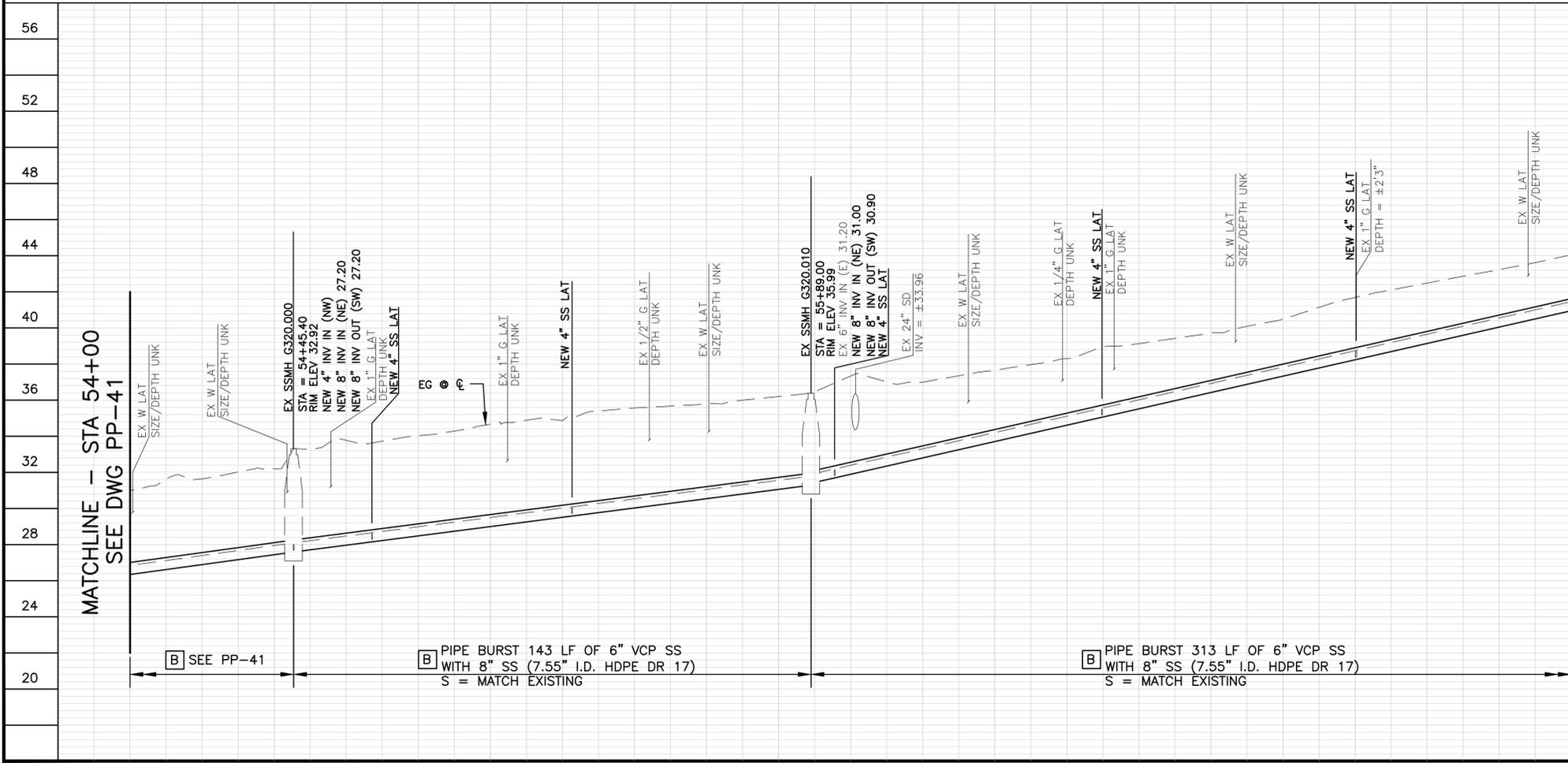
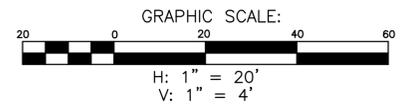


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SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
2	2176048.43	5974609.14	31.40	MAG NL ON AC



LEGEND OF REHABILITATION METHODS

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**SANITARY SEWER IMPROVEMENTS
PLAN AND PROFILE
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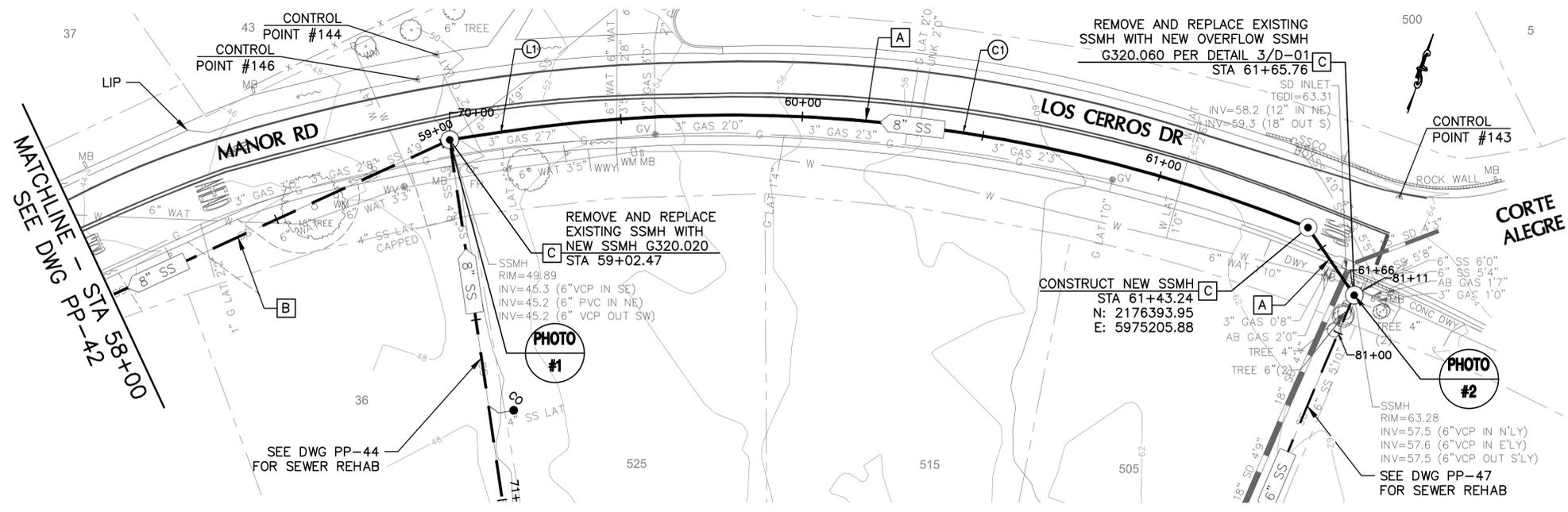


**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
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DESIGNED BY: KLC/CM
 DRAWN BY: KLC/CM
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 SHEET 46 OF 52



H:\Ross Valley Sanitary District (RSD)\FY 2023-24 Gravity Sewer\45-47 - PP-41 To PP-43 - Greenbrae_Manor Rd.dwg Save Date: 11/21/2023 4:48 PM Plot Date: 11/21/2023 4:48 PM Kchow

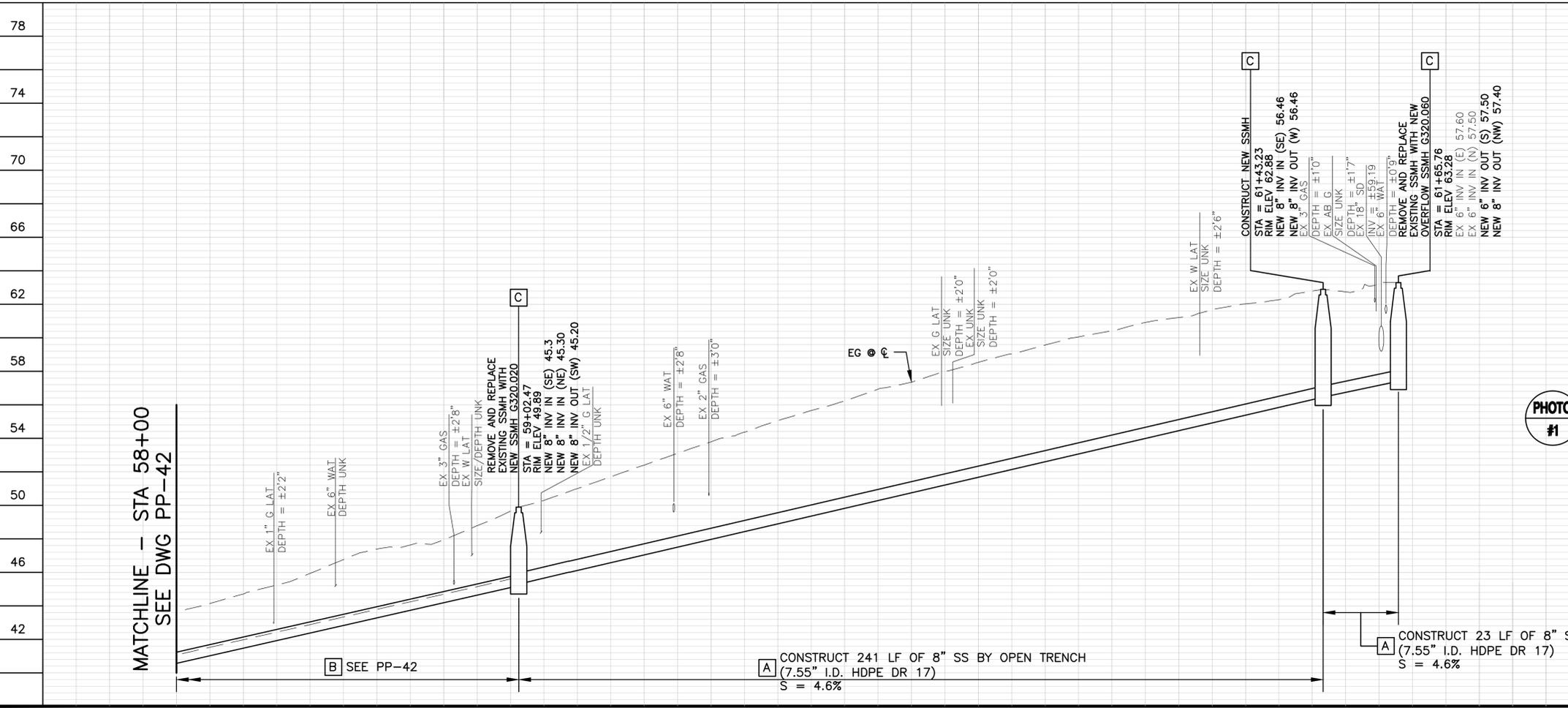
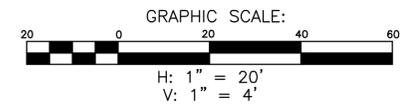


SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
143	2176409.91	5975227.24	63.72	MAG NAIL ON AC
144	2176364.56	5974963.00	49.90	CUT + ON GL
146	2176356.50	5974960.05	49.52	MAG NL ON AC

LOS CERROS NEW SEWER LINE AND CURVE TABLE

SEGMENT	LENGTH	BEARING	DELTA	RADIUS	START STA	START POINT	END STA	END POINT
L1	15.12'	N63°28'59"E			59+02.47	N = 2176343.48 E = 5974973.68	59+17.58	N = 2176350.23 E = 5974987.20
C1	225.64'		30°25'11"	425.00'	59+17.58	N = 2176350.23 E = 5974987.20	61+43.23	N = 2176393.95 E = 5975205.88



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.
SEE NOTE 38 ON DWG N-01
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.
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- NOTES**
- 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.
 - 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.
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PHOTO #1 EX. SSMH G320.020



PHOTO #2 EX. SSMH G320.060



SANITARY SEWER IMPROVEMENTS PLAN AND PROFILE MANOR RD

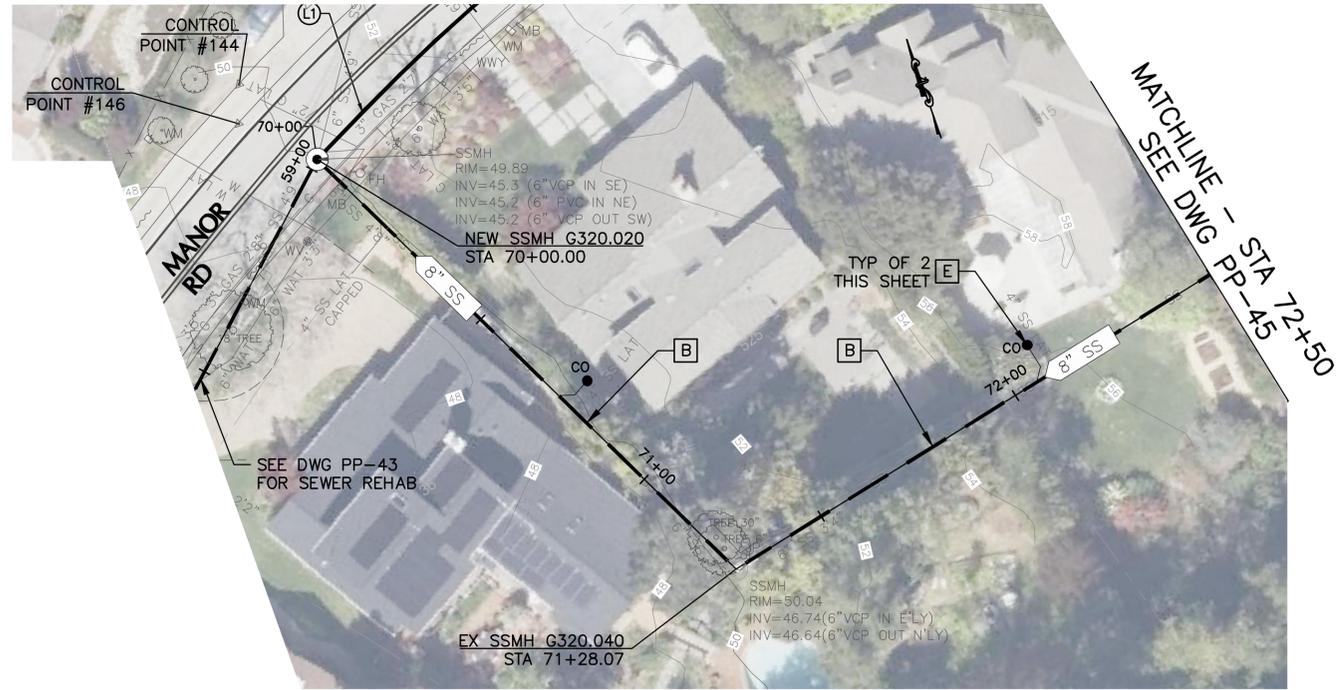
NO.	BY	DATE	REVISION

ROSS VALLEY SANITARY DISTRICT
FY2023/24 GRAVITY SEWER IMPROVEMENTS PROJECT

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

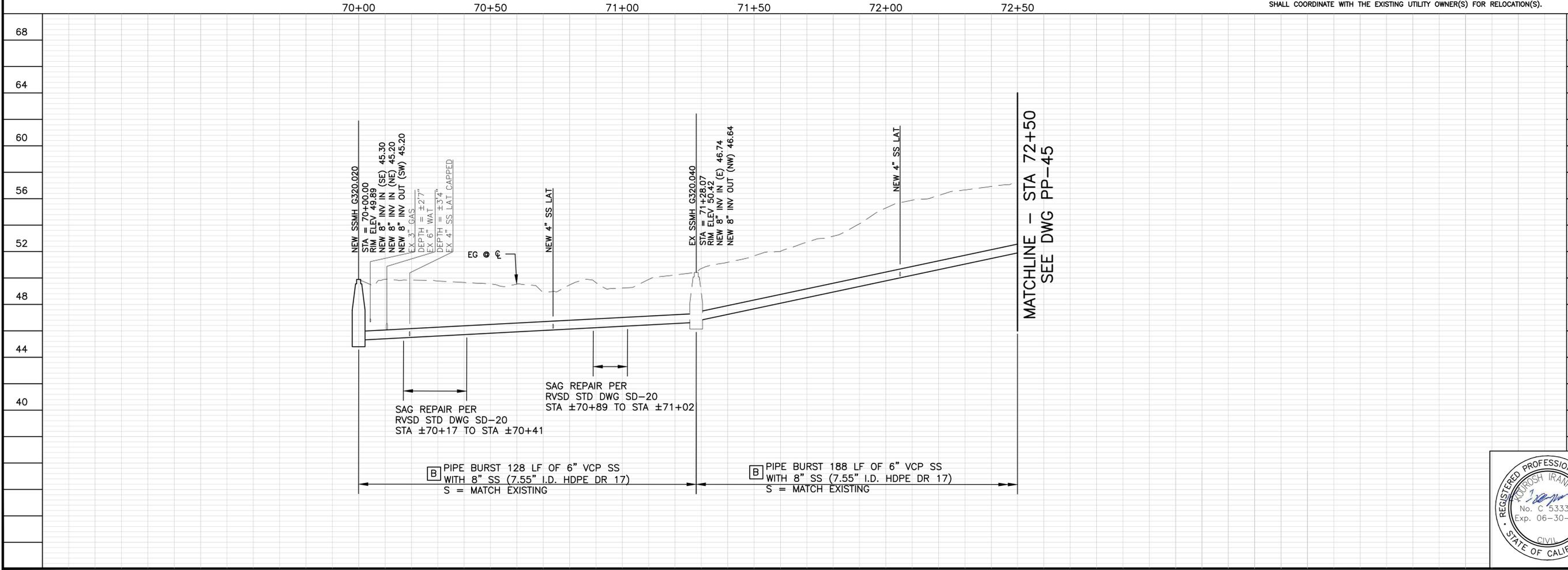
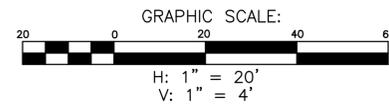
DESIGNED BY: KLC/CM
DRAWN BY: KLC/CM
CHECKED BY: KI
DATE ISSUED: 11/27/2023
JOB NO.: 120-0743.006
DWG NO.: **PP-43**
SHEET 47 OF 52

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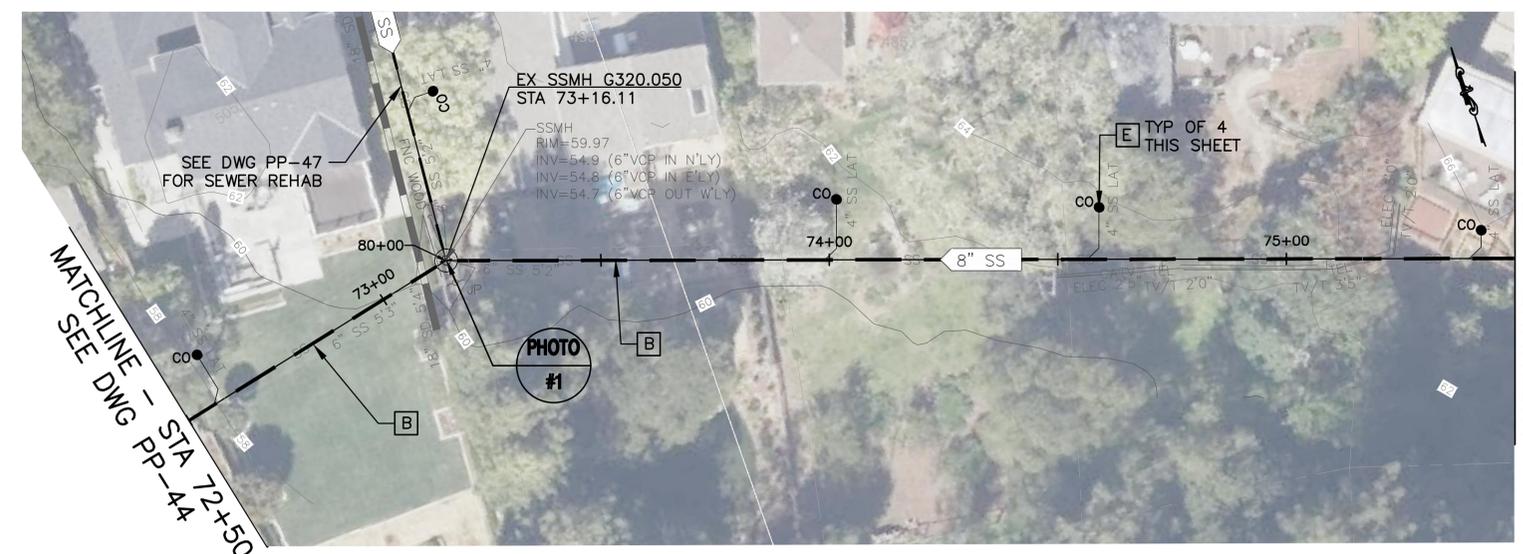
**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
IMPROVEMENTS PROJECT**

Harris & Associates
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www.harris.com (925) 827-4900

DESIGNED BY: **KLC/CM**
DRAWN BY: **KLC/CM**
CHECKED BY: **KI**
DATE ISSUED: **11/27/2023**
JOB NO.: **120-0743.006**
DWG NO.: **PP-44**

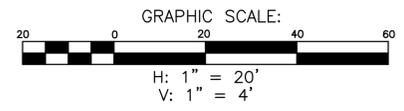


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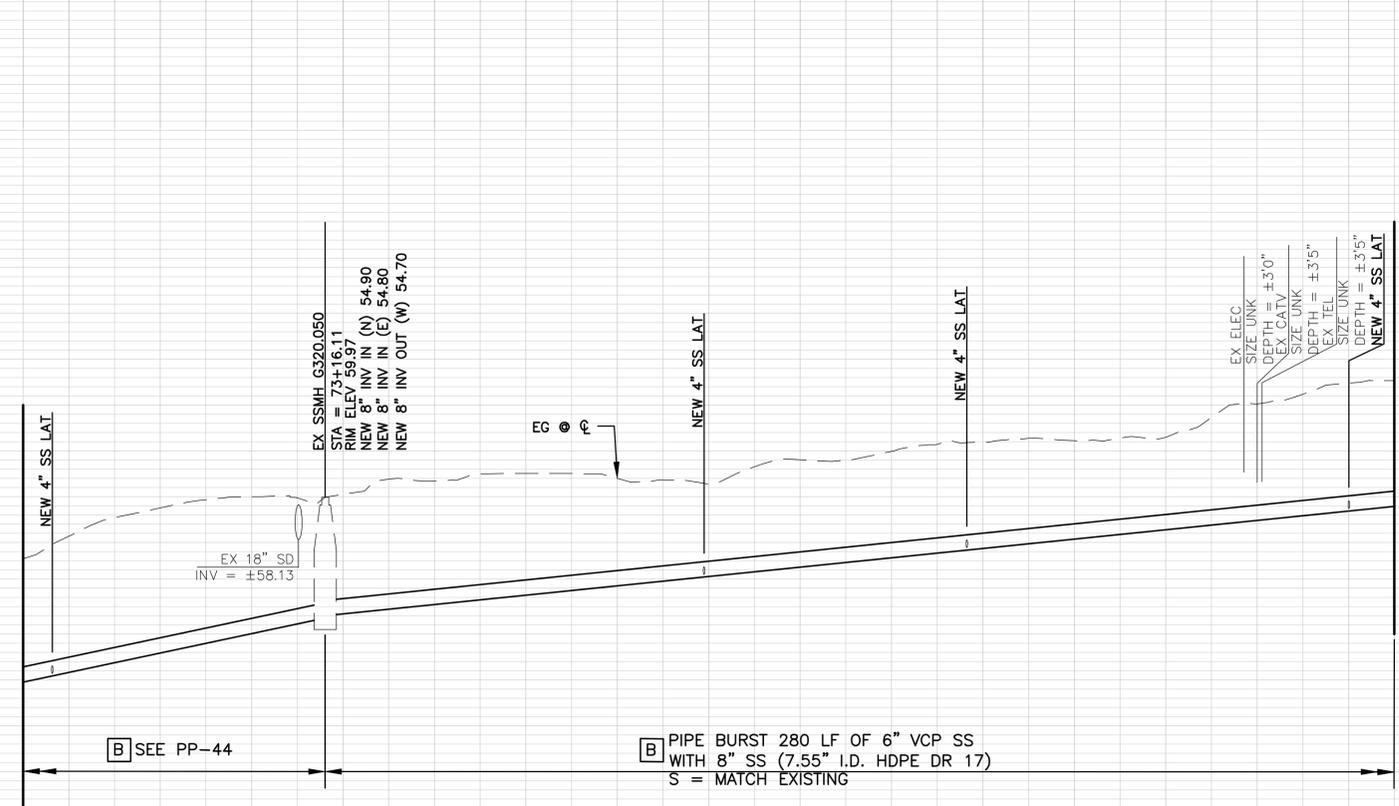
MATCHLINE - STA 75+50
SEE DWG PP-46

72+50 73+00 73+50 74+00 74+50 75+00 75+50



80
76
72
68
64
60
56
52
48

MATCHLINE - STA 72+50
SEE DWG PP-44



MATCHLINE - STA 75+50
SEE DWG PP-46



PHOTO #1
EX SSMH G320.050

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**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
IMPROVEMENTS PROJECT**

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DESIGNED BY: **KLC/CM**
DRAWN BY: **KLC/CM**
CHECKED BY: **KI**
DATE ISSUED: **11/27/2023**
JOB NO.: **120-0743.006**
DWG NO.: **PP-45**
SHEET **49** OF **52**

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MATCHLINE - STA 75+50
SEE DWG PP-45

75+50 76+00 76+50 77+00 77+30.24

MATCHLINE - STA 75+50
SEE DWG PP-46

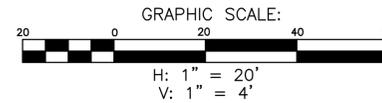
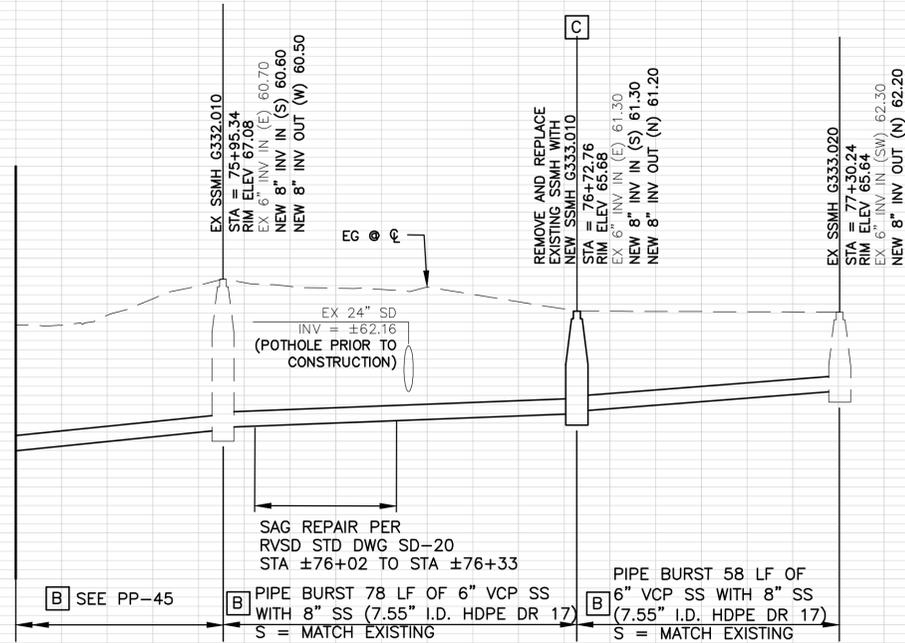


PHOTO #1 EX. SSMH G333.010



PHOTO #2 EX. SSMH G333.020

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SANTARY SEWER IMPROVEMENTS
PLAN AND PROFILE
LOS CERROS EASEMENT

ROSS VALLEY
SANTARY DISTRICT
FY2023/24 GRAVITY SEWER
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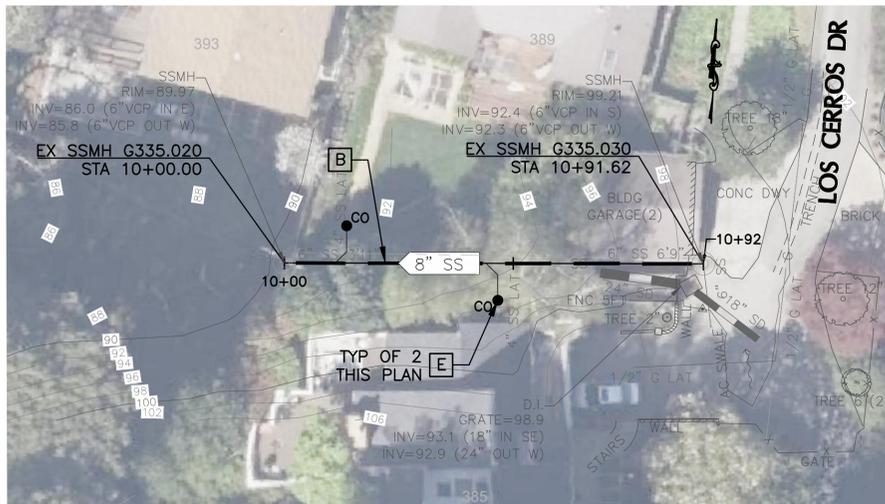
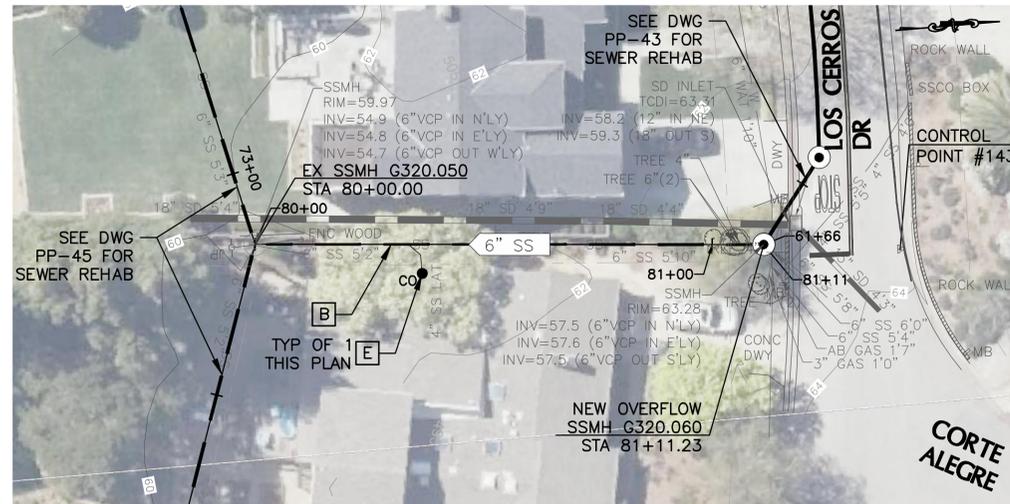
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PP-46
SHEET 50 OF 52

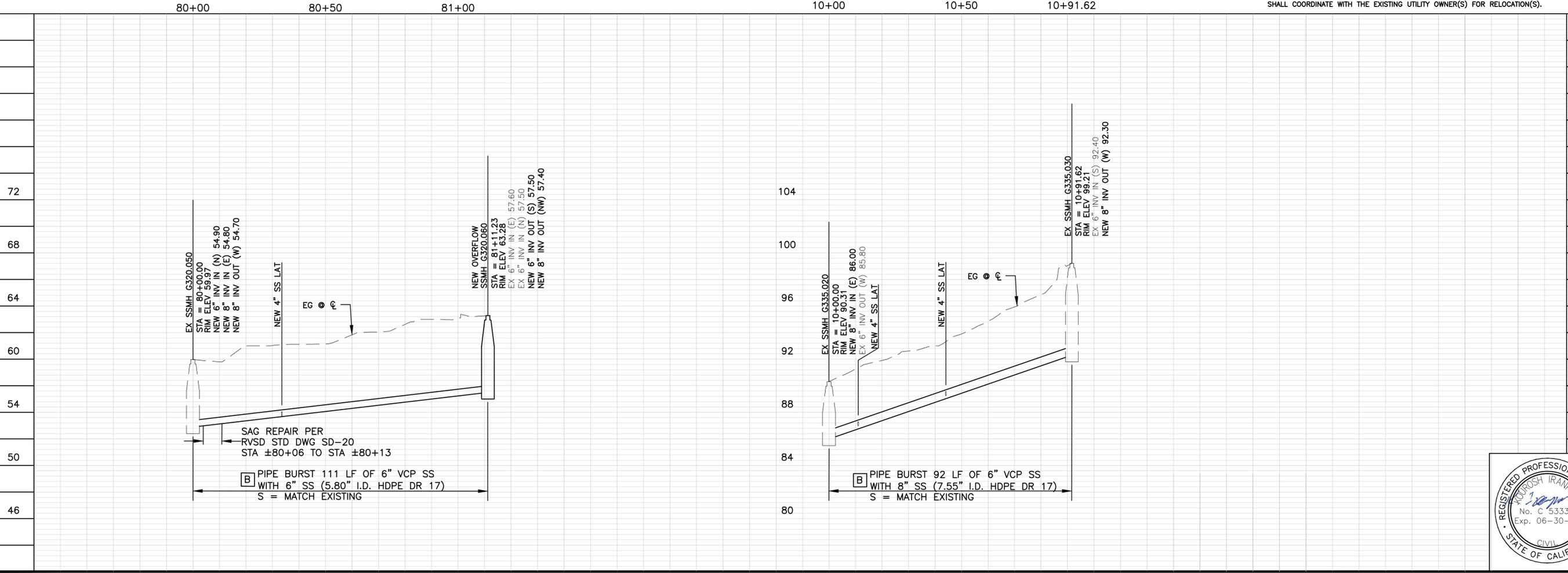
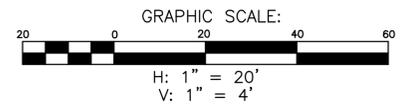


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SURVEY CONTROL POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
143	2176409.91	5975227.24	63.72	MAG NAIL ON AC



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.

SEE NOTE 38 ON DWG N-01
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:**
- 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
 - 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.
 - 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.
 - FOR WATER MAIN CROSSINGS AT OPEN TRENCH INSTALLATIONS, SEE GENERAL NOTE 23 AND 24 ON DWG N-01 FOR HDPE SLEEVE REQUIREMENTS.
 - BENDING OF NEW PIPING AND/OR JOINT DEFLECTIONS SHALL BE IN ACCORDANCE WITH AWWA AND PIPE MANUFACTURER'S RECOMMENDATIONS.
 - 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

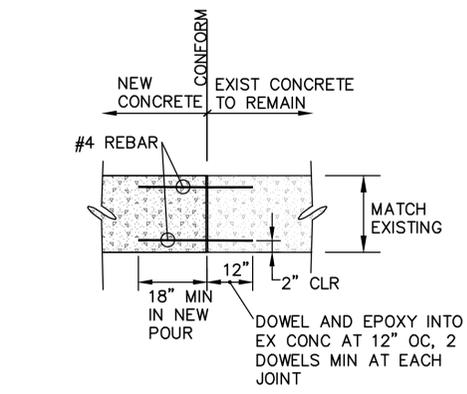
**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
IMPROVEMENTS PROJECT**

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

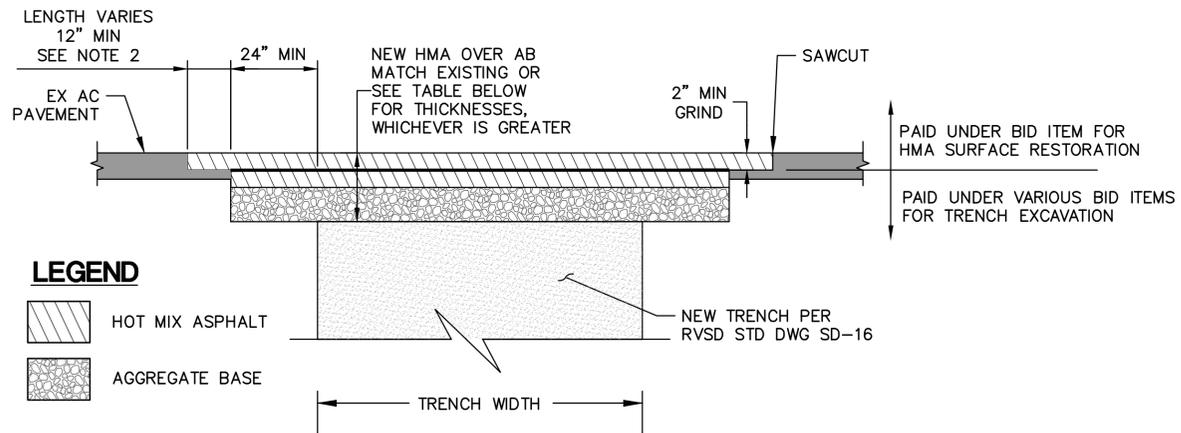
THESE DRAWINGS AND SPECIFICATIONS ARE NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF HARRIS & ASSOCIATES. ANY OTHER WORK EXCEPT BY WRITTEN AGREEMENT WITH THE ENGINEER SHALL BE VERIFIED BY THE ENGINEER. DIMENSIONS AND FIELD DIMENSIONS SHALL BE VERIFIED BY THE ENGINEER PRIOR TO THE START OF ANY WORK.

DESIGNED BY: KLC/CM
DRAWN BY: KLC/CM
CHECKED BY: KI
DATE ISSUED: 11/27/2023
JOB NO.: 120-0743.006
DWG NO.:
PP-47
SHEET 51 OF 52

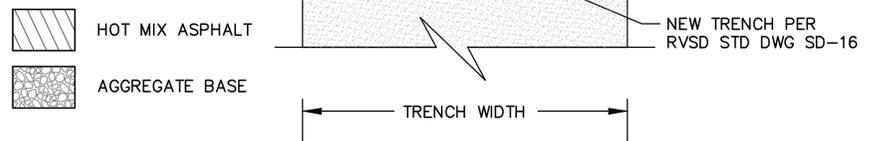




1 PCC CONFORM SECTION
- NOT TO SCALE



LEGEND

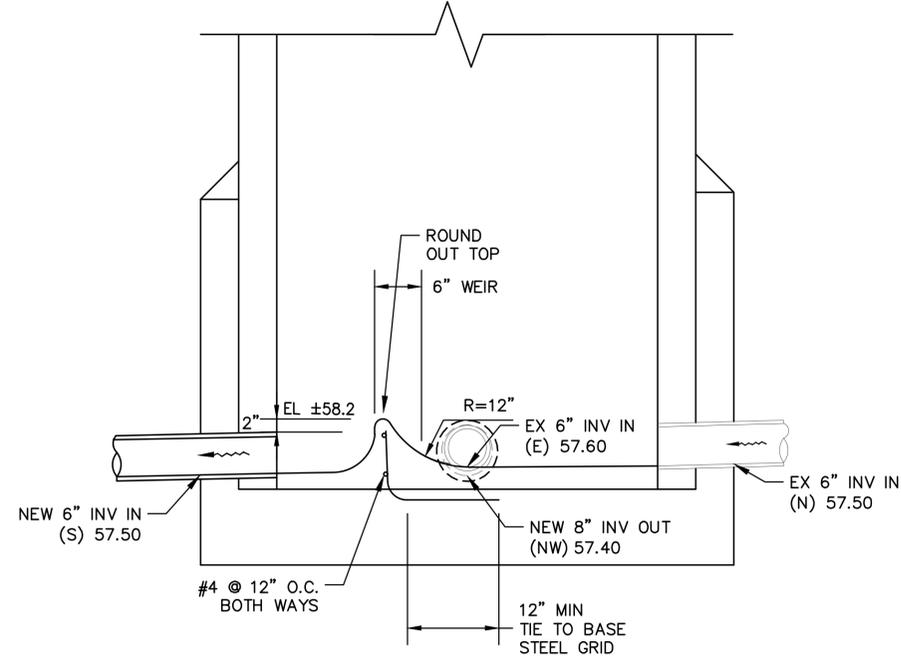
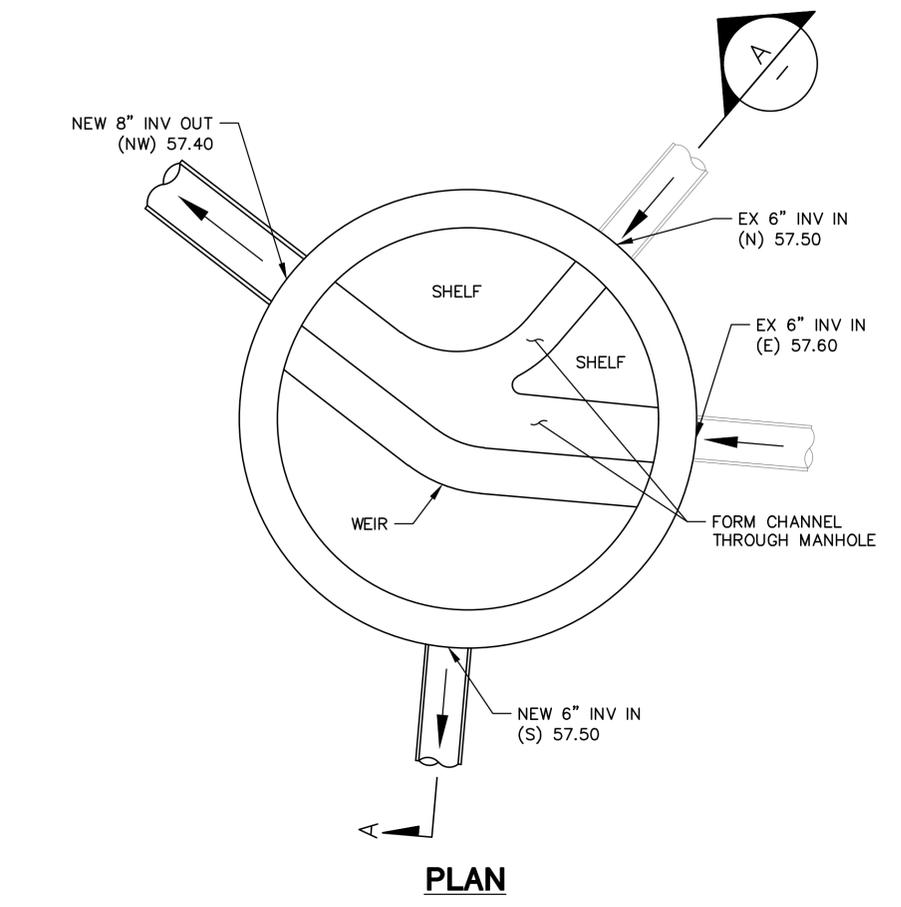


FINAL PAVING		
ROAD CLASSIFICATION (SEE NOTE 1)	PAVING REQUIREMENTS	ALTERNATE FULL DEPTH AC
LOCAL	MIN HMA: 4" MIN AB: 7"	7"
COLLECTOR	MIN HMA: 5" MIN AB: 11"	11"
ARTERIAL	MIN HMA: 6" MIN AB: 14"	14"

NOTES

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



3 OVERFLOW MANHOLE
- NOT TO SCALE



NO.	DATE	REVISION

CONSTRUCTION DETAILS

**ROSS VALLEY
SANITARY DISTRICT
FY2023/24 GRAVITY SEWER
IMPROVEMENTS PROJECT**

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

DESIGNED BY **KLC/CM**
DRAWN BY **KLC/CM**
CHECKED BY **KI**
DATE ISSUED **11/27/2023**
JOB NO. **120-0743.006**
DWG NO. **D-01**

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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. 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
2. The Contractor will submit to RVSD, if applicable, a copy of its annual trench and/or excavation permit issued by Cal/OSHA.
3. 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 woodland habitat will be restored as nearly as possible to natural and stable contours (elevations, profile, and gradient). Project methodology within the undisturbed woodland habitat shall include scraping and stockpiling the upper 4 in. of soil prior to commencing excavation activities. These soils shall be replaced after backfilling excavated pits/trenches to ensure the seedbank present onsite remains intact.
3. Environmental training will be provided to all persons working in the Project 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.

Attachment E

CalEEMod Input Tables and Output Report

Table 1. CalEEMod Project Description

Inputs	Total Project		Daily Rate		Note
	Quantity	Unit	Quantity	Unit	
Duration					
Construction	260 days	--	--	--	--
	8.7 months	--	--	--	--
Working days	191 days	--	--	--	22 working days per month
Area					
Total Project Area	8,100 sq feet		79 sq feet/day		Maximum area disturbed
	0.19 acres		0.002 acres/day		
Project Length	15,625 feet	--	--		Sum of pipelines in project scope
	3 mile	--	--		
Workers					
Workers onsite each day	8 workers	--	--		Six to eight workers on site per day (8 workers to be conservative)
Worker roundtrips each day	16 roundtrips	--	--		Two roundtrips to/from site per worker each day

Notes

Inputs were received from RVSD (December 2023)
 sq feet = square feet

Table 2. CalEEMod Project Inputs

Phase		Equipment					Hauling Trucks (Average trucks/day) ¹				
Activity	Working Days	Type	HP	Number/ day	Operating hours/day	Fuel Type	Material Import	Material Export	Equipment/ Delivery	Cement/ Asphalt	Onsite Truck ²
Site Preparation	11	Excavator	36	1	2	Diesel	--	--	--	--	1
Construction (Open Cut Excavation)	25	Bypass pump	11	1	8	Diesel					
		Concrete Saw	10	1	1	Gasoline	1	1	0.5	--	1
		Dumper/Tender	16	1	2	Diesel					
		Excavator	36	1	2	Diesel					
Construction (Manhole Rehab)	30	Bypass pump	11	1	8	Diesel					
		Concrete Saw	10	1	1	Gasoline	1	1	1	1	1
		Dumper/Tender	16	1	2	Diesel					
		Excavator	36	1	2	Diesel					
Pipe Bursting	80	Bypass pump	11	1	8	Diesel					
		Concrete Saw	10	1	1	Gasoline	1	1	2	--	1
		Excavator	36	1	2	Diesel					
Paving	40	Paving Equipment	89	1	2	Diesel					
		Rollers	36	1	1	Diesel	1	--	0.5	2	1
		Sweepers	36	1	1	Diesel					
		Skid Steer	71	1	2	Diesel					

Notes

Inputs were received from RVSD (December 2023)

HP = horsepower

¹ = CalEEMod assumes haul truck capacity is 16 cubic yards.

² = Onsite truck includes water truck.

2023-2024 GSIP Detailed Report

Table of Contents

- 1. Basic Project Information
 - 1.1. Basic Project Information
 - 1.2. Land Use Types
 - 1.3. User-Selected Emission Reduction Measures by Emissions Sector
- 2. Emissions Summary
 - 2.1. Construction Emissions Compared Against Thresholds
 - 2.2. Construction Emissions by Year, Unmitigated
- 3. Construction Emissions Details
 - 3.1. Site Preparation (2024) - Unmitigated
 - 3.3. Construction (open cut excavation) (2024) - Unmitigated
 - 3.5. Construction (manhole rehab) (2024) - Unmitigated
 - 3.7. Pipe Bursting (2024) - Unmitigated
 - 3.9. Paving (2024) - Unmitigated
- 4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

5. Activity Data

5.1. Construction Schedule

5.2. Off-Road Equipment

5.2.1. Unmitigated

5.3. Construction Vehicles

5.3.1. Unmitigated

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

5.18.2. Sequestration

5.18.2.1. Unmitigated

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

6.2. Initial Climate Risk Scores

6.3. Adjusted Climate Risk Scores

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

7.2. Healthy Places Index Scores

7.3. Overall Health & Equity Scores

7.4. Health & Equity Measures

7.5. Evaluation Scorecard

7.6. Health & Equity Custom Measures

8. User Changes to Default Data

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	2023-2024 GSIP
Construction Start Date	3/1/2024
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.60
Precipitation (days)	44.6
Location	37.97065695494223, -122.56854841372132
County	Marin
City	San Anselmo
Air District	Bay Area AQMD
Air Basin	San Francisco Bay Area
TAZ	927
EDFZ	2
Electric Utility	Pacific Gas & Electric Company
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
User Defined Linear	2.96	Mile	0.00	0.00	0.00	—	—	Linear length of total pipeline

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.37	2.17	6.59	0.01	0.10	88.6	88.7	0.08	8.88	8.95	1,070
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.37	2.05	6.52	0.01	0.10	88.5	88.6	0.08	8.87	8.95	881
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.29	0.92	2.26	< 0.005	0.04	30.6	30.6	0.03	3.07	3.10	450
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.23	0.17	0.41	< 0.005	0.01	5.58	5.58	0.01	0.56	0.57	74.5

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
2024	4.37	2.17	6.59	0.01	0.10	88.6	88.7	0.08	8.88	8.95	1,070
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
2024	4.37	2.05	6.52	0.01	0.10	88.5	88.6	0.08	8.87	8.95	881

Average Daily	—	—	—	—	—	—	—	—	—	—	—
2024	1.29	0.92	2.26	< 0.005	0.04	30.6	30.6	0.03	3.07	3.10	450
Annual	—	—	—	—	—	—	—	—	—	—	—
2024	0.23	0.17	0.41	< 0.005	0.01	5.58	5.58	0.01	0.56	0.57	74.5

3. Construction Emissions Details

3.1. Site Preparation (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.21	0.25	< 0.005	0.01	—	0.01	0.01	—	0.01	35.5
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	< 0.005	0.15	0.08	< 0.005	< 0.005	34.4	34.4	< 0.005	3.44	3.44	94.6
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.07
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.91	0.91	< 0.005	0.09	0.09	2.85
Annual	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	0.18
Dust From Material Movement	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.17	0.17	< 0.005	0.02	0.02	0.47
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.60	0.00	0.00	0.13	0.13	0.00	0.03	0.03	133
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	4.03
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	0.67
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.3. Construction (open cut excavation) (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	4.29	1.13	5.45	< 0.005	0.09	—	0.09	0.08	—	0.08	163
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	0.01	0.33	0.18	< 0.005	< 0.005	88.3	88.3	< 0.005	8.82	8.82	237
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.29	1.13	5.45	< 0.005	0.09	—	0.09	0.08	—	0.08	163
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	0.01	0.34	0.18	< 0.005	< 0.005	88.3	88.3	< 0.005	8.82	8.82	237
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	0.08	0.37	< 0.005	0.01	—	0.01	0.01	—	0.01	11.2
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	< 0.005	0.02	0.01	< 0.005	< 0.005	5.31	5.31	< 0.005	0.53	0.53	16.2
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.01	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	1.85
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.97	0.97	< 0.005	0.10	0.10	2.69
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.04	0.67	0.00	0.00	0.13	0.13	0.00	0.03	0.03	143
Vendor	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	30.0

Hauling	0.01	0.46	0.26	< 0.005	0.01	0.08	0.08	< 0.005	0.02	0.02	319
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.60	0.00	0.00	0.13	0.13	0.00	0.03	0.03	133
Vendor	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	29.9
Hauling	0.01	0.48	0.26	< 0.005	0.01	0.08	0.08	< 0.005	0.02	0.02	318
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	9.16
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	2.05
Hauling	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	21.8
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.52
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.34
Hauling	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	3.61

3.5. Construction (manhole rehab) (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13	1.04	0.95	< 0.005	0.04	—	0.04	0.03	—	0.03	151
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	0.01	0.33	0.18	< 0.005	< 0.005	88.3	88.3	< 0.005	8.82	8.82	237
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—

Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.09	0.08	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	12.4
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	< 0.005	0.03	0.02	< 0.005	< 0.005	6.37	6.37	< 0.005	0.64	0.64	19.5
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	2.05
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	< 0.005	0.01	< 0.005	< 0.005	< 0.005	1.16	1.16	< 0.005	0.12	0.12	3.23
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.04	0.67	0.00	0.00	0.13	0.13	0.00	0.03	0.03	143
Vendor	< 0.005	0.08	0.05	< 0.005	< 0.005	0.01	0.02	< 0.005	< 0.005	< 0.005	60.0
Hauling	0.01	0.68	0.39	< 0.005	0.01	0.11	0.12	0.01	0.03	0.04	478
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.05	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	11.0
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	4.93
Hauling	< 0.005	0.06	0.03	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	39.3
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	1.82
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.82
Hauling	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	6.50

3.7. Pipe Bursting (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.25	0.80	5.13	< 0.005	0.08	—	0.08	0.07	—	0.07	112
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	0.01	0.33	0.18	< 0.005	< 0.005	88.3	88.3	< 0.005	8.82	8.82	237
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.93	0.18	1.12	< 0.005	0.02	—	0.02	0.01	—	0.01	24.6
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	< 0.005	0.07	0.04	< 0.005	< 0.005	17.0	17.0	< 0.005	1.70	1.70	52.0
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.17	0.03	0.21	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	4.08
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—
Onsite truck	< 0.005	0.01	0.01	< 0.005	< 0.005	3.10	3.10	< 0.005	0.31	0.31	8.60
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—

Worker	0.06	0.04	0.67	0.00	0.00	0.13	0.13	0.00	0.03	0.03	143
Vendor	0.01	0.17	0.10	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	120
Hauling	0.01	0.46	0.26	< 0.005	0.01	0.08	0.08	< 0.005	0.02	0.02	319
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.13	0.00	0.00	0.03	0.03	0.00	0.01	0.01	29.3
Vendor	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	26.3
Hauling	< 0.005	0.10	0.06	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	69.8
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	4.85
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	4.35
Hauling	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	11.6

3.9. Paving (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.83	1.17	< 0.005	0.04	—	0.04	0.03	—	0.03	176
Onsite truck	< 0.005	0.06	0.04	< 0.005	< 0.005	8.83	8.83	< 0.005	0.88	0.88	27.0
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.09	0.83	1.17	< 0.005	0.04	—	0.04	0.03	—	0.03	176
Onsite truck	< 0.005	0.06	0.04	< 0.005	< 0.005	8.83	8.83	< 0.005	0.88	0.88	26.9
Average Daily	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.01	0.09	0.13	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	19.2
Onsite truck	< 0.005	0.01	< 0.005	< 0.005	< 0.005	0.85	0.85	< 0.005	0.08	0.08	2.95
Annual	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	3.18
Onsite truck	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.16	0.16	< 0.005	0.02	0.02	0.49
Offsite	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.04	0.67	0.00	0.00	0.13	0.13	0.00	0.03	0.03	143
Vendor	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	30.0
Hauling	0.01	0.68	0.39	< 0.005	0.01	0.11	0.12	0.01	0.03	0.04	478
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.60	0.00	0.00	0.13	0.13	0.00	0.03	0.03	133
Vendor	< 0.005	0.04	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	29.9
Hauling	0.01	0.72	0.39	< 0.005	0.01	0.11	0.12	0.01	0.03	0.04	477
Average Daily	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	14.7
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	3.28
Hauling	< 0.005	0.08	0.04	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	52.4
Annual	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	2.43
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.54
Hauling	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	8.67

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Site Preparation	Linear, Grubbing & Land Clearing	3/1/2024	3/17/2024	5.00	11.0	—
Construction (open cut excavation)	Linear, Grading & Excavation	3/18/2024	4/21/2024	5.00	25.0	—
Construction (manhole rehab)	Linear, Grading & Excavation	4/22/2024	6/2/2024	5.00	30.0	—
Pipe Bursting	Linear, Drainage, Utilities, & Sub-Grade	6/3/2024	9/22/2024	5.00	80.0	—
Paving	Linear, Paving	9/23/2024	11/15/2024	5.00	40.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Site Preparation	Excavators	Diesel	Average	1.00	2.00	36.0	0.38
Construction (open cut excavation)	Excavators	Diesel	Average	1.00	4.00	36.0	0.38
Construction (open cut excavation)	Concrete/Industrial Saws	Gasoline	Average	1.00	1.00	10.0	0.78
Construction (open cut excavation)	Other Construction Equipment	Diesel	Average	1.00	8.00	11.0	0.42
Construction (open cut excavation)	Dumpers/Tenders	Diesel	Average	1.00	2.00	16.0	0.38
Construction (manhole rehab)	Other Construction Equipment	Diesel	Average	1.00	8.00	11.0	0.42

Construction (manhole rehab)	Excavators	Diesel	Average	1.00	2.00	36.0	0.38
Construction (manhole rehab)	Concrete/Industrial Saws	Diesel	Average	1.00	1.00	33.0	0.73
Construction (manhole rehab)	Dumpers/Tenders	Diesel	Average	1.00	2.00	16.0	0.38
Pipe Bursting	Excavators	Diesel	Average	1.00	2.00	36.0	0.38
Pipe Bursting	Other Construction Equipment	Diesel	Average	1.00	8.00	11.0	0.42
Pipe Bursting	Concrete/Industrial Saws	Gasoline	Average	1.00	1.00	10.0	0.78
Paving	Paving Equipment	Diesel	Average	1.00	2.00	89.0	0.36
Paving	Rollers	Diesel	Average	1.00	1.00	36.0	0.38
Paving	Sweepers/Scrubbers	Diesel	Average	1.00	1.00	36.0	0.46
Paving	Skid Steer Loaders	Diesel	Average	1.00	2.00	71.0	0.37

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Pipe Bursting	—	—	—	—
Pipe Bursting	Worker	16.0	11.7	LDA,LDT1,LDT2
Pipe Bursting	Vendor	4.00	8.40	HHDT,MHDT
Pipe Bursting	Hauling	4.00	20.0	HHDT
Pipe Bursting	Onsite truck	2.00	30.0	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	16.0	11.7	LDA,LDT1,LDT2
Site Preparation	Vendor	0.00	8.40	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT

Site Preparation	Onsite truck	2.00	11.7	HHDT
Paving	—	—	—	—
Paving	Worker	16.0	11.7	LDA,LDT1,LDT2
Paving	Vendor	1.00	8.40	HHDT,MHDT
Paving	Hauling	6.00	20.0	HHDT
Paving	Onsite truck	2.00	3.00	HHDT
Construction (open cut excavation)	—	—	—	—
Construction (open cut excavation)	Worker	16.0	11.7	LDA,LDT1,LDT2
Construction (open cut excavation)	Vendor	1.00	8.40	HHDT,MHDT
Construction (open cut excavation)	Hauling	4.00	20.0	HHDT
Construction (open cut excavation)	Onsite truck	2.00	30.0	HHDT
Construction (manhole rehab)	—	—	—	—
Construction (manhole rehab)	Worker	16.0	11.7	LDA,LDT1,LDT2
Construction (manhole rehab)	Vendor	2.00	8.40	HHDT,MHDT
Construction (manhole rehab)	Hauling	6.00	20.0	HHDT
Construction (manhole rehab)	Onsite truck	2.00	30.0	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
------------	--	--	--	--	-----------------------------

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Site Preparation	0.00	0.00	0.00	0.00	—
Construction (open cut excavation)	180	180	0.00	0.00	—
Construction (manhole rehab)	300	300	0.00	0.00	—
Pipe Bursting	200	200	0.00	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
User Defined Linear	0.00	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	204	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
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5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
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5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	9.66	annual days of extreme heat
Extreme Precipitation	18.8	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	7.65	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	7.52
AQ-PM	19.1
AQ-DPM	20.2
Drinking Water	7.43
Lead Risk Housing	53.2
Pesticides	0.00
Toxic Releases	40.4
Traffic	60.7
Effect Indicators	—
CleanUp Sites	68.9
Groundwater	14.3
Haz Waste Facilities/Generators	23.7
Impaired Water Bodies	12.5
Solid Waste	22.1
Sensitive Population	—
Asthma	2.58
Cardio-vascular	2.42

Low Birth Weights	16.0
Socioeconomic Factor Indicators	—
Education	0.96
Housing	40.3
Linguistic	0.00
Poverty	11.4
Unemployment	52.5

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	86.07724881
Employed	70.51199795
Median HI	82.11215193
Education	—
Bachelor's or higher	93.12203259
High school enrollment	100
Preschool enrollment	66.45707686
Transportation	—
Auto Access	38.0341332
Active commuting	95.18798922
Social	—
2-parent households	42.30719877
Voting	99.16591813
Neighborhood	—
Alcohol availability	40.60053895

Park access	81.35506224
Retail density	70.02438085
Supermarket access	64.49377647
Tree canopy	98.42166046
Housing	—
Homeownership	65.75131528
Housing habitability	71.83369691
Low-inc homeowner severe housing cost burden	24.38085461
Low-inc renter severe housing cost burden	84.10111639
Uncrowded housing	96.93314513
Health Outcomes	—
Insured adults	74.96471192
Arthritis	0.0
Asthma ER Admissions	94.4
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	62.6
Cognitively Disabled	43.0
Physically Disabled	33.4
Heart Attack ER Admissions	94.2
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0

Pedestrian Injuries	52.8
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	86.0
Elderly	14.2
English Speaking	98.1
Foreign-born	8.0
Outdoor Workers	82.4
Climate Change Adaptive Capacity	—
Impervious Surface Cover	87.5
Traffic Density	71.0
Traffic Access	69.8
Other Indices	—
Hardship	11.0
Other Decision Support	—
2016 Voting	99.6

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	3.00

Healthy Places Index Score for Project Location (b)	95.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
 b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Construction: Construction Phases	Project specific inputs.
Construction: Off-Road Equipment	Project specific inputs.
Construction: Trips and VMT	Project specific inputs

Attachment F

Protected Natural Resource Tables



Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad IS (San Rafael (3712285))

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.
<i>Acipenser medirostris</i> pop. 1 green sturgeon - southern DPS	G2T1 S1	Threatened None	AFS_VU-Vulnerable IUCN_EN-Endangered	0 0	14 S:1	0	1	0	0	0	0	0	1	1	0	0
<i>Adela oplerella</i> Opler's longhorn moth	G2 S2	None None		400 400	14 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Amorpha californica</i> var. <i>napensis</i> Napa false indigo	G4T2 S2	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	79 2,104	123 S:24	1	9	10	1	1	2	2	22	23	1	0
<i>Amsinckia lunaris</i> 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		93 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Antrozous pallidus</i> pallid bat	G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive	40 45	420 S:2	0	0	0	0	0	2	2	0	2	0	0
<i>Arctostaphylos montana</i> ssp. <i>montana</i> Mt. Tamalpais manzanita	G3T3 S3	None None	Rare Plant Rank - 1B.3 SB_UCBG-UC Botanical Garden at Berkeley	500 2,220	15 S:9	0	1	0	0	0	8	8	1	9	0	0
<i>Arctostaphylos virgata</i> 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:8	0	0	0	1	0	7	7	1	8	0	0
<i>Ardea herodias</i> great blue heron	G5 S4	None None	CDF_S-Sensitive IUCN_LC-Least Concern	80 100	156 S:2	0	0	0	0	0	2	2	0	2	0	0
<i>Bombus caliginosus</i> obscure bumble bee	G2G3 S1S2	None None	IUCN_VU-Vulnerable	100 2,500	181 S:5	0	0	0	0	0	5	5	0	5	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.
<i>Bombus occidentalis</i> western bumble bee	G3 S1	None Candidate Endangered	IUCN_VU-Vulnerable USFS_S-Sensitive	50 2,000	306 S:5	0	0	0	0	0	5	5	0	5	0	0
<i>Calamagrostis crassiglumis</i> 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
<i>Callophrys mossii marinensis</i> Marin elfin butterfly	G4T1 S2	None None		796 796	4 S:1	1	0	0	0	0	0	0	1	1	0	0
<i>Chloropyron maritimum ssp. palustre</i> Point Reyes salty bird's-beak	G4?T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_CalBG/RSABG- California/Rancho Santa Ana Botanic Garden	4 7	80 S:7	0	3	0	0	1	3	2	5	6	1	0
<i>Chorizanthe cuspidata var. cuspidata</i> San Francisco Bay spineflower	G2T1 S1	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG- California/Rancho Santa Ana Botanic Garden	1,800 1,800	17 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Cirsium hydrophilum var. vaseyi</i> Mt. Tamalpais thistle	G2T1 S1	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG- California/Rancho Santa Ana Botanic Garden	760 2,000	14 S:7	1	4	0	0	0	2	3	4	7	0	0
<i>Coastal Brackish Marsh</i> Coastal Brackish Marsh	G2 S2.1	None None		15 15	30 S:1	0	0	1	0	0	0	1	0	1	0	0
<i>Coastal Terrace Prairie</i> Coastal Terrace Prairie	G2 S2.1	None None		400 400	8 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Corynorhinus townsendii</i> 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	150 280	635 S:2	0	1	0	0	0	1	1	1	2	0	0
<i>Dermatocarpon meiophyllizum</i> silverskin lichen	G3G5 S3	None None	Rare Plant Rank - 2B.3	971 2,044	20 S:3	0	0	0	0	0	3	0	3	3	0	0
<i>Dicamptodon ensatus</i> California giant salamander	G2G3 S2S3	None None	CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	84 1,300	234 S:9	2	3	0	1	0	3	2	7	9	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.
<i>Dirca occidentalis</i> western leatherwood	G2 S2	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	2,000 2,000	90 S:1	0	0	0	0	0	1	0	1	1	0	0
<i>Emys marmorata</i> western pond turtle	G3G4 S3	Proposed Threatened None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	180 784	1522 S:3	0	0	2	0	0	1	0	3	3	0	0
<i>Eriogonum luteolum var. caninum</i> Tiburon buckwheat	G5T2 S2	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	312 2,100	26 S:10	0	0	0	0	0	10	7	3	10	0	0
<i>Eucyclogobius newberryi</i> tidewater goby	G3 S3	Endangered None	AFS_EN-Endangered IUCN_NT-Near Threatened	10 10	127 S:1	0	0	0	0	1	0	1	0	0	0	1
<i>Fissidens pauperculus</i> 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
<i>Fritillaria lanceolata var. tristulis</i> Marin checker lily	G5T2 S2	None None	Rare Plant Rank - 1B.1 SB_UCSC-UC Santa Cruz	600 600	32 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Gilia millefoliata</i> dark-eyed gilia	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden		54 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Helianthella castanea</i> Diablo helianthella	G2 S2	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden		107 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Hemizonia congesta ssp. congesta</i> congested-headed hayfield tarplant	G5T2 S2	None None	Rare Plant Rank - 1B.2 SB_UCBG-UC Botanical Garden at Berkeley	492 1,400	52 S:2	0	0	0	0	0	2	2	0	2	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.
<i>Hesperolinon congestum</i> 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	1,065 1,065	27 S:2	0	1	0	0	0	1	1	1	2	0	0
<i>Holocarpha macradenia</i> 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
<i>Horkelia tenuiloba</i> 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:4	1	2	0	0	0	1	3	1	4	0	0
<i>Kopsiopsis hookeri</i> 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
<i>Lasiurus cinereus</i> hoary bat	G3G4 S4	None None	IUCN_LC-Least Concern	180 180	238 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Laterallus jamaicensis coturniculus</i> California black rail	G3T1 S2	None Threatened	BLM_S-Sensitive CDFW_FP-Fully Protected IUCN_EN-Endangered	4 9	303 S:4	0	2	0	1	1	0	2	2	3	1	0
<i>Lessingia micradenia var. micradenia</i> 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:6	0	1	0	0	0	5	4	2	6	0	0
<i>Melospiza melodia samuelis</i> San Pablo song sparrow	G5T2 S2	None None	CDFW_SSC-Species of Special Concern USFWS_BCC-Birds of Conservation Concern	5 10	41 S:3	0	1	0	0	0	2	2	1	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.
<i>Microseris paludosa</i> 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	500 500	38 S:2	0	0	0	0	0	2	2	0	2	0	0
<i>Navarretia rosulata</i> Marin County navarretia	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	1,150 2,100	15 S:7	0	1	0	0	0	6	3	4	7	0	0
<i>Northern Coastal Salt Marsh</i> Northern Coastal Salt Marsh	G3 S3.2	None None		10 15	53 S:2	0	1	1	0	0	0	2	0	2	0	0
<i>Oncorhynchus kisutch pop. 4</i> coho salmon - central California coast ESU	G5T2Q S2	Endangered Endangered	AFS_EN-Endangered	130 130	23 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Pentachaeta bellidiflora</i> 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
<i>Plagiobothrys glaber</i> hairless popcornflower	GX SX	None None	Rare Plant Rank - 1A		9 S:1	0	0	0	0	1	0	1	0	0	0	1
<i>Pleuropogon hooverianus</i> 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		27 S:1	0	0	0	0	1	0	1	0	0	1	0
<i>Polygonum marinense</i> Marin knotweed	G2Q S2	None None	Rare Plant Rank - 3.1	5 5	32 S:2	0	0	2	0	0	0	2	0	2	0	0
<i>Pomatiopsis binneyi</i> robust walker	G1 S1	None None		2,040 2,040	2 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Quercus parvula var. tamalpaisensis</i> Tamalpais oak	G4T2 S2	None None	Rare Plant Rank - 1B.3	300 2,100	19 S:15	0	1	0	1	0	13	10	5	15	0	0
<i>Rallus obsoletus obsoletus</i> California Ridgway's rail	G3T1 S2	Endangered Endangered	CDFW_FP-Fully Protected	2 10	99 S:4	0	1	0	0	1	2	2	2	3	1	0



Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database



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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Rana boylei</i> pop. 1 foothill yellow-legged frog - north coast DPS	G3T4 S4	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern USFS_S-Sensitive	38 1,975	1608 S:11	0	2	0	0	8	1	9	2	3	1	7
<i>Reithrodontomys raviventris</i> salt-marsh harvest mouse	G1G2 S3	Endangered Endangered	CDFW_FP-Fully Protected IUCN_EN-Endangered	1 4	144 S:4	0	0	0	2	1	1	4	0	3	1	0
<i>Serpentine Bunchgrass</i> Serpentine Bunchgrass	G2 S2.2	None None		1,000 1,000	22 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Sidalcea calycosa</i> ssp. <i>rhizomata</i> 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
<i>Spirinchus thaleichthys</i> longfin smelt	G5 S1	Candidate Threatened	IUCN_LC-Least Concern	0 0	46 S:1	0	0	0	0	0	1	0	1	1	0	0
<i>Stebbinsoseris decipiens</i> 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:3	0	0	0	0	1	2	2	1	2	1	0
<i>Streptanthus batrachopus</i> Tamalpais jewelflower	G2 S2	None None	Rare Plant Rank - 1B.3 SB_UCSC-UC Santa Cruz	1,840 2,200	8 S:5	0	1	1	0	0	3	3	2	5	0	0
<i>Streptanthus glandulosus</i> ssp. <i>pulchellus</i> Mt. Tamalpais bristly jewelflower	G4T2 S2	None None	Rare Plant Rank - 1B.2 SB_CalBG/RSABG-California/Rancho Santa Ana Botanic Garden	500 2,200	24 S:8	3	2	0	0	0	3	7	1	8	0	0
<i>Trachusa gummifera</i> San Francisco Bay Area leaf-cutter bee	G1 S1	None None		1,130 1,130	3 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Trifolium amoenum</i> 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		26 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.	
<i>Tryonia imitator</i> mimic tryonia (=California brackishwater snail)	G2 S2	None None	IUCN_DD-Data Deficient	0 0	39 S:1	0	0	0	0	1	0	1	0	0	0	0	1
<i>Vespericola marinensis</i> Marin hesperian	G2 S2	None None		25 600	23 S:3	0	0	0	0	0	3	3	0	3	0	0	



CNPS Rare Plant Inventory

Search Results

57 matches found. Click on scientific name for details

Search Criteria: 9-Quad include [3712285]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	PLANT RANK	CA RARE	CA ENDEMIC	DATE ADDED	PHOTO
<u><i>Amorpha californica</i></u> var. <u><i>napensis</i></u>	Napa false indigo	Fabaceae	perennial deciduous shrub	Apr-Jul	None	None	G4T2	S2	1B.2	Yes	2001-01-01	 © 2016 John Doyen	
<u><i>Amsinckia lunaris</i></u>	bent-flowered fiddleneck	Boraginaceae	annual herb	Mar-Jun	None	None	G3	S3	1B.2	Yes	1974-01-01	 © 2011 Neal Kramer	
<u><i>Arabis blepharophylla</i></u>	coast rockcress	Brassicaceae	perennial herb	Feb-May	None	None	G4	S4	4.3	Yes	1974-01-01	 © 2011 Neal Kramer	
<u><i>Arctostaphylos montana</i></u> ssp. <u><i>montana</i></u>	Mt. Tamalpais manzanita	Ericaceae	perennial evergreen shrub	Feb-Apr	None	None	G3T3	S3	1B.3	Yes	1974-01-01	 © 2018 John Doyen	
<u><i>Arctostaphylos virgata</i></u>	Marin manzanita	Ericaceae	perennial evergreen shrub	Jan-Mar	None	None	G2	S2	1B.2	Yes	1974-01-01	No Photo Available	
<u><i>Aspidotis carlotta-halliae</i></u>	Carlotta Hall's lace fern	Pteridaceae	perennial rhizomatous herb	Jan-Dec	None	None	G3	S3	4.2	Yes	1994-01-01	No Photo Available	
<u><i>Astragalus breweri</i></u>	Brewer's milk-vetch	Fabaceae	annual herb	Apr-Jun	None	None	G3	S3	4.2	Yes	1974-01-01	No Photo Available	
<u><i>Calamagrostis crassiglumis</i></u>	Thurber's reed grass	Poaceae	perennial rhizomatous herb	May-Aug	None	None	G3Q	S2	2B.1		1980-01-01	No Photo Available	
<u><i>Calamagrostis ophitidis</i></u>	serpentine reed grass	Poaceae	perennial herb	Apr-Jul	None	None	G3	S3	4.3	Yes	1974-01-01	No Photo Available	

<u><i>Calandrinia breweri</i></u>	Brewer's calandrinia	Montiaceae	annual herb	(Jan)Mar-Jun	None	None	G4	S4	4.2			1984-01-01	No Photo Available
<u><i>Calochortus umbellatus</i></u>	Oakland star-tulip	Liliaceae	perennial bulbiferous herb	Mar-May	None	None	G3?	S3?	4.2	Yes		1980-01-01	No Photo Available
<u><i>Calochortus uniflorus</i></u>	pink star-tulip	Liliaceae	perennial bulbiferous herb	Apr-Jun	None	None	G4	S4	4.2			2010-03-04	 © 2021 Scot Loring
<u><i>Calystegia collina</i> ssp. <i>oxyphylla</i></u>	Mt. Saint Helena morning-glory	Convolvulaceae	perennial rhizomatous herb	Apr-Jun	None	None	G4T3	S3	4.2	Yes		1984-01-01	No Photo Available
<u><i>Castilleja ambigua</i> var. <i>ambigua</i></u>	johnny-nip	Orobanchaceae	annual herb (hemiparasitic)	Mar-Aug	None	None	G4T4	S3S4	4.2			2009-02-04	 ©2011 Dylan Neubauer
<u><i>Ceanothus gloriosus</i> var. <i>exaltatus</i></u>	glory brush	Rhamnaceae	perennial evergreen shrub	Mar-Jun(Aug)	None	None	G4T4	S4	4.3	Yes		2001-01-01	 ©2018 John Doyen
<u><i>Ceanothus pinetorum</i></u>	Kern ceanothus	Rhamnaceae	perennial evergreen shrub	May-Jul	None	None	G3	S3	4.3	Yes		1974-01-01	 ©2017 Aaron Schusteff
<u><i>Chloropyron maritimum</i> ssp. <i>palustre</i></u>	Point Reyes salty bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jun-Oct	None	None	G4?T2	S2	1B.2			1974-01-01	 ©2017 John Doyen
<u><i>Chorizanthe cuspidata</i> var. <i>cuspidata</i></u>	San Francisco Bay spineflower	Polygonaceae	annual herb	Apr-Jul(Aug)	None	None	G2T1	S1	1B.2	Yes		1994-01-01	No Photo Available
<u><i>Cirsium hydrophilum</i> var. <i>vaseyi</i></u>	Mt. Tamalpais thistle	Asteraceae	perennial herb	May-Aug	None	None	G2T1	S1	1B.2	Yes		1974-01-01	No Photo Available
<u><i>Cistanthe maritima</i></u>	seaside cistanthe	Montiaceae	annual herb	(Feb)Mar-Jun(Aug)	None	None	G3G4	S3	4.2			1980-01-01	No Photo Available
<u><i>Cyripedium californicum</i></u>	California lady's-slipper	Orchidaceae	perennial rhizomatous herb	Apr-Aug(Sep)	None	None	G3	S4	4.2			1980-01-01	 © 2012 Barry Rice
<u><i>Dermatocarpon meiophyllizum</i></u>	silverskin lichen	Verrucariaceae	foliose lichen (aquatic)		None	None	G3G5	S3	2B.3			2022-07-14	No Photo Available

<u><i>Dirca occidentalis</i></u>	western leatherwood	Thymelaeaceae	perennial deciduous shrub	Jan-Mar(Apr)	None	None	G2	S2	1B.2	Yes	1974-01-01	 © 2017 Steve Matson
<u><i>Elymus californicus</i></u>	California bottle-brush grass	Poaceae	perennial herb	May-Aug(Nov)	None	None	G4	S4	4.3	Yes	1974-01-01	No Photo Available
<u><i>Eriogonum luteolum</i> var. <i>caninum</i></u>	Tiburon buckwheat	Polygonaceae	annual herb	May-Sep	None	None	G5T2	S2	1B.2	Yes	1974-01-01	No Photo Available
<u><i>Erysimum franciscanum</i></u>	San Francisco wallflower	Brassicaceae	perennial herb	Mar-Jun	None	None	G3	S3	4.2	Yes	1974-01-01	No Photo Available
<u><i>Fissidens pauperculus</i></u>	minute pocket moss	Fissidentaceae	moss		None	None	G3?	S2	1B.2		2001-01-01	 ©2021 Scot Loring
<u><i>Fritillaria lanceolata</i> var. <i>tristulis</i></u>	Marin checker lily	Liliaceae	perennial bulbiferous herb	Feb-May	None	None	G5T2	S2	1B.1	Yes	1994-01-01	 © 2020 Barry Rice
<u><i>Gilia millefoliata</i></u>	dark-eyed gilia	Polemoniaceae	annual herb	Apr-Jul	None	None	G2	S2	1B.2		2001-01-01	 © 2017 John Doyen
<u><i>Helianthella castanea</i></u>	Diablo helianthella	Asteraceae	perennial herb	Mar-Jun	None	None	G2	S2	1B.2	Yes	1974-01-01	 © 2013 Christopher Bronny
<u><i>Hemizonia congesta</i> ssp. <i>congesta</i></u>	congested-headed hayfield tarplant	Asteraceae	annual herb	Apr-Nov	None	None	G5T2	S2	1B.2	Yes	1988-01-01	 © 2015 Vernon Smith
<u><i>Hesperolinon congestum</i></u>	Marin western flax	Linaceae	annual herb	Apr-Jul	FT	CT	G1	S1	1B.1	Yes	1974-01-01	 © 2009 Neal Kramer
<u><i>Holocarpha macradenia</i></u>	Santa Cruz tarplant	Asteraceae	annual herb	Jun-Oct	FT	CE	G1	S1	1B.1	Yes	1974-01-01	 © 2011 Dylan Neubauer

<u><i>Horkelia tenuiloba</i></u>	thin-lobed horkelia	Rosaceae	perennial herb	May-Jul(Aug)	None	None	G2	S2	1B.2	Yes	1988-01-01	 © 1994 Doreen L. Smith
<u><i>Hosackia gracilis</i></u>	harlequin lotus	Fabaceae	perennial rhizomatous herb	Mar-Jul	None	None	G3G4	S3	4.2		2004-01-01	 © 2015 John Doyen
<u><i>Iris longipetala</i></u>	coast iris	Iridaceae	perennial rhizomatous herb	Mar-May(Jun)	None	None	G3	S3	4.2	Yes	2006-10-12	 © 2014 Aaron Schusteff
<u><i>Juncus acutus</i> ssp. <i>leopoldii</i></u>	southwestern spiny rush	Juncaceae	perennial rhizomatous herb	(Mar)May-Jun	None	None	G5T5	S4	4.2		1988-01-01	 © 2019 Belinda Lo
<u><i>Kopsiopsis hookeri</i></u>	small groundcone	Orobanchaceae	perennial rhizomatous herb (parasitic)	Apr-Aug	None	None	G4?	S1S2	2B.3		1994-01-01	 ©2016 Vernon Smith
<u><i>Leptosiphon aureus</i></u>	bristly leptosiphon	Polemoniaceae	annual herb	Apr-Jul	None	None	G4?	S4?	4.2	Yes	1994-01-01	 © 2007 Len Blumin
<u><i>Leptosiphon grandiflorus</i></u>	large-flowered leptosiphon	Polemoniaceae	annual herb	Apr-Aug	None	None	G3G4	S3S4	4.2	Yes	1994-01-01	 © 2003 Doreen L. Smith
<u><i>Lessingia hololeuca</i></u>	woolly-headed lessingia	Asteraceae	annual herb	Jun-Oct	None	None	G2G3	S2S3	3	Yes	1994-01-01	 © 2015 Aaron Schusteff
<u><i>Lessingia micradenia</i> var. <i>micradenia</i></u>	Tamalpais lessingia	Asteraceae	annual herb	(Jun)Jul-Oct	None	None	G2T2	S2	1B.2	Yes	1994-01-01	 © 2015 Vernon Smith
<u><i>Microseris paludosa</i></u>	marsh microseris	Asteraceae	perennial herb	Apr-Jun(Jul)	None	None	G2	S2	1B.2	Yes	2001-01-01	No Photo Available

<u><i>Navarretia rosulata</i></u>	Marin County navarretia	Polemoniaceae	annual herb	May-Jul	None	None	G2	S2	1B.2	Yes	1980-01-01	No Photo Available
<u><i>Pentachaeta bellidiflora</i></u>	white-rayed pentachaeta	Asteraceae	annual herb	Mar-May	FE	CE	G1	S1	1B.1	Yes	1974-01-01	No Photo Available
<u><i>Perideridia gairdneri</i> ssp. <i>gairdneri</i></u>	Gairdner's yampah	Apiaceae	perennial herb	Jun-Oct	None	None	G5T3T4	S3S4	4.2	Yes	1974-01-01	 ©2007 Neal Kramer
<u><i>Plagiobothrys glaber</i></u>	hairless popcornflower	Boraginaceae	annual herb	Mar-May	None	None	GX	SX	1A	Yes	1974-01-01	No Photo Available
<u><i>Pleuropogon Hooverianus</i></u>	North Coast semaphore grass	Poaceae	perennial rhizomatous herb	Apr-Jun	None	CT	G2	S2	1B.1	Yes	1974-01-01	No Photo Available
<u><i>Polygonum marinense</i></u>	Marin knotweed	Polygonaceae	annual herb	(Apr)May- Aug(Oct)	None	None	G2Q	S2	3.1	Yes	1974-01-01	No Photo Available
<u><i>Quercus parvula</i> var. <i>tamalpaisensis</i></u>	Tamalpais oak	Fagaceae	perennial evergreen shrub	Mar-Apr	None	None	G4T2	S2	1B.3	Yes	2001-01-01	No Photo Available
<u><i>Ranunculus lobbii</i></u>	Lobb's aquatic buttercup	Ranunculaceae	annual herb (aquatic)	Feb-May	None	None	G4	S3	4.2		1974-01-01	No Photo Available
<u><i>Sidalcea calycosa</i> ssp. <i>rhizomata</i></u>	Point Reyes checkerbloom	Malvaceae	perennial rhizomatous herb	Apr-Sep	None	None	G5T2	S2	1B.2	Yes	1994-01-01	No Photo Available
<u><i>Stebbinsoseris decipiens</i></u>	Santa Cruz microseris	Asteraceae	annual herb	Apr-May	None	None	G2	S2	1B.2	Yes	1974-01-01	No Photo Available
<u><i>Streptanthus batrachopus</i></u>	Tamalpais jewelflower	Brassicaceae	annual herb	Apr-Jul	None	None	G2	S2	1B.3	Yes	1974-01-01	 © 2012 Aaron Schusteff
<u><i>Streptanthus glandulosus</i> ssp. <i>pulchellus</i></u>	Mt. Tamalpais bristly jewelflower	Brassicaceae	annual herb	May- Jul(Aug)	None	None	G4T2	S2	1B.2	Yes	1980-01-01	No Photo Available
<u><i>Toxicoscordion fontanum</i></u>	marsh zigadenus	Melanthiaceae	perennial bulbiferous herb	Apr-Jul	None	None	G3	S3	4.2	Yes	2001-01-01	No Photo Available
<u><i>Trifolium amoenum</i></u>	two-fork clover	Fabaceae	annual herb	Apr-Jun	FE	None	G1	S1	1B.1	Yes	1974-01-01	No Photo Available

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2023. Rare Plant Inventory (online edition, v9.5). Website <https://www.rareplants.cnps.org> [accessed 8 November 2023].

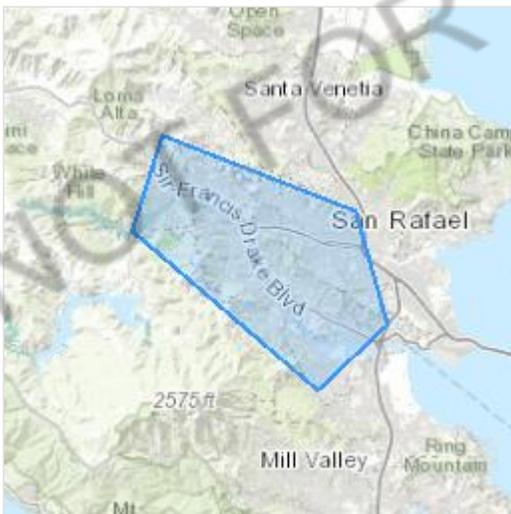
IPaC resource list

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

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ 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 Fisheries²).

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 <i>Reithrodontomys raviventris</i> 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 <i>Rallus longirostris obsoletus</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4240	Endangered
California Least Tern <i>Sterna antillarum browni</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8104	Endangered
Marbled Murrelet <i>Brachyramphus marmoratus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/4467	Threatened
Northern Spotted Owl <i>Strix occidentalis caurina</i> Wherever found There is final critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/1123	Threatened
Western Snowy Plover <i>Charadrius nivosus nivosus</i> There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8035	Threatened

Reptiles

NAME	STATUS
Green Sea Turtle <i>Chelonia mydas</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6199	Threatened
Northwestern Pond Turtle <i>Actinemys marmorata</i> Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> Wherever found There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Tidewater Goby <i>Eucyclogobius newberryi</i> Wherever found There is final critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/57	Endangered

Insects

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

Flowering Plants

NAME	STATUS
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California Seablite *Suaeda californica* Endangered

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/6310>

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. Your location does not overlap the critical habitat.

<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.

This location overlaps the critical habitat for the following species:

NAME

TYPE

Northern Spotted Owl *Strix occidentalis caurina*

Final

<https://ecos.fws.gov/ecp/species/1123#crithab>

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act¹ and the Migratory Bird Treaty Act².

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats³, should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds
<https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds>
- Nationwide conservation measures for birds
<https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC
<https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

There are bald and/or golden eagles in your project area.

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
Bald Eagle <i>Haliaeetus leucocephalus</i> 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.	Breeds Jan 1 to Aug 31
Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read 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.

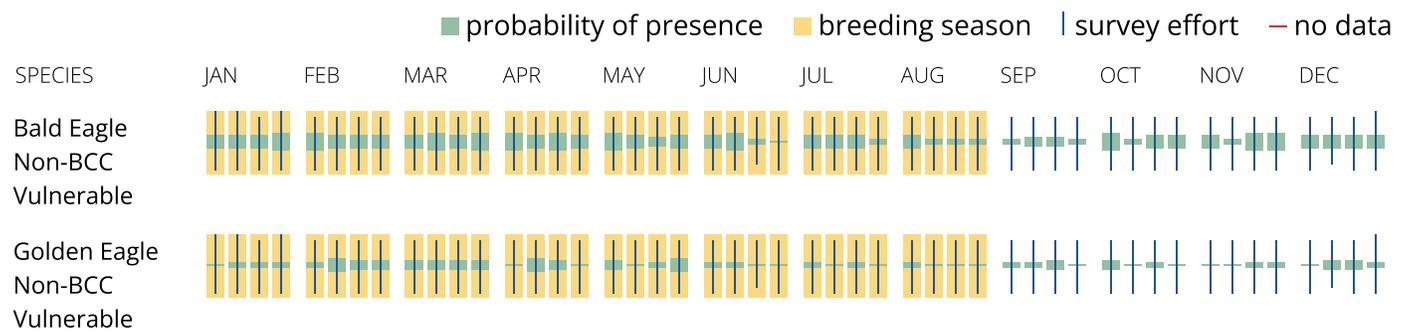
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

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.



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply). To see 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 of bald and golden eagles 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 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. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats³ 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:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide conservation measures for birds <https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf>
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

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

<p>Allen's Hummingbird <i>Selasphorus sasin</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9637</p>	<p>Breeds Feb 1 to Jul 15</p>
<p>Bald Eagle <i>Haliaeetus leucocephalus</i> 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.</p>	<p>Breeds Jan 1 to Aug 31</p>
<p>Belding's Savannah Sparrow <i>Passerculus sandwichensis beldingi</i> 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</p>	<p>Breeds Apr 1 to Aug 15</p>
<p>Black Oystercatcher <i>Haematopus bachmani</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9591</p>	<p>Breeds Apr 15 to Oct 31</p>
<p>Black Swift <i>Cypseloides niger</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8878</p>	<p>Breeds Jun 15 to Sep 10</p>
<p>Black Turnstone <i>Arenaria melanocephala</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	<p>Breeds elsewhere</p>
<p>Black-chinned Sparrow <i>Spizella atrogularis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9447</p>	<p>Breeds Apr 15 to Jul 31</p>
<p>Bullock's Oriole <i>Icterus bullockii</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p>	<p>Breeds Mar 21 to Jul 25</p>

<p>California Gull <i>Larus californicus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds Mar 1 to Jul 31
<p>California Thrasher <i>Toxostoma redivivum</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds Jan 1 to Jul 31
<p>Clark's Grebe <i>Aechmophorus clarkii</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds Jun 1 to Aug 31
<p>Common Yellowthroat <i>Geothlypis trichas sinuosa</i> 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</p>	Breeds May 20 to Jul 31
<p>Golden Eagle <i>Aquila chrysaetos</i> 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</p>	Breeds Jan 1 to Aug 31
<p>Lawrence's Goldfinch <i>Carduelis lawrencei</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9464</p>	Breeds Mar 20 to Sep 20
<p>Long-eared Owl <i>asio otus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3631</p>	Breeds Mar 1 to Jul 15
<p>Marbled Godwit <i>Limosa fedoa</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9481</p>	Breeds elsewhere

<p>Nuttall's Woodpecker <i>Picoides nuttallii</i> 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</p>	Breeds Apr 1 to Jul 20
<p>Oak Titmouse <i>Baeolophus inornatus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9656</p>	Breeds Mar 15 to Jul 15
<p>Olive-sided Flycatcher <i>Contopus cooperi</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914</p>	Breeds May 20 to Aug 31
<p>Short-billed Dowitcher <i>Limnodromus griseus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480</p>	Breeds elsewhere
<p>Tricolored Blackbird <i>Agelaius tricolor</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3910</p>	Breeds Mar 15 to Aug 10
<p>Western Grebe <i>Aechmophorus occidentalis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/6743</p>	Breeds Jun 1 to Aug 31
<p>Willet <i>Tringa semipalmata</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds elsewhere
<p>Wrentit <i>Chamaea fasciata</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds Mar 15 to Aug 10

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and

understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

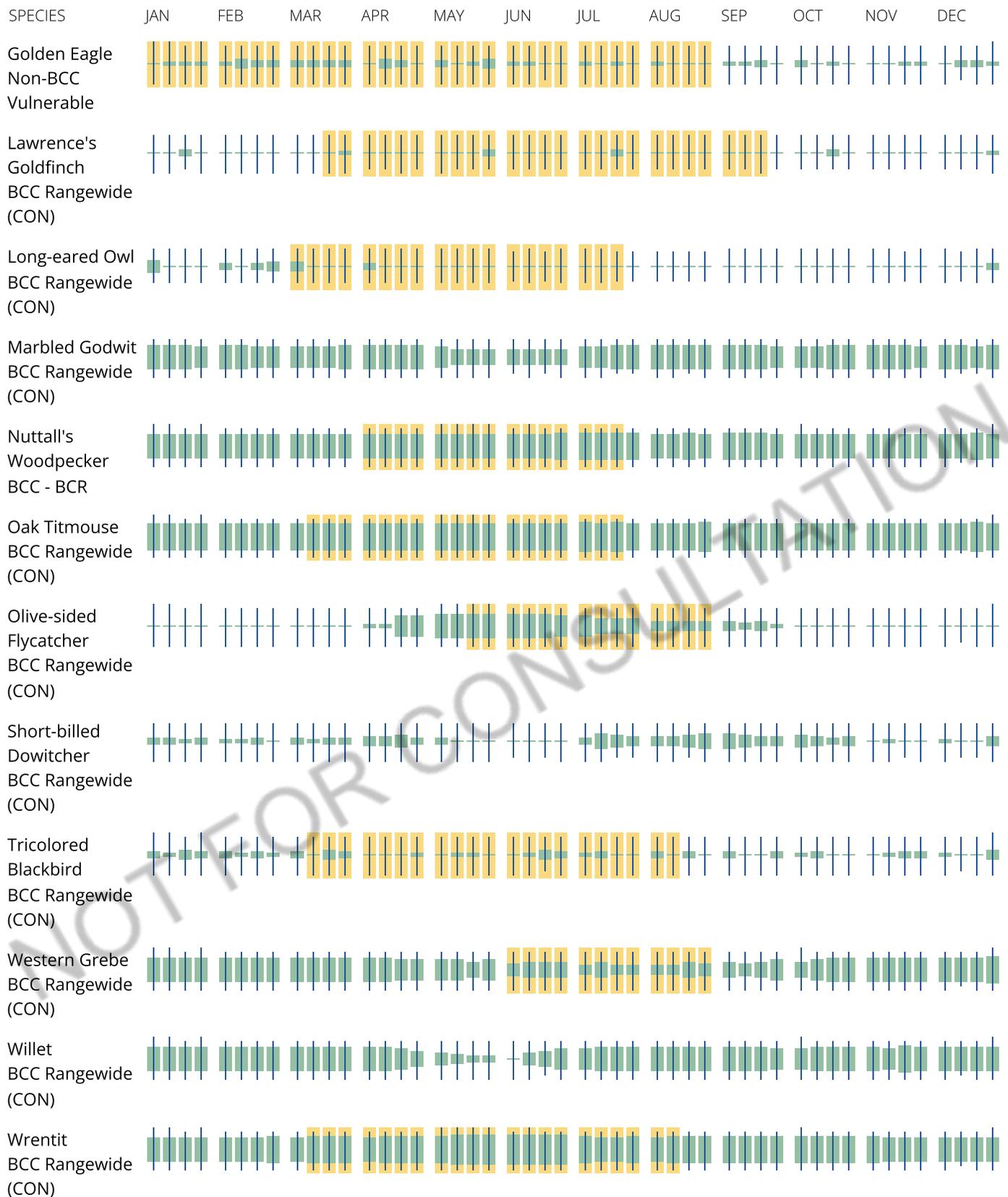
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

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

No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe



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.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Wetland information is not available at this time

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

Data limitations

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

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

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 tubercid 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.