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MITIGATED NEGATIVE DECLARATION TRES AMIGOS WATERLINE REPLACEMENT PROJECT

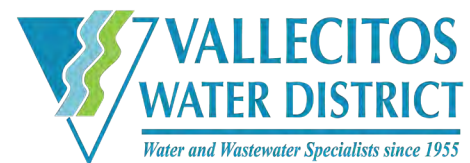
Volume II: Technical Appendices

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**Air Quality and
Greenhouse Gas
Analysis**

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TRES AMIGOS WATER PIPELINE REPLACEMENT PROJECT

AIR QUALITY/GREENHOUSE GAS STUDY

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TRES AMIGOS WATER PIPELINE REPLACEMENT PROJECT VISTA, CALIFORNIA

AIR QUALITY and GREENHOUSE GAS STUDY

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TRES AMIGOS WATER PIPELINE REPLACEMENT PROJECT VISTA, CALIFORNIA

AIR QUALITY and GREENHOUSE GAS STUDY

This report is an analysis of the potential air quality and greenhouse gas impacts associated with the proposed replacement of the Tres Amigos water pipeline in the Vallecitos Water District service area. This study analyzes the potential for temporary impacts associated with construction activity and impacts associated with project operation.

PROJECT DESCRIPTION

The Project is located north of the City of Vista, within the unincorporated community of Bonsall, County of San Diego. The proposed Project is located just north of Tres Amigos Ranch Road, one mile south of State Route 76 (SR-76), one-quarter mile east of East Vista Road and four miles west of Interstate 15 (I-15), north of State Route 78 (SR-78) (**Figure 1 - Regional Location**). The alignment travels in generally a north/south direction with east/west extensions at the northern and southern terminuses. The alignment generally travels along Ormsby Way, across Gopher Canyon Road, along Fairview Drive with a small extension onto Carrio Drive (**Figure 2 - Project Location**).

The Vallecitos Water District (District) is proposing to replace approximately 10,800 linear feet¹ (LF) of the Tres Amigos water pipeline located within the northern limits of the District's service area. The existing pipelines, installed during the 1950s and 1960s, consist of 6- and 8-inch tar wrapped thin 12-14 gauge steel and have experienced frequent pipeline breaks. This pipeline segment would be replaced with 8-inch PVC pipeline. The portion of the alignment to be replaced originates within an agricultural field (Bonsall Farms) at the southern connection point and travels north through a residential area located north of Gopher Canyon Road, generally in and around Fairview Drive. Pressure within the pipeline ranges from 140 to 230-psi.

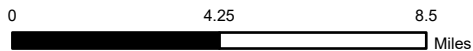
The Project would involve replacement of the pipeline through an active agricultural site, vacating existing District easements (through Bonsall Farms and residential properties), securing new permanent easements, and relocation of existing residential services along Fairview Drive north of Gopher Canyon Road (reconnecting water meters, new service lines/laterals).

The proposed Project would utilize 8-inch diameter PVC C900 pipe, in conformance with District standards and specifications. Per District design guidelines, the PVC pipe would be DR 14 (pressure class 305-psi). The pipeline shall be installed via open trench construction; installation and trench backfill shall conform to the requirements of District Standard Drawing W-17 and W-18. Open trench installation would occur within the roadway of Ormsby Way, Gopher Canyon Road, Fairview Drive, Carrio Drive, and private driveways south of Gopher

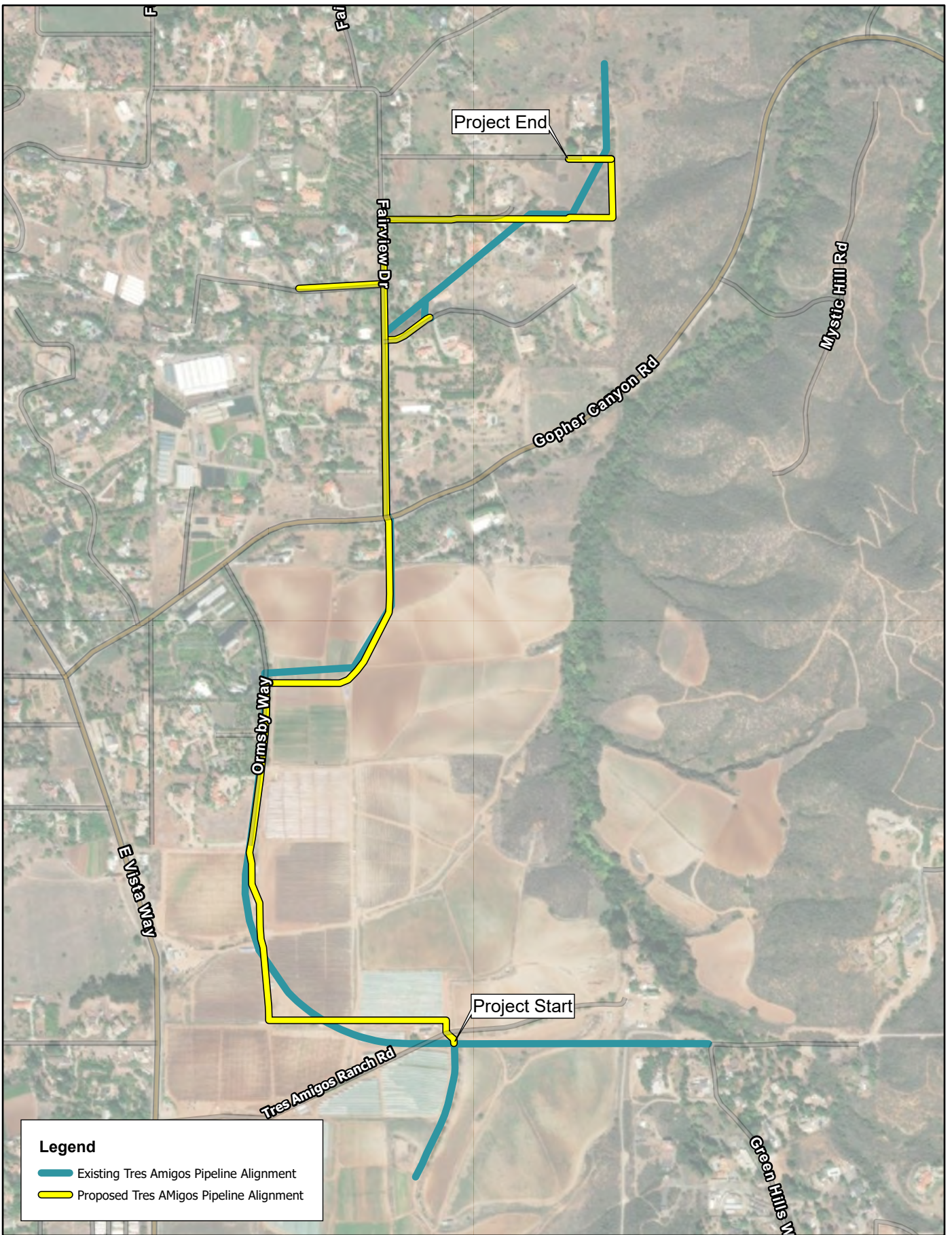
¹ Total length of pipeline replacement, including the extension segments on Carrio Drive and Via Del Cierro.



SOURCE: SanGIS Regional Data Warehouse



Regional Location
Tres Amigos Waterline Replacement Project
Figure 1



SOURCE: SanGIS Regional Data Warehouse



Project Location
 Tres Amigos Waterline Replacement Project
 Figure 2

Canyon Road and east of Fairview Drive. Trench resurfacing would conform to County standards and requirements and at a minimum, would match the existing roadway section. One segment of the pipeline would be installed using jack and bore methods to avoid impacts to the concrete channel that the project would need to cross.

Construction of the proposed project is anticipated to start in the second quarter of 2023 and take approximately 9 months to complete. During the construction of each phase, the contractor will erect a temporary construction fence around the greenbelt area affected by that stage. The fence is intended to keep the public out of the areas of work for their own safety.

Pipeline installation is anticipated to require the use of the following heavy equipment for pipe installation:

- Cat 325 excavator
- Cat 314 excavator
- Cat 938 loader
- Trencher
- Skidsteer
- Crew truck (2)
- 10-wheel dump truck
- Boring machine (for jack and bore locations only).

For backfilling and repaving disturbed roadway segments, the following equipment would be used:

- JD 710 backhoe
- 36-inch smooth drum roller
- Tack wagon.

Not all construction equipment would be operating simultaneously. All construction-related activities would be conducted between the hours of 7:00 a.m. and 4:00 p.m., Monday through Friday, with no construction on Saturdays, Sundays or holidays. Construction to cross Gopher Canyon Road will likely be at night which will require a variance from the San Diego County Noise Ordinance.

Post-construction, the project would not generate any operational emissions. No new vehicle trips or related maintenance activity would be required; thus, only construction emissions are addressed herein.

Dust Control Methods

The project would implement various construction dust control strategies as design features to be compliant with SDAPCD Rule 55. Compliance with these dust control measures are listed as follows and would be identified on grading plan approvals:

- During clearing, grading, earth-moving, excavation, or transportation of cut or fill materials, water trucks, sprinkler systems or hand watering shall be used to prevent dust from leaving the site and to create a crust after each day's activities cease;
- During construction, water trucks, sprinkler systems or hand watering shall be used to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this would include wetting down such areas later in the morning, after work is completed for the day, and whenever winds exceed 15 mph during active operations. Watering of active disturbance areas, including active grading areas and unpaved roads, would occur approximately every 2 hours of active operations, approximately two times per work day (at a minimum);
- Speeds on unpaved roads shall be reduced to less than 10 miles per hour;
- All grading and excavation operations shall be halted when wind speeds exceed 25 miles per hour;
- Dirt and debris spilled onto paved surfaces at the project site and on the adjacent roadways shall be swept, vacuumed, and/or washed at the end of each workday; and
- All trucks hauling dirt, sand, soil, or other loose material to and from the construction site shall be covered and/or a minimum 2 feet of freeboard shall be maintained.

REGULATORY SETTING

Air Pollution Regulation

Air pollutants are regulated at the national, State, and air basin level; each agency has a different degree of control. The United States Environmental Protection Agency (USEPA) regulates at the national level; the California Air Resources Control Board (CARB) regulates at the State level; and the San Diego Air Pollution Control District (SDAPCD) regulates air quality in San Diego County.

The federal and state governments have been empowered by the federal and state Clean Air Acts to regulate the emission of airborne pollutants and have established ambient air quality standards for the protection of public health. The USEPA is the federal agency designated to administer national air quality regulations, while CARB is the state equivalent in the California Environmental Protection Agency. Local control over air quality management is provided by CARB through multi-county and county-level Air Pollution Control Districts (APCDs) (also referred to as Air Quality Management Districts). CARB establishes statewide air quality standards and is responsible for the control of mobile emission sources, while the local APCDs are responsible for enforcing standards and regulating stationary sources. CARB has established 15 air basins statewide. The project area is located in the San Diego Air Basin (SDAB), which is under the jurisdiction of the SDAPCD.

California Air Resources Board

CARB, which became part of the California EPA (CalEPA) in 1991, is responsible for ensuring implementation of the California Clean Air Act (CCAA), meeting state requirements of the federal Clean Air Act and establishing California Ambient Air Quality Standards (CAAQs). It is also responsible for setting emission standards for vehicles sold in California and for other emission sources such as consumer products and certain off-road equipment. CARB also established passenger vehicle fuel specifications and oversees the functions of local air pollution control districts and air quality management districts, which in turn administer air quality activities at the regional and county level. The CCAA is administered by CARB at the state level and by the Air Quality Management Districts at the regional level. Both state and federal standards are summarized in Table 1. The federal "primary" standards have been established to protect the public health. The federal "secondary" standards are intended to protect the nation's welfare and account for air pollutant effects on soil, water, visibility, materials, vegetation, and other aspects of the general welfare.

Table 1
State and Federal Ambient Air Quality Standards

POLLUTANT	AVERAGE TIME	CALIFORNIA STANDARDS ¹		NATIONAL STANDARDS ²		
		Concentration ³	Method ⁴	Primary ^{3,5}	Secondary ^{3,6}	Method ⁷
Ozone ⁸ (O ₃)	1 hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 hours	0.070 ppm (137µg/m ³)		0.070 ppm (137 µg/m ³)		
Carbon Monoxide (CO)	8 hours	9.0 ppm (10 mg/m ³)	Non-Dispersive Infrared Spectroscopy (NDIR)	9 ppm (10 mg/m ³)	--	Non-Dispersive Infrared Spectroscopy (NDIR)
	1 hour	20 ppm (23 mg/m ³)		35 ppm (40 mg/m ³)		
Nitrogen Dioxide (NO ₂) ¹⁰	Annual Average	0.030 ppm (57 µg/m ³)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m ³)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 hour	0.18 ppm (339 µg/m ³)		100 ppb (188 µg/m ³)		
Sulfur Dioxide (SO ₂) ¹¹	Annual Average	--	Ultraviolet Fluorescence	0.03 ppm (80 µg/m ³)	--	Pararosaniline
	24 hours	0.04 ppm (105 µg/m ³)		0.14 ppm (365 µg/m ³)	--	
	3 hours	--		--	0.5 ppm (1300 µg/m ³)	
	1 hour	0.25 ppm (655 µg/m ³)		75 ppb (196 µg/m ³)	--	
Respirable	24 hours	50 µg/m ³		150 µg/m ³	150 µg/m ³	

Tres Amigos Water Pipeline Replacement Project Air Quality and Greenhouse Gas Study

POLLUTANT	AVERAGE TIME	CALIFORNIA STANDARDS ¹		NATIONAL STANDARDS ²		
		Concentration ³	Method ⁴	Primary ^{3,5}	Secondary ^{3,6}	Method ⁷
Particulate Matter (PM ₁₀) ⁹	Annual Arithmetic Mean	20 µg/m ³	Gravimetric or Beta Attenuation	--	--	Inertial Separation and Gravimetric Analysis
Fine Particulate Matter (PM _{2.5}) ⁹	Annual Arithmetic Mean	12 µg/m ³	Gravimetric or Beta Attenuation	12 µg/m ³	15 µg/m ³	Inertial Separation and Gravimetric Analysis
	24 hours	--		35 µg/m ³	Same as Primary Standard	
Sulfates	24 hours	25 µg/m ³	Ion Chromatography	--	--	--
Lead ^{12, 13} (Pb)	30-day Average	1.5 µg/m ³	Atomic Absorption	--	--	High Volume Sampler and Atomic Absorption
	Calendar Quarter	--		1.5 µg/m ³	Same as Primary Standard	
	3-month Rolling Average	--		0.15 µg/m ³		
Hydrogen Sulfide (H ₂ S)	1 hour	0.03 ppm (42 µg/m ³)	Ultraviolet Fluorescence	--	--	--
Vinyl Chloride ¹²	24 hours	0.010 ppm (26 µg/m ³)	Gas Chromatography	--	--	--

Notes:

ppm = parts per million

µg/m³ = micrograms per cubic meter

mg/m³ = milligrams per cubic meter

Source: California Air Resources Board 2017

- California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM₁₀, PM_{2.5}, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
- National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM₁₀, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. For PM_{2.5}, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.
- Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air

quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent measurement method which can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the U.S. EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the U.S. EPA.
8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
9. On December 14, 2012, the national annual PM_{2.5} primary standard was lowered from 15 µg/ m³ to 12.0 µg/ m³. The existing national 24-hour PM_{2.5} standards (primary and secondary) were retained at 35 µg/ m³, as was the annual secondary standard of 15 µg/ m³. The existing 24-hour PM₁₀ standards (primary and secondary) of 150 µg/ m³ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
11. On June 2, 2010, a new 1-hour SO₂ standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO₂ national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
12. The CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/ m³ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
14. In 1989, the CARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

San Diego Air Pollution Control District

The SDAPCD was created to protect the public from the harmful effects of air pollution, achieve and maintain air quality standards, foster community involvement and develop and implement

cost-effective programs that meet state and federal mandates while considering environmental and economic impacts.

Specifically, the SDAPCD is responsible for monitoring air quality and planning, implementing, and enforcing programs designed to attain and maintain state and federal ambient air quality standards in the district. Programs developed include air quality rules and regulations that regulate stationary source emissions, including area sources, point sources, and certain mobile source emissions. The SDAPCD is also responsible for establishing permitting requirements for stationary sources and ensuring that new, modified or relocated stationary sources do not create net emissions increases; and thus, are consistent with the region's air quality goals. The SDAPCD provides significance thresholds in Regulation II, Rule 20.2, Table 20-2-1. "AQIA Trigger Levels." These trigger levels were established for stationary sources of air pollution and are commonly used for environmental evaluations. The SDAPCD enforces air quality rules and regulations through a variety of means, including inspections, educational or training programs, or fines, when necessary. The project site is within the SDAB; and thus, is subject to SDAPCD rules and regulations.

State Implementation Plan/Air Quality Management Plan/Regional Air Quality Strategy

The federal Clean Air Act Amendments (CAAA) mandate that states submit and implement a State Implementation Plan (SIP) for areas not meeting air quality standards. SIPs are comprehensive plans that describe how an area will attain national and state ambient air quality standards. SIPs are a compilation of new and previously submitted plans, programs (i.e., monitoring, modeling and permitting programs), district rules, state regulations and federal controls and include pollution control measures that demonstrate how the standards will be met through those measures.

State law makes CARB the lead agency for all purposes related to the SIP. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB forwards SIP revisions to the USEPA for approval and publication in the Federal Register. Thus, the Regional Air Quality Strategy (RAQS) and Air Quality Management Plan (AQMP) prepared by SDAPCD and referenced herein become part of the SIP as the material relates to efforts ongoing in San Diego to achieve the national and state ambient air quality standards. The most recent SIP element for San Diego County was submitted in December 2016. The document identifies control measures and associated emission reductions necessary to demonstrate attainment of the 2008 Federal 8-hour ozone standard by July 20, 2018.

The San Diego RAQS was developed pursuant to California Clean Air Act (CCAA) requirements. The RAQS was initially adopted in 1991 and was updated in 1995, 1998, 2001, 2004, 2009 and 2016. The 2022 RAQS update is under development. Until it is adopted, the 2016 is applicable and can be found at the following:

[https://www.sdapcd.org/content/dam/sdapcd/documents/grants/planning/2016%20RAQS%20\(1\).pdf](https://www.sdapcd.org/content/dam/sdapcd/documents/grants/planning/2016%20RAQS%20(1).pdf)

The RAQS identifies feasible emission control measures to provide progress in San Diego County toward attaining the State ozone standard. The pollutants addressed in the RAQS are volatile organic compounds (VOC) (also referred to as Reactive Organic Gases (ROG)) and oxides of nitrogen (NO_x), precursors to the photochemical formation of ozone (the primary component of smog). The RAQS was initially adopted by the San Diego County Air Pollution Control Board on June 30, 1992, and amended on March 2, 1993, in response to ARB comments. At present, no attainment plan for particulate matter less than 10 microns in diameter (PM₁₀) or particulate matter less than 2.5 microns in diameter (PM_{2.5}) is required by the state regulations; however, SDAPCD has adopted measures to reduce particulate matter in San Diego County. These measures range from regulation against open burning to incentive programs that introduce cleaner technology. These measures can be found in a report titled “*Measures to Reduce Particulate Matter in San Diego County*” December 2005 and can be found at: <https://www.sandiegocounty.gov/content/dam/sdc/pds/ceqa/IVR/AdminRecord/IncorporatedByReference/Appendices/Appendix-C---Air-Quality-Report/SDAPCD%202005.pdf>

The RAQS relies on information from CARB and San Diego Association of Governments (SANDAG), including mobile and area source emissions, as well as information regarding projected growth in the County, to estimate future emissions and then determine strategies necessary for the reduction of emissions through regulatory controls. CARB mobile source emission projections and SANDAG growth projections are based on population and vehicle trends as well as land use plans developed by the cities and the County as part of the development of the individual General Plans. As such, projects that propose development consistent with the growth anticipated by the general plans would be consistent with the RAQS. In the event that a project would propose development which is less dense than anticipated within the General Plan, the project would likewise be consistent with the RAQS. If a project proposes development that is greater than that anticipated in the General Plan and SANDAG’s growth projections, the project might conflict with the RAQS and SIP; and thus, have a potentially significant impact on air quality.

Under state law, the SDAPCD is required to prepare an AQMP for pollutants for which the SDAB is designated non-attainment. Each iteration of the SDAPCD’s AQMP is an update of the previous plan and has a 20-year horizon. Currently the SDAPCD has implemented the *2020 Plan for Attaining the National Ambient Air Quality Standard for Ozone in San Diego County* (October 2020) and a 2004 Carbon Monoxide Plan. The 2020 ozone plan was submitted to CARB on October 20, 2020. It was adopted and submitted to the USEPA for review on December 28, 2020. Comments from the USEPA are pending. This plan is available for download on the ARB website located at the following URL: [https://www.sdapcd.org/content/dam/sdapcd/documents/grants/planning/Att%20A%20\(Attainment%20Plan\)_ws.pdf](https://www.sdapcd.org/content/dam/sdapcd/documents/grants/planning/Att%20A%20(Attainment%20Plan)_ws.pdf)

SDAPCD Rules and Regulations

As stated above, SDAPCD is responsible for planning, implementing, and enforcing federal and state ambient standards in the SDAB. The following rules and regulations apply to all sources in the jurisdiction of SDAPCD and would apply to the project.

SDAPCD Regulation IV: Prohibitions; Rule 50: Visible Emissions. Prohibits discharge into the atmosphere from any single source of emissions whatsoever any air contaminant for a period or periods aggregating more than 3 minutes in any period of 60 consecutive minutes that is darker in shade than that designated as Number 1 on the Ringelmann Chart, as published by the United States Bureau of Mines, or of such opacity as to obscure an observer's view to a degree greater than does smoke of a shade designated as Number 1 on the Ringelmann Chart (SDAPCD 1997).

SDAPCD Regulation IV: Prohibitions; Rule 51: Nuisance. Prohibits the discharge, from any source, of such quantities of air contaminants or other materials that cause or have a tendency to cause injury, detriment, nuisance, annoyance to people and/or the public, or damage to any business or property (SDAPCD 1976).

SDAPCD Regulation IV: Prohibitions; Rule 55: Fugitive Dust. Regulates fugitive dust emissions from any commercial construction or demolition activity capable of generating fugitive dust emissions, including active operations, open storage piles, and inactive disturbed areas, as well as track-out and carry-out onto paved roads beyond a project site (SDAPCD 2009b).

SDAPCD Regulation IV: Prohibitions; Rule 67.0.1: Architectural Coatings. Requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories (SDAPCD 2015).

SDAPCD Regulation XII: Toxic Air Contaminates; Rule 1200: Toxic Air Contaminants – New Source Review. Requires new or modified stationary source units with the potential to emit TACs above rule threshold levels to either demonstrate that they will not increase the maximum incremental cancer risk above 1 in 1 million at every receptor location, or demonstrate that toxics best available control technology (T-BACT) will be employed if maximum incremental cancer risk is equal to or less than 10 in 1 million, or demonstrate compliance with SDAPCD's protocol for those sources with an increase in maximum incremental cancer risk at any receptor location of greater than 10 in 1 million but less than 100 in 1 million (SDAPCD 2017b).

SDAPCD Regulation XII: Toxic Air Contaminates; Rule 1210: Toxic Air Contaminant Public Health Risks – Public Notification and Risk Reduction. Requires each stationary source that is required to prepare a public risk assessment to provide written public notice of risks at or above the following levels: maximum incremental cancer risks equal to or greater than 10 in 1 million, or cancer burden equal to or greater than 1.0, or total acute noncancer health hazard index equal

to or greater than 1.0, or total chronic non-cancer health hazard index equal to or greater than 1.0.

Regional Climate and Local Air Quality

The weather of San Diego County is profoundly influenced by the Pacific Ocean and its semi-permanent high-pressure systems that result in dry, warm summers and mild, occasionally wet winters. The average minimum temperature for January ranges from the mid-40s to the high-50s degrees Fahrenheit (4 to 15 degrees Celsius) across the county. July maximum temperatures average in the mid-80s to the high-90s degrees Fahrenheit (high-20s to the high-30s degrees Celsius). Most of the county's precipitation falls from November to April, with infrequent (approximately 10 percent) precipitation during the summer. The average seasonal precipitation along the coast is approximately 10 inches (254 millimeters); the amount increases with elevations as moist air is lifted over the mountains.

The interaction of ocean, land, and the Pacific High-Pressure Zone maintains clear skies for much of the year and drives the prevailing winds. Local terrain is often the dominant factor inland and winds in inland mountainous areas tend to blow upwards in the valleys during the day and down the hills and valleys at night.

In conjunction with the onshore/offshore wind patterns, there are two types of temperature inversions (reversals of the normal decrease of temperature with height), which occur within the region that affect atmospheric dispersive capability and that act to degrade local air quality. In the summer, an inversion at about 1,100 to 2,500 feet (335 to 765 meters) is formed over the entire coastal plain when the warm air mass over land is undercut by a shallow layer of cool marine air flowing onshore. The prevailing sunny days in this region further exacerbate the smog problem by inducing additional adverse photochemical reactions. During the winter, a nightly shallow inversion layer (usually at about 800 feet or 243 meters) forms between the cooled air at the ground and the warmer air above, which can trap vehicular pollutants. The days of highest Carbon Monoxide (CO) concentrations occur during the winter months. The predominant onshore/offshore wind pattern is sometimes interrupted by so-called Santa Ana conditions, when high pressure over the Nevada-Utah region overcomes the prevailing westerly wind direction. This draws strong, steady, hot, and dry winds from the east over the mountains and out to sea. Strong Santa Ana winds tend to blow pollutants out over the ocean, producing clear days. However, at the onset or breakdown of these conditions or if the Santa Ana is weak, prevailing northwesterly winds are reestablished which send polluted air from the Los Angeles basin ashore in the SDAB. "Smog transport from the South Coast Air Basin (the metropolitan areas of Los Angeles, Orange, San Bernardino, and Riverside counties) is a key factor on more than half the days San Diego exceeds clean air standards" (San Diego Air Pollution Control District, 2010).

Pollutants

The SDAPCD is required to monitor air pollutant levels to ensure that air quality standards are met and, if they are not met, to develop strategies to meet the standards. Depending on whether

the standards are met or exceeded, the local air basin is classified as being in “attainment” or “non-attainment.” San Diego County is listed as a federal non-attainment area for ozone (eight hour) and a state non-attainment area for ozone (one hour and eight-hour standards), PM₁₀ and PM_{2.5}. As shown in Table 2, the SDAB is in attainment for the state and federal standards for nitrogen dioxide, carbon monoxide, sulfur dioxide and lead. Characteristics of ozone, carbon monoxide, nitrogen dioxide, and suspended particulates are described below.

**Table 2
San Diego County Attainment Status**

Criteria Pollutant	Federal Designation	State Designation
Ozone (one hour)	Attainment*	Non-Attainment
Ozone (eight hour)	Moderate Non-Attainment	Non-Attainment
Carbon Monoxide	Attainment	Attainment
PM ₁₀	Unclassifiable**	Non-Attainment
PM _{2.5}	Attainment	Non-Attainment
Nitrogen Dioxide	Attainment	Attainment
Sulfur Dioxide	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates	No Federal Standard	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Visibility	No Federal Standard	Unclassified

* The federal 1-hour standard of 12 ppm was in effect from 1979 through June 1, 2005. The revoked standard is referenced here because it was used for such a long period and because this benchmark is addressed in State Implementation Plans (SIPs).

** At the time of designation, if the available data does not support a designation of attainment or non-attainment, the area is designated as unclassifiable.

Source: San Diego Air Pollution Control District. June 2016. <http://www.sandiegocounty.gov/content/sdc/apcd/en/air-quality-planning/attainment-status.html>

Ozone. Ozone is produced by a photochemical reaction (triggered by sunlight) between nitrogen oxides (NO_x) and reactive organic gases (ROG)². Nitrogen oxides are formed during the combustion of fuels, while reactive organic compounds are formed during combustion and evaporation of organic solvents. Because ozone requires sunlight to form, it mostly occurs in concentrations considered serious between the months of April and October. Ozone is a pungent, colorless, toxic gas with direct health effects on humans including respiratory and eye irritation and possible changes in lung functions. Groups most sensitive to ozone include children, the elderly, people with respiratory disorders, and people who exercise strenuously outdoors.

² Organic compound precursors of ozone are routinely described by a number of variations of three terms: hydrocarbons (HC), organic gases (OG), and organic compounds (OC). These terms are often modified by adjectives such as total, reactive, or volatile, and result in a rather confusing array of acronyms: HC, THC (total hydrocarbons), RHC (reactive hydrocarbons), TOG (total organic gases), ROG (reactive organic gases), TOC (total organic compounds), ROC (reactive organic compounds), and VOC (volatile organic compounds). While most of these differ in some significant way from a chemical perspective, from an air quality perspective two groups are important: non-photochemically reactive in the lower atmosphere, or photochemically reactive in the lower atmosphere (HC, RHC, ROG, ROC, and VOC).

Carbon Monoxide. Carbon monoxide (CO) is a local pollutant that is found in high concentrations only near the source. The major source of carbon monoxide, a colorless, odorless, poisonous gas, is automobile exhaust. Elevated CO concentrations; therefore, are usually only found near areas of high traffic volumes operating in congested conditions. Carbon monoxide health effects are related to blood hemoglobin. At high concentrations, carbon monoxide reduces the amount of oxygen in the blood, causing heart difficulties in people with chronic diseases, reduced lung capacity and impaired mental abilities.

Nitrogen Dioxide. Nitrogen dioxide (NO₂) is a by-product of fuel combustion, with the primary source being motor vehicles and industrial boilers and furnaces. The principal form of nitrogen oxide produced by combustion is nitric oxide (NO), but NO reacts rapidly to form NO₂, creating the mixture of NO and NO₂ commonly called NO_x. Nitrogen dioxide is an acute irritant. A relationship between NO₂ and chronic pulmonary fibrosis may exist and an increase in bronchitis in young children at concentrations below 0.3 parts per million (ppm) may occur. Nitrogen dioxide absorbs blue light and causes a reddish-brown cast to the atmosphere and reduced visibility. It can also contribute to the formation of PM₁₀ and acid rain.

Suspended Particulates. PM₁₀ is particulate matter measuring no more than 10 microns in diameter, while PM_{2.5} is fine particulate matter measuring no more than 2.5 microns in diameter. Suspended particulates are mostly dust particles, nitrates and sulfates. Both PM₁₀ and PM_{2.5} are by-products of fuel combustion and wind erosion of soil and unpaved roads and are directly emitted into the atmosphere through these processes. Suspended particulates are also created in the atmosphere through chemical reactions. The characteristics, sources, and potential health effects associated with the small particulates (those between 2.5 and 10 microns in diameter) and fine particulates (PM_{2.5}) can be very different. The small particulates generally come from windblown dust and dust kicked up from mobile sources. The fine particulates are generally associated with combustion processes as well as being formed in the atmosphere as a secondary pollutant through chemical reactions. Fine particulate matter is more likely to penetrate deeply into the lungs and poses a health threat to all groups, but particularly to the elderly, children, and those with respiratory problems. More than half of the small and fine particulate matter that is inhaled into the lungs remains there. These materials can damage health by interfering with the body's mechanisms for clearing the respiratory tract or by acting as carriers of an absorbed toxic substance.

Lead. Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paints, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phaseout of leaded gasoline reduced the overall inventory of airborne lead by nearly 95%. With the phaseout of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead-emissions sources of greater concern. Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and, in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures

are associated with decrements in neurobehavioral performance, including intelligence quotient performance, psychomotor performance, reaction time, and growth. Children are highly susceptible to the effects of lead.

Sulfates. Sulfates are the fully oxidized form of sulfur, which typically occur in combination with metals or hydrogen ions. Sulfates are produced from reactions of SO₂ in the atmosphere. Sulfates can result in respiratory impairment, as well as reduced visibility.

Vinyl Chloride. Vinyl chloride is a colorless gas with a mild, sweet odor, which has been detected near landfills, sewage plants, and hazardous waste sites, due to the microbial breakdown of chlorinated solvents. Short-term exposure to high levels of vinyl chloride in air can cause nervous system effects, such as dizziness, drowsiness, and headaches. Long-term exposure through inhalation can cause liver damage, including liver cancer.

Hydrogen Sulfide. Hydrogen sulfide is a colorless and flammable gas that has a characteristic odor of rotten eggs. Sources of hydrogen sulfide include geothermal power plants, petroleum refineries, sewers, and sewage treatment plants. Exposure to hydrogen sulfide can result in nuisance odors, as well as headaches and breathing difficulties at higher concentrations.

Visibility-Reducing Particles. Visibility-reducing particles are any particles in the air that obstruct the range of visibility. Effects of reduced visibility can include obscuring the viewshed of natural scenery, reducing airport safety, and discouraging tourism. Sources of visibility-reducing particles are the same as for PM_{2.5} described above.

Toxic Air Contaminants/Diesel Particulate Matter. Hazardous air pollutants, also known as toxic air pollutants (TACs) or air toxics, are those pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects. Examples of toxic air pollutants include:

1. benzene, which is found in gasoline;
2. perchloroethylene, which is emitted from some dry-cleaning facilities; and
3. methylene chloride, which is used as a solvent.

Transportation related emissions are focused on particulate matter constituents within diesel exhaust and TAC constituents that comprise a portion of total organic gas (TOG) emissions from both diesel and gasoline fueled vehicles. Diesel engine emissions are comprised of exhaust particulate matter and TOGs which are collectively defined as Diesel Particulate Matter (DPM). DPM and TOG emissions from both diesel and gasoline fueled vehicles is typically composed of carbon particles and carcinogenic substances including polycyclic aromatic (i.e., odorous) hydrocarbons, benzene, formaldehyde, acetaldehyde, acrolein, and 1,3-butadiene. Diesel exhaust also contains gaseous pollutants, including volatile organic compounds and oxides of nitrogen (NO_x).

Sensitive Receptors

Land uses considered to be sensitive receptors include residential, school, childcare centers, acute care hospitals, and long-term health care facilities. Sensitive receptors are determined based upon special factors which may include the age of the users or occupants, the frequency and duration of the use or occupancy, continued exposure to hazardous substances as defined by federal and state regulations, and the user’s ability to evacuate a specific site in the event of a hazardous incident. Ambient air quality standards have been established to represent the levels of air quality considered sufficient, with an adequate margin of safety, to protect public health and welfare. They are designed to protect that segment of the public most susceptible to respiratory distress, such as children; the elderly; persons engaged in strenuous work or exercise and people with cardiovascular and chronic respiratory diseases. Recreational uses can be considered moderately sensitive to air pollution. Exercise can place a high demand on respiratory functions, which can be impaired by air pollution even though exposure periods during exercise are generally short. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial and commercial areas are considered the least sensitive to air pollution. Exposure periods are relatively short and intermittent, as the majority of the workers tend to stay indoors most of the time. Nearby sensitive receptors are residences located adjacent to the construction alignment.

Monitored Air Quality

The SDAPCD and CARB monitors air quality conditions at locations throughout the SDAB. For this analysis, data from the El Cajon Lexington Elementary School (533 First Street) monitoring station were used to characterize existing pollutant conditions in the vicinity of the project site.

**Table 3
Measured Air Quality Data**

Averaging Time	Unit	Agency/ Method	Ambient Air Quality Standard	Measured Concentration by Year			Exceedances by Year		
				2019	2020	2021	2019	2020	2021
Ozone (O ₃) – Camp Pendleton									
Maximum 1-hour concentration	ppm	State	0.09	0.075	0.094	0.074	0	0	0
Maximum 8-hour concentration	ppm	State	0.070	0.064	0.074	0.059	0	3	0
		Federal	0.070	0.065	0.074	0.059	0	3	0
Nitrogen Dioxide (NO ₂) – Camp Pendleton									
Maximum 1-hour concentration	ppm	State	0.18	53	58	59	0	0	0
		Federal	0.100	53	58	59	0	0	0
Coarse Particulate Matter (PM ₁₀) – El Cajon – Lexington Elementary School, 533 First Street									

Maximum 24-hour concentration	µg/m ³	State	50	37.4	ND	ND	*	*	*
		Federal	150	38.7	ND	ND	0	*	*
Annual concentration	µg/m ³	State	20	ND	ND	ND	*	*	*
Fine Particulate Matter (PM _{2.5}) – Camp Pendeton									
Maximum 24-hour concentration	µg/m ³	Federal	35	ND	ND	ND	*	*	*
Annual concentration	µg/m ³	State	12.0	13.8	61.1	20.7	*	10	10
		Federal	12.0	ND	ND	ND	*	*	*

¹ – Federal O3 standard reduced from 75 ppm to 70 ppm in October 2015

*Insufficient data to determine number of exceedances

Source: California Air Resources Board, 2019, 2020, 2021 Air Quality Data Summaries available at: <http://www.arb.ca.gov/adam/topfour/topfourdisplay.php> Accessed February 18, 2023.

AIR QUALITY IMPACT ANALYSIS

Methodology and Significance Thresholds

Air quality modeling was performed in general accordance with the methodologies outlined in the SDAPCD 2016 RAQS to identify construction emissions associated with the project. All emissions were calculated using the California Emissions Estimator Model (CalEEMod) software version 2020.4.0 which incorporates current air emission data, planning methods and protocol approved by CARB.

All construction would occur within or adjacent to existing road corridors or within disturbed alignments. The disturbances would be limited to the construction phase and all disturbed areas would be restored to preconstruction conditions. It is assumed that material and equipment would be staged within the active construction area, within disturbed areas located adjacent to the corridor.

Regional Thresholds. Based on Appendix G of the *CEQA Guidelines*, a project would have a significant air quality impact if it would:

- a. Conflict with or obstruct implementation of the applicable air quality plan;
- b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard;
- c. Expose sensitive receptors to substantial pollutant concentrations;
- d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people.

Appendix G of the CEQA Guidelines (14 CCR 15000 et seq.) indicates that, where available, the significance criteria established by the applicable air quality management district or pollution control district may be relied upon to determine whether the project would have a significant impact on air quality. As part of its air quality permitting process, SDAPCD has established thresholds in Rule 20.2 requiring the preparation of Air Quality Impact Assessments for permitted stationary sources. SDAPCD sets forth quantitative emission thresholds for stationary sources. Although these trigger levels do not generally apply to mobile sources or general land development projects, for comparative purposes these levels may be used to evaluate the increased emissions that would be emitted into the SDAB from proposed land development projects. Project-related air quality impacts estimated in this environmental analysis would be considered significant if any of the applicable significance thresholds presented below in Table 4 are exceeded.

The thresholds listed in Table 4 are screening-level thresholds used to evaluate whether proposed-project-related emissions could cause a significant impact on air quality. Emissions below the screening-level thresholds would not cause a significant impact. The emissions-based thresholds for ozone precursors (ROG and NOx) are intended to serve as the threshold for ozone. This approach is used because ozone is not emitted directly; thus, ozone concentrations associated with individual projects precursors (VOC and NOx) emissions cannot be determined through air quality models or other quantitative methods. For nonattainment pollutants, if emissions exceed the thresholds shown in Table 4, the project has the potential to result in a cumulatively considerable net increase in these pollutants; and thus, could have a significant impact on the ambient air quality.

With respect to odors, SDAPCD Rule 51 (Public Nuisance) prohibits emission of any material that causes nuisance to a considerable number of persons or endangers the comfort, health, or safety of any person. A project that involves a use that would produce objectionable odors would be deemed to have a significant odor impact if it would affect a considerable number of off-site receptors.

**Table 4
SDAPCD Air Emission Significance Thresholds**

Daily Construction and Operational Emissions	
Pollutant	Total Emissions (pounds per day)
Reactive Organic Gas (ROG)	75
Nitrogen Oxides (NOx)	250
Carbon Monoxide (CO)	550
Sulfur Oxides (SOx)	250
Respirable Particulate Matter (PM ₁₀)	100
Fine Particulate Matter (PM _{2.5})	55

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

As stated, under state law, the SDAPCD is required to prepare an AQMP for pollutants for which the SDAB is designated non-attainment. Each iteration of the SDAPCD’s AQMP is an update of the previous plan and has a 20-year horizon. A project may be inconsistent with the AQMP if it would generate population, housing, or employment growth exceeding forecasts

used in the development of the AQMP. The 2016 AQMP, the most recent AQMP adopted by the SCAQMD, incorporates local city General Plans and the San Diego Association of Governments socioeconomic forecast projections of regional population, housing and employment growth.

The proposed project involves the installation of a new water pipeline segment. The project would not generate housing, jobs or other long-term emission sources or otherwise cause operational air impacts. Therefore, the project would have no effect on SANDAG's population growth forecast and would not conflict with the SIP and RAQS. The project would be consistent with the AQMP and not cause an adverse impact under threshold (a).

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

Construction Emissions

Project construction would generate temporary air pollutant emissions. These impacts are associated with fugitive dust (PM₁₀ and PM_{2.5}) and exhaust emissions from heavy construction vehicles, work crew vehicle trips. Estimated daily emissions are shown in Table 5. These are estimates based on the assumption that approximately 0.5 acres (i.e., 21,780 square feet) of area would be disturbed on any given day for demolition, site preparation, grading and paving activities. This number is likely conservative but was used to incorporate use of staging areas as well variability in the daily construction activities.

Emissions from the construction phase of the project were estimated using CalEEMod 2020.4.0. Construction scenario assumptions, including phasing, equipment mix, and vehicle trips, were based on information provided by the project applicant and CalEEMod default values when project specifics were not known.

As discussed, the project would implement dust control strategies as a project design feature. Modeling assumed watering would occur twice daily. To reflect implementation of proposed dust control strategies, the following was used in CalEEMod 2020.4.0:

- Water exposed area two times per day (55% reduction in PM₁₀ and PM_{2.5}); and

Table 5 summarizes the estimated maximum daily emissions of pollutants occurring during construction.

Table 5
Estimated Maximum Daily Construction Emissions with Dust Control Measures

Construction Phase	Maximum Emissions (lbs/day)					
	ROG	NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
2024 Maximum lbs/day	2.5	21.0	26.1	0.06	1.06	0.9
SCAQMD Regional Thresholds	75	100	550	150	150	55
Threshold Exceeded 2024	No	No	No	No	No	No

As shown in Table 5, construction of the proposed project would not exceed the SDAPCD daily thresholds. Construction emissions would be **less than significant** per thresholds (b) and (c) referenced above.

Construction-Related Toxic Air Contaminant Impacts

Potential for toxic air contaminant emissions related to diesel particulate emissions associated with heavy equipment operations during construction. According to South Coast Air Quality Management District (SCAQMD) methodology, health effects from carcinogenic air toxics are usually described in terms of “individual cancer risk”. A cancer risk greater than 10 cases per 1,000,000 people exposed would be considered a significant impact. The California Office of Environmental Health Hazard Assessment (OEHHA) health risk guidance states that a residential receptor should be evaluated based on a 30-year exposure period. “Individual Cancer Risk” is the likelihood that a person exposed to concentrations of toxic air contaminants over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. The construction schedule duration would be approximately seven months; however, only a portion of the overall construction work would require the use of diesel-powered equipment. The proposed project would not result in a long-term (i.e., 30 or 70 year) exposure to a substantial source of toxic air contaminant emissions; and thus, would not be exposed to the related individual cancer risk. Therefore, toxic air contaminant impacts would be **less than significant** during construction of the proposed project.

c. Expose sensitive receptors to substantial pollutant concentrations;

Carbon Monoxide Hotspots

The proposed project may require periodic lane closures where construction would occur within existing road segments. Post-construction, the project would not affect traffic flow on affected corridors. The project is not expected to cause or contribute to operating conditions that would generate CO conditions that state or federal standards. Based on these findings, receptors would not be exposed to substantial pollutant concentrations (threshold d) related to CO hotspots. No further evaluation with respect to CO hotspots is required.

Toxic Air Contaminants. The project will replace an existing pipeline segment within the District's service area. Post construction, the project would have no emissions. No toxic air contaminant impacts would occur with the proposed project.

The project would not expose people to substantial pollutant concentrations. Impacts would be **less than significant** under threshold c.

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

The State of California Health and Safety Code, Division 26, Part 4, Chapter 3, Section 41700, SDAPCD Rule 51 prohibits emissions from any source whatsoever in such quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to the public health or damage to property. Projects required to obtain permits from SDAPCD are evaluated by SDAPCD staff for potential odor nuisance, and conditions may be applied (or control equipment required) where necessary to prevent occurrence of public nuisance.

SDAPCD Rule 51 (Public Nuisance) also prohibits emission of any material that causes nuisance to a considerable number of persons or endangers the comfort, health, or safety of any person. A project that involves a use that would produce objectionable odors would be deemed to have a significant odor impact if it would affect a considerable number of off-site receptors. Odor issues are very subjective by the nature of odors themselves and due to the fact that their measurements are difficult to quantify. As a result, this guideline is qualitative and will focus on the existing and potential surrounding uses and location of sensitive receptors.

The occurrence and severity of potential odor impacts depends on numerous factors. The nature, frequency, and intensity of the source; the wind speeds and direction; and the sensitivity of receiving location each contribute to the intensity of the impact. Although offensive odors seldom cause physical harm, they can be annoying and cause distress among the public and generate citizen complaints. Odors would be potentially generated from vehicles and equipment exhaust emissions during construction of the project. Potential odors produced during construction would be attributable to exhaust emissions and asphalt pavement application. Such odors would disperse rapidly from the project site and generally occur at magnitudes that would not affect substantial numbers of people. Therefore, impacts associated with other emissions (such as those leading to odors) during construction would be less than significant. Project operation would not generate odors. Therefore, impacts would be **less than significant** per threshold (d).

GREENHOUSE GAS EMISSION DISCUSSION

Gases that absorb and re-emit infrared radiation in the atmosphere are called greenhouse gases (GHGs). GHGs are present in the atmosphere naturally, are released by natural sources, or are formed from secondary reactions taking place in the atmosphere. The gases that are widely seen as the principal contributors to human-induced climate change include carbon dioxide (CO₂),

methane (CH₄), nitrous oxides (N₂O), fluorinated gases such as hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). Water vapor is excluded from the list of GHGs because it is short-lived in the atmosphere and its atmospheric concentrations are largely determined by natural processes, such as oceanic evaporation.

GHGs are emitted by both natural processes and human activities. Of these gases, CO₂ and CH₄ are emitted in the greatest quantities from human activities. Emissions of CO₂ are largely by-products of fossil fuel combustion, whereas CH₄ results from off-gassing associated with agricultural practices and landfills. Man-made GHGs, many of which have greater heat-absorption potential than CO₂, include fluorinated gases and sulfur hexafluoride (SF₆) (California Environmental Protection Agency [CalEPA], 2006). Different types of GHGs have varying global warming potentials (GWPs). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100 years). Because GHGs absorb different amounts of heat, a common reference gas (CO₂) is used to relate the amount of heat absorbed to the amount of the gas emissions, referred to as “carbon dioxide equivalent” (CO₂E), and is the amount of a GHG emitted multiplied by its GWP. Carbon dioxide has a GWP of one. By contrast, methane (CH₄) has a GWP of 28, meaning its global warming effect is 28 times greater than carbon dioxide on a molecule per molecule basis (IPCC, 2014).

The largest source of GHG in California is transportation, contributing 39.9 percent of the state’s total GHG emissions. The industrial sector is the second largest source, contributing 21 percent of the state’s GHG emissions. California emissions result in part to its geographic size and large population compared to other states. However, a factor that reduces California’s per capita fuel use and GHG emissions, as compared to other states, is its relatively mild climate. In July 2017, California’s state legislature passed Assembly Bill (AB) 398 to reauthorize and extend until 2030 the state’s economy-wide greenhouse gas (GHG) reduction program. The bill sets a new GHG target of at least 40% below the 1990 level of emissions by 2030.

California Regulations

In 2005, former Governor Schwarzenegger issued Executive Order (EO) S-3-05, establishing statewide GHG emissions reduction targets. EO S-3-05 states that by 2020, emissions shall be reduced to 1990 levels; and by 2050, emissions shall be reduced to 80 percent of 1990 levels (CalEPA, 2006). In response to EO S-3-05, CalEPA created the Climate Action Team (CAT), which in March 2006 published the Climate Action Team Report (the “2006 CAT Report”) (CalEPA, 2006). The 2006 CAT Report recommended various strategies that the state could pursue to reduce GHG emissions. These strategies could be implemented by various state agencies to ensure that the emission reduction targets in EO S-3-05 are met and can be met with existing authority of the state agencies. The strategies include the reduction of passenger and light duty truck emissions, the reduction of idling times for diesel trucks, an overhaul of shipping technology/infrastructure, increased use of alternative fuels, increased recycling, and landfill methane capture.

Assembly Bill 32 and CARB's Scoping Plan

To further the goals established in EO S-3-05, the Legislature passed Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020. Under AB 32, CARB is responsible for and is recognized as having the expertise to carry out and develop the programs and requirements necessary to achieve the GHG emissions reduction mandate of AB 32. Under AB 32, CARB must adopt regulations requiring the reporting and verification of statewide GHG emissions from specified sources. This program is used to monitor and enforce compliance with established standards. CARB also is required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 authorized CARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted.

In 2007, CARB approved a limit on the statewide GHG emissions level for year 2020 consistent with the determined 1990 baseline (427 MMT CO₂E). CARB's adoption of this limit is in accordance with Health and Safety Code, Section 38550.

Further, in 2008, CARB adopted the Scoping Plan in accordance with Health and Safety Code, Section 38561. The Scoping Plan establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions for various emission sources/sectors to 1990 levels by 2020. The Scoping Plan evaluates opportunities for sector-specific reductions, integrates all CARB and Climate Action Team early actions and additional GHG reduction features by both entities, identifies additional measures to be pursued as regulations, and outlines the role of a cap-and-trade program. The key elements of the Scoping Plan include the following (CARB 2008):

1. Expanding and strengthening existing energy efficiency programs, as well as building and appliance standards;
2. Achieving a statewide renewable energy mix of 33%;
3. Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85% of California's GHG emissions;
4. Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets;
5. Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
6. Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation.

In the Scoping Plan (CARB 2008), CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of approximately 28.5% from the otherwise

projected 2020 emissions level (i.e., those emissions that would occur in 2020) absent GHG reducing laws and regulations (referred to as Business-As-Usual (BAU)). To calculate this percentage reduction, CARB assumed that all new electricity generation would be supplied by natural gas plants, no further regulatory action would impact vehicle fuel efficiency, and building energy efficiency codes would be held at 2005 standards.

In the 2011 Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document (CARB 2011a), CARB revised its estimates of the projected 2020 emissions level in light of the economic recession and the availability of updated information about GHG reduction regulations. Based on the new economic data, CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of 21.7% (down from 28.5%) from the BAU conditions. When the 2020 emissions level projection was updated to account for newly implemented regulatory measures, including Pavley I (model years 2009–2016) and the Renewables Portfolio Standard (RPS) (12% to 20%), CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of 16% (down from 28.5%) from the BAU conditions.

In 2014, CARB adopted the First Update to the Climate Change Scoping Plan: Building on the Framework (First Update; CARB 2014). The stated purpose of the First Update is to “highlight California’s success to date in reducing its GHG emissions and lay the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80% below 1990 levels by 2050” (CARB 2014). The First Update found that California is on track to meet the 2020 emissions reduction mandate established by AB 32 and noted that California could reduce emissions further by 2030 to levels needed to stay on track to reduce emissions to 80% below 1990 levels by 2050 if the state realizes the expected benefits of existing policy goals.

In conjunction with the First Update, CARB identified “six key focus areas comprising major components of the state’s economy to evaluate and describe the larger transformative actions that will be needed to meet the state’s more expansive emission reduction needs by 2050” (CARB 2014). Those six areas are (1) energy, (2) transportation (vehicles/equipment, sustainable communities, housing, fuels, and infrastructure), (3) agriculture, (4) water, (5) waste management, and (6) natural and working lands. The First Update identifies key recommended actions for each sector that will facilitate achievement of EO S-3-05’s 2050 reduction goal (CARB 2014).

Based on CARB’s research efforts presented in the First Update, it has a “strong sense of the mix of technologies needed to reduce emissions through 2050” (CARB 2014). Those technologies include energy demand reduction through efficiency and activity changes; large-scale electrification of on-road vehicles, buildings, and industrial machinery; decarbonizing electricity and fuel supplies; and the rapid market penetration of efficient and clean energy technologies. As part of the First Update, CARB recalculated the state’s 1990 emissions level using more recent GWPs identified by the IPCC. Using the recalculated 1990 emissions level (431 MMT CO₂E) and the revised 2020-emissions-level projection identified in the 2011 Final

Supplement, CARB determined that achieving the 1990 emissions level by 2020 would require a reduction in GHG emissions of approximately 15% (instead of 28.5% or 16%) from the BAU conditions (CARB 2014).

In January 2017, CARB released, *The 2017 Climate Change Scoping Plan Update (Second Update)*, for public review and comment. This update proposes CARB's strategy for achieving the state's 2030 GHG target as established in Senate Bill (SB) 32 (discussed below), including continuing the Cap-and-Trade Program through 2030, and includes a new approach to reduce GHGs from refineries by 20%. The Second Update incorporates approaches to cutting short-lived climate pollutants (SLCPs) under the Short-Lived Climate Pollutant Reduction Strategy (a planning document that was adopted by CARB in March 2017), acknowledges the need for reducing emissions in agriculture, and highlights the work underway to ensure that California's natural and working lands increasingly sequester carbon. During development of the Second Update, CARB held a number of public workshops in the Natural and Working Lands, Agriculture, Energy, and Transportation sectors to inform development of the 2030 Scoping Plan Update (CARB 2016). The Second Update has not been considered by CARB's Governing Board at the time this analysis was prepared.

Executive Order S-01-07 was enacted on January 18, 2007. The order mandates that a Low Carbon Fuel Standard ("LCFS") for transportation fuels be established for California to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020.

Other regulations affecting state and local GHG planning and policy development are summarized as follows:

Assembly Bill 939 and Senate Bill 1374

Assembly Bill 939 (AB 939) requires that each jurisdiction in California to divert at least 50 percent of its waste away from landfills, whether through waste reduction, recycling or other means. Senate Bill 1374 (SB 1374) requires the California Integrated Waste Management Board to adopt a model ordinance by March 1, 2004 suitable for adoption by any local agency to require 50 to 75 percent diversion of construction and demolition of waste materials from landfills.

Senate Bill 1368

Senate Bill 1368 (SB 1368) is the companion Bill of AB 32 and was adopted September, 2006. SB 1368 required the California Public Utilities Commission (CPUC) to establish a performance standard for baseload generation of GHG emissions by investor-owned utilities by February 1, 2007 and for local publicly owned utilities by June 30, 2007. These standards could not exceed the GHG emissions rate from a baseload combined-cycle, natural gas-fired plant. Furthermore, the legislation states that all electricity provided to the State, including imported electricity, must be generated by plants that meet the standards set by California Public Utilities Commission (CPUC) and California Energy Commission (CEC).

Senate Bill 97

Senate Bill 97 (SB 97) was adopted August 2007 and acknowledges that climate change is an environmental issue that requires analysis under CEQA. SB 97 directed the Governor's Office of Planning and Research (OPR), which is part of the State Natural Resources Agency, to prepare, develop, and transmit to CARB guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The Natural Resources Agency was required to certify and adopt those guidelines by January 1, 2010. Pursuant to the requirements of SB 97 as stated above, on December 30, 2009 the Natural Resources Agency adopted amendments to the state CEQA guidelines that address GHG emissions. The CEQA Guidelines Amendments changed sections of the CEQA Guidelines and incorporated GHG language throughout the Guidelines. However, no GHG emissions thresholds of significance were provided and no specific mitigation measures were identified. The GHG emission reduction amendments went into effect on March 18, 2010 and are summarized below:

1. Climate action plans and other greenhouse gas reduction plans can be used to determine whether a project has significant impacts, based upon its compliance with the plan.
2. Local governments are encouraged to quantify the greenhouse gas emissions of proposed projects, noting that they have the freedom to select the models and methodologies that best meet their needs and circumstances. The section also recommends consideration of several qualitative factors that may be used in the determination of significance, such as the extent to which the given project complies with state, regional, or local GHG reduction plans and policies. OPR does not set or dictate specific thresholds of significance. Consistent with existing CEQA Guidelines, OPR encourages local governments to develop and publish their own thresholds of significance for GHG impacts assessment.
3. When creating their own thresholds of significance, local governments may consider the thresholds of significance adopted or recommended by other public agencies, or recommended by experts.
4. New amendments include guidelines for determining methods to mitigate the effects of greenhouse gas emissions in Appendix F of the CEQA Guidelines.
5. OPR is clear to state that "to qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project; general compliance with a plan, by itself, is not mitigation."
6. OPR's emphasizes the advantages of analyzing GHG impacts on an institutional, programmatic level. OPR therefore approves tiering of environmental analyses and highlights some benefits of such an approach.
7. Environmental impact reports (EIRs) must specifically consider a project's energy use and energy efficiency potential.

Senate Bills 1078, 107, and X1-2 and Executive Orders S-14-08 and S-21-09

Senate Bill 1078 (SB 1078) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. Senate Bill 107 (SB 107) changed the target date to 2010. Executive Order S-14-08 was signed on November 2008 and expands the State's Renewable Energy Standard to 33 percent renewable energy by 2020. Executive Order S-21-09 directed CARB to adopt regulations by July 31, 2010 to enforce S-14-08. Senate Bill X1-2 codifies the 33 percent renewable energy requirement by 2020.

California Code of Regulations (CCR) Title 24, Part 6

CCR Title 24, Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24) were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. Although it was not originally intended to reduce GHG emissions, electricity production by fossil fuels results in GHG emissions and energy efficient buildings require less electricity. Therefore, increased energy efficiency results in decreased GHG emissions.

The Energy Commission adopted 2008 Standards on April 23, 2008 and Building Standards Commission approved them for publication on September 11, 2008. These updates became effective on August 1, 2009. All buildings for which an application for a building permit is submitted on or after July 1, 2014 must follow the 2013 standards. The 2013 commercial standards are estimated to be 30 percent more efficient than the 2008 standards; 2013 residential standards are at least 25 percent more efficient. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions.

Senate Bill 375

Senate Bill 375 (SB 375) was adopted in September 2008 and aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPO) to adopt a sustainable communities strategy (SCS) or alternate planning strategy (APS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP). CARB, in consultation with each MPO, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's sustainable community's strategy or alternate planning strategy for consistency with its assigned targets.

The proposed project is located within the Southern California Association of Governments (SCAG) jurisdiction, which has authority to develop the SCS or APS. For the SCAG region, beginning October 2018, the targets set by CARB are at eight percent below 2005 per capita GHG emissions levels by 2020 and 19 percent below 2005 per capita GHG emissions levels by

2035. On September 3, 2020, SCAG adopted the 2020-2045 Regional Transportation Plan / Sustainable Communities Strategy (RTP/SCS), Connect SoCal, which meets the CARB emission reduction requirements. The Housing Element Update is required by the State to be completed within 18 months after RTP/SCS adoption. The Riverside County Housing Element 2021-2029 (6th Cycle) is being prepared and will include housing-related goals, policies, and programs to address the existing and projected future housing needs of the unincorporated County.

City and County land use policies, including General Plans, are not required to be consistent with the RTP and associated SCS or APS. However, CEQA incentivizes, through streamlining and other provisions, qualified projects that are consistent with an approved SCS or APS and categorized as “transit priority projects.”

Senate Bill X7-7

Senate Bill X7-7 (SB X7-7), enacted on November 9, 2009, mandates water conservation targets and efficiency improvements for urban and agricultural water suppliers. SB X7-7 requires the Department of Water Resources (DWR) to develop a task force and technical panel to develop alternative best management practices for the water sector. Additionally, SB X7-7 required the DWR to develop criteria for baseline uses for residential, commercial, and industrial uses for both indoor and landscaped area uses. The DWR was also required to develop targets and regulations that achieve a statewide 20 percent reduction in water usage.

California Green Building Standards

Title 24, Part 6. Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California’s building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically establishes Building Energy Efficiency Standards that are designed to ensure new and existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality. These energy efficiency standards are reviewed every few years by the Building Standards Commission and the California Energy Commission (CEC) (and revised if necessary) (California Public Resources Code, Section 25402(b)(1)). The regulations receive input from members of industry, as well as the public, with the goal of “reducing of wasteful, uneconomic, inefficient, or unnecessary consumption of energy” (California Public Resources Code, Section 25402). These regulations are carefully scrutinized and analyzed for technological and economic feasibility (California Public Resources Code, Section 25402(d)) and cost effectiveness (California Public Resources Code, Sections 25402(b)(2) and (b)(3)). These standards are updated to consider and incorporate new energy efficient technologies and construction methods. As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment.

The 2019 Title 24 building energy efficiency standards and became effective on January 1, 2020. In general, single-family homes built to the 2019 standards are anticipated to use approximately 7% less energy for lighting, heating, cooling, ventilation, and water heating than those built to the 2016 standards, and nonresidential buildings built to the 2019 standards will use an estimated 30% less energy than those built to the 2016 standards (CEC 2015a).

Title 24, Part 11. In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as "CALGreen," and establishes minimum mandatory standards and voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The CALGreen standards took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential, and state-owned buildings and schools and hospitals. The CALGreen 2019 standards became effective on January 1, 2020. The mandatory standards require the following (24 CCR Part 11):

- Mandatory reduction in indoor water use through compliance with specified flow rates for plumbing fixtures and fittings;
- Mandatory reduction in outdoor water use through compliance with a local water efficient landscaping ordinance or the California Department of Water Resources' Model Water
- Efficient Landscape Ordinance;
- Diversion of 65% of construction and demolition waste from landfills;
- Mandatory inspections of energy systems to ensure optimal working efficiency;
- Inclusion of electric vehicle charging stations or designated spaces capable of supporting future charging stations; and
- Low-pollutant-emitting exterior and interior finish materials, such as paints, carpets, vinyl flooring, and particle board.

The CALGreen standards also include voluntary efficiency measures that are provided at two separate tiers and implemented at the discretion of local agencies and applicants. CALGreen's Tier 1 standards call for a 15% improvement in energy requirements, stricter water conservation, 65% diversion of construction and demolition waste, 10% recycled content in building materials, 20% permeable paving, 20% cement reduction, and cool/solar-reflective roofs. CALGreen's more rigorous Tier 2 standards call for a 30% improvement in energy requirements, stricter water conservation, 75% diversion of construction and demolition waste, 15% recycled content in building materials, 30% permeable paving, 25% cement reduction, and cool/solar-reflective roofs (24 CCR Part 11).

The California Public Utilities Commission, CEC, and CARB also have a shared, established goal of achieving zero net energy (ZNE) for new construction in California. The key policy timelines include the following: (1) all new residential construction in California will be ZNE by 2020, and (2) all new commercial construction in California will be ZNE by 2030 (CPUC 2013).³ As most recently defined by the CEC in its 2015 Integrated Energy Policy Report, a ZNE code building is "one where the value of the energy produced by on-site renewable energy

³ It is expected that achievement of the ZNE goal will occur through revisions to the Title 24 standards.

resources is equal to the value of the energy consumed annually by the building” using the CEC’s Time Dependent Valuation metric.

Title 20

Title 20 of the California Code of Regulations requires manufacturers of appliances to meet state and federal standards for energy and water efficiency. Performance of appliances must be certified through the CEC to demonstrate compliance with standards. New appliances regulated under Title 20 include refrigerators, refrigerator-freezers, and freezers; room air conditioners and room air-conditioning heat pumps; central air conditioners; spot air conditioners; vented gas space heaters; gas pool heaters; plumbing fittings and plumbing fixtures; fluorescent lamp ballasts; lamps; emergency lighting; traffic signal modules; dishwaters; clothes washers and dryers; cooking products; electric motors; low voltage dry-type distribution transformers; power supplies; televisions and consumer audio and video equipment; and battery charger systems. Title 20 presents protocols for testing for each type of appliance covered under the regulations and appliances must meet the standards for energy performance, energy design, water performance, and water design. Title 20 contains three types of standards for appliances: federal and state standards for federally regulated appliances, state standards for federally regulated appliances, and state standards for non-federally regulated appliances.

Executive Order B-30-15

EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under S-3-05 and AB 32. EO B-30-15 set an interim target goal of reducing statewide GHG emissions to 40% below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing statewide GHG emissions to 80% below 1990 levels by 2050 as set forth in EO S-3-05. To facilitate achievement of this goal, EO B-30-15 calls for an update to CARB’s Scoping Plan to express the 2030 target in terms of MMT CO₂E. EO B-30-15 also calls for state agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets. EO B-30-15 does not require local agencies to take any action to meet the new interim GHG reduction target.

Senate Bill 32 and Assembly Bill 197

SB 32 and AB 197 (enacted in 2016) are companion bills that set new statewide GHG reduction targets, make changes to CARB’s membership, increase legislative oversight of CARB’s climate change-based activities, and expand dissemination of GHG and other air quality-related emissions data to enhance transparency and accountability. More specifically, SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40% below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least three members of the Senate and three members of the Assembly, in order to provide ongoing oversight over implementation of the state’s climate policies. AB 197 added two members of the Legislature to CARB as nonvoting members; requires CARB to make available and update (at least annually via its website) emissions data for GHGs, criteria air pollutants, and toxic air contaminants from reporting facilities; and requires CARB to identify specific information for GHG emissions reduction measures when updating the Scoping Plan.

SB 350— Clean Energy and Pollution Reduction Act of 2015

In October 2015, the legislature approved and the Governor signed SB 350, which reaffirms California’s commitment to reducing its GHG emissions and addressing climate change. Key provisions include an increase in the renewables portfolio standard (RPS), higher energy efficiency requirements for buildings, initial strategies towards a regional electricity grid, and improved infrastructure for electric vehicle charging stations. Provisions for a 50 percent reduction in the use of petroleum statewide were removed from the Bill because of opposition and concern that it would prevent the Bill’s passage. Specifically, SB 350 requires the following to reduce statewide GHG emissions:

1. Increase the amount of electricity procured from renewable energy sources from 33 percent to 50 percent by 2030, with interim targets of 40 percent by 2024, and 25 percent by 2027.
2. Double the energy efficiency in existing buildings by 2030. This target will be achieved through the California Public Utility Commission (CPUC), the California Energy Commission (CEC), and local publicly-owned utilities.
3. Reorganize the Independent System Operator (ISO) to develop more regional electrify transmission markets and to improve accessibility in these markets, which will facilitate the growth of renewable energy markets in the western United States (California Leginfo 2015).

SB 100

On September 10, 2018, Governor Brown signed SB 100, which raises California’s RPS requirements to 60 percent by 2030, with interim targets, and 100 percent by 2045. The bill also establishes a state policy that eligible renewable energy resources and zero-carbon resources supply 100 percent of all retail sales of electricity to California end-use customers and 100 percent of electricity procured to serve all state agencies by December 31, 2045. Under the bill, the state cannot increase carbon emissions elsewhere in the western grid or allow resource shuffling to achieve the 100 percent carbon-free electricity target.

Executive Order B-55-18

On September 10, 2018, Governor Brown signed Executive Order B-55-2018 which established a new statewide goal to achieve carbon neutrality as soon as possible and no later than 2045. The executive order also states that California will achieve and maintain net negative emissions thereafter.

AB 2127

AB 2127 promotes better planning for EV infrastructure build-out across all vehicle classes. AB 2127 would help the state meet the goal of 5 million zero-emission vehicles (ZEV) on the road by 2030.

Local Regulations and CEQA Requirements

As referenced, pursuant to the requirements of SB 97, the Resources Agency has adopted amendments to the State CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted CEQA Guidelines provide general regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents, but contain no suggested thresholds of significance for GHG emissions. Instead, lead agencies are given the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHGs and climate change impacts. The general approach to developing a Threshold of Significance for GHG emissions is to identify the emissions level for which a project would not be expected to substantially conflict with existing California legislation adopted to reduce statewide GHG emissions needed to move the state towards climate stabilization. If a project would generate GHG emissions above the threshold level, its contribution to cumulative impacts would be considered significant.

The California Supreme Court addressed the issue of GHG emissions and the evaluation of potential impacts in CEQA documents, in the *Center for Biological Diversity v. California Department of Fish and Wildlife and Newhall Land and Farming* case, 2015) 224 Cal.App.4th 1105 (CBD vs. CDFW), also known as the “Newhall Ranch” case. The justices examined one of the most common approaches to GHG analyses for development projects which was evaluating the efficiency of a project’s emissions reduction in the context of the AB 32’s 2020 reduction goal, as presented in the statewide CARB Scoping Plan, using a comparison to an unregulated, “business as usual (BAU)” emissions scenario. As discussed in the Newhall Ranch decision, determining consistency with local GHG reduction plans or Climate Action Plans that qualify under Section 15183.5 of the CEQA Guidelines may be the most effective strategy for local governments to assess the significance of GHG emissions from proposed land use developments. Qualified CAPs also provide a workable option for addressing post-2020 GHG emissions and resolving issues that arise out of project-level GHG analyses raised in the Court’s decision."

CLIMATE CHANGE IMPACT ANALYSIS

Thresholds of Significance

Pursuant to the requirements of SB 97, the Resources Agency adopted amendments to the State CEQA Guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions in March 2010. These guidelines are used in evaluating the cumulative significance of GHG emissions from the proposed project. According to the adopted CEQA Guidelines, impacts related to GHG emissions from the proposed project would be significant if the project would:

- a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; and/or*
- b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.*

The vast majority of individual projects do not generate sufficient GHG emissions to create a project-specific impact through a direct influence to climate change; therefore, the issue of climate change typically involves an analysis of whether a project's contribution towards an impact is cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (CEQA Guidelines, Section 15355).

The significance of GHG emissions may be evaluated based on locally adopted quantitative thresholds, or consistency with a regional GHG reduction plan (such as a Climate Action Plan).

The Vallecitos Water District does not have a Climate Action Plan or established threshold; thus, a screening threshold of 900 metric tons of GHG's per year of GHG emissions. This is the same standard used by San Diego County and is used herein to determine the significance of project emissions.

Methodology

GHG emissions associated with construction and operation of the proposed project and existing development have been estimated using California Emissions Estimator Model (CalEEMod) version 2020.4.0.

Construction Emissions

Construction of the proposed project would generate temporary GHG emissions primarily associated with the operation of construction equipment, worker trips and truck trips required for hauling materials and equipment. Emissions associated with the construction period were estimated based on the projected maximum amount of equipment that would be used on-site at one time. Air districts such as the SDAPCD have recommended amortizing construction-related emissions over a 30-year period to calculate annual emissions. Complete CalEEMod results and assumptions can be viewed in the Appendix.

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

Estimate of Emissions

Construction Emissions

Construction activity is assumed to occur over a period of approximately 9 months beginning in early 2024 and concluding in late 2024. Based on CalEEMod results, construction activity for the project would generate an estimated 503 metric tons of carbon dioxide equivalent (CO₂E), as shown in Table 6. Amortized over a 30-year period (the assumed life of the project), construction of the proposed project would generate 17 metric tons of CO₂E per year.

**Table 6
Estimated Construction Related Greenhouse Gas
Emissions**

Year	Annual Emissions (metric tons CO ₂ E)
2024	503
Total	503
Amortized over 30 years	17

See Appendix for CalEEMod software program output

For the proposed project, the annual emissions would total approximately 17 metric tons per year in CO₂E. The proposed project is evaluated based on the threshold of 900 MT CO₂E annually. Project-related annual GHG emissions would not exceed the 900 metric ton screening threshold; thus, annual emissions would be less than significant per threshold a.

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

Consistency with EO S-3-05 and SB 32

EO S-3-05. This EO establishes the following goals: GHG emissions should be reduced to 2000 levels by 2010, to 1990 levels by 2020, and to 80% below 1990 levels by 2050.

SB 32. This bill establishes a statewide GHG emissions reduction target whereby CARB, in adopting rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emissions reductions, shall ensure that statewide GHG emissions are reduced to at least 40% below 1990 levels by December 31, 2030.

As referenced, specific goals and actions addressed in climate action plans and Title 24 include those addressing energy and water use reduction, promotion of green building measures, waste reduction, and reduction in vehicle miles traveled. These actions are intended to support EO S-3-35 and SB 32. The proposed project would not generate post-construction emissions; and thus, would not preclude the achievement of goals established by EO S-3-05 and SB 32. No impact would occur threshold (b).

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Appendix A

CalEEMod Air Quality and Greenhouse Gas Emissions Model Results -
Summer/Annual

Tres Amigos Water Pipeline Replacement Project - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

**Tres Amigos Water Pipeline Replacement Project
San Diego County, Summer**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	0.50	Acre	0.50	21,780.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.6	Precipitation Freq (Days)	40
Climate Zone	13			Operational Year	2024
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MW hr)	539.98	CH4 Intensity (lb/MW hr)	0.033	N2O Intensity (lb/MW hr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Construction duration modified to reflect the pipeline replacement duration

Off-road Equipment - The construction equipment used was provided as part of the project description. Off highway trucks, sweeper an concrete saw were added to reflect construction requirements.

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	180.00
tblConstructionPhase	PhaseEndDate	6/6/2024	9/9/2024
tblConstructionPhase	PhaseStartDate	1/19/2024	1/2/2024
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.50	0.50

Tres Amigos Water Pipeline Replacement Project - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.46	0.46
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks

2.0 Emissions Summary

Tres Amigos Water Pipeline Replacement Project - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0119	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0119	0.0000	5.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000	0.0000	1.2000e-004

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0119	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0119	0.0000	5.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000	0.0000	1.2000e-004

Tres Amigos Water Pipeline Replacement Project - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	1/2/2024	9/9/2024	5	180	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.5

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Bore/Drill Rigs	1	8.00	221	0.50
Building Construction	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Trenchers	1	8.00	78	0.50
Building Construction	Excavators	2	4.00	158	0.38
Building Construction	Skid Steer Loaders	1	8.00	65	0.37
Building Construction	Rollers	1		80	0.38
Building Construction	Sweepers/Scrubbers	1	8.00	64	0.46
Building Construction	Off-Highway Trucks	2	8.00	402	0.38
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Trips and VMT

Tres Amigos Water Pipeline Replacement Project - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Construction	12	9.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5670	20.9118	25.8673	0.0618		0.9598	0.9598		0.8918	0.8918		5,966.7910	5,966.7910	1.7663		6,010.9475
Total	2.5670	20.9118	25.8673	0.0618		0.9598	0.9598		0.8918	0.8918		5,966.7910	5,966.7910	1.7663		6,010.9475

Tres Amigos Water Pipeline Replacement Project - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.6000e-003	0.1703	0.0604	8.0000e-004	0.0271	1.0500e-003	0.0281	7.8000e-003	1.0000e-003	8.8000e-003		86.8772	86.8772	2.7400e-003	0.0126	90.6941
Worker	0.0231	0.0137	0.2015	6.3000e-004	0.0739	3.8000e-004	0.0743	0.0196	3.5000e-004	0.0200		63.8603	63.8603	1.6300e-003	1.5400e-003	64.3594
Total	0.0277	0.1840	0.2619	1.4300e-003	0.1010	1.4300e-003	0.1025	0.0274	1.3500e-003	0.0288		150.7375	150.7375	4.3700e-003	0.0141	155.0535

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5670	20.9118	25.8673	0.0618		0.9598	0.9598		0.8918	0.8918	0.0000	5,966.7910	5,966.7910	1.7663		6,010.9475
Total	2.5670	20.9118	25.8673	0.0618		0.9598	0.9598		0.8918	0.8918	0.0000	5,966.7910	5,966.7910	1.7663		6,010.9475

Tres Amigos Water Pipeline Replacement Project - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.6000e-003	0.1703	0.0604	8.0000e-004	0.0271	1.0500e-003	0.0281	7.8000e-003	1.0000e-003	8.8000e-003		86.8772	86.8772	2.7400e-003	0.0126	90.6941
Worker	0.0231	0.0137	0.2015	6.3000e-004	0.0739	3.8000e-004	0.0743	0.0196	3.5000e-004	0.0200		63.8603	63.8603	1.6300e-003	1.5400e-003	64.3594
Total	0.0277	0.1840	0.2619	1.4300e-003	0.1010	1.4300e-003	0.1025	0.0274	1.3500e-003	0.0288		150.7375	150.7375	4.3700e-003	0.0141	155.0535

Tres Amigos Water Pipeline Replacement Project - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949

Tres Amigos Water Pipeline Replacement Project - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	

Tres Amigos Water Pipeline Replacement Project - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0119	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004
Unmitigated	0.0119	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004

Tres Amigos Water Pipeline Replacement Project - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	4.1500e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.7100e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004
Total	0.0119	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004

Tres Amigos Water Pipeline Replacement Project - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	4.1500e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.7100e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	0.0000	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004
Total	0.0119	0.0000	5.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000		1.1000e-004	1.1000e-004	0.0000		1.2000e-004

7.0 Water Detail

7.1 Mitigation Measures Water

Tres Amigos Water Pipeline Replacement Project - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

Equipment Type	Number
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11.0 Vegetation

Tres Amigos Water Pipeline Replacement Project - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

**Tres Amigos Water Pipeline Replacement Project
San Diego County, Annual**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	0.50	Acre	0.50	21,780.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.6	Precipitation Freq (Days)	40
Climate Zone	13			Operational Year	2024
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	539.98	CH4 Intensity (lb/MWhr)	0.033	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Construction Phase - Construction duration modified to reflect the pipeline replacement duration

Off-road Equipment - The construction equipment used was provided as part of the project description. Off highway trucks, sweeper an concrete saw were added to reflect construction requirements.

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	180.00
tblConstructionPhase	PhaseEndDate	6/6/2024	9/9/2024
tblConstructionPhase	PhaseStartDate	1/19/2024	1/2/2024
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.50	0.50

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	LoadFactor	0.46	0.46
tblOffRoadEquipment	LoadFactor	0.38	0.38
tblOffRoadEquipment	OffRoadEquipmentType		Bore/Drill Rigs
tblOffRoadEquipment	OffRoadEquipmentType		Concrete/Industrial Saws
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Rollers
tblOffRoadEquipment	OffRoadEquipmentType		Sweepers/Scrubbers
tblOffRoadEquipment	OffRoadEquipmentType		Off-Highway Trucks

2.0 Emissions Summary

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-2-2024	4-1-2024	0.7703	0.7703
2	4-2-2024	7-1-2024	0.7699	0.7699
3	7-2-2024	9-30-2024	0.5923	0.5923
		Highest	0.7703	0.7703

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.1700e-003	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8671	1.8671	1.1000e-004	1.0000e-005	1.8741
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	2.1700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.8671	1.8671	1.1000e-004	1.0000e-005	1.8741

Tres Amigos Water Pipeline Replacement Project - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.1700e-003	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.8671	1.8671	1.1000e-004	1.0000e-005	1.8741
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	2.1700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.8671	1.8671	1.1000e-004	1.0000e-005	1.8741

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Construction	Building Construction	1/2/2024	9/9/2024	5	180	

Acres of Grading (Site Preparation Phase): 0

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Acres of Grading (Grading Phase): 0

Acres of Paving: 0.5

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Construction	Bore/Drill Rigs	1	8.00	221	0.50
Building Construction	Concrete/Industrial Saws	1	8.00	81	0.73
Building Construction	Trenchers	1	8.00	78	0.50
Building Construction	Excavators	2	4.00	158	0.38
Building Construction	Skid Steer Loaders	1	8.00	65	0.37
Building Construction	Rollers	1		80	0.38
Building Construction	Sweepers/Scrubbers	1	8.00	64	0.46
Building Construction	Off-Highway Trucks	2	8.00	402	0.38
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Construction	12	9.00	4.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Tres Amigos Water Pipeline Replacement Project - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2310	1.8821	2.3281	5.5600e-003		0.0864	0.0864		0.0803	0.0803	0.0000	487.1684	487.1684	0.1442	0.0000	490.7736
Total	0.2310	1.8821	2.3281	5.5600e-003		0.0864	0.0864		0.0803	0.0803	0.0000	487.1684	487.1684	0.1442	0.0000	490.7736

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.1000e-004	0.0159	5.5100e-003	7.0000e-005	2.3900e-003	9.0000e-005	2.4900e-003	6.9000e-004	9.0000e-005	7.8000e-004	0.0000	7.0976	7.0976	2.2000e-004	1.0300e-003	7.4096
Worker	2.0600e-003	1.3600e-003	0.0173	5.0000e-005	6.5000e-003	3.0000e-005	6.5300e-003	1.7300e-003	3.0000e-005	1.7600e-003	0.0000	4.9716	4.9716	1.4000e-004	1.3000e-004	5.0150
Total	2.4700e-003	0.0172	0.0228	1.2000e-004	8.8900e-003	1.2000e-004	9.0200e-003	2.4200e-003	1.2000e-004	2.5400e-003	0.0000	12.0692	12.0692	3.6000e-004	1.1600e-003	12.4246

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Building Construction - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2310	1.8821	2.3281	5.5600e-003		0.0864	0.0864		0.0803	0.0803	0.0000	487.1678	487.1678	0.1442	0.0000	490.7730
Total	0.2310	1.8821	2.3281	5.5600e-003		0.0864	0.0864		0.0803	0.0803	0.0000	487.1678	487.1678	0.1442	0.0000	490.7730

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.1000e-004	0.0159	5.5100e-003	7.0000e-005	2.3900e-003	9.0000e-005	2.4900e-003	6.9000e-004	9.0000e-005	7.8000e-004	0.0000	7.0976	7.0976	2.2000e-004	1.0300e-003	7.4096
Worker	2.0600e-003	1.3600e-003	0.0173	5.0000e-005	6.5000e-003	3.0000e-005	6.5300e-003	1.7300e-003	3.0000e-005	1.7600e-003	0.0000	4.9716	4.9716	1.4000e-004	1.3000e-004	5.0150
Total	2.4700e-003	0.0172	0.0228	1.2000e-004	8.8900e-003	1.2000e-004	9.0200e-003	2.4200e-003	1.2000e-004	2.5400e-003	0.0000	12.0692	12.0692	3.6000e-004	1.1600e-003	12.4246

Tres Amigos Water Pipeline Replacement Project - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.557888	0.062607	0.178921	0.119061	0.024112	0.006269	0.008734	0.006266	0.000708	0.000566	0.028949	0.000971	0.004949

Tres Amigos Water Pipeline Replacement Project - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	7623	1.8671	1.1000e-004	1.0000e-005	1.8741
Total		1.8671	1.1000e-004	1.0000e-005	1.8741

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	7623	1.8671	1.1000e-004	1.0000e-005	1.8741
Total		1.8671	1.1000e-004	1.0000e-005	1.8741

6.0 Area Detail

6.1 Mitigation Measures Area

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.1700e-003	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Unmitigated	2.1700e-003	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	7.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.4100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Total	2.1700e-003	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005

Tres Amigos Water Pipeline Replacement Project - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	7.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.4100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005
Total	2.1700e-003	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.0000e-005	1.0000e-005	0.0000	0.0000	1.0000e-005

7.0 Water Detail

7.1 Mitigation Measures Water

Tres Amigos Water Pipeline Replacement Project - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Tres Amigos Water Pipeline Replacement Project - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

Tres Amigos Water Pipeline Replacement Project - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		0.0000	0.0000	0.0000	0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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Tres Amigos Water Pipeline Replacement Project - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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User Defined Equipment

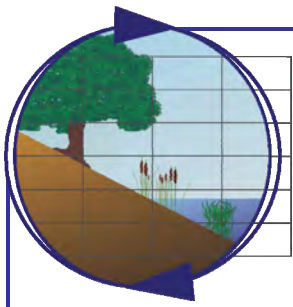
Equipment Type	Number
----------------	--------

11.0 Vegetation

B

**Biological
Resources
Report**

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Merkel & Associates, Inc.

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March 7, 2023

M&A #20-034-01

Ms. Christina Willis
BRG Consulting, Inc.
304 Ivy Street
San Diego, CA 92101

Biological Impact Analysis Letter Report Vallecitos Water District, Tres Amigos Waterline Replacement Project

Dear Ms. Willis:

Merkel & Associates, Inc. has prepared the following biological impact analysis in support of the Vallecitos Water District, Tres Amigos Waterline Replacement Project.

If you have any questions concerning this letter report, please do not hesitate to contact me (agonzales@merkelinc.com) or Keith Merkel (kmerkel@merkelinc.com) at (858) 560-5465.

Sincerely,

Amanda K. Gonzales
Senior Biologist

Keith W. Merkel
Principal Consultant

INTRODUCTION

Merkel & Associates, Inc. (M&A) has prepared this biological impact analysis for the Vallecitos Water District (District), Tres Amigos Waterline Replacement Project. The purpose of this report is to document the existing biological conditions within the project study area; identify potential impacts to biological resources that could result from implementation of the proposed project; and recommend measures to avoid, minimize, and/or mitigate significant impacts consistent with all applicable federal, state, and local rules and regulations including the California Environmental Quality Act (CEQA).

Project Location

The project site is located within the community of Bonsall, unincorporated lands in northern San Diego County (County), California (Figure 1). The project site is located within Section 5, Township 11 South, Range 3 West of the San Bernardino Base and Meridian; U.S. Geological Survey (USGS) 7.5' Bonsall and San Marcos, California Quadrangle (Figure 2).

Project Description

The project proposes replacement of existing 6-inch and 8-inch diameter steel water mains with 8-inch (minimum) diameter C-900 polyvinyl chloride (PVC) water pipeline over approximately 9,239 feet extending from the southern limit of Bonsall Farms, northward through District easements, public roadway, and ultimately terminating through private property off Fairview Drive at the northern limit of the District's service area. Replacement activities would occur via open trench construction technique unless alternative trenchless methods are required to avoid underground utilities and/or culverts. This is a trench and backfill operation and would not require new permanent above-grade structures, fuel modification zones, and/or landscaping. In addition, it is the intent of the project to avoid encroachment into nearby drainage systems including culverts.

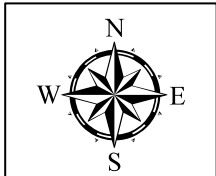
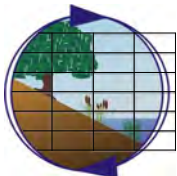
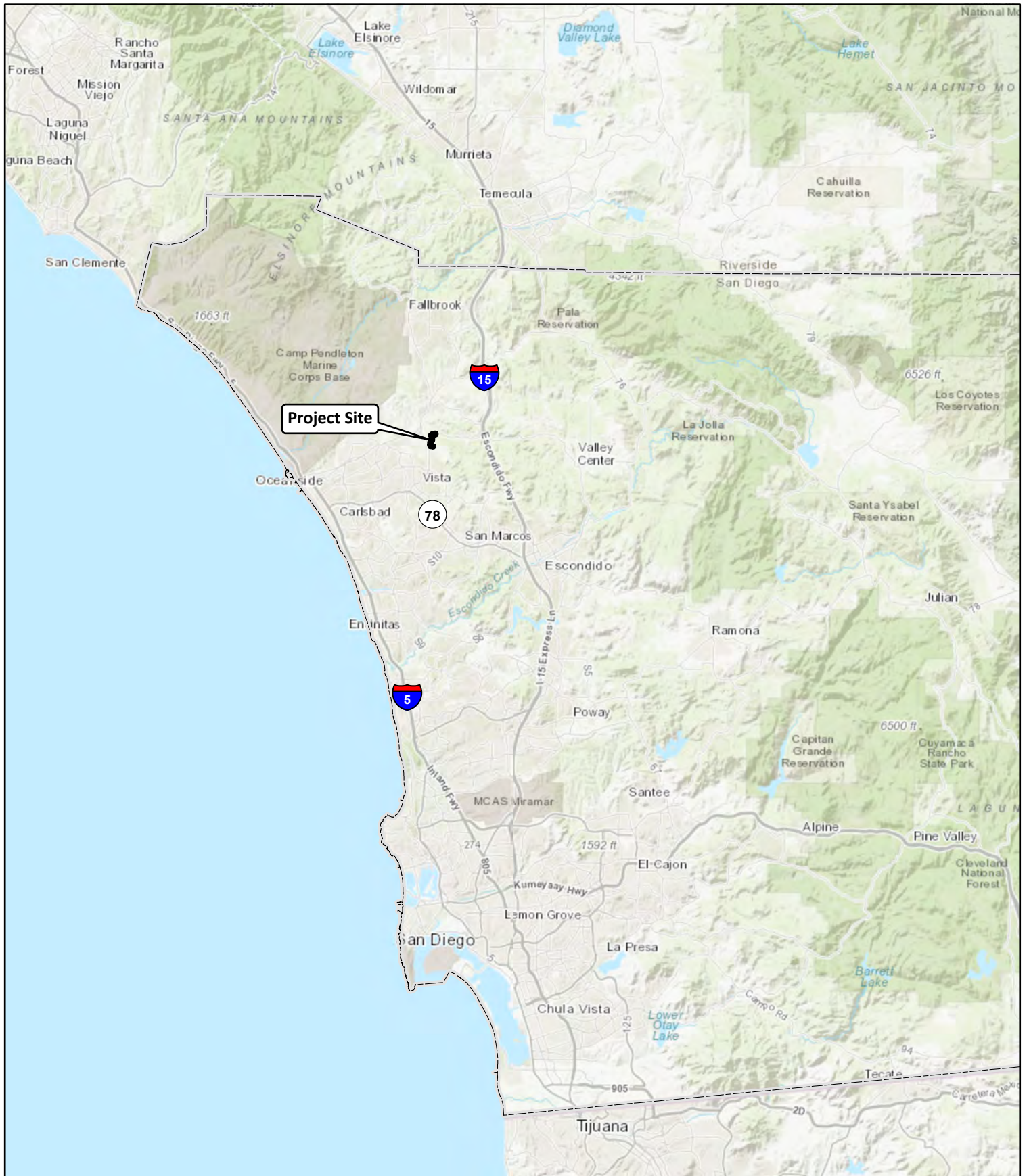
The ground disturbance associated with the waterline replacement would include a two to three-foot wide trench, plus the width of the equipment necessary for the operation, with all work limited to the District's 20-foot easement and/or public road right-of-way. Material and equipment staging necessary for the operation would occur within this same footprint as well as a designated area within Bonsall Farms. Construction is expected to begin upon acquisition of all applicable approvals and is anticipated to occur over a period of approximately nine months. As feasible, work would start in June 2023. Operations are expected to occur during regular construction hours between 7:00am and 4:00pm except for work within Gopher Canyon Road which is expected to occur at night.

METHODS

Literature and Data Review

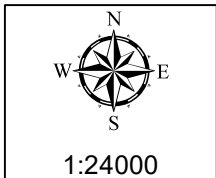
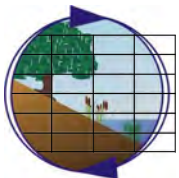
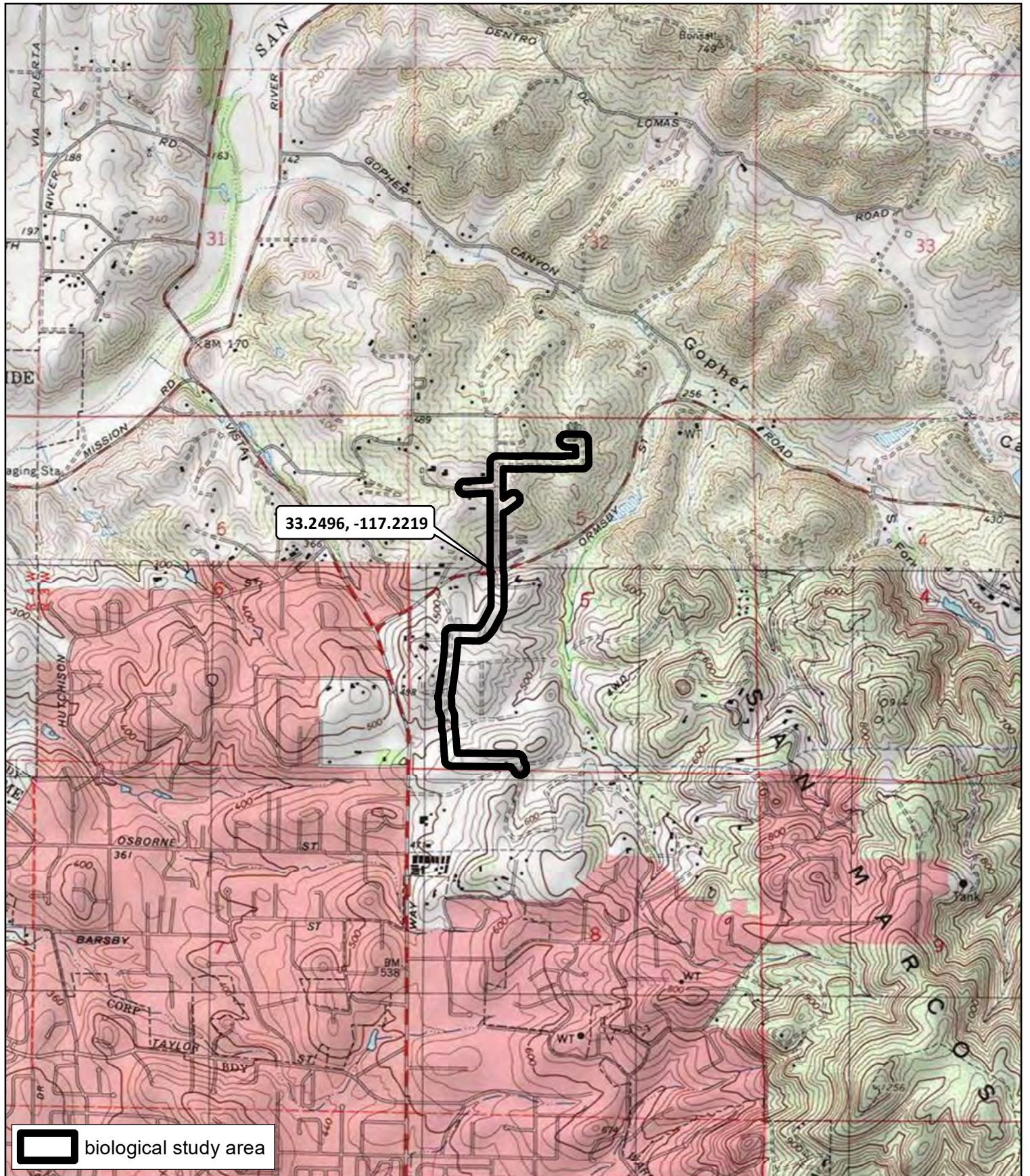
Historical and currently available biological literature and data pertaining to the project area were reviewed prior to initiation of the field investigation. This review included examination of:

- Aerial photography (Google Earth Pro, Microsoft Bing Maps),
- Topographic data and topographic quadrangle map (SanGIS 2015 and USGS 1998),



Regional Location Map
Tres Amigos Waterline Replacement Project,
Vallecitos Water District
Created on March 6, 2023

Figure 1



Project Vicinity Map
Tres Amigos Waterline Replacement Project, Vallecitos Water District
Source: USGS 7.5' Bonsall & San Marcos, CA Quadrangles
Created on March 6, 2023

Figure 2

- Soil and rock types (SanGIS 2004 and 2005),
- Regional vegetation and wetland data for the project area (SanGIS 2022a and 2019),
- U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) (USFWS 2023a),
- Hydrology and floodplain data (SanGIS 2022b),
- Federally designated critical habitat for the project vicinity (USFWS 2023b); and
- California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDDB) and U.S. Fish and Wildlife Service (USFWS) special status species records for the project vicinity (CDFW 2023a and USFWS 2022, respectively).

General Biological Survey

M&A biologists, Amanda Gonzales and Brandon Stidum conducted a general biological survey within the biological study area (BSA) which consisted of the project footprint (20-foot wide easement) plus a 100-foot mapping and habitat evaluation buffer. The survey was conducted on May 5, 2022, from approximately 9:45am to 1:16pm. Weather conditions consisted of clear skies, slight wind (0-3 miles per hour), and an air temperature ranging from approximately 66-70° Fahrenheit.

The survey was conducted on-foot. Private properties within the 100-foot buffer were evaluated from the project footprint, District easements, and/or public right-of-way. Vegetation communities were classified according to the Holland (1986) code classification system as modified by Oberbauer (2008) and as applicable, consistent with the FEIR. Communities were mapped onto a color aerial photograph of the site while significant and sensitive resources were noted on the field map and/or recorded using a GNSS receiver paired with ESRI Field Maps data collection app on a handheld mobile device. A minimum mapping unit of 0.01 acre was used for vegetation mapping; however, if necessary, vegetation was mapped at a finer scale.

A list of detectable flora and fauna species was recorded in a field notebook. Plant identifications were either resolved in the field or later determined through verification of voucher specimens. Wildlife species were determined through direct observation (aided by binoculars), identification of songs, call notes and alarm calls, or by detection of sign (e.g., tracks, scat, etc.). The scientific and common names utilized for the floral and faunal resources were noted according to the following nomenclature: flora, Baldwin (2022); butterflies, Klein and San Diego Natural History Museum (2002) and Lotts et al. (2021); amphibians and reptiles, Crother et al. (2012); birds, American Ornithologists' Union (1998 and 2022); and mammals, (species level) Wilson and Reeder (2005) and (sub-species level) Hall (1981).

Photographs of the project area were taken to record the biological resources present within the BSA, and data collected from the survey were digitized in Environmental Systems Research Institute (ESRI) Geographic Information System (GIS) software, using ArcGIS for Desktop.

Focused Assessment(s)

Concurrent with the general biological survey, a directed survey/assessment for potentially present special status species, as defined under CEQA, was conducted within the BSA.

State CEQA Guidelines §15380 (Title 14, Chapter 3, Article 20) define “endangered, rare or threatened species” as “species or subspecies of animal or plant or variety of plant” listed under the

Code of Federal Regulations, Title 50, Part 17.11 or 17.12 (Volume 1, Chapter I) or California Code of Regulations, Title 14, Sections 670.2 or 670.5 (Division 1, Subdivision 3, Chapter 3), or a species not included in the above listings but that can be shown to be “endangered” meaning “when its survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors” or “rare” meaning “although not presently threatened with extinction, the species is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens or the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered ‘threatened’ as that term is used in the Federal Endangered Species Act”. State CEQA guidelines Appendix G, Section IV generally refers to species that fall under the above criteria as “special status species”.

Thus, for the purposes of this report, special status species are: 1) federally and state listed species (CDFW 2023b and 2023c); 2) CDFW Species of Special Concern (SSC), Fully Protected (FP), and Watch List (WL) species (CDFW 2023d and 2023e); and 3) species designated as Special Plants or Special Animals in the CNDDDB, which include all taxa inventoried by the CDFW, regardless of their legal or protection status. The potential for sensitive species to occur on the project site was assessed based on the presence of potentially suitable habitat, as well as historical and currently available species data.

Although a formal aquatic resources delineation was not conducted, M&A biologists identified potential jurisdictional resources that may be regulated by U.S. Army Corps of Engineers (USACE) and Regional Water Quality Control Board (RWQCB) under Section 404 and 401, respectively of the Clean Water Act (CWA), and CDFW under Section 1602 of the California Fish and Game Code. The evaluation was conducted in general accordance with the routine onsite determination methods noted in the USACE *Wetland Delineation Manual* (Environmental Laboratory 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Corps 2008a).

Survey Limitations

Biological inventories are generally subject to various survey limitations. Depending on the season and time of day during which field surveys are conducted, some species may not be detected due to temporal species variability. The survey was conducted in late spring during the daytime; therefore, some species including nocturnal wildlife species may not have been detected. Based on the biological literature and data review performed though, as well as knowledge of species-specific habitat requirements, it is anticipated that any additional species potentially present on the project site can be fairly accurately predicted, and that the survey conducted was sufficient in obtaining a thorough review of the biological resources present or potentially present on the project site.

ENVIRONMENTAL SETTING

The project site is located within Bonsall, a semi-rural area, characterized topographically by a series of hills, valleys, and drainage areas. Land uses that dominate the community are active agricultural as well as low density estate type residential with limited areas of dense residential.

Within the BSA, the area primarily consists of Bonsall Farms, an active agricultural operation of mostly row crops, all located south of Gopher Canyon Road. Bonsall Farms is comprised of rolling

hills with small valleys, most of which had bare/exposed soil at the time of the field survey. North of Gopher Canyon Road the BSA is comprised of low density estate type residential with some orchard crops.

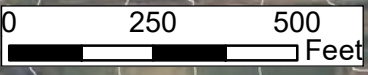
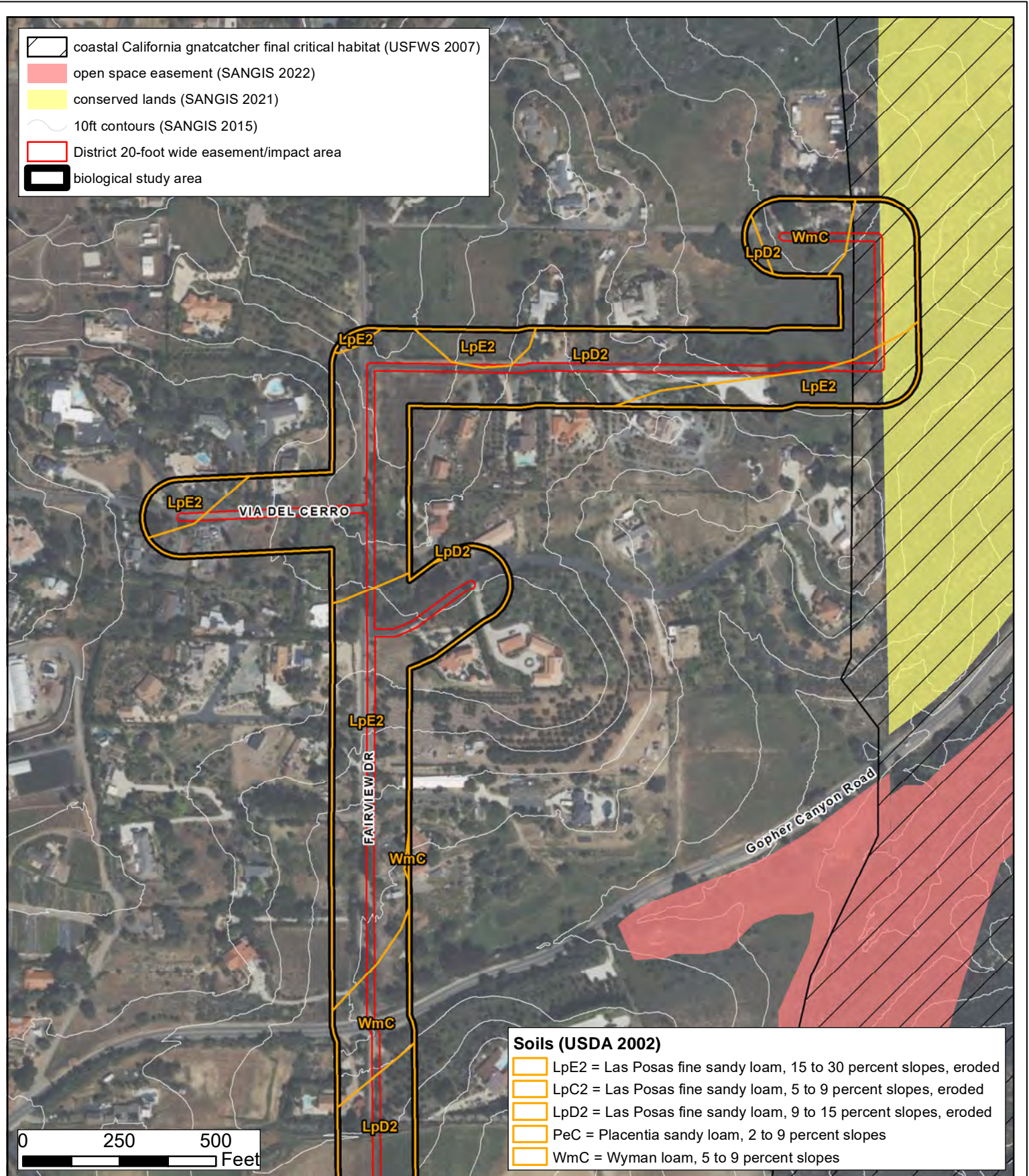
The elevation within the BSA ranges from approximately 416 feet above mean sea level (MSL) at the northern extent of the site to 598 feet above MSL in the southernmost portion of the site (Figure 3a and 3b).

Five different soil types belonging to three different series, Las Posas series, Placentia series, and Wyman series are mapped throughout the BSA (Figure 3a and 3b). The soil type varies and corresponds to the rolling topography associated with the area. A description of the soil series is provided below, based on the official soil descriptions provided by the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) (USDA NRCS 1973 and 2023a). In addition, reference to hydric soil determinations below are based on the NRCS Field Office List of Hydric Soil Map Units for San Diego Area, California (USDA NRCS 2023b).

- The Las Posas series is dominant throughout the BSA and is comprised of Las Posas fine sandy loam 15 to 30 percent slopes eroded (located at the far northern and southern limits of the BSA), Las Posas fine sandy loam 9 to 15 percent slopes eroded (throughout most of the BSA), and Las Posas fine sandy loam 5 to 9 percent slopes eroded (southern portion of the BSA only). Las Posas soil series consists of well-drained, moderately deep stony fine sand loams that have a clay subsoil. This series is in upland areas and commonly used/suitable for agricultural operations. Las Posas fine sandy loam is not listed as a hydric soil.
- Placentia sandy loam, 2 to 9 percent slopes occurs within the central portion of Bonsall Farms property and corresponds to a small, gently sloping valley that drains via sheet flow and ultimately a confined drainage system to the west and offsite. The Placentia series consists of moderately well-drained sandy loams that have a sandy clay subsoil and is mainly used/suitable for dry farmed crops or similar uses. Placentia sandy loam, 2 to 9 percent slope are characterized as gently sloping to moderately sloping soil on alluvial fans and alluvial plains with an average of 3 percent. Placentia sandy loam, 2 to 9 percent slopes is listed as a hydric soil.
- Wyman loam, 5 to 9 percent slopes occurs along Gopher Canyon Road as well as a large-residential lot at the northern extent of the BSA. The Wyman series consists of well-drained, very deep loams that formed in alluvium derived from basic igneous rock. Similar to the above series, the Wyman soils are used/suitable for agriculture operations. Wyman loam is not listed as a hydric soil.

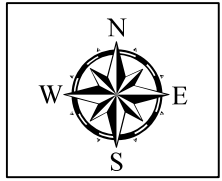
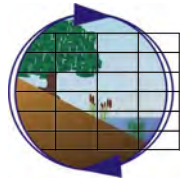
The rock type throughout the entire BSA is identified as gabbro and diorite.

The BSA is within the USGS San Diego (18070303) hydrologic unit code 8-digit sub-basin and the Guajome Lake-San Luis Rey River (180703030304) hydrologic unit code 12-digit sub-watershed. The BSA is also within the Lower San Luis Rey Hydrologic Area (Basin 3.10) of the San Luis Rey Hydrologic Unit/Watershed (Basin No. 3.00).



Soils (USDA 2002)

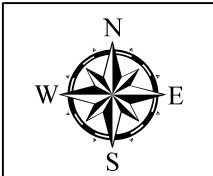
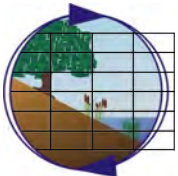
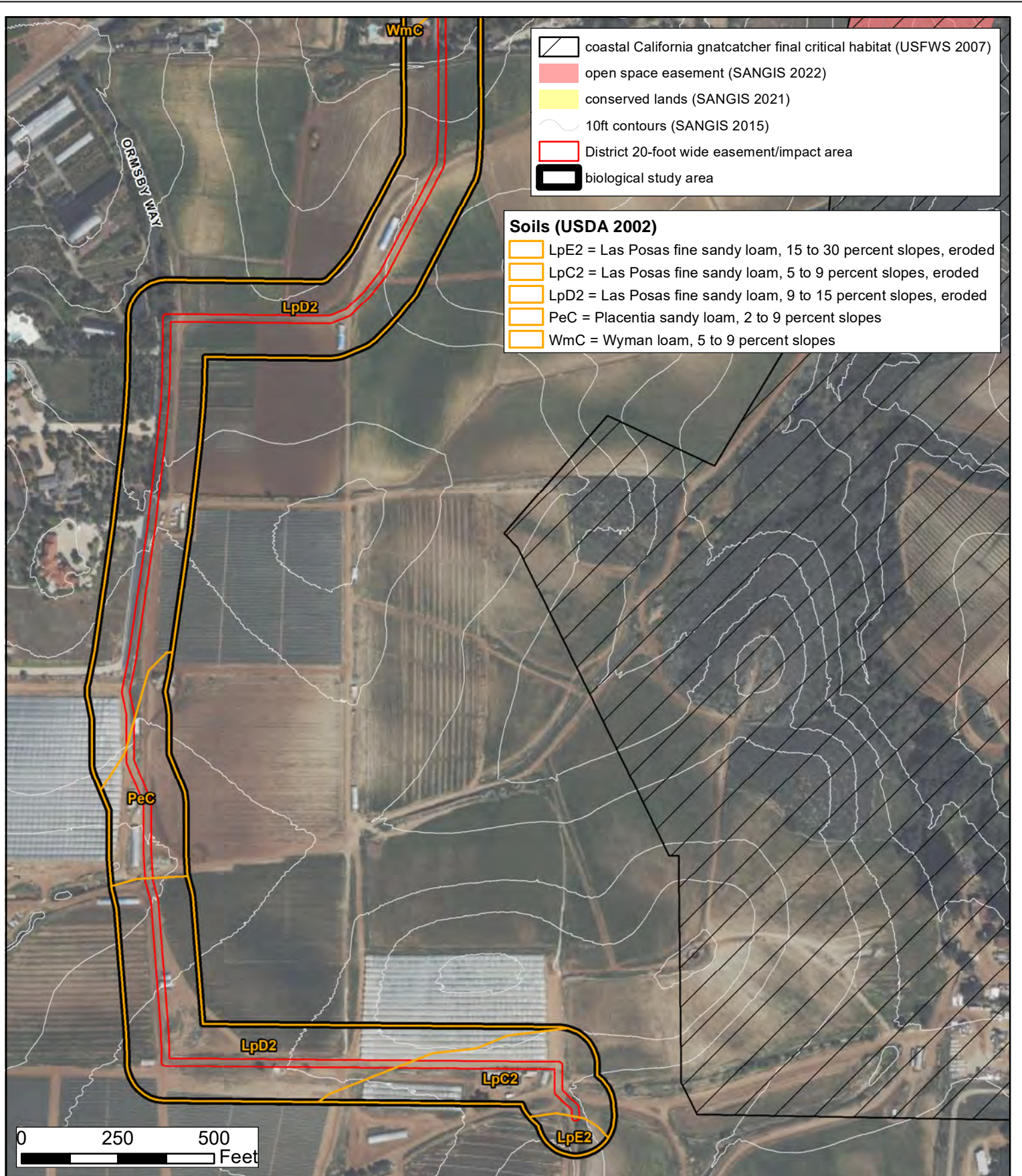
- LpE2 = Las Posas fine sandy loam, 15 to 30 percent slopes, eroded
- LpC2 = Las Posas fine sandy loam, 5 to 9 percent slopes, eroded
- LpD2 = Las Posas fine sandy loam, 9 to 15 percent slopes, eroded
- PeC = Placentia sandy loam, 2 to 9 percent slopes
- WmC = Wyman loam, 5 to 9 percent slopes



Local Environmental Map
 Tres Amigos Waterline Replacement Project,
 Vallecitos Water District

Aerial Source: Bing 2022 Created on March 6, 2023

Figure 3a



Local Environmental Map
 Tres Amigos Waterline Replacement Project,
 Vallecitos Water District

Aerial Source: Bing 2022 Created on March 6, 2023

Figure 3b

No blue-line features (i.e., drainage, creek, streams, etc.) as identified by the USGS topographic quadrangle map and/or USFWS NWI occur within the BSA. Gopher Canyon Creek occurs offsite, approximately 1,926 feet (0.36 miles) north of the BSA and is separated from the BSA by mostly undeveloped/preserved open space. Gopher Canyon Creek drains into the San Luis Rey River approximately 1.25 miles northwest of the BSA; the San Luis Rey River ultimately drains into the Pacific Ocean approximately 12 miles west of the BSA. Gopher Canyon Creek occurs as a blue-line feature on the USGS Bonsall, California, topographic quadrangle map (Figure 2). In addition, two unnamed blue-line features occur offsite (Figure 2). One unnamed feature is located approximately 1,220 feet (0.23 miles) east of the BSA and is expected to drain into Gopher Canyon Creek while the second feature is located approximately 1,665 feet (0.31 miles) west of the BSA and is expected to drain into the San Luis Rey River via culverted systems beneath dense urban development. No floodplain or floodway have been mapped within the BSA.

Federally designated critical habitat for the federally listed threatened coastal California Gnatcatcher (*Polioptila californica californica*) occurs within the BSA (Figure 3a). The western boundary of the critical habitat encroaches into the BSA at the northern extent of the project area where it abuts undeveloped/preserved open space. The critical habitat encroaches into the BSA by approximately 170 feet.

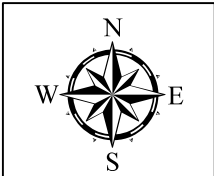
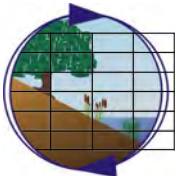
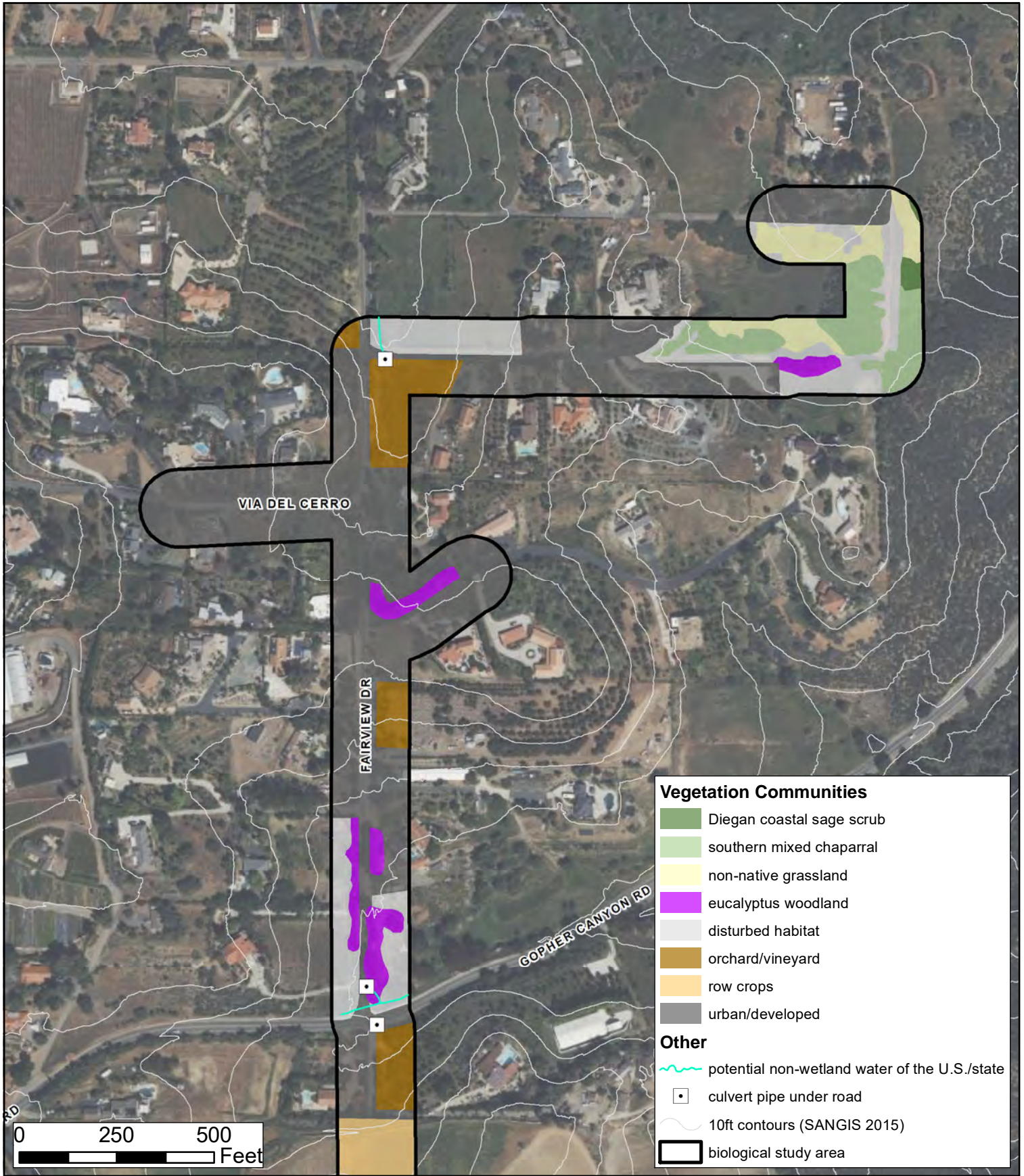
SURVEY RESULTS

Botanical Resources

The proposed project passes through active agriculture, rural residential development, and paved roadways. Eight vegetation types were identified within the BSA during the biological survey (Table 1; Figure 4a and 4b). A list of the floral species observed onsite during the biological survey has been included with this report in Appendix A. Site photographs are included as Appendix C.

Table 1. Habitat/Vegetation Communities within the Biological Study Area

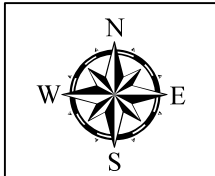
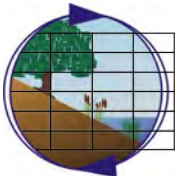
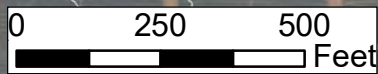
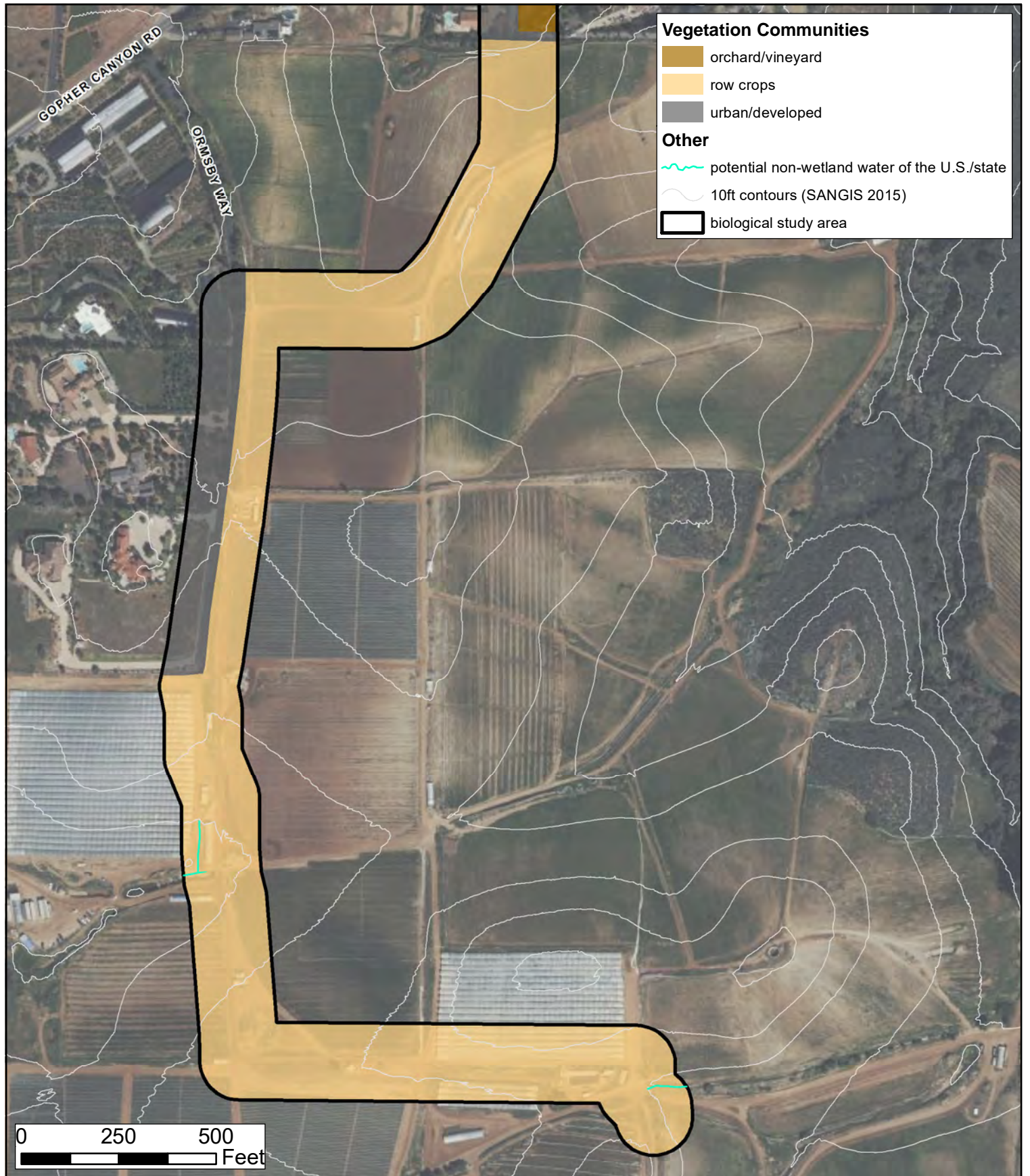
Vegetation Community	Holland/ Oberbauer Code	General Habitat Group Classification	Existing Acreage
Diegan Coastal Sage Scrub	32500	Upland; Regionally Sensitive	0.11
Southern Mixed Chaparral	37120	Upland; Regionally Sensitive	1.51
Non-Native Grassland	42200	Upland; Regionally Sensitive	1.11
Eucalyptus Woodland	79100	Upland; Regionally Not Sensitive	1.00
Disturbed Habitat	11300	Upland; Regionally Not Sensitive	3.22
Urban/Developed	12000	Upland; Regionally Not Sensitive	15.00
Orchards/Vineyards	18100	Upland; Regionally Not Sensitive	1.80
Row Crops	18320	Upland; Regionally Not Sensitive	17.72
Total:			41.47



Biological Resources Map
 Tres Amigos Waterline Replacement Project,
 Vallecitos Water District

Aerial Source: Bing 2022 Created on March 6, 2023

Figure 4a



Biological Resources Map
Tres Amigos Waterline Replacement Project,
Vallecitos Water District

Aerial Source: Bing 2022 Created on March 6, 2023

Figure 4b

Diegan coastal sage scrub, southern mixed chaparral, and non-native grassland are all upland communities, located at the northern extent of the BSA (Figure 4a). Regionally, these communities are considered sensitive. Diegan coastal sage scrub is classified as a community dominated by low, woody subshrubs that are most active in winter and early spring, many species of which are drought-deciduous. Within the BSA, this community is limited to the 100-foot biological mapping buffer on the undeveloped/preserved open space lot and is surrounded by southern mixed chaparral. Diegan coastal sage scrub becomes more dominate further east of the BSA and east of Gopher Canyon Road.

Southern mixed chaparral is generally classified as a community dominated by broad-leaved sclerophyllous shrubs averaging 1.5 to 3 meters tall often on dry, rocky slopes. Within the BSA, this community occurs within the project footprint as well as the 100-foot biological mapping buffer. Within the project footprint, southern mixed chaparral occurs along the outer edge of a large rural private parcel. The chaparral community is dominated by native plants typical of this community including woolyleaf ceanothus (*Ceanothus tomentosus*), black sage (*Salvia mellifera*), and chamise (*Adenostoma fasciculatum*), with fewer numbers of mission manzanita (*Xylococcus bicolor*), California sagebrush (*Artemisia californica*), coastal California buckwheat (*Eriogonum fasciculatum* var. *fasciculatum*), and laurel sumac (*Malosma laurina*). Non-native grasses and weeds are present within the understory of the chaparral community and along the fringe as the community transitions from chaparral to disturbed habitat (e.g., along a dirt road) and/or the non-native grassland. The dominant non-native weeds observed included garland (*Glebionis coronaria*) and tocalote (*Centaurea melitensis*). No gabbro associated plant species were identified onsite, as a result, the habitat has been mapped as southern mixed chaparral versus mafic southern mixed chaparral. Mafic southern mixed chaparral is similar to southern mixed chaparral on mafic or metavolcanic soils but it is dominated by chamise and Cleveland sage (*Salvia clevelandii*). While chamise is present onsite, neither Cleveland sage nor other gabbro associated plants are present onsite.

Non-native grassland is generally classified as a community comprised of dense to sparse cover of annual grasses, in which the presence of *Avena*, *Bromus*, *Erodium*, and *Brassica* species are common indicators. Within the BSA, non-native grassland is limited to the central portion of the large rural private parcel. Based on aerial review (e.g., Google Earth), the grassland within the parcel is mowed on a regular basis. However, based on the density and composition of grasses (*Avena*, *Bromus*, etc.) in comparison to non-native forbs and weeds, the habitat is expected to meet the general classification of non-native grassland.

Urban/developed has been mapped for residential development. This includes paved roads, residential structures, and fenced residential lots with ornamental vegetation or similar landscaping. Row crop, a type of agriculture has been mapped for Bonsall Farms. This includes all areas necessary for the operation of the farm including dirt roads, maintenance yards, and green houses. Orchard/vineyards, a type of agriculture has also been mapped for areas where crop trees appear to be located (e.g., avocado, nut/fruit, etc.); these areas are limited to private lots north of Gopher Canyon Road. Disturbed habitat has been mapped for unpaved dirt roads (not including the roads within Bonsall Farms) and roadside edges dominated by non-native forbs and weeds. Eucalyptus woodland has been mapped for groups of eucalyptus (*Eucalyptus camaldulensis*, *E.*

sideroxylon) trees; within the BSA, this community generally occurs along paved roads. Regionally, these communities are not considered sensitive.

Zoological Resources - Fauna

Wildlife species noted during the biological survey consisted of species commonly found in native and naturalized habitats throughout San Diego County many of which are year-round residents. A list of the faunal species observed or detected within the BSA during the biological survey has been included with this report in Appendix 2.

Overall, mostly bird species were detected during the biological survey. Commonly observed species observed throughout Bonsall Farms (but not limited to) included red-tailed hawk (*Buteo jamaicensis*) (two adults and one juvenile), black phoebe (*Sayornis nigricans*), California towhee (*Melospiza crissalis*), house finch (*Haemorhous mexicanus*), and western meadowlark (*Sturnella neglecta*). While no active avian nests were observed, all these species have a potential to nest within the BSA throughout Bonsall Farms (e.g., shade trees, staging areas in equipment or throughout the weeds) and the rural residential areas. Red-shouldered hawk (*Buteo lineatus*) and turkey vulture (*Cathartes aura*) were observed flying over the northern portion of the BSA; there is no suitable nesting habitat for these raptor species within the BSA.

California ground squirrel (*Spermophilus beecheyi nudipes*) were observed throughout the BSA but most notably within Bonsall Farms.

Special Status Species

No special status species were detected within the BSA and there are no public records of special status species within the BSA (USFWS 2022 and CDFW 2023a).

M&A conducted an assessment for potentially present special status species; however, due to the active agriculture operation which includes expansive areas of row crops and regular tilling of the soil, and the lack of permanent drainage features, the potential presence for special status species is relatively low. It is noteworthy that portions of the site support Las Posas soils and gabbro rock including the northern portion of the site where southern mixed chaparral occurs. No gabbro associated plant species were identified onsite. In addition, no friable clay or vernal pool-associated habitats were located within the BSA. Below is a list of species with a low to moderate potential to occur within the BSA; there are no species with a high potential to occur onsite due to lack of suitable habitat.

Felt-leaved Monardella (*Monardella hypoleuca* ssp. *lanata*)

Felt-leaved monardella is a CDFW CNDDDB Special Plant, has a California Rare Plant Ranch 1B.2 (Plants rare, threatened, or endangered in California and elsewhere, fairly threatened in California), and is a County List A species. It is a native perennial, rhizomatous herb that typically occurs on gabbro soils in the understory of chaparral, beneath mature stands of chamise in xeric situations, and cismontane woodland. This perennial herb was sought but not detected. Due to the lack of detection while onsite and lack of records within the local area, including the open space preserves adjacent to the BSA, this species is expected to have a low potential to occur onsite.

Parry's Tetracoccus (*Tetracoccus dioicus*)

Parry's tetracoccus is a CDFW CNDDDB Special Plant, has a California Rare Plant Ranch 1B.2, and is a County List A species. It is a native, deciduous shrub that is restricted to gabbro derived and metavolcanic soils, and typically occurs in xeric, low-growing, chamise chaparral, with moderately dense canopy cover. This shrub species was sought but not detected. Due to the lack of detection while onsite and lack of records within the local area, including the open space preserves adjacent to the BSA, this species is expected to have a low potential to occur onsite.

Burrowing Owl (*Athene cunicularia*)

Burrowing owl is a CDFW CNDDDB Special Animal, CDFW Species of Special Concern, and County of San Diego Group 1 species. Burrowing owl are small, ground-dwelling raptors, living in grassland and open scrub. In California, the preferred habitat is generally short, sparse vegetation with few shrubs, level to gentle topography and well-drained soils as well as some agricultural areas, ruderal grassy fields, and vacant lots, if the vegetation structure is suitable and there are usable burrows and foraging habitat. Unlike other raptors, the burrowing owl requires underground burrows or other cavities for nesting during the breeding season (February 1 through August 31) and for roosting and cover, year-round. Burrows used by the owls are usually dug by other species such as the California ground squirrel and/or coyote (*Canis latrans clepticus*).

Within the BSA, if present, burrowing owls are most likely to occur within Bonsall Farms. However, no burrows or suitable cover for burrowing owls were observed within the BSA. Based on the site conditions of active agriculture, regular tilling of the soil, no burrows observed, and no historic records within one mile of the site, there is low potential for burrowing owl to nest onsite. However, it is possible for owls to occur onsite in transit between suitable sites throughout the County.

Coastal California Gnatcatcher (*Polioptila californica californica*)

Coastal California gnatcatcher is a federally listed threatened, CDFW CNDDDB Special Animal, CDFW Species of Special Concern, and County of San Diego Group 1 species. Coastal California gnatcatchers are a year-round resident in coastal areas below 1,500 feet. They prefer coastal sage scrub habitat that is dominated by coastal California buckwheat and California sagebrush.

Records for coastal California gnatcatcher occur east of Gopher Canyon Road, approximately 2,642 feet (0.5 miles) east of the BSA, within Diegan coastal sage scrub on the undeveloped/preserved open space lands known as Morris Ranch (USFWS 2022, CDFW CNDDDB 2023a, and pers. comm. EHC 2020). One additional record for the coastal California gnatcatcher occurs south of Gopher Canyon Road, just east of the unnamed tributary to Gopher Canyon Creek (USFWS 2022). The 2010 detection is approximately 1,000 feet east of the BSA within Diegan coastal sage scrub.

Within the BSA, suitable habitat for the coastal California gnatcatcher is limited to the northern extent of the BSA where southern mixed chaparral and Diegan coastal sage scrub occur (Figure 4a). No coastal California gnatcatchers were detected within the BSA. While there is a small patch of Diegan coastal sage scrub within the BSA, the habitat is surrounded by southern mixed chaparral and non-native grassland. In addition, higher quality suitable gnatcatcher habitat occurs offsite, approximately 0.5 miles east. Overall, there is a low potential for the coastal California gnatcatcher to nest within the BSA due to the lack of suitable habitat and the distant proximity (0.5 miles) to

higher quality habitat. The BSA could be used as dispersal grounds for juvenile coastal California gnatcatchers as they leave their natal nest site in search of territorial areas; however, given the distance to the known population and presence of higher quality suitable habitat near that population, there is a low potential for territorial dispersal to the BSA.

Jurisdictional Resources

Potential jurisdictional resources within the BSA consist of ephemeral drainages in Bonsall Farms and at the intersection of Gopher Canyon Road and Fairview Drive (Figure 4a and 4b). There are two drainages within Bonsall Farms (Figure 4b). The southernmost drainage is an approximate one-foot wide by one half foot deep, ephemeral channel that starts within the BSA and drains east, downslope toward the unnamed tributary to Gopher Canyon Creek (Appendix 3, Photo Point 12). The channel bed and banks transition to sheet flow just outside the BSA. Another potential drainage is located within the central portion of Bonsall Farms (Figure 4b). Here, it appears that sheet flow from the onsite valley drains beneath the dirt road via a system of culverts, is then collected in a series of two basins on the west side of the road, where overflow could potentially drain offsite to the west to the unnamed tributary to the San Luis Rey River (Appendix 3, Photo Point 8 – 10).

Another potential drainage is located at the intersection of Gopher Canyon Road and Fairview Drive (Figure 4a). Here it appears that storm water runoff is collected and conveyed beneath the paved roadway to the northeast corner of the intersection, where water ultimately flows east, downslope toward the unnamed tributary to Gopher Canyon Creek (Appendix 3, Photo Point 5 – 6). Lastly, a small culvert and concrete lined channel were identified at the northern limit of Fairview Drive. These features are expected to be regulated by USACE and/or RWQCB as non-wetland waters of the U.S. and CDFW as unvegetated streambed based on their potential connection to Gopher Canyon Creek and/or the San Luis Rey River.

Wildlife Movement and Nursery Sites

Wildlife movement is generally facilitated through topographic features such as riparian corridors and ridgelines. The BSA does not support these features and as such, is not expected to serve as a wildlife corridor. While the habitat within the BSA likely provides coverage, foraging and breeding opportunities for urban tolerant species, the BSA is not expected to serve as a nursery site for special status species.

BIOLOGICAL IMPACT ANALYSIS

Thresholds of Significance

State CEQA Guidelines §15065 (a) (Title 14, Chapter 3, Article 5) states, “A project may have a significant effect on the environment” if:

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

- “The project has possible environmental effects which are individually limited but cumulatively considerable.”

The following analysis identifies potential impacts to biological resources that could result from implementation of the proposed project, and addresses the significance of these impacts pursuant to CEQA, in accordance with the Issues listed under CEQA Guidelines Appendix G, Section IV.

Impact Definitions

Project impacts are categorized pursuant to CEQA as direct, indirect, or cumulative impacts.

- CEQA Guidelines §15358 (a) (1) and (b) (Title 14, Chapter 3, Article 20) defines a “direct impact or primary effect” as “effects which are caused by the project and occur at the same time and place” and relate to a “physical change” in the environment.
- CEQA Guidelines §15358 (a) (2) and (b) (Title 14, Chapter 3, Article 20) defines an “indirect impact or secondary effect” as “effects which are caused by the project and are later in time or farther removed in distance, but are still reasonably foreseeable” and relate to a “physical change” in the environment.
- CEQA Guidelines §15355 (Title 14, Chapter 3, Article 20) defines “cumulative impacts” as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.”

Direct, indirect, and cumulative impacts can be described as either permanent or temporary. Permanent impacts are generally defined as effects that would result in an irreversible loss of biological resources; temporary impacts can be defined as effects that could be restored, thus providing habitat and wildlife functions and values effectively equal to the functions and values that existed before the area was impacted.

Mitigation Definitions

CEQA Guidelines §15370 (Title 14, Chapter 3, Article 20) defines “mitigation” as:

- “Avoiding the impact altogether by not taking a certain action or parts of an action.”
- “Minimizing impacts by limiting the degree or magnitude of the action and its implementation.”
- “Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.”
- “Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.”
- “Compensating for the impact by replacing or providing substitute resources or environments.”

Project Impacts, Significance, and Recommended Mitigation

Potential project impacts were evaluated based on examination of the proposed project within the context of the biological resources documented during the field survey, and those biological resources assessed as having a likely potential to occur in the project area. Direct impacts were determined by overlaying the project plans on the mapped vegetation communities/habitats in GIS ESRI software platforms. Indirect impacts were determined based on the design, intended use, and location of the proposed project elements relative to biological resources.

Habitats/Vegetation Communities

Implementation of the proposed project would require that areas be temporarily excavated and backfilled in support of the open trench waterline replacement. All other areas of disturbance would result in temporary trampling of vegetation as a result of equipment staging and/or access. As described within the Introduction section of this report, the open trench is expected to be limited to two to three feet wide with all equipment operations limited to the 20-foot wide easement and/or paved public roadway. In addition, a staging area is proposed to occur within Bonsall Farms, away from the onsite potential jurisdictional resources. It is the intent of the project to avoid encroachment into all potential jurisdictional resources onsite; as such, the construction technique may change from open trench to a trenchless method if necessary. All disturbed soils would be returned to pre-existing contours and compacted. In addition, all areas would be protected from potential erosion using construction period best management practices (BMPs) and if needed, post-construction BMPs such as revegetation with native species for erosion control.

Implementation of the proposed project would result in direct impacts to southern mixed chaparral, non-native grassland, eucalyptus woodland, disturbed habitat, orchard/vineyards, and row crops (Table 2; Figure 5a and 5b).

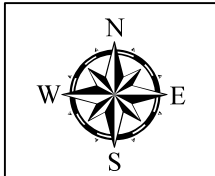
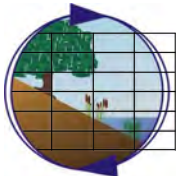
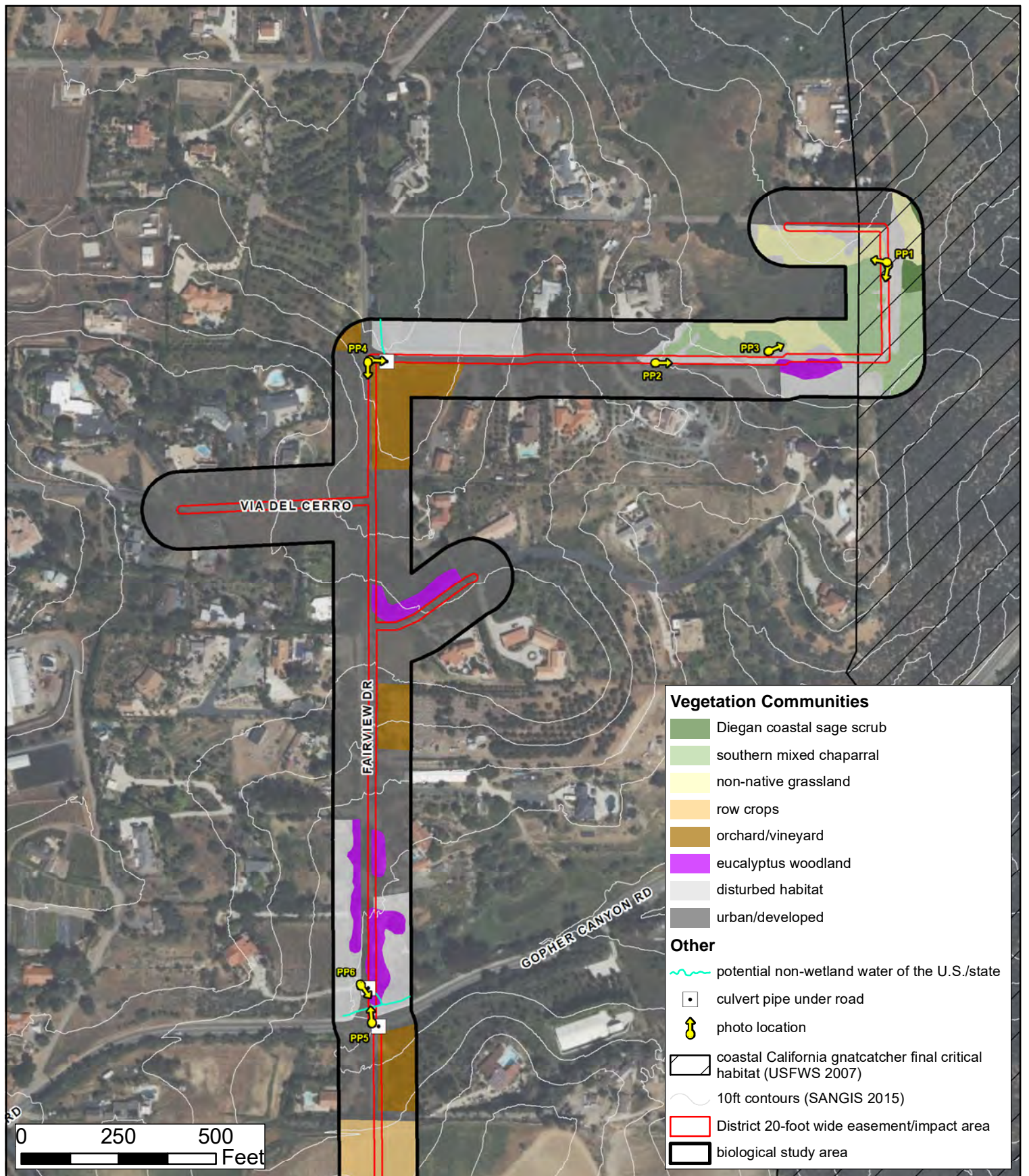
Table 2. Habitats/Vegetation Communities, Impacts, and Mitigation

Vegetation Type	Existing Acreage within BSA	Temporary Impact (acre)	Mitigation Ratio¹	Mitigation Require (acre)
Diegan Coastal Sage Scrub	0.11	0.00	NA	NA
Southern Mixed Chaparral	1.51	0.06	0.5:1	0.03
Non-Native Grassland	1.11	0.04	0.5:1	0.02
Eucalyptus Woodland	1.00	0.18	None	NA
Disturbed Habitat	3.22	0.42	None	NA
Urban/Developed	15.00	1.54	None	NA
Orchards/Vineyards	1.80	0.13	None	NA
Row Crops	17.72	1.76	None	NA
Total:	41.47	4.13		0.05

¹ Habitat-based mitigation could occur via purchase of available credits from an approved mitigation bank and/or onsite restoration. If credits are purchased, mitigation ratio per this column would be required.

Impacts to southern mixed chaparral and non-native grassland are considered significant under CEQA since these communities are regionally considered to be a sensitive habitat type; thus, implementation of habitat-based mitigation in accordance with **BIO-1** would be required to reduce impacts to a level below significance.

Impacts to eucalyptus woodland, disturbed habitat, orchard/vineyards, and row crops would be considered less than significant under CEQA since these habitats are not regionally considered to have high conservation value requiring mitigation.



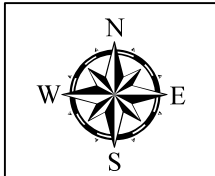
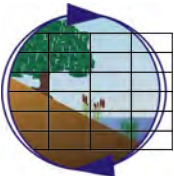
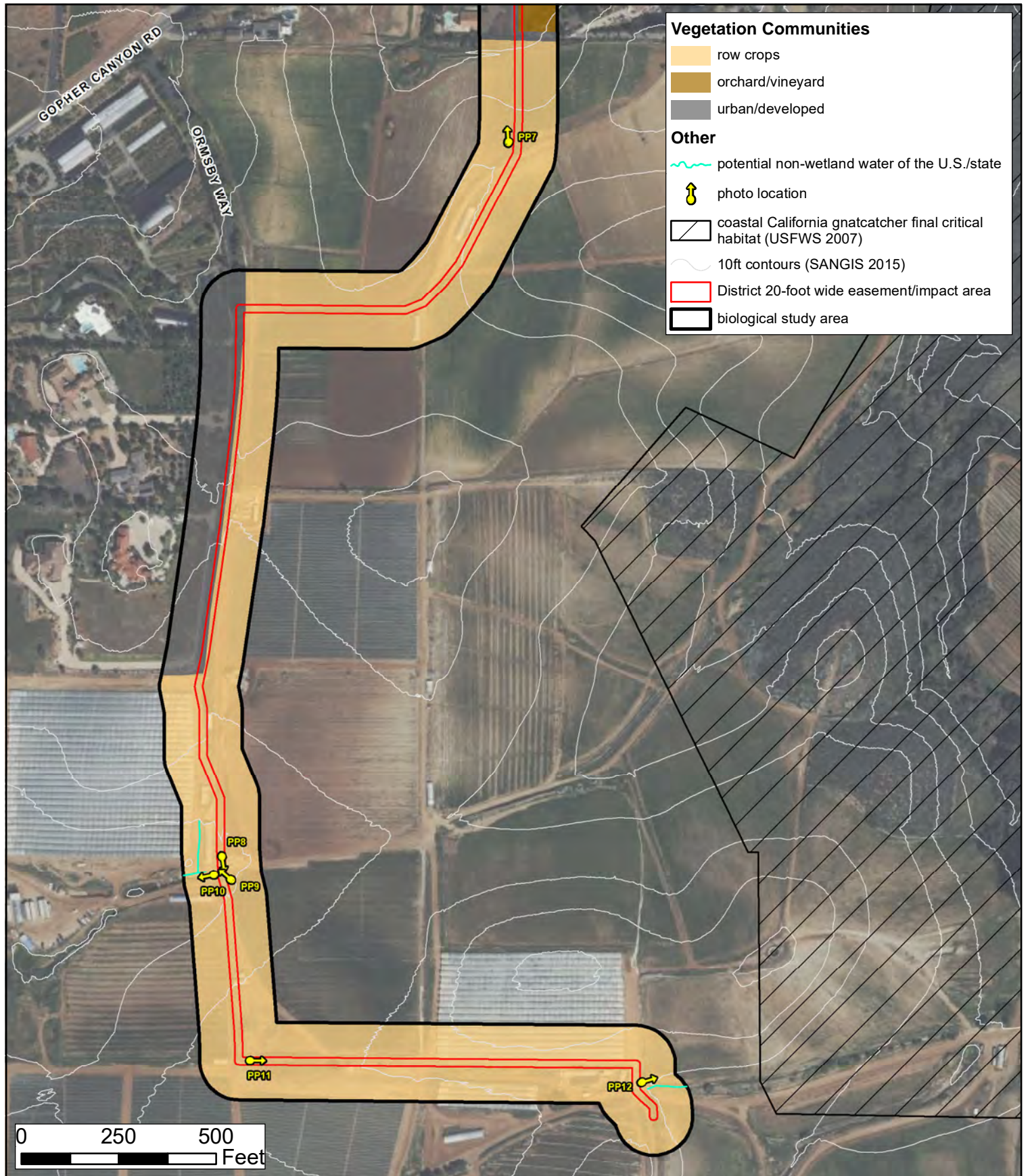
Impacts to Biological Resources Map

Tres Amigos Waterline Replacement Project,
Vallecitos Water District

Aerial Source: Bing 2022

Created on March 6, 2023

Figure 5a



Impacts to Biological Resources Map
Tres Amigos Waterline Replacement Project,
Vallecitos Water District

Aerial Source: Bing 2022
Created on March 6, 2023

Figure 5b

Indirect impacts were determined based on the design, intended use, and location of the proposed project elements relative to biological resources. Project construction could result in indirect impacts as a result of erosion and/or to sensitive resources adjacent to the project footprint. To avoid these potential impacts, **BIO-2** would be required to reduce the potential indirect impacts to less than significant.

BIO-1: Impacts to 0.06 acre of southern mixed chaparral and 0.04 acre of non-native grassland could be mitigated via onsite restoration at a 1:1 ratio (details provided in a restoration construction sheet) or alternatively via acquisition of offsite habitat credits from an approved mitigation bank at a 0.5:1 ratio, with the bank preferably within the same watershed as the project footprint.

The mitigation ratios presented in Table 2 and BIO-1 are based on useful mitigation guidance provided as mitigation standards developed by the County of San Diego within the *County of San Diego Guidelines for Determining Significance Biological Resources* (County 2010). If onsite restoration is proposed, it is expected that revegetation could occur via planting and hydroseed application throughout the disturbed areas and a 36-month monitoring period or until the success criteria are achieved. The details of the revegetation should be presented within a revegetation construction sheet(s). Two plant palettes would be required, one for revegetation of impacted areas of southern mixed chaparral and one for impacted areas of non-native grassland. A native erosion control seed mix (e.g., S&S Seeds Basic Native Erosion Control Mix) may be used to restore areas of non-native grassland. All native seed/plants should be from seed and propagules collected within the local San Diego region, as close to the site as possible. Maintenance and monitoring should be implemented by a qualified Restoration Contractor with oversight by a Restoration Specialist and should occur as needed until the success criteria are achieved. Success criteria should include at minimum, the following: coverage by native species is consistent with coverage in the adjacent, non-impacted habitat and invasive plant species should be absent from the revegetation area. Following achievement of the success criteria, a memo documenting the status of the revegetation area should be prepared and submitted by the Restoration Specialist to the District. Invasive plant species include any species identified as having a High inventory rating by California Invasive Plant Council (Cal-IPC) and any nuisance plant causing potential detriment to native flora and/or fauna as determined by the Restoration Specialist. The revegetation sheet should include the following: 1) purpose and location of the revegetation areas, 2) success criteria and remedial measures, 3) schedule for maintenance, monitoring, and reporting, 4) planting palette, 5) site preparation, 6) installation procedures, 7) supplemental irrigation if determined necessary, and 8) maintenance requirements. The Revegetation Contractor should have the minimum qualifications: 1) three years of local, verifiable experience in maintenance and monitoring involving resources similar to those onsite; 2) ability to carry out maintenance and monitoring as required; and 3) applicable licenses to implement maintenance.

BIO-2: During construction, impacts to regionally sensitive habitats adjacent to the project limit of work may occur if not effectively controlled through project design and construction monitoring and management actions. To mitigate impacts to adjacent habitats, the following impact control measures are recommended:

- A) Temporary perimeter fencing should be installed when adjacent to sensitive resources consisting of the southern mixed chaparral, non-native grassland, and

potential jurisdictional resources. A biologist, approved by the District should oversee installation of the temporary fencing.

- B) The biologist should also conduct the following: provide environmental training to the construction crew to notify them of the sensitive resources in the area; be onsite during the initial clearing of habitat and excavation work when adjacent to the sensitive resource areas; conduct weekly inspections during excavation work to ensure general biological compliance; and prepare a post-construction memo for the District, documenting compliance with the biological conditions imposed on the project. The biologist should have the authority to halt construction activities, if needed and should report any violation to the District within 48 hours of detection.
- C) Construction techniques and BMPs should be developed for the project to prevent encroachment into potential jurisdictional resources and to prevent erosion and/or export of sediment from the site during storm events.
- D) BMPs proposed for the project should not include any species listed by the California Invasive Plant Council (Cal-IPC) in the California Invasive Plant Inventory.
- E) Temporary night lighting during construction, should be downcast/fully shielded and directed away from adjacent habitat.

Special Status Species

Implementation of the proposed project is not expected to impact any special status species since none were detected onsite and since none have a moderate or high potential to occur onsite.

Designated critical habitat for coastal California gnatcatcher occurs within the northern portion of the BSA. The District's 20-foot wide easement at this location would occur entirely within the critical habitat (Figure 5a). Areas designated as critical habitat include features essential for the conservation of a USFWS listed species. Since the project has no federal nexus (i.e., impacts to federally regulated waters) and the project activities will not impact gnatcatcher occupied habitat, the project is not expected to destroy or adversely modify critical habitat, and thus, the project proponent (i.e., District) is not required to consult with the USFWS.

Jurisdictional Resources

Potential jurisdictional resources regulated by the USACE, RWQCB, and/or CDFW are located within the project footprint (Figure 5a and 5b). However, by design, implementation of the proposed project would avoid encroachment into these potential resources. In addition, implementation of **BIO-2** listed above would ensure compliance with the project design. If the District determines that impacts to potential jurisdictional resources are necessary for implementation of the project, a formal aquatic resources delineation may be required to confirm jurisdictional. In addition, applicable authorizations/permits from the USACE, RWQCB, and/or CDFW would be required.

Wildlife Movement and Nursery Sites

Based on the nature of the project and its position relative to agriculture and rural residential uses, project development would not create artificial wildlife corridors or interfere with connectivity to offsite habitat, or substantially limit access to potential foraging or breeding habitat, or water sources necessary for the successful reproduction of resident wildlife species.

Land Policies and Ordinances

The following federal/state laws/regulations and local ordinances are applicable to the proposed project, and are evaluated below for consistency purposes.

Federal Migratory Bird Treaty Act (MBTA) and California Fish and Game Code

The Federal Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-712) was enacted in 1918. Its purpose is to prohibit the kill or transport of native migratory birds, or any part, nest, or egg of any such bird unless allowed by another regulation adopted in accordance with the MBTA. Under the MBTA of 1918 (16 U.S.C. section 703-712; Ch. 128; July 3, 1918; 40 Stat. 755; as amended 1936, 1956, 1960, 1968, 1969, 1974, 1978, 1986 and 1998), it is unlawful, except as permitted by the USFWS, to “take, possess, transport, sell, purchase, barter, import, or export all species of birds protected by the MBTA, as well as their feathers, parts, nests, or eggs. Take means to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect (50 CFR 10.12). Birds protected by the MBTA include all birds covered by the treaties for the protection of migratory birds between the United States and Great Britain (on behalf of Canada, 1916), Mexico (1936), Japan (1972), and Russia (1976), and subsequent amendments.”

It is important to note that since the MBTA addresses migratory birds by family rather than at a lower taxonomic level, most bird species are protected by the MBTA because most taxonomic families include migratory members. In addition, “take” as defined under the federal MBTA is not synonymous with “take” as defined under the federal ESA. The MBTA definition of “take” lacks a “harm and harassment” clause comparable to “take” under the ESA, thus, the MBTA authority does not extend to activities beyond the nests, eggs, feathers, or specific bird parts (i.e., activities or habitat modification in the vicinity of nesting birds that do not result in “take” as defined under the MBTA are not prohibited). Further, “a permit is not required to dislodge or destroy migratory bird nests that are not occupied by juveniles or eggs; however, any such destruction that results in take of any migratory bird is a violation of the MBTA (i.e., where juveniles still depend on the nest for survival).”

Sections 3503, 3503.5, and 3513 of the California Fish and Game Code prohibit the “take, possession, or destruction of bird nests or eggs.” Section 3503 states: “It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto.” Section 3503.5 provides a refined and greater protection for birds-of-prey and states: “It is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.” The distinctions made for birds-of-prey are the inclusion of such birds themselves to the protections and the elimination of the term “needlessly” from the language of §3503. Section 3513 states: “It is unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Bird Treaty Act.”

The definition of “take” under the California Fish and Game Code is not distinct from the definition of “take” under California Endangered Species Act (CESA), which is defined as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill” (California Fish and Game Code

§86); however, it is important to note that the state definition of “take” again does not include a “harm and harassment” clause, and thus, activities or habitat modification in the vicinity of nesting birds that do not result in “take” as defined under the California Fish and Game Code/CESA are not prohibited.

Nesting birds may be present within the project footprint, most notably within the southern mixed chaparral and non-native grassland during construction. Impacts to active migratory bird nests, if present at the time of construction are prohibited under the federal MBTA and California Fish and Game Code §3503 and §3513. Since avian species could potentially nest in the onsite habitats, the proposed project could result in impacts to active bird nests, if present at the time of construction under the federal MBTA and California Fish and Game Code §3503 and §3513; therefore, **BIO-3** would be required to reduce this impact to less than significant.

BIO-3: To avoid impacts to nesting migratory birds including raptors, all clearing and/or trampling of vegetation that has a potential to support active nests should not take place from January 1 through August 31, the “restricted work period.” If avoidance of the nesting migratory bird breeding season is not feasible, clearing and/or trampling of vegetation may occur during the “restricted work period” if a qualified biologist conducts a focused survey for active nests not more than five days prior to the start of work and determines the area to be free of nesting birds. If active bird nests were found, then all construction activities undertaken for the project must comply with regulatory requirements of the federal MBTA and California Fish and Game Code Sections §3503 and §3513. This would require protection of the nest, eggs, chicks, and adults until such time as the nestlings have fully fledged and are no longer dependent upon the nest site.

Cumulative Impact

CEQA as well as local Natural Community Conservation Plans (NCCP) and subarea plans were designed to compensate for the loss of biological resources throughout the program’s region; therefore, projects that conform would not result in cumulatively considerable impacts for those biological resources adequately covered by the program. Implementation of the project mitigation (BIO-1 through BIO-3) would reduce impacts to less than cumulatively considerable.

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APPENDIX A. FLORA SPECIES OBSERVED

Habitat Types:

- SMX = Southern Mixed Chaparral (Holland/Oberbauer 37120)
- NNG = Non-Native Grassland (Holland/Oberbauer 42200)
- EUC = Eucalyptus Woodland (Holland/Oberbauer 79100)
- DH = Disturbed Habitat (Holland/Oberbauer 11300)
- UD = Urban/Developed (Holland/Oberbauer 12000)
- AG = Orchards/Vineyards (Holland/Oberbauer 18100) and
Row Crops (Holland/Oberbauer 18320)

* = Denotes non-native flora species.

Note: List may not include all orchard or row crop species. In addition, list may not include all ornamental landscaping within private parcels.

Scientific Name	Common Name	Habitat
DICOTYLEDONS		
Adoxaceae – Adoxa Family		
<i>Sambucus nigra</i> L. subsp. <i>caerulea</i> (Raf.) Bolli	blue elderberry	SMX
Anacardiaceae – Sumac Family		
<i>Malosma laurina</i> (Nutt.) Nutt. Ex Abrams	laurel sumac	SMX
<i>Rhus ovata</i> S. Watson	sugar bush	SMX
* <i>Schinus molle</i> L.	pepper tree	AG
Apiaceae – Carrot Family		
* <i>Foeniculum vulgare</i> Miller	fennel	SMX, DH
Asteraceae – Sunflower Family		
<i>Artemisia californica</i> Less.	California sagebrush	SMX
<i>Baccharis pilularis</i> DC.	coyote brush	SMX
* <i>Carduus pycnocephalus</i> L. ssp. <i>pycnocephalus</i>	Italian thistle	SMX
* <i>Centaurea melitensis</i> L.	totalote, Maltese star-thistle	All
<i>Cirsium</i> sp.	thistle	SMX
<i>Encelia californica</i> Nutt.	California encelia	SMX
* <i>Erigeron bonariensis</i> L.	flax-leaf fleabane	AG, DH
<i>Eriophyllum confertiflorum</i> (DC.) A. Gray var. <i>confertiflorum</i>	golden-yarrow	SMX
* <i>Glebionis coronaria</i> (L.) Spach	garland, crown daisy	SMX, AG, DH
* <i>Helminthotheca echioides</i> (L.) Holub	bristly ox-tongue	AG, DH
<i>Isocoma menziesii</i> (Hook. & Arn.) G. L. Nesom var. <i>menziesii</i>	Menzies's goldenbush	SMX
<i>Pseudognaphalium californicum</i> (DC.) Anderb.	California everlasting	SMX
* <i>Sonchus asper</i> (L.) Hill ssp. <i>asper</i>	prickly sow thistle	AG, DH
Boraginaceae – Borage Family		
<i>Amsinckia menziesii</i> (Lehm.) A. Nelson & J. F. Macbr.	common or small-flowered fiddleneck	SMX
<i>Eucrypta chrysanthemifolia</i> (Benth.) Greene	common eucrypta	SMX
Brassicaceae – Mustard Family		
* <i>Hirschfeldia incana</i> (L.) Lagr.-Fossat	summer field mustard	All
* <i>Raphanus sativus</i> L.	radish	AG, DH
Caprifoliaceae - Honeysuckle Family		
<i>Lonicera subspicata</i> Hook. & Arn. var. <i>denudata</i> Rehder	southern honeysuckle	SMX
Chenopodiaceae		
* <i>Atriplex semibaccata</i> R. Br.	Australian saltbush	AG, DH
<i>Chenopodium</i> sp.		AG, DH

Scientific Name	Common Name	Habitat
* <i>Salsola kali</i> L. ssp. <i>pontica</i> (Pall.) Mosyakin	Russian thistle	AG, DH
Convolvulaceae – Morning-Glory Family		
* <i>Convolvulus arvensis</i> L.	bindweed, orchard morning-glory	AG, DH
Cucurbitaceae – Gourd Family		
<i>Marah macrocarpa</i> (Greene) Greene	manroot, wild-cucumber	SMX
Ericaceae – Heath Family		
<i>Xylococcus bicolor</i> Nutt.	mission manzanita	SMX
Euphorbiaceae – Spurge Family		
<i>Croton setiger</i> Hook.	doveweed, turkey mullein	AG, DH
* <i>Ricinus communis</i> L.	castor bean	AG
Fabaceae – Pea Family		
* <i>Acacia</i> sp.		AG, DH
<i>Acmispon glaber</i> (Vogel) Brouillet var. <i>glaber</i>	deer lotus, deerweed	SMX
* <i>Leucaena leucocephala</i>	White Leadtree	AG, DH
* <i>Melilotus albus</i> Medik.	white sweetclover	AG, DH
Fagaceae – Oak Family		
<i>Quercus agrifolia</i> Née var. <i>agrifolia</i>	California or coast live oak	SMX
Gentianaceae – Gentian Family		
<i>Zeltnera venusta</i> (A. Gray) G. Mans.	California or charming century	SMX
Geraniaceae – Geranium Family		
* <i>Erodium botrys</i> (Cav.) Bertol.	long-beak filaree	AG, DH
* <i>Erodium cicutarium</i> (L.) L'Hér. ex Aiton	red-stem filaree	SMX
Lamiaceae – Mint Family		
* <i>Marrubium vulgare</i> L.	horehound	SMX
<i>Salvia mellifera</i> Greene	black sage	SMX
Malvaceae – Mallow Family		
* <i>Malva parviflora</i> L.	cheeseweed, little mallow	AG, DH
Meliaceae – Mahogany Family		
* <i>Melia azedarach</i> L.	china berry, Persian lilac	DH
Moraceae – Mulberry Family		
* <i>Ficus carica</i> L.	edible fig	AG, DH

Scientific Name	Common Name	Habitat
Myrtaceae – Myrtle Family		
* <i>Eucalyptus camaldulensis</i> Dehnh.	red gum, river red gum	EUC
* <i>Eucalyptus sideroxylon</i> A. Cunn. ex Woolls	red iron bark	EUC
* <i>Eucalyptus</i> sp.	Eucalyptus	EUC
Myrsinaceae – Myrsine Family		
* <i>Lysimachia arvensis</i> (L.) U. Manns & Anderb.	scarlet pimpernel	SMX, AG, DH
Polygonaceae – Buckwheat Family		
<i>Eriogonum fasciculatum</i> Benth. var. <i>fasciculatum</i>	coastal California buckwheat	SMX
* <i>Rumex crispus</i> L.	curly dock	AG
Rhamnaceae – Buckthorn Family		
<i>Ceanothus tomentosus</i> Parry	woollyleaf ceanothus	SMX
Rosaceae – Rose Family		
<i>Adenostoma fasciculatum</i> Hook. & Arn.	chamise	SMX
<i>Cercocarpus minutiflorus</i> Abrams	San Diego mountain-mahogany	SMX
<i>Fragaria</i> × <i>ananassa</i>	common strawberry	AG
<i>Heteromeles arbutifolia</i> (Lindl.) M. Roem.	toyon, Christmas berry	SMX
Salicaceae – Willow Family		
<i>Salix laevigata</i> Bebb	red willow	AG
Solanaceae – Nightshade Family		
* <i>Nicotiana glauca</i> Graham	tree tobacco	SMX, AG, DH
<i>Solanum parishii</i> A. Heller	Parish's nightshade	SMX
MONOCOTYLEDONS		
Agavaceae – Century Plant Family		
<i>Chlorogalum parviflorum</i> S. Watson	small-flower soap plant	SMX
<i>Yucca schidigera</i> K.E. Ortgies	Mojave yucca	SMX
Arecaceae – Palm Family		
* <i>Washingtonia robusta</i> H. Wendl.	Mexican fan palm	AG
Poaceae – Grass Family		
* <i>Avena barbata</i> Link	slender wild oat	All
* <i>Bromus diandrus</i> Roth	ripgut grass	All
* <i>Bromus madritensis</i> L. ssp. <i>rubens</i> (L.) Husnot	red brome, foxtail chess	All

Scientific Name	Common Name	Habitat
* <i>Digitaria sanguinalis</i> (L.) Scop.	large crab grass	AG
* <i>Hordeum murinum</i> L. ssp. <i>leporinum</i> (Link) Arcang.	hare barley	AG
MAGOLIIDS-LAURALES		
Calycanthaceae – Sweet Shrub or Calycanthus Family		
<i>Calycanthus occidentalis</i> Hook. & Arn.	sweet shrub, spicebush	SMX
Lauraceae – Laurel Family		
<i>Persea americana</i> Mill.	avocado	AG

APPENDIX B. FAUNA SPECIES OBSERVED OR DETECTED ON-SITE¹

Habitat Types:

SMX	=	Southern Mixed Chaparral (Holland/Oberbauer 37120)
NNG	=	Non-Native Grassland (Holland/Oberbauer 42200)
EUC	=	Eucalyptus Woodland (Holland/Oberbauer 79100)
DH	=	Disturbed Habitat (Holland/Oberbauer 11300)
UD	=	Urban/Developed (Holland/Oberbauer 12000)
AG	=	Orchards/Vineyards (Holland/Oberbauer 18100) and Row Crops (Holland/Oberbauer 18320)
FO	=	fly over

* = denotes introduced species

Abundance Codes (birds only):

- A = Abundant: Almost always encountered in moderate to large numbers in suitable habitat and the indicated season.
- C = Common: Usually encountered in proper habitat at the given season.
- U = Uncommon: Infrequently detected in suitable habitat. May occur in small numbers or only locally in the given season.
- R = Rare: Applies to species that are found in very low numbers.

“Numbers” indicate the number of individuals observed during the field survey work.

Status Codes (birds only):

- M = Migrant: Uses the site for brief periods of time, primarily during the spring and fall months.
- R = Year-round resident: Probable breeder on-site or in the vicinity.
- S = Spring/summer resident: Probable breeder on-site or in the vicinity unless combined with transient status.
- T = Transient: Uses site irregularly in summer but unlikely to breed. Not a true migrant and actual status often poorly known.
- W = Winter visitor: Does not breed locally.
- V = Casual vagrant: Not expected; out of normal geographic or seasonal range and by definition rare.

Common Name	Scientific Name	Habitat	Abundance	Status
BUTTERFLIES				
Nymphalidae (Brushfoots)				
mourning cloak	<i>Nymphalis antiopa</i>	SMX	-	-
BIRDS				
Cathartidae (American Vultures)				
turkey vulture	<i>Cathartes aura</i>	FO	C	T, R
Accipitridae (Hawks and Harriers)				
red-shouldered hawk	<i>Buteo lineatus</i>	FO	C	R
red-tailed hawk	<i>Buteo jamaicensis</i>	AG	C	R, M, W
Columbidae (Pigeons and Doves)				
rock pigeon	<i>Columba livia</i>	AG	A	R
Trochilidae (Hummingbirds)				
Allen's hummingbird	<i>Selasphorus sasin</i>	SMX	C	M, R
Picidae (Woodpeckers and Wrynecks)				
Nuttall's woodpecker	<i>Picoides nuttallii</i>	EUC, DH	C	R
Falconidae (Caracaras and Falcons)				
American kestrel	<i>Falco sparverius</i>	SMX	C	R
Tyrannidae (Tyrant Flycatchers)				
black phoebe	<i>Sayornis nigricans</i>	AG, UD	C	R
Corvidae (Jays, Magpies, and Crows)				
American crow	<i>Corvus brachyrhynchos</i>	FO, All	A	R
Hirundinidae (Swallows)				
cliff swallow	<i>Petrochelidon pyrrhonota</i>	SMX	C	M, S
Aegithalidae (Long Tailed Tits)				
bushy tit	<i>Psaltriparus minimus</i>	SMX	C	R
Troglodytidae (Wrens)				
house wren	<i>Troglodytes aedon</i>	UD	C	M, W, S
Mimidae (Mockingbirds and Thrashers)				
northern mockingbird	<i>Mimus polyglottos</i>	AG, DH	C	R

Common Name	Scientific Name	Habitat	Abundance	Status
Ptilonotidae (Silky Flycatchers)				
phainopepla	<i>Phainopepla nitens</i>	AG, DH	C	M, S
Passerellidae (New World Buntings and Sparrows)				
song sparrow	<i>Melospiza melodia</i>	DH	A	R
California towhee	<i>Melospiza crissalis</i>	All	C	R
spotted towhee	<i>Pipilo maculatus</i>	SMX	C	R
Icteridae (Blackbirds, Meadowlarks, Orioles, and Relatives)				
western meadowlark	<i>Sturnella neglecta</i>	AG	C	R, W
Fringillidae (Finches)				
house finch	<i>Haemorhous mexicanus</i>	All	A	R
MAMMALS				
Sciuridae (Squirrels)				
California ground squirrel	<i>Spermophilus beecheyi nudipes</i>	AG	-	-

APPENDIX C: SITE PHOTOGRAPHS



Photo Point 1a. Photo taken at the northern limit of the alignment. Red line represents the approximate location of the alignment within view. Photo date: 05/05/22. Direction: south. Lat/Long: 33.2550, -117.2176



Photo Point 1b. Photo taken from Photo Point 1a but directed west. Red lines represent the approximate location of the alignment within view. Photo date: 05/05/22. Direction: west. Lat/Long: 33.2550, -117.2176



Photo Point 2. Photo taken at the northern limit of alignment. Red line represents the approximate location of the alignment within view. Photo date: 05/05/22. Direction: east. Lat/Long: 33.254244, -117.219581



Photo Point 3. Photo taken at the northern limit of alignment. Red line represents the approximate location of the alignment within view. Photo date: 05/05/22. Direction: east. Lat/Long: 33.254331 -117.218628



Photo Point 4a. Photo taken at the northern limit of alignment. Red line represents the approximate location of the alignment within view. A culvert is located under the road at this location (north-south). Photo date: 05/05/22. Direction: east. Lat/Long: 33.254244, -117.219581



Photo Point 4b. Photo taken from Photo Point 4a but directed south. Red line represents the approximate location of the alignment. Photo date: 05/05/22. Direction: south. Lat/Long: 33.254244, -117.219581



Photo Point 5. Photo taken at the intersection of Gopher Canyon Rd and Fairview Dr. Red line represents the approximate location of the alignment. Culverts are under the road at this location along with a non-wetland water (see Photo 7). Photo date: 05/05/22. Direction: north. Lat/Long: 33.2495, -117.22188



Photo Point 6. Photo taken at the intersection of Gopher Canyon Rd and Fairview Dr. Red line represents the approximate location of the alignment. Culverts are under the road at this location along with a non-wetland water (blue line). Photo date: 05/05/22. Direction: south. Lat/Long: 33.249825, -117.221956



Photo Point 7. Photo taken at the northern limit of the active agricultural operation. Red line represents the approximate location of the alignment. Photo date: 05/05/22. Direction: north. Lat/Long: 33.248141, -117.221908



Photo Point 8. Photo taken at the central portion of the active agricultural operation. Red line represents the approximate location of the alignment. Culverts are under the road at this location along with a non-wetland water (blue line). Photo date: 05/05/22. Direction: south. Lat/Long: 33.243119, -117.224258



Photo Point 9. Photo taken at the central portion of the agricultural operation. Culverts are under the road at this location along with a non-wetland water (see Photo 11). Photo date: 05/05/22. Direction: northwest. Lat/Long: 33.242864, -117.224158



Photo Point 10. Photo of basin. Culverts from the agricultural operation drain into this basin. Basin fills up and drains offsite. Photo date: 05/05/22. Direction: west. Lat/Long: 33.242972, -117.224306



Photo Point 11. Photo taken at the southern portion of the alignment within the agricultural operation. Photo date: 05/05/22. Direction: east. Lat/Long: 33.241664, -117.224022



Photo Point 12. Photo taken at the southern portion of the alignment within the agricultural operation. Non-wetland water located outside of the alignment and drains offsite to the east. Photo date: 05/05/22. Direction: east. Lat/Long: 33.24153, -117.220733

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C-1

**Cultural
Resources
Report**



July 6, 2022

Erich Lathers
BRG Consulting
304 Ivy Street
San Diego, California 92101

Re: Cultural Resources Study for the Tres Amigos Waterline Replacement Project, Vista, San Diego County, California

Dear Mr. Lathers,

This report presents the results of a cultural resources study conducted by ASM Affiliates, Inc. (ASM) for the proposed Tres Amigos Waterline Project (Project). As described below, the study aimed to determine the presence or absence of cultural resources within the Project's area of potential effects (APE). This study was completed in compliance with the cultural resource management requirements of the California Environmental Quality Act (CEQA), the Vallecitos Water District (VWD), and other local regulations.

PROJECT DESCRIPTION AND LOCATION

The VWD Tres Amigos Waterline comprises approximately 19,000 feet of pipelines ranging from 6-inch to 12-inch diameter. The water pipelines located in the northern limits of the VWD boundary were installed in the 1950s and 1960s, extending from the North Twin Oaks Tank No. 2 in Pleasant Heights Drive to north of Carrio Drive. The original Tres Amigos Line Extension Project occurred in 1958, which installed 6-inch and 8-inch diameter tar-wrapped 12-14-gauge steel pipelines. This material is considered a steam pipeline and is inadequate for pressurized water distribution systems.

Due to the frequency of pipeline ruptures, this Project will replace approximately 12,000 feet of the Tres Amigos water pipelines beginning south of Green Hills Way, traveling northbound in VWD easements and in Ormsby Way. The pipeline corridor veers east in an existing VWD easement from Ormsby Way, travels northbound in alignment with Fairview Drive, and crosses Gopher Canyon Road, continuing northbound in Fairview Drive. North of the Carrio Drive / Fairview Drive intersection, the pipeline travels northeast in VWD easements through private properties to a dead-end at VWD's northern boundary (end of the Project). A key Project objective includes relocating the existing pipelines out of private backyards and into more accessible areas.

The Project is located on the Bonsall and San Marcos 7.5' U.S. Geological Survey (USGS) quadrangles in Township 11 South, Range 3 West, Section 5 San Bernardino Baseline and Meridian, San Diego County, California (Figure1-3).

METHODS

A records search of the archives at the South Coastal Information Center (SCIC), San Diego State University, of the California Historical Resources Information System (CHRIS) was conducted by ASM on April 28, 2022, for the Project APE (Appendix A). The records search area encompasses the Project area and a search radius of 1 mile (mi.) around it. The California Register of Historical Resources and the National Register of Historic Places were also consulted to identify additional resources within 1-mi. of the Project area.

On April 28, 2022, a letter was sent to the California Native American Heritage Commission (NAHC) to request a search of their Sacred Lands File (SLF) and a list of Native American contacts who may know areas of cultural concern, such as traditional cultural places, sacred sites, archaeological sites, or cultural landscapes that may exist within the Project area or within 1-mi. of the proposed Project area.

The Project area, including a 20-ft. buffer around the proposed waterline replacement, was surveyed at 5-meter (m) interval transects. All accessible portions of the Project APE were inspected for the presence of cultural material.

RECORDS SEARCH RESULTS

A records search request of the archives at the South Coastal Information Center (SCIC), San Diego State University, of the California Historical Resources Information System (CHRIS) for San Diego County was completed on April 28, 2022. The records search area encompasses the Project area and a radius of 1-mi. around it. The California Register of Historical Resources (CRHR) and the National Register of Historic Places (NRHP) were also consulted to identify any previously recorded cultural resources within 1-mi. of the Project area.

The results of the SCIC records search are summarized below (Table 1). CHRIS records identified 85 previous reports that addressed areas within a 1-mi. radius of the Project area. Five of these reports indicate that previous cultural resource studies may have included areas within the Project area, as they address areas that intersect or overlap the Project area (Table 2). CHRIS records indicate the presence of 19 previously recorded cultural resources within a 1-mi. radius of the Project area (Table 3). None of the previously recorded cultural resources intersect the Project area. One historic address was identified as occurring within the 1-mi. records search radius, but it does not intersect the proposed Project area.

Table 1. Summary of Records Search Results

SCIC Record Type	Within 1 mile of APE	Intersects with APE
Previous Reports	85	5
Cultural Resources	19	0
Historic Addresses	1	0

Summary of Reports Intersecting the Project APE

Five previously conducted cultural resource studies intersect the Project APE. One of the reports was an EIR for the Morris Ranch (Mooney-Lettieri and Associates 1982). Two were archaeological survey reports covering most of the current Project's APE (Brown and Van Horn 1985; Robbins-Wade 2011). One report addresses a small area along the APE for replacing a utility pole (Rosenberg 2009), and one is a literature review that encompasses most of the APE. Much of the Project area appears to have been disturbed for agriculture and the construction of roads. However, subsurface cultural resource deposits might be preserved below the previous grade or along the edges of the Project APE, where soil may not have been as impacted.

Table 2. Summary of Previous Reports that Intersect the Project Area

SCIC File No. SD-	NADB No.	Author(s)	Year	Title	Affiliation	Proximity to APE
02179	1122179	Mooney-Lettieri and Associates, Inc.	1982	Draft Environmental Impact Report for Morris Ranch Tm 4240 EAD Log#81-2-5	Mooney-Lettieri and Associates, Inc.	Intersects
08472	1128472	Brown, R. S. and D.M. Van Horn	1985	Archaeological Survey Report: Rancho Tres Amigos, City of Vista, San Diego County, Ca	Archeological Associates, Ltd.	Intersects
13666	1133666	Rosenberg, Seth A.	2009	Report For Archaeological Monitoring, Pole Replacement, Pole Nos. 111032 And 312561, City of Vista, Ets #7772	E2M	Intersects
13979	1133979	Robbins-Wade, Mary	2011	Historic and Archaeological Resources Survey, Kawano Vista Property, Vista, San Diego County, California	Affinis	Intersects
14140	1134140	Robbins-Wade, Mary	2003	Archaeological Records Search and Literature Review, Vallecitos Water District Master Plan Update San Diego County, California	Affinis	Intersects

Summary of Sites Occurring within One Mile of the Project APE

The archaeological sites within a 1-mi. radius of the Project APE consist of seven prehistoric sites, including lithic scatters, bedrock milling features, and three prehistoric isolates. Historic period resources include two single-family properties, the ruins of a single-family property, four farms, a historic road segment, and a historic isolate consisting of a historic induction motor. None of the resources identified in the records search intersect the proposed project area.

Table 3. Summary of Cultural Resources Within a One-Mile Radius of the Project APE

Primary No. (P-37-)	Trinomial (CA-SDI-)	DPR Form Recorder and Updates	Description	Proximity to Project (m)
000676	676	True (1960), McManis and Cirilo (1979), Moslak, Savala, and Dalope (2003), Dalope and Hector (2008), Crafts and Tsunoda (2011)	AP4. Bedrock milling features	1508
001250	1250	Kearns (1971), Laylander and Palette (2003)	AP2. Lithic scatter, AP12. Quarry	1328
001251	1251	Kearns (1971), Ezell (1973), Moslak (2003)	AP2. Lithic scatter	1419
005425	5425	Flower, Ike, and Roth (1980)	AP2. Lithic scatter, AP4. Bedrock milling feature	1480
008200	8200	Flower, Ike, and Roth (1980)	AP2. Lithic scatter, AP4. Bedrock milling feature	309
011457	11457	Phillips (1989), Clowery, Morgan, Tennesen, Whitaker (2011)	HP2. Single-family property	1493
024924	16498	Moslak et al. (2003), Laylander (2007)	AP4. Bedrock milling feature	1560
024949	-	Robbins-Wade (2003)	AP16: Isolate flake	1551

Primary No. (P-37-)	Trinomial (CA-SDI-)	DPR Form Recorder and Updates	Description	Proximity to Project (m)
028779	-	Marbe-Laird Associates (1987)	HP2. Single-family property	378
031754	20171	Clowery et al. of HDR (2011)	AH2. Foundations/structure pads, AH5. Wells/cisterns, AH15. Standing structures	1263
031755	-	Morgan and Stadille of HDR (2011)	AH10. Machinery	1486
033557	-	-	AH7. Roads (Highway 395)	193
034932	-	Van Wormer of Affinis (2011)	HP33. Farm/ranch	385
034933	-	Van Wormer of Affinis (2011)	HP33. Farm/ranch	356
034934	-	Van Wormer of Affinis (2011)	HP33. Farm/ranch	361
034935	-	Van Wormer of Affinis (2011)	HP33. Farm/ranch, HP21. Dam	382
035275	21774	Davidson et al. of HELIX (2015)	AP2. Lithic scatter	432
035276	-	Davidson et al. of HELIX (2015)	AP16. Isolate flake	600
035489	-	Giletti of HELIX	AP16. Isolate flake	338

NAHC SLF Search Results

ASM received a response from the NAHC on June 9, 2022, that indicated a search of the SLF was negative for specific site information within the 1-mi. search radius. They included a list of Native American tribes with their SLF search results that may have knowledge of cultural resources in the project area. On June 10, 2022, ASM sent letters to all Native American tribes on the list provided by the NAHC to notify them of the Project and request additional knowledge of Tribal concerns. Ray Teran, Viejas Tribal Government Resource Management Director, responded on June 24, 2022, by email that the Viejas Band of Kumeyaay Indians determined the project site has cultural significance or ties to the Kumeyaay Nation and recommended that the San Pasqual Band of Mission Indians in Valley Center be notified. ASM sent a notification letter via email to Chairperson Allen Lawson and Environmental Coordinator John Flores of the San Pasqual Band of Mission Indians on June 30, 2022.

The Cultural Coordinator for the Pechanga Band of Indian, Paul E. Macarro, responded on June 29, 2022, via an emailed letter that the Pechanga Tribe determined that the Project area is not within Reservation lands but that it is located within their Ancestral Territory. They expressed interest in participating in the Project as it is located within the vicinity of three distinct Ancestral Placename locations and one cultural site. They requested government-to-government consultation. The SLF search request and response letter, the list of Native American tribes to contact, a sample Tribal notification letter, and the response letters from Viejas and Pechanga are included in Appendix B.

ARCHAEOLOGICAL SURVEY RESULTS

The Project APE was surveyed by ASM Associate Archaeologist Holly Drake and Mario Herrera, a qualified Native American monitor from Saving Sacred Sites, on May 5, 2022. An area of 20 ft. on either side of the proposed alignment was examined during the survey. The entire Project area shows evidence that it was previously disturbed by grading, plowing, or road construction. Much of the APE is either dirt or asphalt road, with the southern portion of the Project area within agricultural land primarily comprising

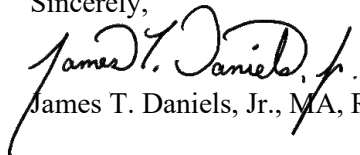
strawberry crops (Figure 4) and the northern end of the Project area consisting primarily of residential areas with landscaping (Figure 5).

No prehistoric materials were identified on the ground surface within the Project APE as a result of the cultural resources survey. One piece of amethyst glass was identified on a dirt road running through the strawberry fields (Figure 6). Amethyst glass was produced from approximately 1880 to 1917. The isolate shard is out of context with no additional associated artifacts and is thus categorically not eligible for listing in the CRHR.

CONCLUSIONS AND RECOMMENDATIONS

No cultural resources were observed during the archaeological survey of the Project APE except for a single amethyst glass shard, which is categorically not eligible for listing in the CRHR. Although the likelihood of subsurface deposits is low due to previous grading and construction-related ground disturbance, construction monitoring by a qualified archaeologist and Native American monitor is recommended for ground-disturbing activities during the Project construction phase. This recommendation ensures that unanticipated buried cultural material is adequately recorded and evaluated should it be encountered during the installation of the pipeline. Once construction excavation has exposed soil to a sufficient depth that precludes the potential for cultural resources in that area, typically >1 meter, or depths at which paleontological resources may be present, ASM recommends cessation of the recommended cultural monitoring. If you have any questions or comments regarding the information provided in this report, please do not hesitate to contact me.

Sincerely,


James T. Daniels, Jr., MA, RPA

ATTACHMENTS:

- Figure 1. Project vicinity map.
- Figure 2. Project area location map.
- Figure 3. Project site map.
- Figure 4. Overview of southernmost project alignment along the dirt road through strawberry fields.
- Figure 5. Overview of project alignment on Fairview Road showing residential paved roads.
- Figure 6. Isolate piece of amethyst glass.

APPENDICES:

- Appendix A: SCIC Records Search Summary Page
- Appendix B: NAHC SLF Search Request, Results, Sample Tribal Contact Letter, and Tribal Response Letters

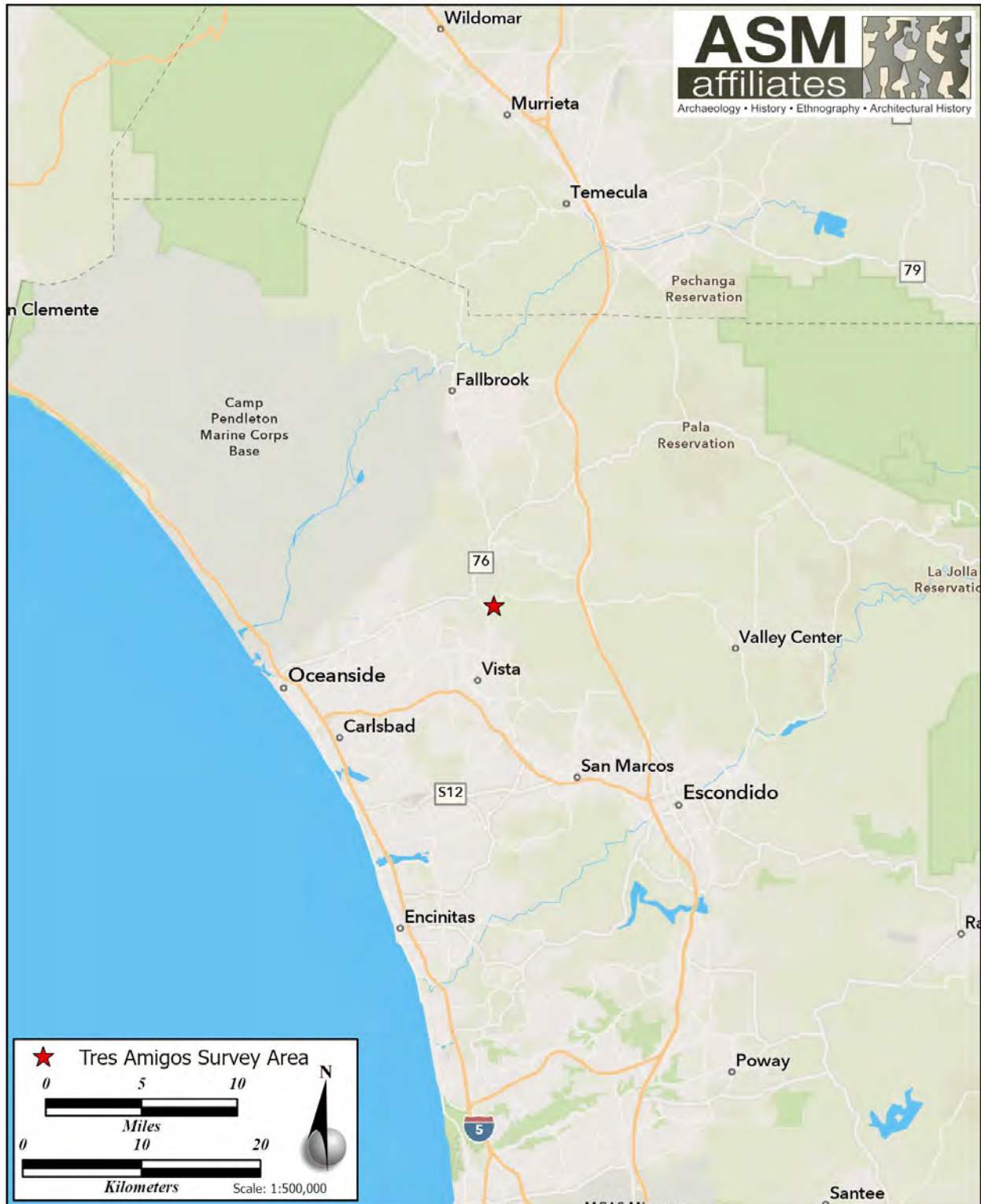


Figure 1. Project vicinity map.

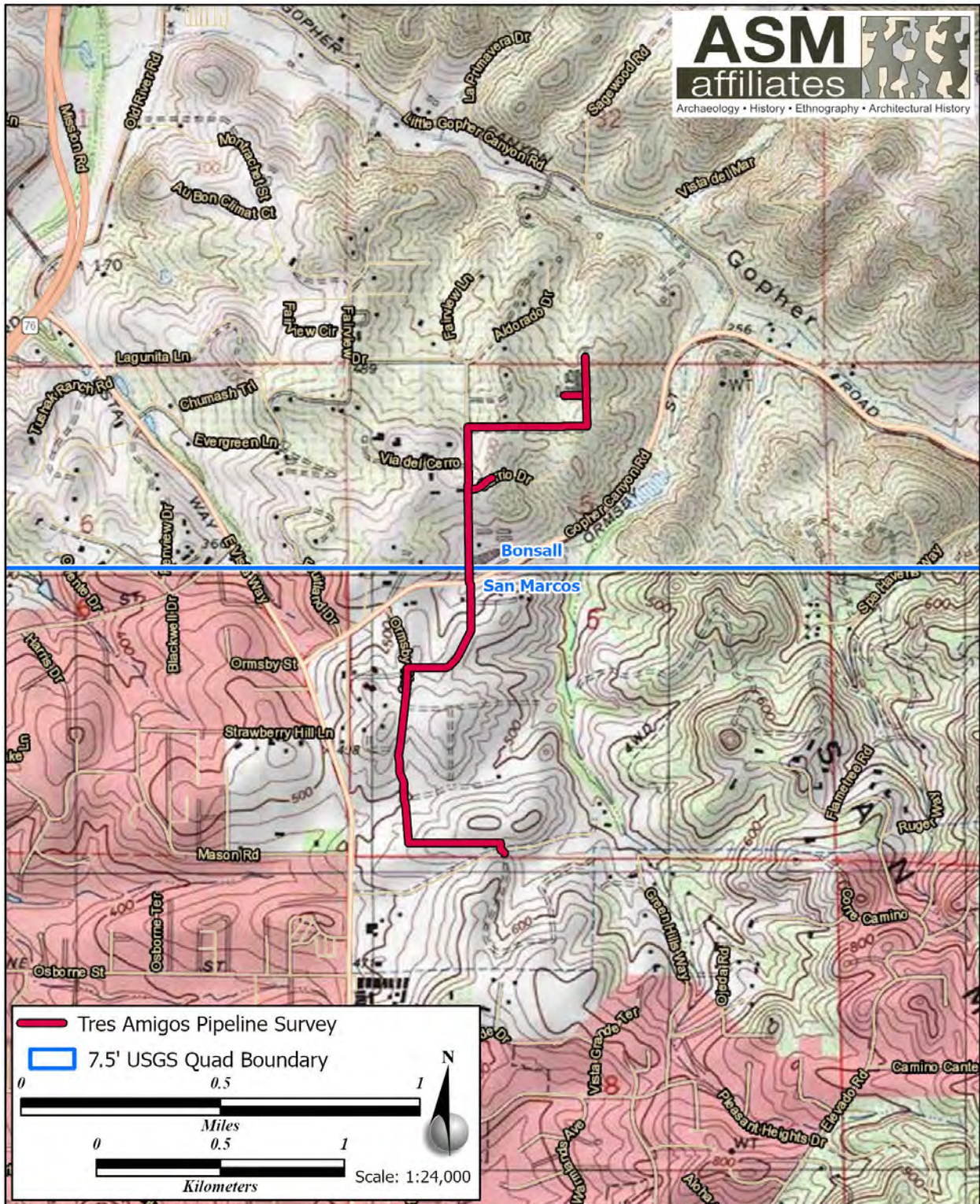


Figure 2. Project area location map.

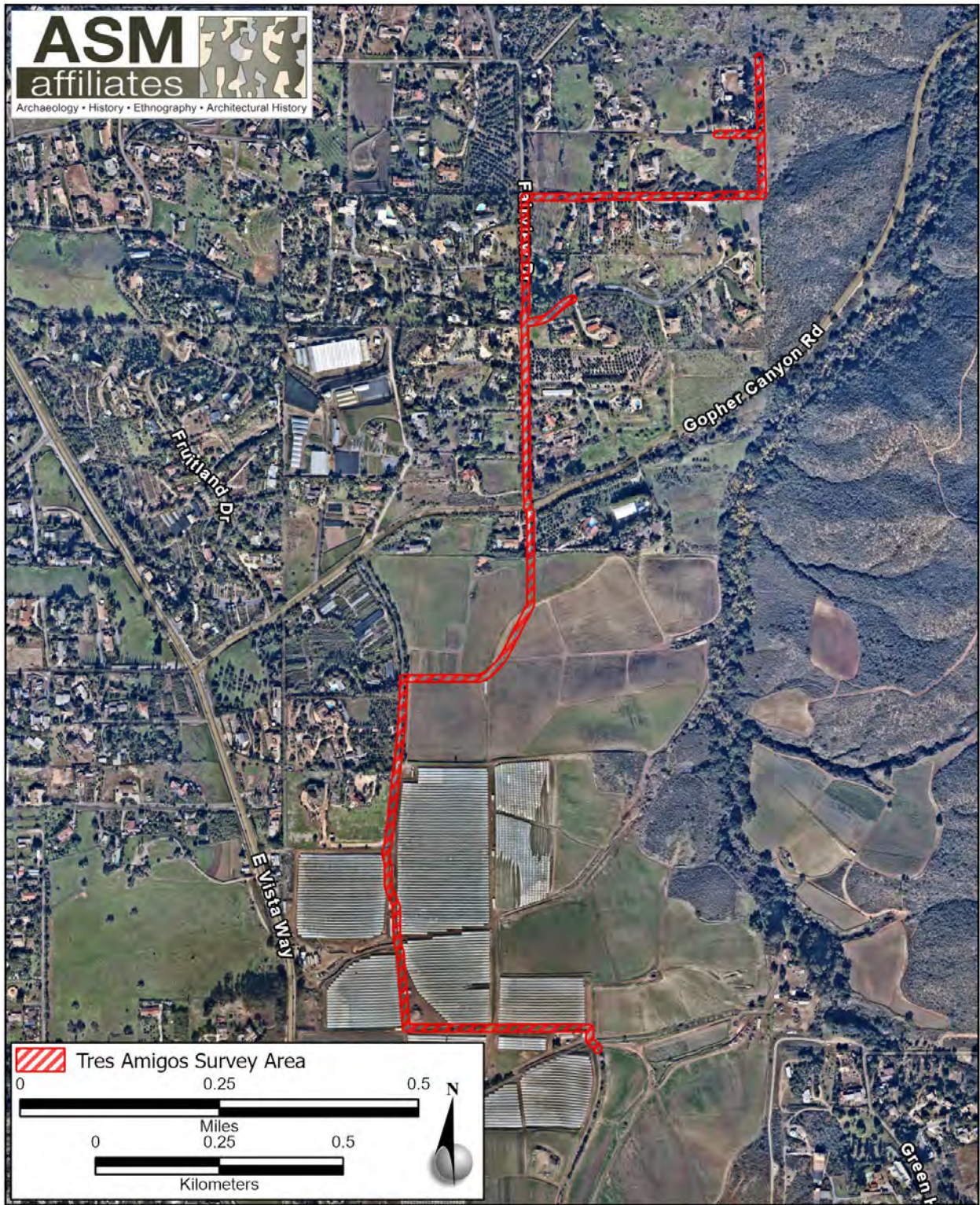


Figure 3. Project site map.



Figure 4. Overview of southernmost project alignment along the dirt road through strawberry fields.



Figure 5. Overview of project alignment on Fairview Road showing residential paved roads.

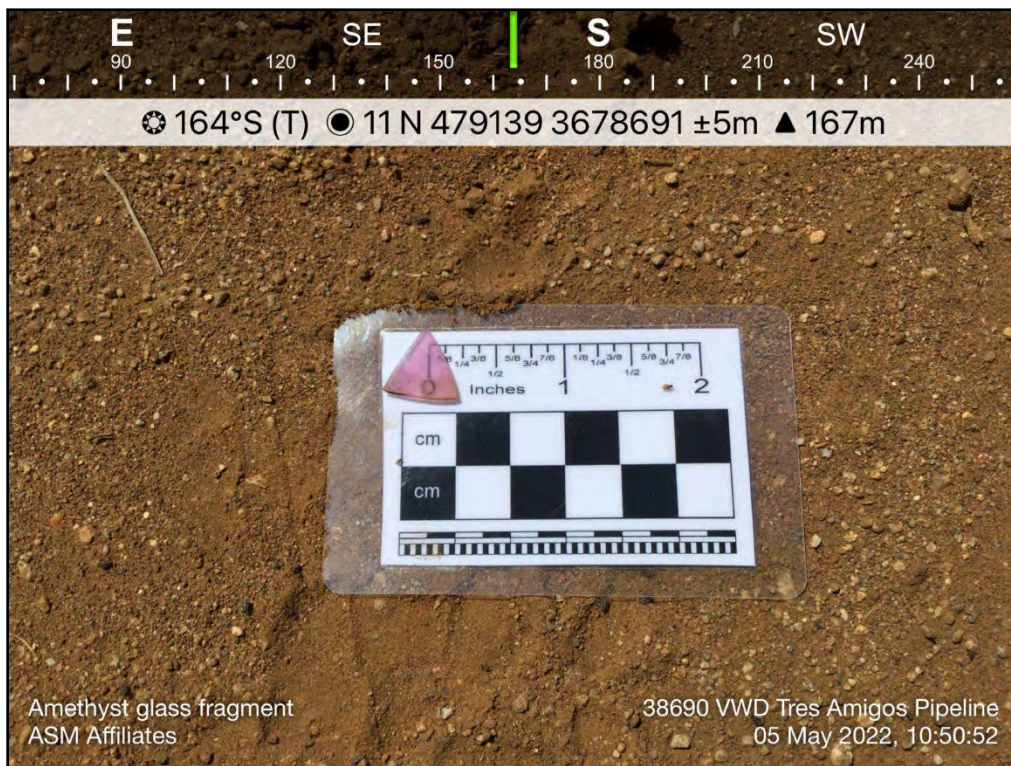


Figure 6. Isolate piece of amethyst glass.

APPENDICES

APPENDIX A

SCIC Records Search Summary Page



South Coastal Information Center
San Diego State University
5500 Campanile Drive
San Diego, CA 92182-5320
Office: (619) 594-5682
www.scic.org
scic@mail.sdsu.edu

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM CLIENT IN-HOUSE RECORDS SEARCH

Company: ASM Affiliates

Company Representative: Nick Doose

Date: 4/28/2022

Project Identification: 38690 VWD Tres Amigos Water Main

Search Radius: 1 mile

Historical Resources: SELF

Trinomial and Primary site maps have been reviewed. All sites within the project boundaries and the specified radius of the project area have been plotted. Copies of the site record forms have been included for all recorded sites.

Previous Survey Report Boundaries: SELF

Project boundary maps have been reviewed. National Archaeological Database (NADB) citations for reports within the project boundaries and within the specified radius of the project area have been included.

Historic Addresses: SELF

A map and database of historic properties (formerly Geofinder) has been included.

Historic Maps: SELF

The historic maps on file at the South Coastal Information Center have been reviewed, and copies have been included.

Copies: 0

Hours: 1

APPENDIX B

NAHC SLF Search Request, Results, Sample Tribal Contact Letter, and Tribal Response Letters



April 29, 2022

Andrew Green
California Native American Heritage Commission
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
nahc@nahc.ca.gov

Re: Class III Cultural Resource Inventory for the Vallecitos Water District Tres Amigos Pipeline Replacement Project, San Diego County, California

Dear Mr. Green,

ASM Affiliates, Inc. (ASM) is conducting a Class III cultural resource inventory for the Vallecitos Water District Tres Amigos Pipeline Replacement Project in San Diego County, California. The Class III inventory will be conducted in compliance with the California Environmental Quality Act (CEQA). Due to the frequency of pipeline ruptures, this project will replace approximately 12,000-feet of the Tres Amigos water pipelines beginning south of Green Hills Way, traveling northbound in VWD easements and in Ormsby Way. The pipeline corridor veers east in an existing VWD easement from Ormsby Way and travels northbound in alignment with Fairview Drive and crosses Gopher Canyon Road, continuing northbound in Fairview Drive. North of the Carrio Drive/Fairview Drive intersection, the pipeline travels northeast in VWD easements through private properties to a dead-end at VWD's northern boundary (end of Project). A key Project objective includes the relocation of the existing pipelines out of private backyards and into more accessible areas. The Project is located on the Bonsall and San Marcos 7.5' U.S. Geological Survey (USGS) quadrangles in Township 11 South, Range 3 West, Section 5 San Bernardino Baseline and Meridian, San Diego County, California

ASM has requested a records search with the South Coastal Information Center. There are no previously recorded sites that intersect the proposed pipeline corridor. I am writing to request a search of the Sacred Lands File and inquire if you have registered any cultural resources, traditional cultural properties, or areas of heritage sensitivity within this proposed project area.

We would also like to request a list of Native American tribes that may have knowledge of cultural resources in the project area or who may wish to be notified of the investigation. Please submit your response to me via e-mail at jdaniels@asmaffiliates.com.

Sincerely,


James T. Daniels, Jr. MA, RPA
Senior Archaeologist
jdaniels@asmaffiliates.com

April 29, 2022
Mr. Green
Page 2 of 3

Your Requested Information:

County – San Diego

USGS Quad – Bonsall and San Marcos

Townships – 11 South

Ranges – 3W

Section – 5

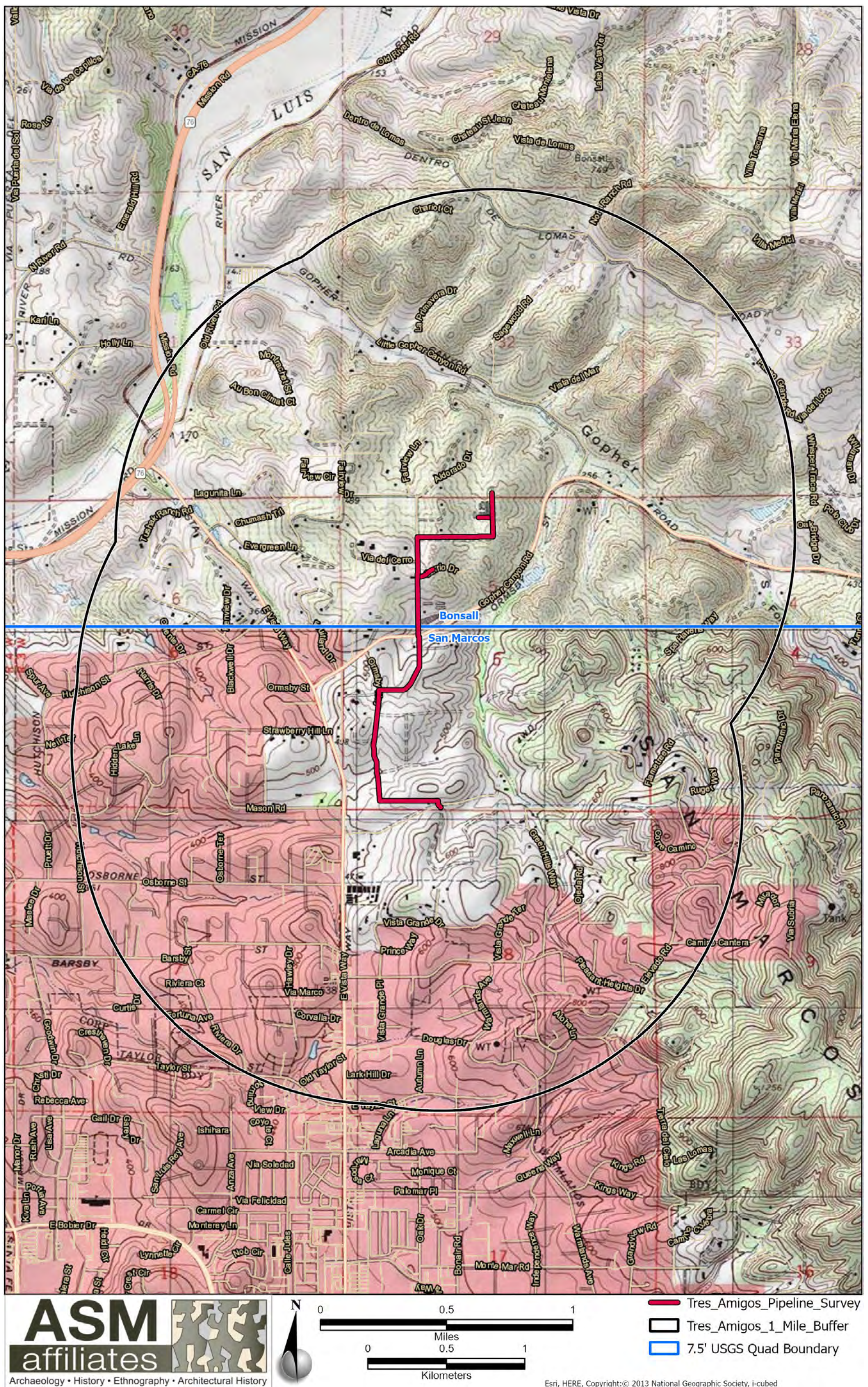


Figure 1. Project location shown on the Bonsall and San Marcos USGS 7.5' Quad maps.

NATIVE AMERICAN HERITAGE COMMISSION

June 9, 2022

James T. Daniels
ASM AffiliatesVia Email to: jdaniels@asmaffiliates.com

Re: Vallecitos Water District Tres Amigos Pipeline Replacement Project, San Diego County

Dear Mr. Daniels:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Cody.Campagne@nahc.ca.gov.

Sincerely,

Cody Campagne
Cultural Resources Analyst

Attachment

CHAIRPERSON
Laura Miranda
LuiseñoVICE CHAIRPERSON
Reginald Pagaling
ChumashPARLIAMENTARIAN
Russell Attebery
KarukSECRETARY
Sara Dutschke
MiwokCOMMISSIONER
William Mungary
Paiute/White Mountain
ApacheCOMMISSIONER
Isaac Bojorquez
Ohlone-CostanoanCOMMISSIONER
Buffy McQuillen
Yokayo Pomo, Yuki,
NomlakiCOMMISSIONER
Wayne Nelson
LuiseñoCOMMISSIONER
Stanley Rodriguez
KumeyaayEXECUTIVE SECRETARY
Raymond C.
Hitchcock
Miwok/NisenanNAHC HEADQUARTERS
1550 Harbor Boulevard
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(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

**Native American Heritage Commission
Native American Contact List
San Diego County
6/9/2022**

Barona Group of the Capitan Grande

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Lakeside, CA, 92040
Phone: (619) 443 - 6612
Fax: (619) 443-0681
cloyd@barona-nsn.gov

Campo Band of Diegueno Mission Indians

Ralph Goff, Chairperson
36190 Church Road, Suite 1 Diegueno
Campo, CA, 91906
Phone: (619) 478 - 9046
Fax: (619) 478-5818
rgoff@campo-nsn.gov

Ewiiapaayp Band of Kumeyaay Indians

Michael Garcia, Vice Chairperson
4054 Willows Road Diegueno
Alpine, CA, 91901
Phone: (619) 933 - 2200
Fax: (619) 445-9126
michaelg@leaningrock.net

Ewiiapaayp Band of Kumeyaay Indians

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4054 Willows Road Diegueno
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ceo@ebki-nsn.gov

Iipay Nation of Santa Ysabel

Virgil Perez, Chairperson
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Santa Ysabel, CA, 92070
Phone: (760) 765 - 0845
Fax: (760) 765-0320

Iipay Nation of Santa Ysabel

Clint Linton, Director of Cultural Resources
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Santa Ysabel, CA, 92070
Phone: (760) 803 - 5694
cjlinton73@aol.com

Inaja-Cosmit Band of Indians

Rebecca Osuna, Chairperson
2005 S. Escondido Blvd. Diegueno
Escondido, CA, 92025
Phone: (760) 737 - 7628
Fax: (760) 747-8568

Jamul Indian Village

Lisa Cumper, Tribal Historic Preservation Officer
P.O. Box 612 Diegueno
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lcumper@jiv-nsn.gov

Jamul Indian Village

Erica Pinto, Chairperson
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Jamul, CA, 91935
Phone: (619) 669 - 4785
Fax: (619) 669-4817
epinto@jiv-nsn.gov

Kwaaymii Laguna Band of Mission Indians

Carmen Lucas,
P.O. Box 775 Kwaaymii Diegueno
Pine Valley, CA, 91962
Phone: (619) 709 - 4207

La Jolla Band of Luiseno Indians

Norma Contreras, Chairperson
22000 Highway 76 Luiseno
Pauma Valley, CA, 92061
Phone: (760) 742 - 3771

La Posta Band of Diegueno Mission Indians

Gwendolyn Parada, Chairperson
8 Crestwood Road Diegueno
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
LP13boots@aol.com

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Vallecitos Water District Tres Amigos Pipeline Replacement Project, San Diego County.

**Native American Heritage Commission
Native American Contact List
San Diego County
6/9/2022**

**La Posta Band of Diegueno
Mission Indians**

Javaughn Miller, Tribal
Administrator
8 Crestwood Road Diegueno
Boulevard, CA, 91905
Phone: (619) 478 - 2113
Fax: (619) 478-2125
jmiller@LPtribe.net

**Manzanita Band of Kumeyaay
Nation**

Angela Elliott Santos, Chairperson
P.O. Box 1302 Diegueno
Boulevard, CA, 91905
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Fax: (619) 766-4957

**Mesa Grande Band of Diegueno
Mission Indians**

Michael Linton, Chairperson
P.O. Box 270 Diegueno
Santa Ysabel, CA, 92070
Phone: (760) 782 - 3818
Fax: (760) 782-9092
mesagrandeband@msn.com

Pala Band of Mission Indians

Shasta Gaughen, Tribal Historic
Preservation Officer
PMB 50, 35008 Pala Temecula Cupeno
Rd. Luiseno
Pala, CA, 92059
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Fax: (760) 742-3189
sgaughen@palatribe.com

Pauma Band of Luiseno Indians

Temet Aguilar, Chairperson
P.O. Box 369 Luiseno
Pauma Valley, CA, 92061
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Fax: (760) 742-3422
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Pechanga Band of Indians

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Phone: (951) 770 - 6000
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epreston@pechanga-nsn.gov

Pechanga Band of Indians

Paul Macarro, Cultural Resources
Coordinator
P.O. Box 1477 Luiseno
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pmacarro@pechanga-nsn.gov

Rincon Band of Luiseno Indians

Cheryl Madrigal, Tribal Historic
Preservation Officer
One Government Center Lane Luiseno
Valley Center, CA, 92082
Phone: (760) 297 - 2635
crd@rincon-nsn.gov

Rincon Band of Luiseno Indians

Bo Mazzetti, Chairperson
One Government Center Lane Luiseno
Valley Center, CA, 92082
Phone: (760) 749 - 1051
Fax: (760) 749-5144
bomazzetti@aol.com

**San Luis Rey Band of Mission
Indians**

1889 Sunset Drive Luiseno
Vista, CA, 92081
Phone: (760) 724 - 8505
Fax: (760) 724-2172
cjmojado@slrmissionindians.org

**San Luis Rey Band of Mission
Indians**

San Luis Rey, Tribal Council
1889 Sunset Drive Luiseno
Vista, CA, 92081
Phone: (760) 724 - 8505
Fax: (760) 724-2172
cjmojado@slrmissionindians.org

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Vallecitos Water District Tres Amigos Pipeline Replacement Project, San Diego County.

**Native American Heritage Commission
Native American Contact List
San Diego County
6/9/2022**

***Soboba Band of Luiseno
Indians***

Isaiah Vivanco, Chairperson
P. O. Box 487
San Jacinto, CA, 92581
Phone: (951) 654 - 5544
Fax: (951) 654-4198
ivivanco@soboba-nsn.gov

Cahuilla
Luiseno

***Viejas Band of Kumeyaay
Indians***

Ernest Pingleton, Tribal Historic
Officer, Resource Management
1 Viejas Grade Road
Alpine, CA, 91901
Phone: (619) 659 - 2314
epingleton@viejas-nsn.gov

Diegueno

***Soboba Band of Luiseno
Indians***

Joseph Ontiveros, Cultural
Resource Department
P.O. BOX 487
San Jacinto, CA, 92581
Phone: (951) 663 - 5279
Fax: (951) 654-4198
jontiveros@soboba-nsn.gov

Cahuilla
Luiseno

***Sycuan Band of the Kumeyaay
Nation***

Kristie Orosco, Kumeyaay
Resource Specialist
1 Kwaaypaay Court
El Cajon, CA, 92019
Phone: (619) 445 - 6917

Kumeyaay

***Sycuan Band of the Kumeyaay
Nation***

Cody Martinez, Chairperson
1 Kwaaypaay Court
El Cajon, CA, 92019
Phone: (619) 445 - 2613
Fax: (619) 445-1927
ssilva@sycuan-nsn.gov

Kumeyaay

***Viejas Band of Kumeyaay
Indians***

John Christman, Chairperson
1 Viejas Grade Road
Alpine, CA, 91901
Phone: (619) 445 - 3810
Fax: (619) 445-5337

Diegueno

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Vallecitos Water District Tres Amigos Pipeline Replacement Project, San Diego County.



June 10, 2022

Ms. Angela Elliott Santos
Chairperson
Manzanita Band of Kumeyaay Nation
P.O. Box 1302
Boulevard, CA 91905

Re: Cultural Resources Inventory for the Tres Amigos Waterline Replacement Project, Vista, San Diego County, California

Dear Ms. Santos,

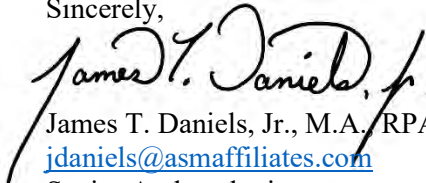
ASM Affiliates, Inc. (ASM) has conducted a cultural resources inventory for the Vallecitos Water District (VWD) Tres Amigos Waterline Project (Project) in Vista, California. The Project will replace approximately 12,000 feet of the Tres Amigos water pipelines beginning south of Green Hills Way, traveling northbound in VWD easements and in Ormsby Way. A key Project objective includes relocating the existing pipelines out of private backyards and into more accessible areas. The cultural resources inventory was conducted in compliance with the cultural resource management requirements of the California Environmental Quality Act (CEQA), the Vallecitos Water District (VWD), and other local regulations.

ASM has conducted a records search of the California Historic Resources Information System records at the South Coastal Information Center for the Project area. No cultural resources have been previously recorded within the proposed Project area. A records search of the Native American Heritage Commission's Sacred Lands File was conducted, and the results were negative.

We are contacting you to find out if you are aware of any issues of cultural concern regarding the Project area shown on the enclosed map. In particular, we would like to know if you know of any Tribal Cultural Resources, Traditional Cultural Properties, Sacred Sites, resource collecting areas, or any other concerns you may have regarding the Project area. We understand the need for confidentiality in these matters.

If you have any questions or concerns regarding the proposed Project, AB-52 consultation will be conducted by the VWD. We appreciate your input on the Project and understand that consultation is a private and ongoing process. Again, any information you provide will remain confidential.

Sincerely,


James T. Daniels, Jr., M.A., RPA
jdaniels@asmaffiliates.com
Senior Archaeologist

ATTACHMENT:

Figure 1. Tres Amigos Location shown on the USGS Bonsall and San Marcos 7.5' Quad maps.

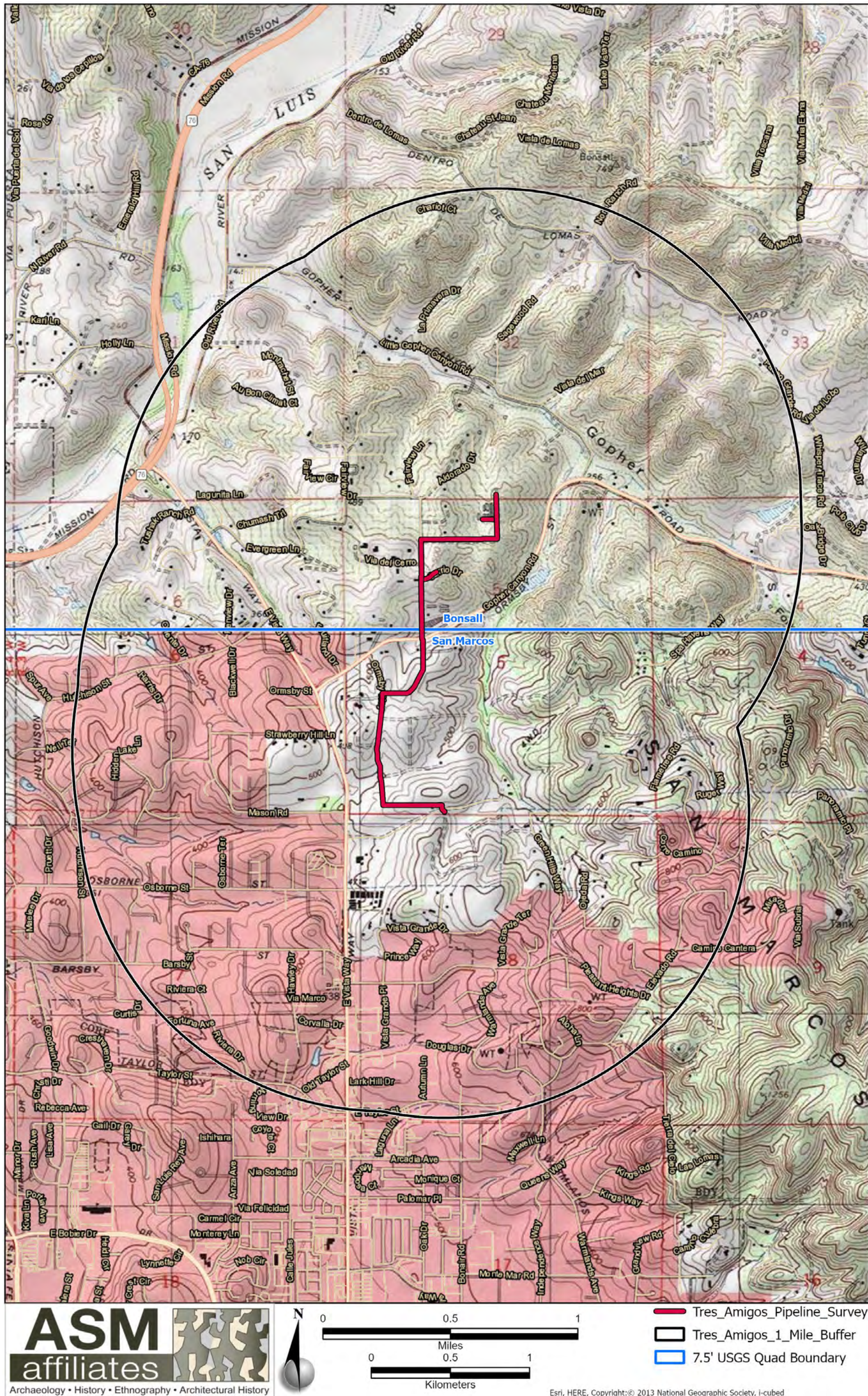


Figure 1. Tres Amigos Project location shown on the USGS Bonsall and San Marcos 7.5' Quad maps.

From: [Ray Teran](#)
To: [Jimmy Daniels](#)
Cc: [Ernest Pingleton](#)
Subject: [EXTERNAL] Tres Amigos Waterline Replacement Project
Date: Friday, June 24, 2022 9:25:43 AM

Caution: This email is from an EXTERNAL sender. Be safe and verify links and/or attachments prior to opening.

The Viejas Band of Kumeyaay Indians (“Viejas”) has reviewed the proposed project and at this time we have determined that the project site has cultural significance or ties to the Kumeyaay Nation. We recommend that you notify the:

San Pasqual Band of Mission Indians
P.O. Box 365
Valley Center, Ca 92082

Additionally, we request, as appropriate, the following:

- All NEPA/CEQA/NAGPRA laws be followed
- Immediately contact San Pasqual on any changes or inadvertent discoveries.

If you wish to utilize Viejas cultural monitors, please call Ernest Pingleton at 619-655-0410 or email, epingleton@viejas-nsn.gov, for contracting and scheduling. Thank you.

Ray Teran

Viejas Tribal Government
Resource Management Director
619-659-2312
rteran@viejas-nsn.gov





PECHANGA CULTURAL RESOURCES
Temecula Band of Luiseño Mission Indians

Post Office, Box 2183 • Temecula, CA 92593
Telephone (951) 770-6300 • Fax (951) 506-9491

June 29, 2022

VIA E-Mail and USPS

James T. Daniels, Jr., M.A., RPA
Senior Archaeologist
ASM Affiliates
2034 Corte Del Nogal,
Carlsbad, CA. 92011

RE: Request for Information for the Tres Amigos Waterline Replacement Project, City of Vista, San Diego County, California

Dear Mr. Daniels,

The Pechanga Band of Indians ("the Tribe") appreciates your request for information regarding the above referenced Project. After reviewing the provided maps and our internal documents, we have determined that the Project area is not within Reservation land's, although it is located within Our Ancestral Territory. At this time we are interested in participating in this Project based upon our 'Ayélkwish/Traditional Knowledge of the area, its placement bounded by to three 'Atáaxum/ Luiseño Traditional Cultural Properties, and the Project's-proximity to three distinct Ancestral Placename locations (between .85-1.86 miles from the project-APE). The project-location is 160 yards from a recorded Cultural-site, which identified sensitive Ancestral ceremonial items. This proposed-APE also lies 300 yards from a notable blue-line stream. Further, because of multiple nearby Ancestral-remains, ceremonial features, and through extensive previously recorded sites within this Project's vicinity the Tribe therefore, is interested in participating in this Project. The Pechanga Tribe believes the possibility for recovering subsurface resources, during ground-disturbing activities for the Project is extremely high.

The Tribe is dedicated to providing comprehensive cultural information to you and your firm for inclusion in the archaeological study as well as to the Lead Agency for CEQA review. At this time, the Tribe requests the following so we may continue the consultation process and to provide adequate and appropriate recommendations for the Project:

- 1) Notification once the Project begins the entitlement process, if it has not already;
- 2) Copies of all applicable archaeological reports, site records, proposed grading plans and environmental documents (EA/IS/MND/EIR, etc);
- 3) Government-to-government consultation with the Lead Agency; and

Chairperson:
Neal Ibanez

Vice Chairperson:
Bridgett Barcello

Committee Members:
Darlene Miranda
Richard B. Scearce, III
Robert Villalobos
Shevon Torres
Juan Rodriguez

Director:
Gary DuBois

Coordinator:
Paul Macarro

Cultural Analyst:
Tuba Ebru Ozdil

Planning Specialist:
Molly Escobar

4) The Tribe believes that monitoring by a Riverside County qualified archaeologist and a professional Pechanga Tribe Monitor may be required during earthmoving activities. Therefore, the Tribe reserves its right to make additional comments and recommendations once the environmental documents have been received and fully reviewed. Further, in the event that subsurface cultural resources are identified, the Tribe requests consultation with the Project proponent and Lead Agency regarding the treatment and disposition of all artifacts.

As a Sovereign governmental entity, the Tribe is entitled to appropriate and adequate government-to-government consultation regarding the proposed Project. We would like you and your client to know that the Tribe does not consider initial inquiry letters from project consultants to constitute appropriate government-to-government consultation, but rather tools to obtain further information about the Project area. Therefore, the Tribe reserves its rights to participate in the formal environmental review process, including government-to-government consultation with the Lead Agency, and requests to be included in all correspondence regarding this Project.

Please note that we are interested in participating in surveys within the 'Atáaxum/Luiseño Ancestral Territory. Prior to conducting any surveys, please contact the Cultural Department to schedule specifics. If you have any additional questions or comments, please contact me at pmacarro@pechanga-nsn.gov or 951-770-6306.

Sincerely,

A handwritten signature in black ink that reads "Paul E. Macarro". The signature is written in a cursive style with a long horizontal flourish at the end.

Paul E. Macarro
Cultural Coordinator
Pechanga Reservation

*Pechanga Cultural Resources • Temecula Band of Luiseño Mission Indians
Post Office Box 2183 • Temecula, CA 92592*

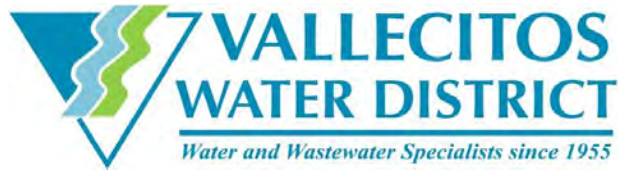
Sacred Is The Duty Trusted Unto Our Care And With Honor We Rise To The Need

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C-2

**AB-52
Consultation
Letters and
Responses**

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201 Vallecitos De Oro • San Marcos, California 92069-1453 • Telephone 760-744-0460

October 3, 2023

Via Certified Mail

Barona Group of the Capitan Grande
Mr. Edwin Romero
Chairperson
1095 Barona Road
Lakeside, CA 92040

Subject: Notification of the Tres-Amigos Water Line Replacement Project - Phase I Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (Assembly Bill 52)

Dear Mr. Romero:

This letter is formal notification of the Vallecitos Water District's (VWD) proposed Tres-Amigos Water Line Replacement Project - Phase I (Project), which is subject to compliance with the California Environmental Quality Act (CEQA). VWD is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (Assembly Bill [AB] 52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB 52, the Barona Group of the Capitan Grande has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 10, 2023, and shall provide the name of the Tribe's designated lead contact person.

Project Location

The Project is located on the Bonsall and San Marcos 7.5' U.S. Geological Survey (USGS) quadrangles in Township 11 South, Range 3 West, Section 5 San Bernardino Baseline and Meridian, San Diego County, California. See enclosed Figure 1 and Figure 2 for the project location.

Project Description

The VWD Tres Amigos Waterline comprises approximately 19,000 feet of pipelines ranging from 6-inch to 12-inch diameter. The water pipelines located in the northern limits of the VWD boundary were installed in the 1950s and 1960s, extending from the North Twin Oaks Tank No. 2 in Pleasant Heights Drive to north of Carrio Drive. The original Tres Amigos Line Extension Project occurred in 1958, which installed 6-inch and 8-inch diameter tar-wrapped 12-14-gauge steel pipelines. This material is considered a steam pipeline and is inadequate for pressurized water distribution systems.

Due to the frequency of pipeline ruptures, this Project will replace approximately 12,000 feet of the Tres Amigos water pipelines beginning south of Green Hills Way, traveling northbound in VWD easements and in Ormsby Way. The pipeline corridor veers east in an existing VWD easement from Ormsby Way, travels northbound in alignment with Fairview Drive, and crosses Gopher Canyon Road, continuing northbound in Fairview Drive. North of the Carrio Drive / Fairview Drive intersection, the pipeline travels northeast in VWD easements through private properties to a dead-end at VWD's northern boundary (end of the Project). A key Project objective includes relocating the existing pipelines out of private backyards and into more accessible areas.

Most of the Project elements will be buried. The majority of the new water pipelines will be installed under existing dirt roadways in VWD easements using an open trench method. The trenches will measure 3 to 4 feet (ft) in width with depths typically no more than 5 ft below the ground surface.

Temporary work areas are generally within existing roadways or areas immediately adjacent to existing roads, and would be used for construction traffic, detours, and laydown of materials, temporary soil stockpiles, and equipment staging.

Contact Information

The Vallecitos Water District lead contact for AB 52 Consultation on this project is:

Ryan Morgan, Capital Facilities Senior Engineer
Vallecitos Water District
201 Vallecitos de Oro
San Marcos, CA 92069
(760) 744-0460
rmorgan@vwd.org

If the Barona Group of the Capitan Grande wishes to consult with the Vallecitos Water District regarding the Tres-Amigos Water Line Replacement Project – Phase I, please indicate in writing via letter addressed to the lead contact at the address provided above by November 10, 2023 and provide the name of the Tribe's designated lead contact person.

Sincerely,



Ryan Morgan, P.E.
Capital Facilities Senior Engineer
Vallecitos Water District

Enclosures:

- Figure 1. Vicinity Map
- Figure 2. Location Map
- Figure 3. Project Site Map

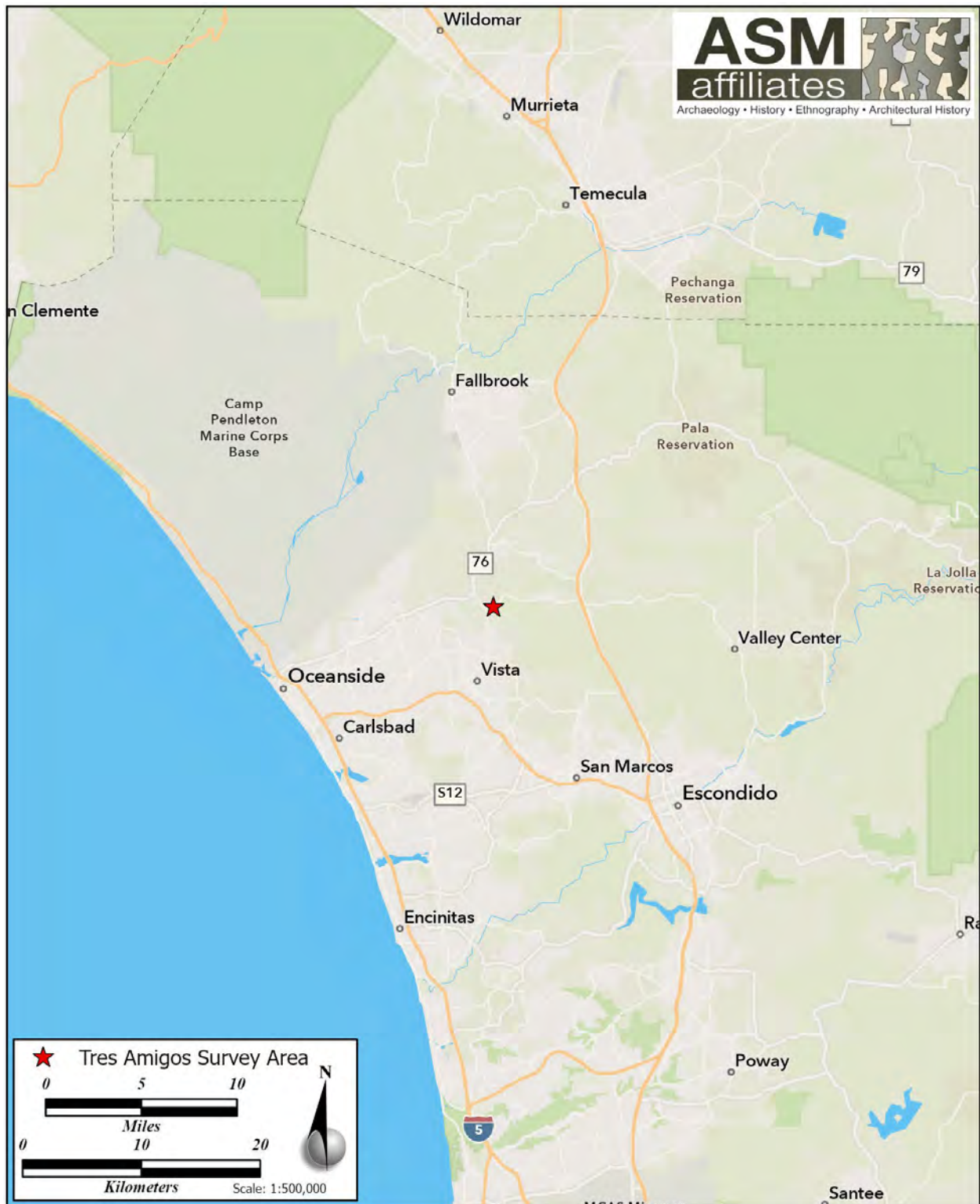


Figure 1. Project vicinity map.

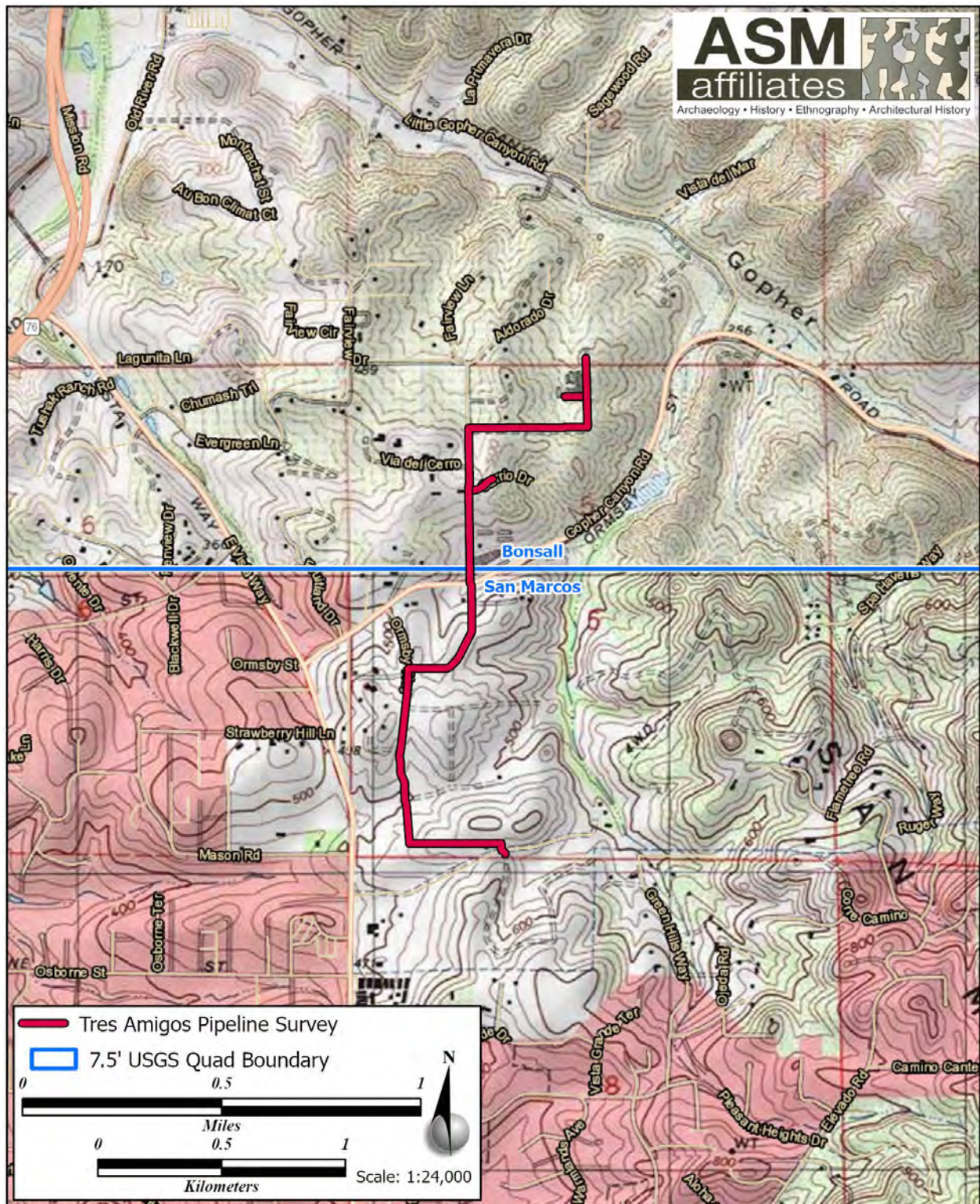


Figure 2. Project area location map.

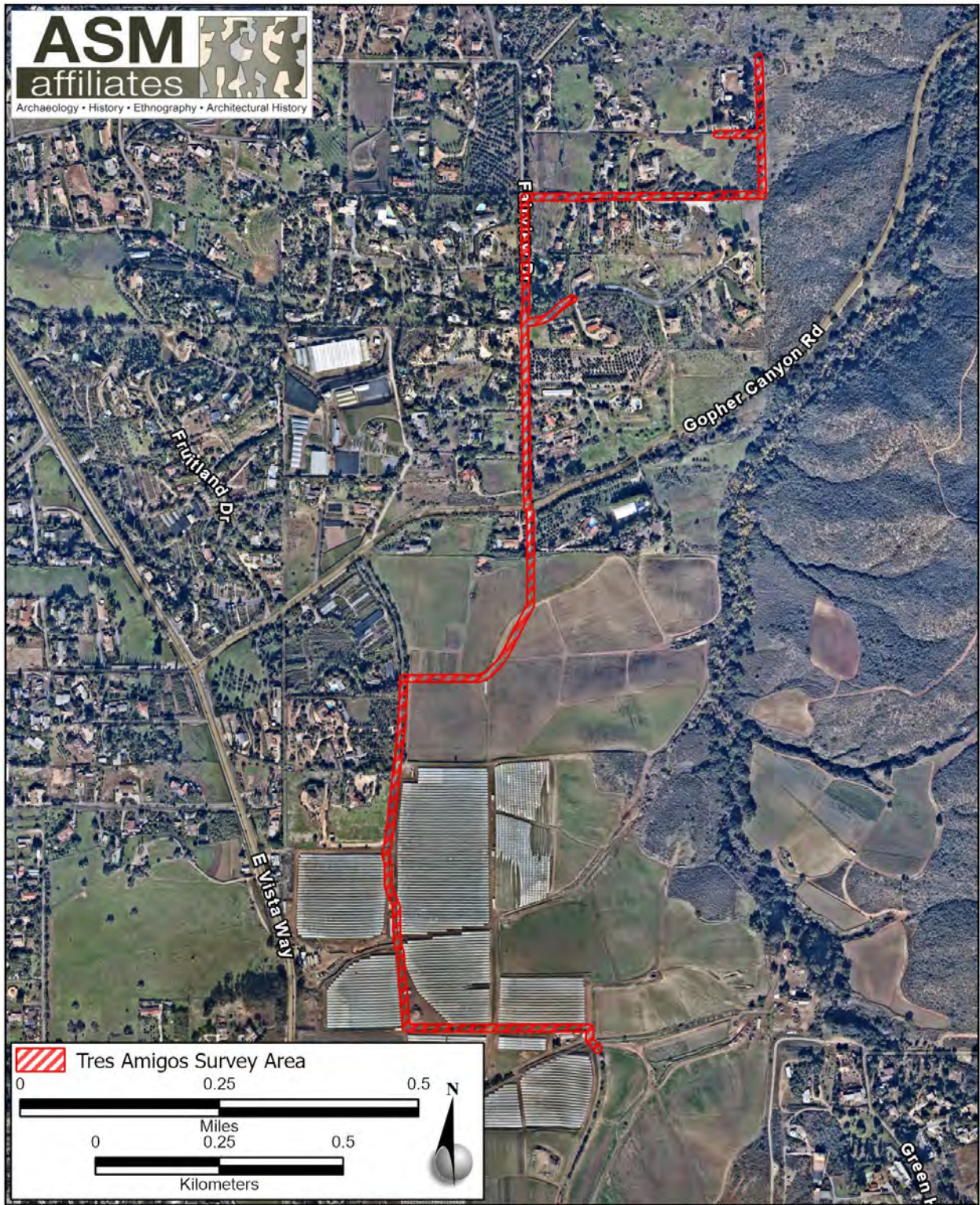
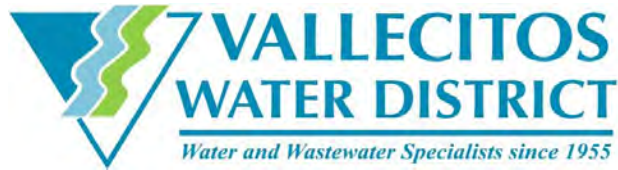


Figure 3. Project site map.

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201 Vallecitos De Oro • San Marcos, California 92069-1453 • Telephone 760-744-0460

October 3, 2023

Via Certified Mail

Inaja-Cosmit Band of Indians
Ms. Rebecca Osuna
Chairperson
2005 S. Escondido Blvd.
Escondido, CA 92025

Subject: Notification of the Tres-Amigos Water Line Replacement Project - Phase I Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (Assembly Bill 52)

Dear Ms. Osuna:

This letter is formal notification of the Vallecitos Water District's (VWD) proposed Tres-Amigos Water Line Replacement Project - Phase I (Project), which is subject to compliance with the California Environmental Quality Act (CEQA). VWD is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (Assembly Bill [AB] 52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB 52, the Inaja-Cosmit Band of Indians has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 10, 2023, and shall provide the name of the Tribe's designated lead contact person.

Project Location

The Project is located on the Bonsall and San Marcos 7.5' U.S. Geological Survey (USGS) quadrangles in Township 11 South, Range 3 West, Section 5 San Bernardino Baseline and Meridian, San Diego County, California. See enclosed Figure 1 and Figure 2 for the project location.

Project Description

The VWD Tres Amigos Waterline comprises approximately 19,000 feet of pipelines ranging from 6-inch to 12-inch diameter. The water pipelines located in the northern limits of the VWD boundary were installed in the 1950s and 1960s, extending from the North Twin Oaks Tank No. 2 in Pleasant Heights Drive to north of Carrio Drive. The original Tres Amigos Line Extension Project occurred in 1958, which installed 6-inch and 8-inch diameter tar-wrapped 12-14-gauge steel pipelines. This material is considered a steam pipeline and is inadequate for pressurized water distribution systems.

Due to the frequency of pipeline ruptures, this Project will replace approximately 12,000 feet of the Tres Amigos water pipelines beginning south of Green Hills Way, traveling northbound in VWD easements and in Ormsby Way. The pipeline corridor veers east in an existing VWD easement from Ormsby Way, travels northbound in alignment with Fairview Drive, and crosses Gopher Canyon Road, continuing northbound in Fairview Drive. North of the Carrio Drive / Fairview Drive intersection, the pipeline travels northeast in VWD easements through private properties to a dead-end at VWD's northern boundary (end of the Project). A key Project objective includes relocating the existing pipelines out of private backyards and into more accessible areas.

Most of the Project elements will be buried. The majority of the new water pipelines will be installed under existing dirt roadways in VWD easements using an open trench method. The trenches will measure 3 to 4 feet (ft) in width with depths typically no more than 5 ft below the ground surface.

Temporary work areas are generally within existing roadways or areas immediately adjacent to existing roads, and would be used for construction traffic, detours, and laydown of materials, temporary soil stockpiles, and equipment staging.

Contact Information

The Vallecitos Water District lead contact for AB 52 Consultation on this project is:

Ryan Morgan, Capital Facilities Senior Engineer
Vallecitos Water District
201 Vallecitos de Oro
San Marcos, CA 92069
(760) 744-0460
rmorgan@vwd.org

If the Inaja-Cosmit Band of Indians wishes to consult with the Vallecitos Water District regarding the Tres-Amigos Water Line Replacement Project – Phase I, please indicate in writing via letter addressed to the lead contact at the address provided above by November 10, 2023 and provide the name of the Tribe's designated lead contact person.

Sincerely,



Ryan Morgan, P.E.
Capital Facilities Senior Engineer
Vallecitos Water District

Enclosures:

- Figure 1. Vicinity Map
- Figure 2. Location Map
- Figure 3. Project Site Map



Figure 1. Project vicinity map.

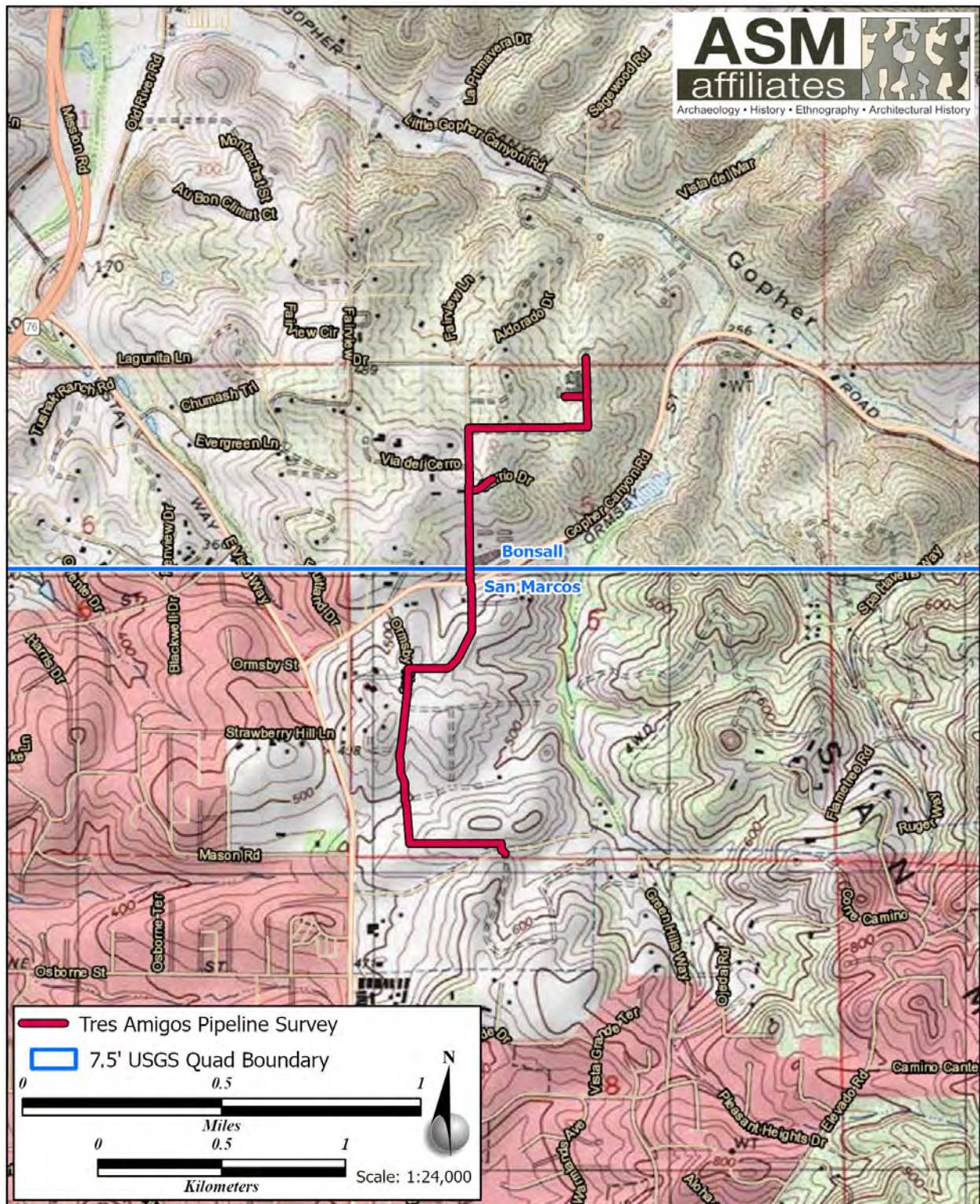


Figure 2. Project area location map.

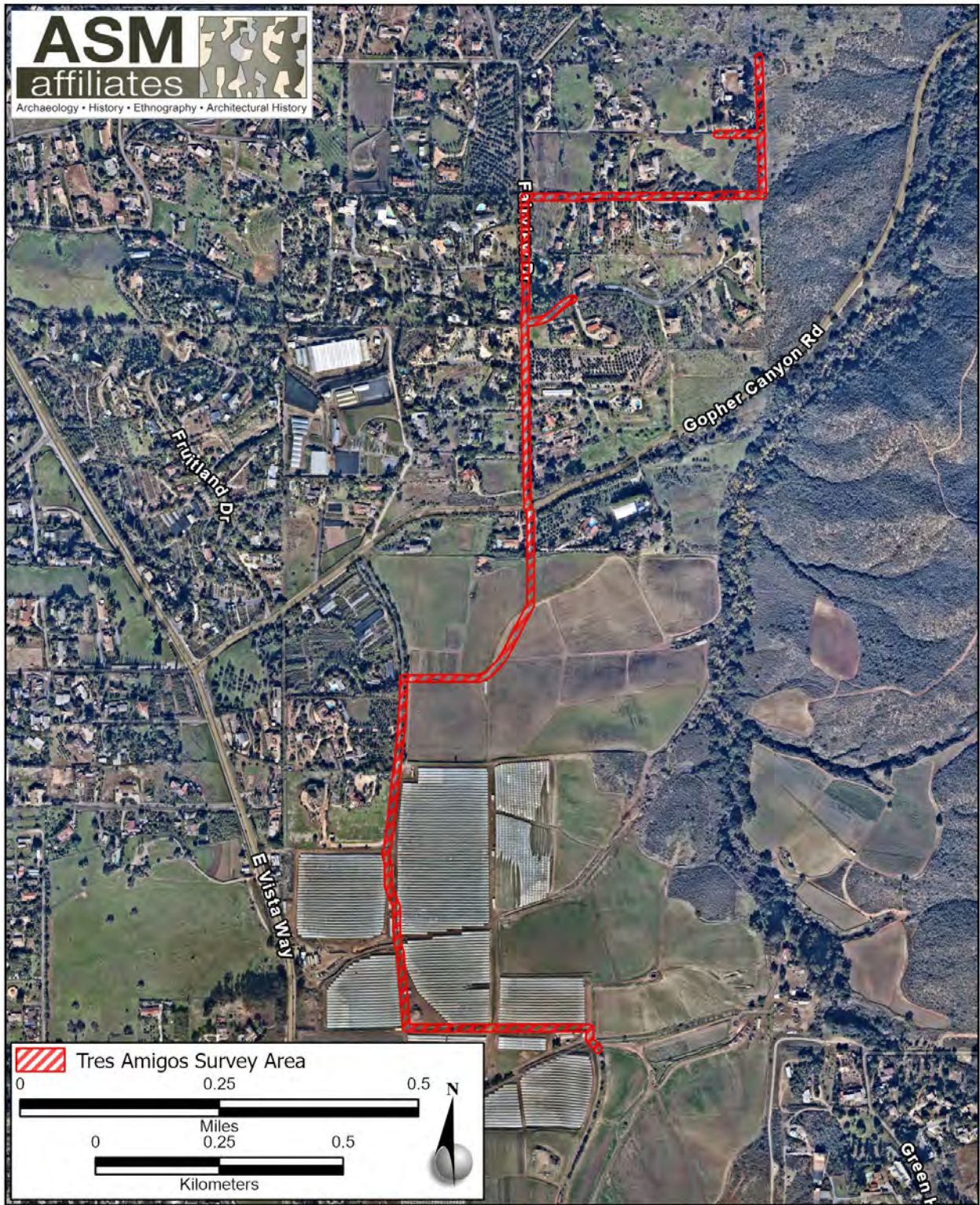
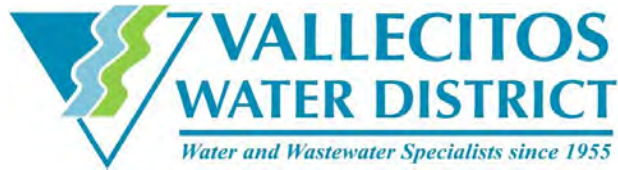


Figure 3. Project site map.

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201 Vallecitos De Oro • San Marcos, California 92069-1453 • Telephone 760-744-0460

October 3, 2023

Via Certified Mail

Campo Band of Diegueno Mission Indians
Mr. Ralph Goff
Chairperson
36190 Church Road, Suite 1
Campo, CA 91906

Subject: Notification of the Tres-Amigos Water Line Replacement Project - Phase I Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (Assembly Bill 52)

Dear Mr. Goff:

This letter is formal notification of the Vallecitos Water District's (VWD) proposed Tres-Amigos Water Line Replacement Project - Phase I (Project), which is subject to compliance with the California Environmental Quality Act (CEQA). VWD is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (Assembly Bill [AB] 52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB 52, the Campo Band of Diegueno Mission Indians has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 10, 2023, and shall provide the name of the Tribe's designated lead contact person.

Project Location

The Project is located on the Bonsall and San Marcos 7.5' U.S. Geological Survey (USGS) quadrangles in Township 11 South, Range 3 West, Section 5 San Bernardino Baseline and Meridian, San Diego County, California. See enclosed Figure 1 and Figure 2 for the project location.

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Contact Information

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Ryan Morgan, Capital Facilities Senior Engineer
Vallecitos Water District
201 Vallecitos de Oro
San Marcos, CA 92069
(760) 744-0460
rmorgan@vwd.org

If the Campo Band of Diegueno Mission Indians wishes to consult with the Vallecitos Water District regarding the Tres-Amigos Water Line Replacement Project – Phase I, please indicate in writing via letter addressed to the lead contact at the address provided above by November 10, 2023 and provide the name of the Tribe's designated lead contact person.

Sincerely,



Ryan Morgan, P.E.
Capital Facilities Senior Engineer
Vallecitos Water District

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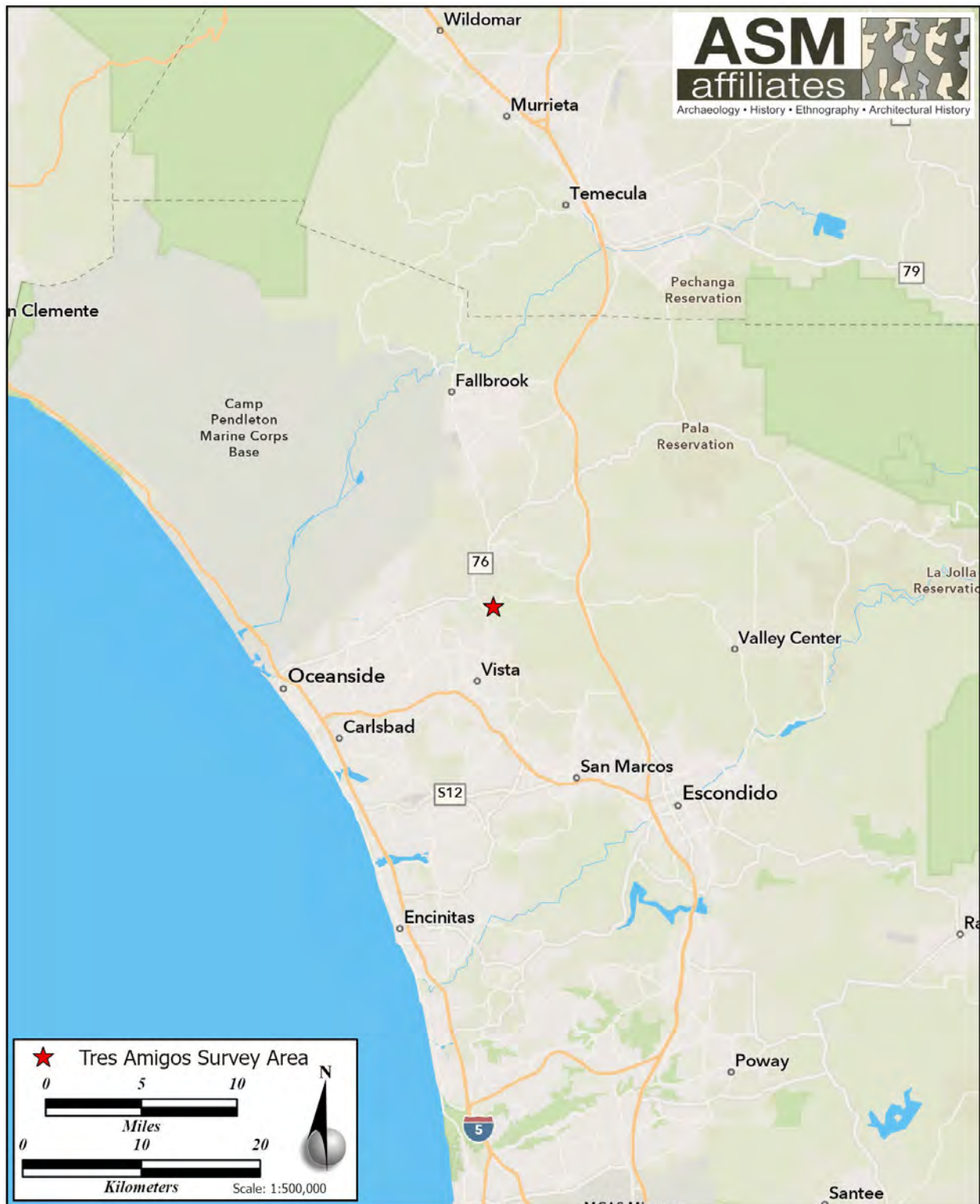


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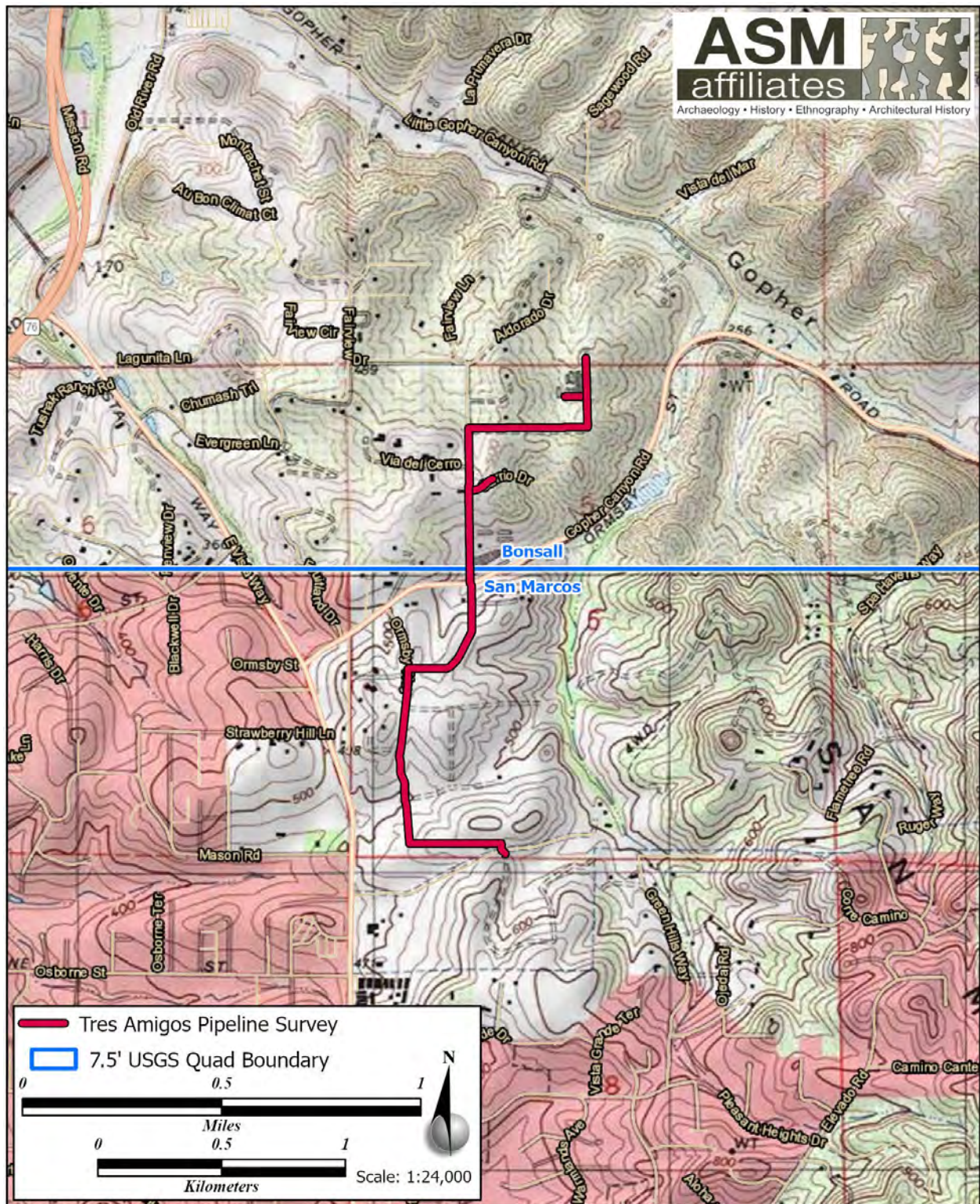


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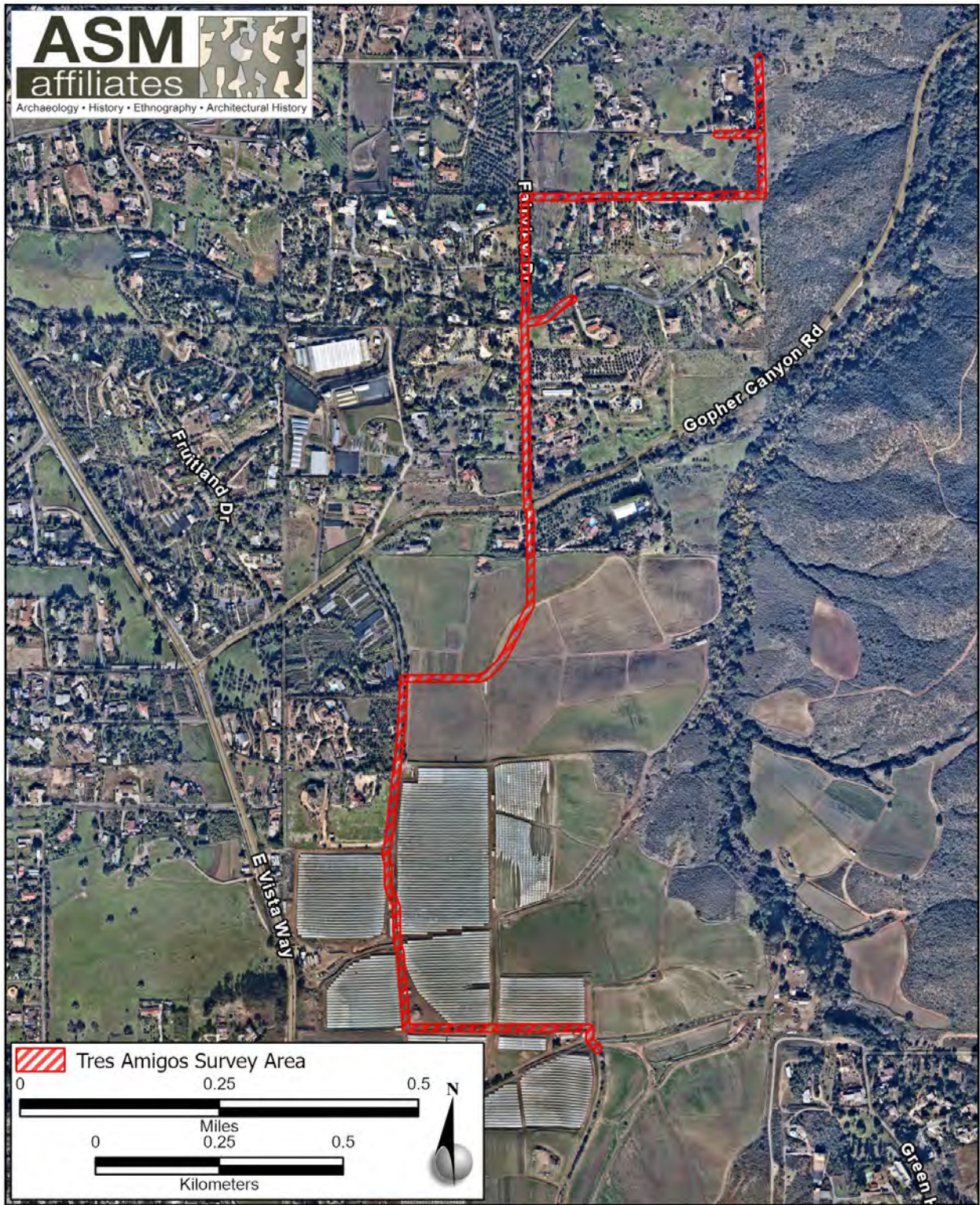
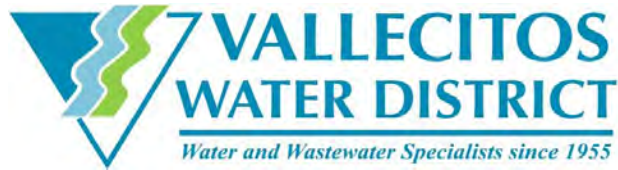


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201 Vallecitos De Oro • San Marcos, California 92069-1453 • Telephone 760-744-0460

October 3, 2023

Via Certified Mail

Jamul Indian Village
Ms. Lisa Cumper
Tribal Historic Preservation Officer
P.O. Box 612
Jamul, CA 91935

Subject: Notification of the Tres-Amigos Water Line Replacement Project - Phase I Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (Assembly Bill 52)

Dear Ms. Cumper:

This letter is formal notification of the Vallecitos Water District's (VWD) proposed Tres-Amigos Water Line Replacement Project - Phase I (Project), which is subject to compliance with the California Environmental Quality Act (CEQA). VWD is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (Assembly Bill [AB] 52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB 52, the Jamul Indian Village has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 10, 2023, and shall provide the name of the Tribe's designated lead contact person.

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Contact Information

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Ryan Morgan, Capital Facilities Senior Engineer
Vallecitos Water District
201 Vallecitos de Oro
San Marcos, CA 92069
(760) 744-0460
rmorgan@vwd.org

If the Jamul Indian Village wishes to consult with the Vallecitos Water District regarding the Tres-Amigos Water Line Replacement Project – Phase I, please indicate in writing via letter addressed to the lead contact at the address provided above by November 10, 2023 and provide the name of the Tribe's designated lead contact person.

Sincerely,



Ryan Morgan, P.E.
Capital Facilities Senior Engineer
Vallecitos Water District

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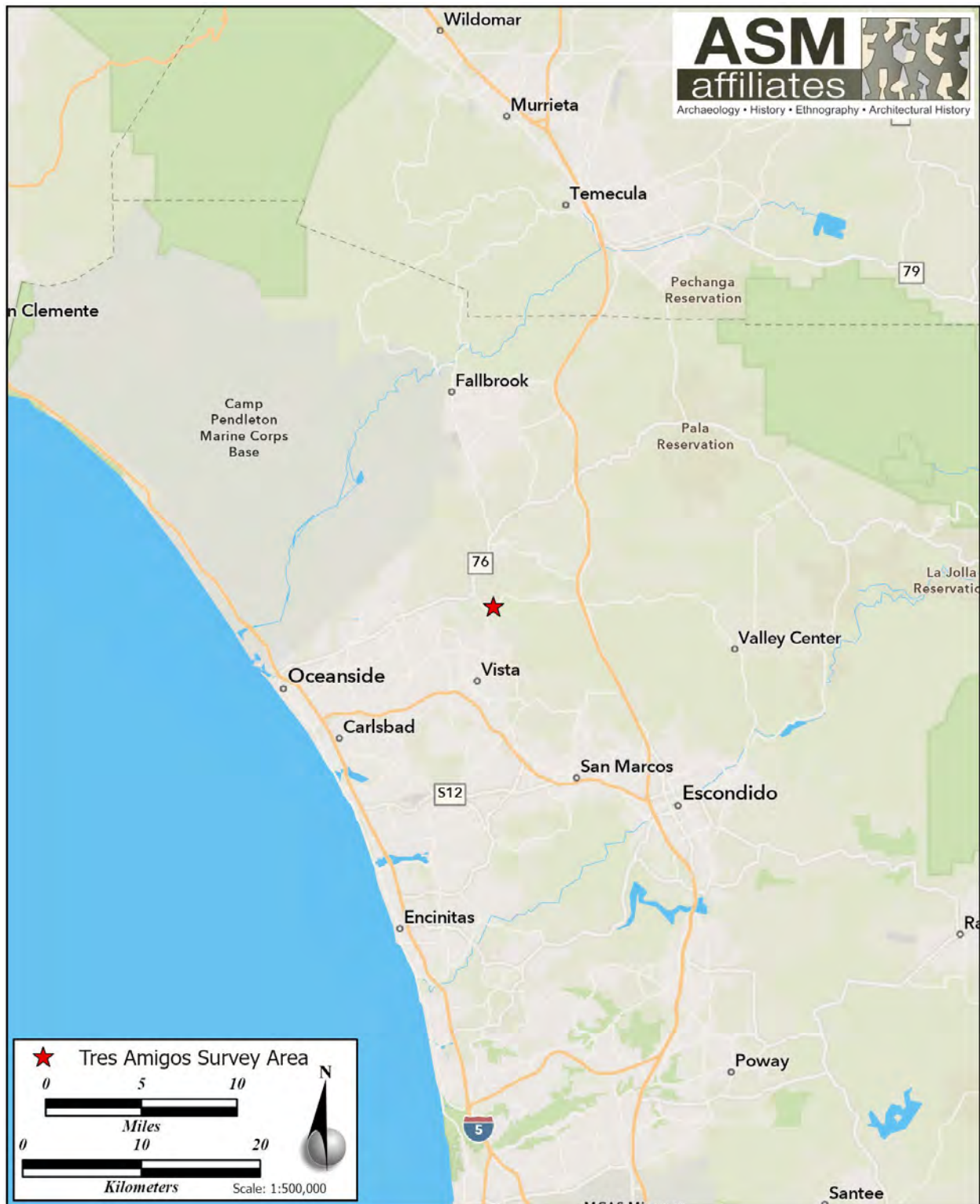


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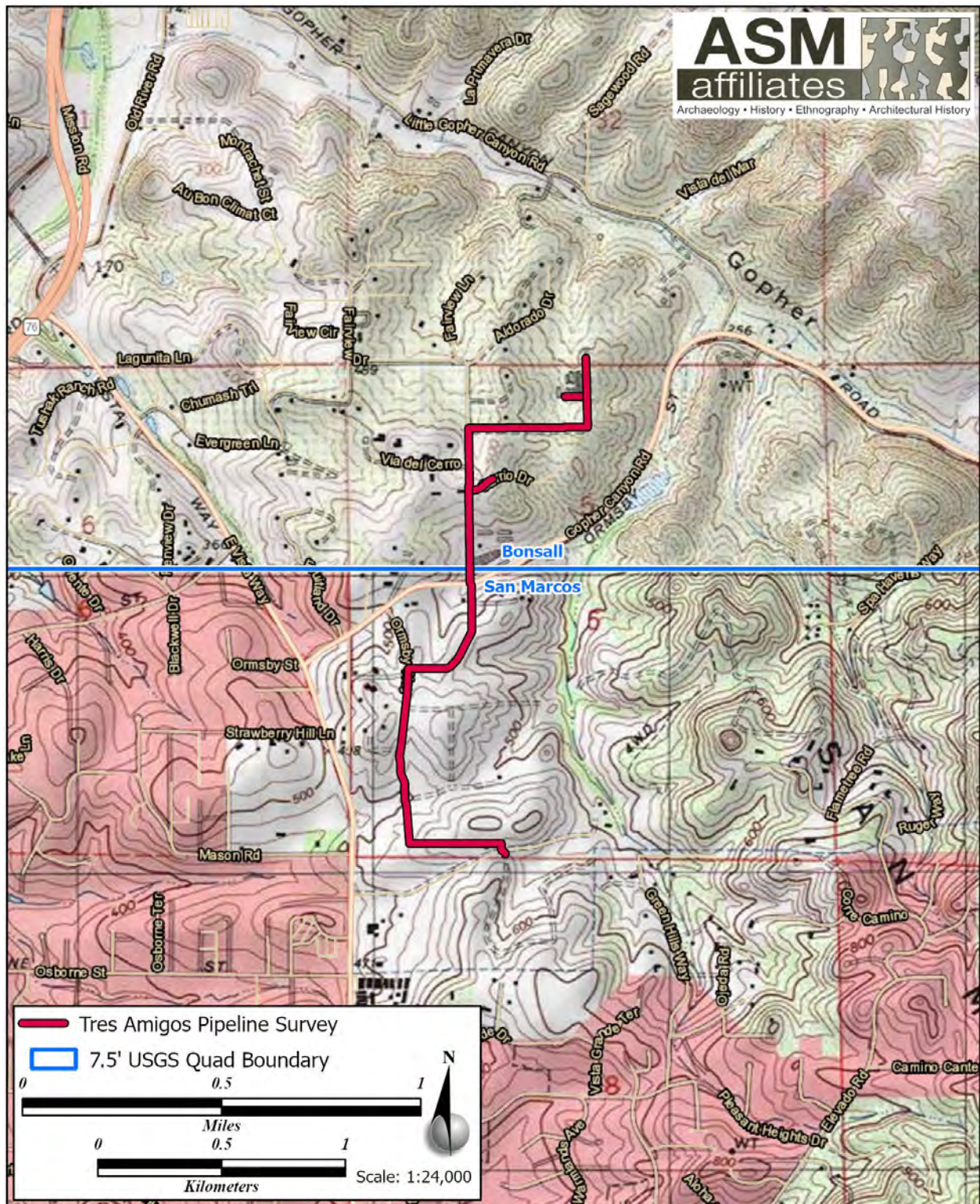


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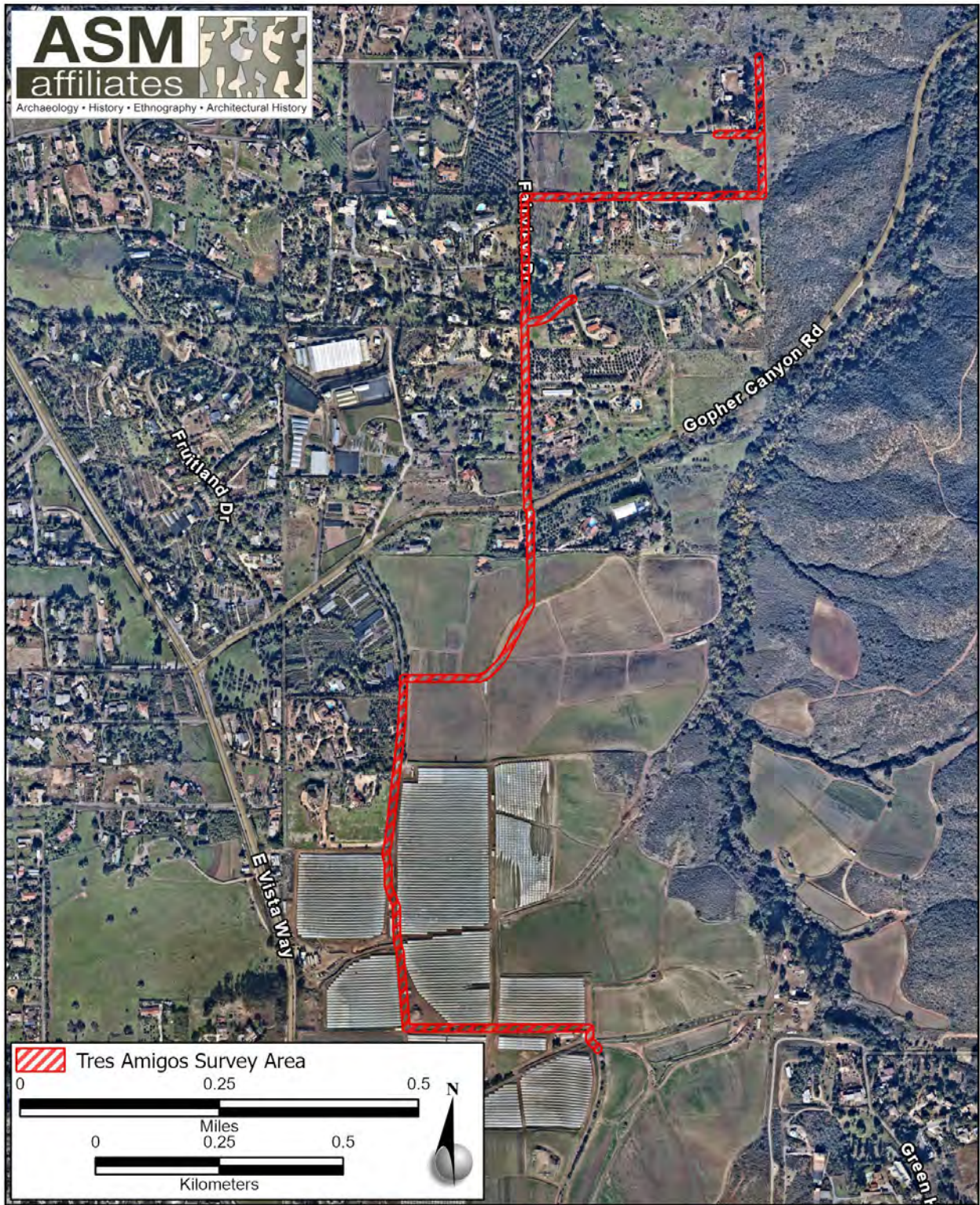
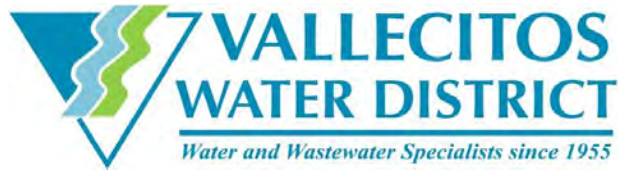


Figure 3. Project site map.

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201 Vallecitos De Oro • San Marcos, California 92069-1453 • Telephone 760-744-0460

October 3, 2023

Via Certified Mail

Ewiiapaayp Band of Kumeyaay Indians
Mr. Michael Garcia
Vice Chairperson
4054 Willows Road
Alpine, CA 91901

Subject: Notification of the Tres-Amigos Water Line Replacement Project - Phase I Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (Assembly Bill 52)

Dear Mr. Garcia:

This letter is formal notification of the Vallecitos Water District's (VWD) proposed Tres-Amigos Water Line Replacement Project - Phase I (Project), which is subject to compliance with the California Environmental Quality Act (CEQA). VWD is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (Assembly Bill [AB] 52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB 52, the Ewiiapaayp Band of Kumeyaay Indians has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 10, 2023, and shall provide the name of the Tribe's designated lead contact person.

Project Location

The Project is located on the Bonsall and San Marcos 7.5' U.S. Geological Survey (USGS) quadrangles in Township 11 South, Range 3 West, Section 5 San Bernardino Baseline and Meridian, San Diego County, California. See enclosed Figure 1 and Figure 2 for the project location.

Project Description

The VWD Tres Amigos Waterline comprises approximately 19,000 feet of pipelines ranging from 6-inch to 12-inch diameter. The water pipelines located in the northern limits of the VWD boundary were installed in the 1950s and 1960s, extending from the North Twin Oaks Tank No. 2 in Pleasant Heights Drive to north of Carrio Drive. The original Tres Amigos Line Extension Project occurred in 1958, which installed 6-inch and 8-inch diameter tar-wrapped 12-14-gauge steel pipelines. This material is considered a steam pipeline and is inadequate for pressurized water distribution systems.

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Temporary work areas are generally within existing roadways or areas immediately adjacent to existing roads, and would be used for construction traffic, detours, and laydown of materials, temporary soil stockpiles, and equipment staging.

Contact Information

The Vallecitos Water District lead contact for AB 52 Consultation on this project is:

Ryan Morgan, Capital Facilities Senior Engineer
Vallecitos Water District
201 Vallecitos de Oro
San Marcos, CA 92069
(760) 744-0460
rmorgan@vwd.org

If the Ewiiapaayp Band of Kumeyaay Indians wishes to consult with the Vallecitos Water District regarding the Tres-Amigos Water Line Replacement Project – Phase I, please indicate in writing via letter addressed to the lead contact at the address provided above by November 10, 2023 and provide the name of the Tribe's designated lead contact person.

Sincerely,



Ryan Morgan, P.E.
Capital Facilities Senior Engineer
Vallecitos Water District

Enclosures:

- Figure 1. Vicinity Map
- Figure 2. Location Map
- Figure 3. Project Site Map

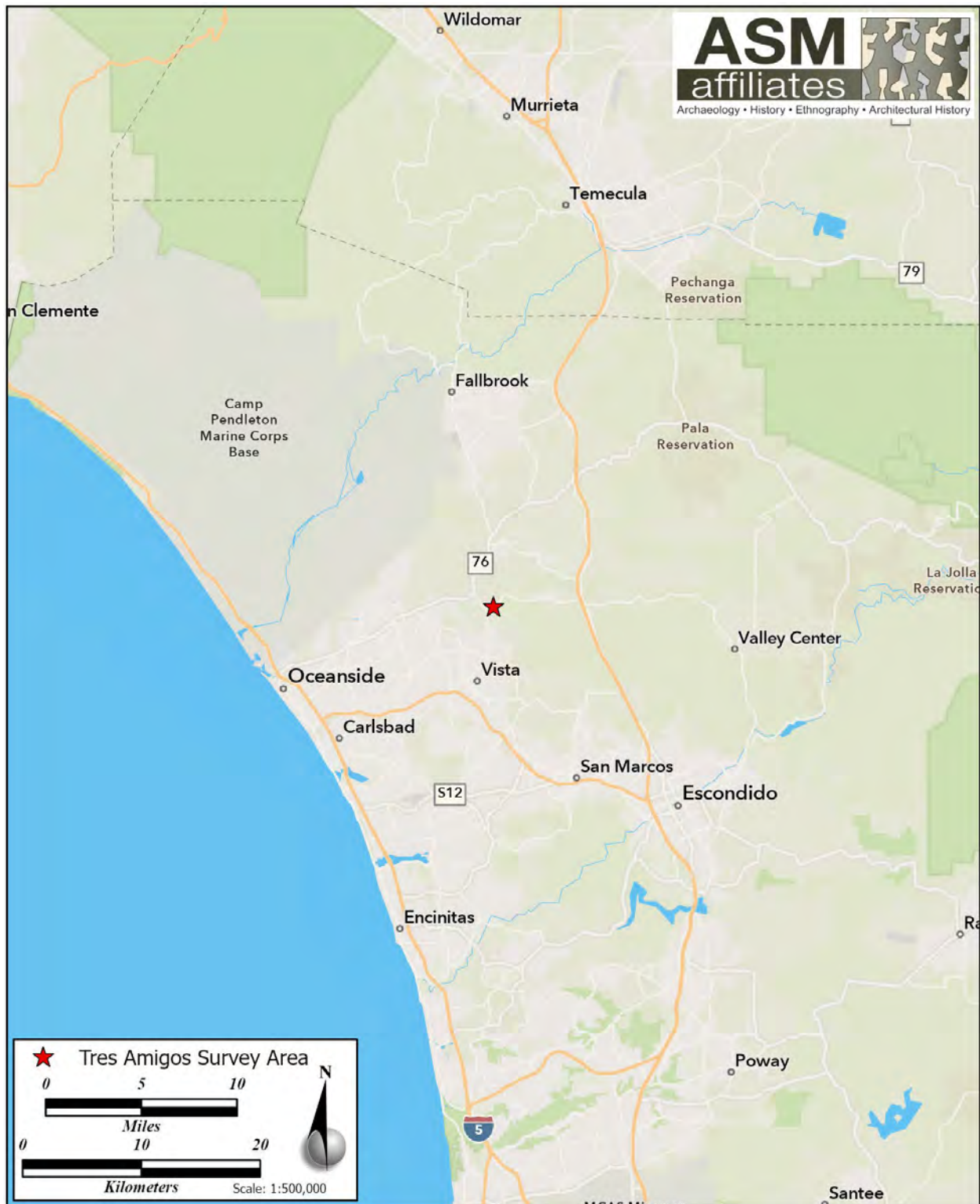


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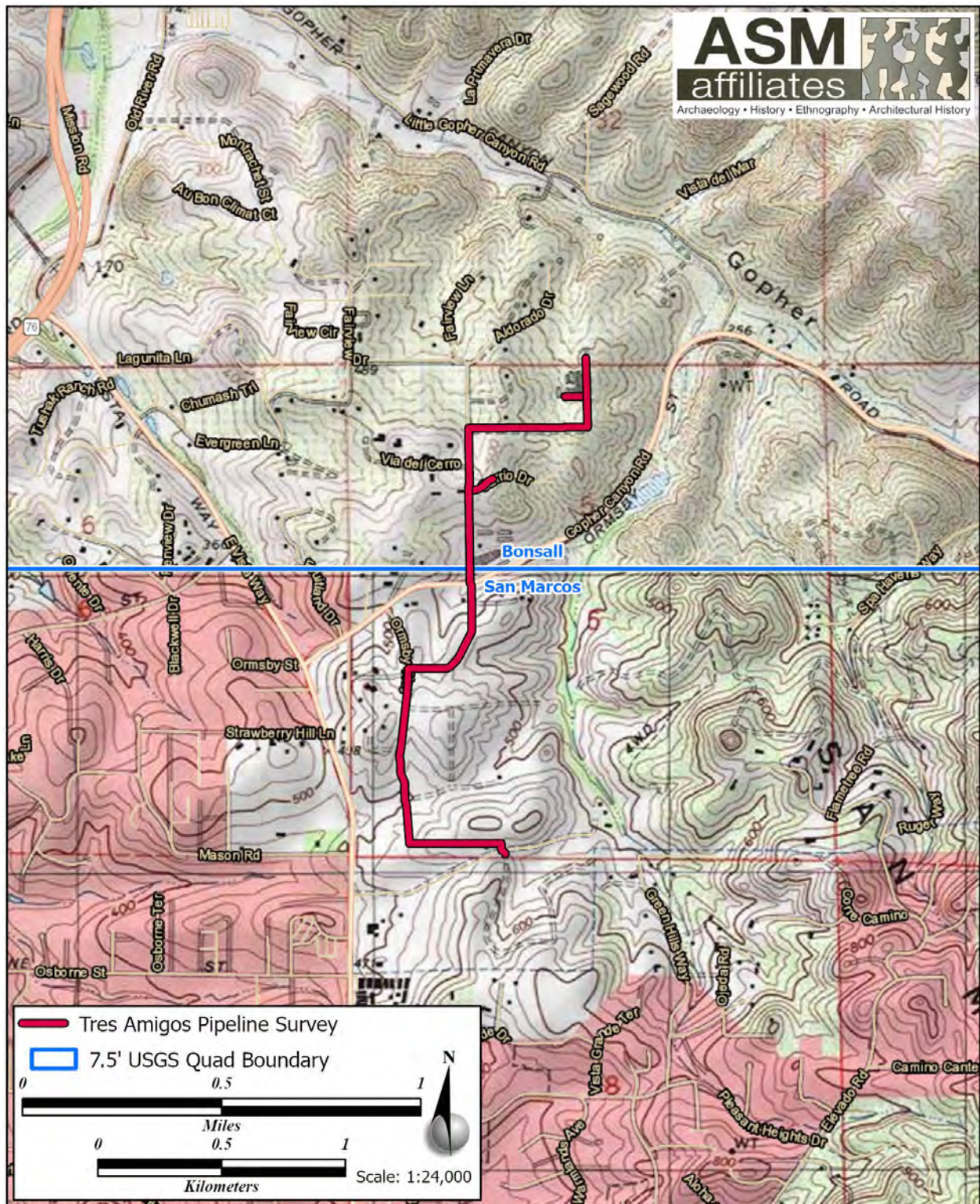


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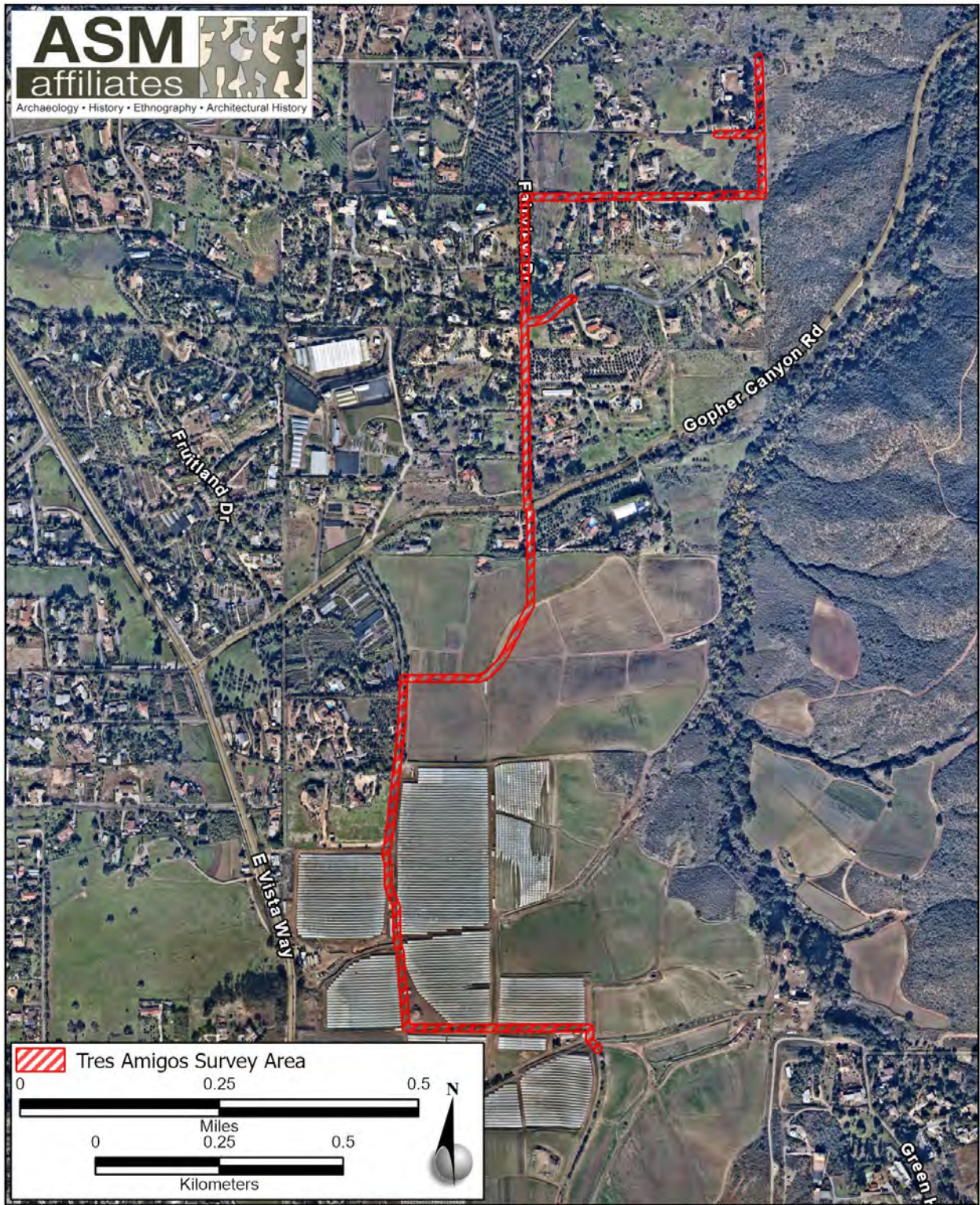
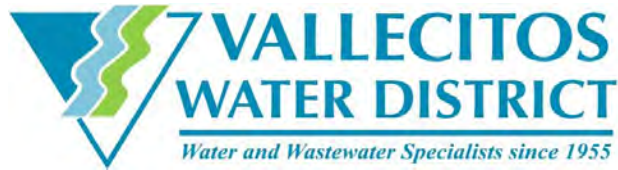


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201 Vallecitos De Oro • San Marcos, California 92069-1453 • Telephone 760-744-0460

October 3, 2023

Via Certified Mail

Jamul Indian Village
Ms. Erica Pinto
Chairperson
P.O. Box 612
Jamul, CA 91935

Subject: Notification of the Tres-Amigos Water Line Replacement Project - Phase I Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (Assembly Bill 52)

Dear Ms. Pinto:

This letter is formal notification of the Vallecitos Water District's (VWD) proposed Tres-Amigos Water Line Replacement Project - Phase I (Project), which is subject to compliance with the California Environmental Quality Act (CEQA). VWD is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (Assembly Bill [AB] 52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB 52, the Jamul Indian Village has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 10, 2023, and shall provide the name of the Tribe's designated lead contact person.

Project Location

The Project is located on the Bonsall and San Marcos 7.5' U.S. Geological Survey (USGS) quadrangles in Township 11 South, Range 3 West, Section 5 San Bernardino Baseline and Meridian, San Diego County, California. See enclosed Figure 1 and Figure 2 for the project location.

Project Description

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Contact Information

The Vallecitos Water District lead contact for AB 52 Consultation on this project is:

Ryan Morgan, Capital Facilities Senior Engineer
Vallecitos Water District
201 Vallecitos de Oro
San Marcos, CA 92069
(760) 744-0460
rmorgan@vwd.org

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Sincerely,



Ryan Morgan, P.E.
Capital Facilities Senior Engineer
Vallecitos Water District

Enclosures:

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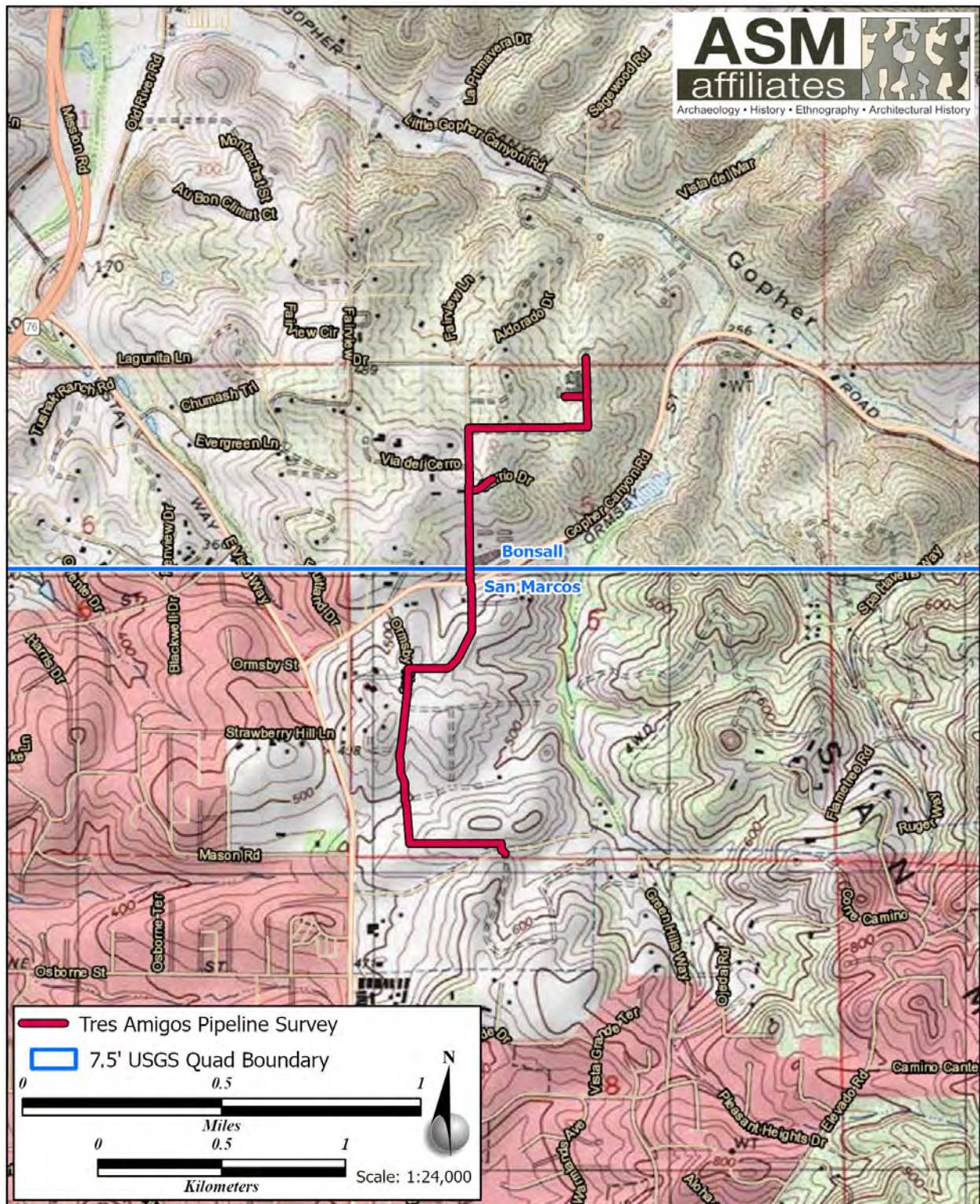


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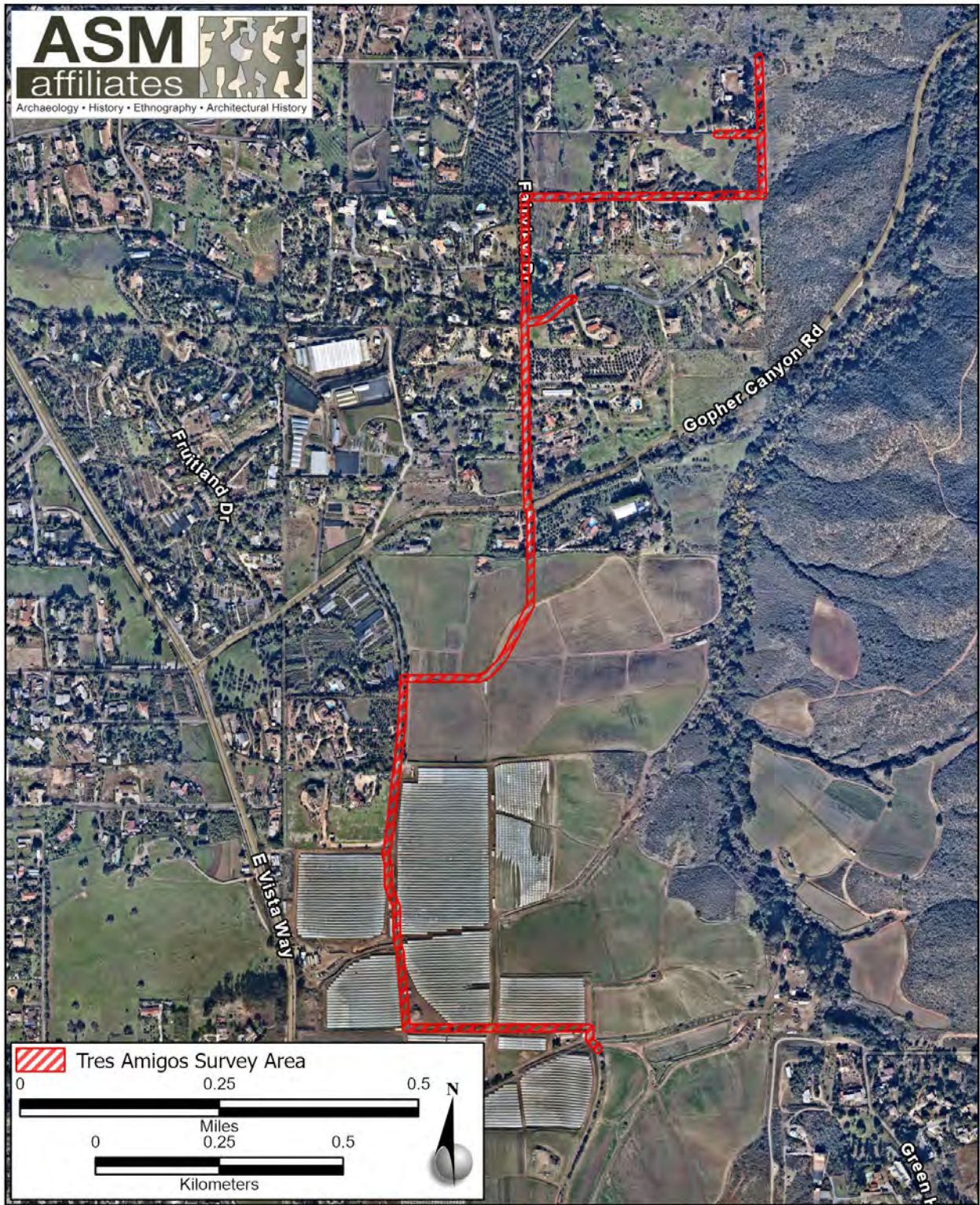
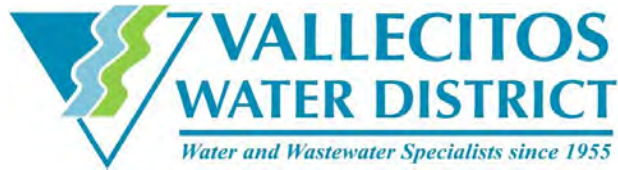


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201 Vallecitos De Oro • San Marcos, California 92069-1453 • Telephone 760-744-0460

October 3, 2023

Via Certified Mail

Ewiiapaayp Band of Kumeyaay Indians
Mr. Robert Pinto
Chairperson
4054 Willows Road
Alpine, CA 91901

Subject: Notification of the Tres-Amigos Water Line Replacement Project - Phase I Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (Assembly Bill 52)

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Contact Information

The Vallecitos Water District lead contact for AB 52 Consultation on this project is:

Ryan Morgan, Capital Facilities Senior Engineer
Vallecitos Water District
201 Vallecitos de Oro
San Marcos, CA 92069
(760) 744-0460
rmorgan@vwd.org

If the Ewiiapaayp Band of Kumeyaay Indians wishes to consult with the Vallecitos Water District regarding the Tres-Amigos Water Line Replacement Project – Phase I, please indicate in writing via letter addressed to the lead contact at the address provided above by November 10, 2023 and provide the name of the Tribe's designated lead contact person.

Sincerely,



Ryan Morgan, P.E.
Capital Facilities Senior Engineer
Vallecitos Water District

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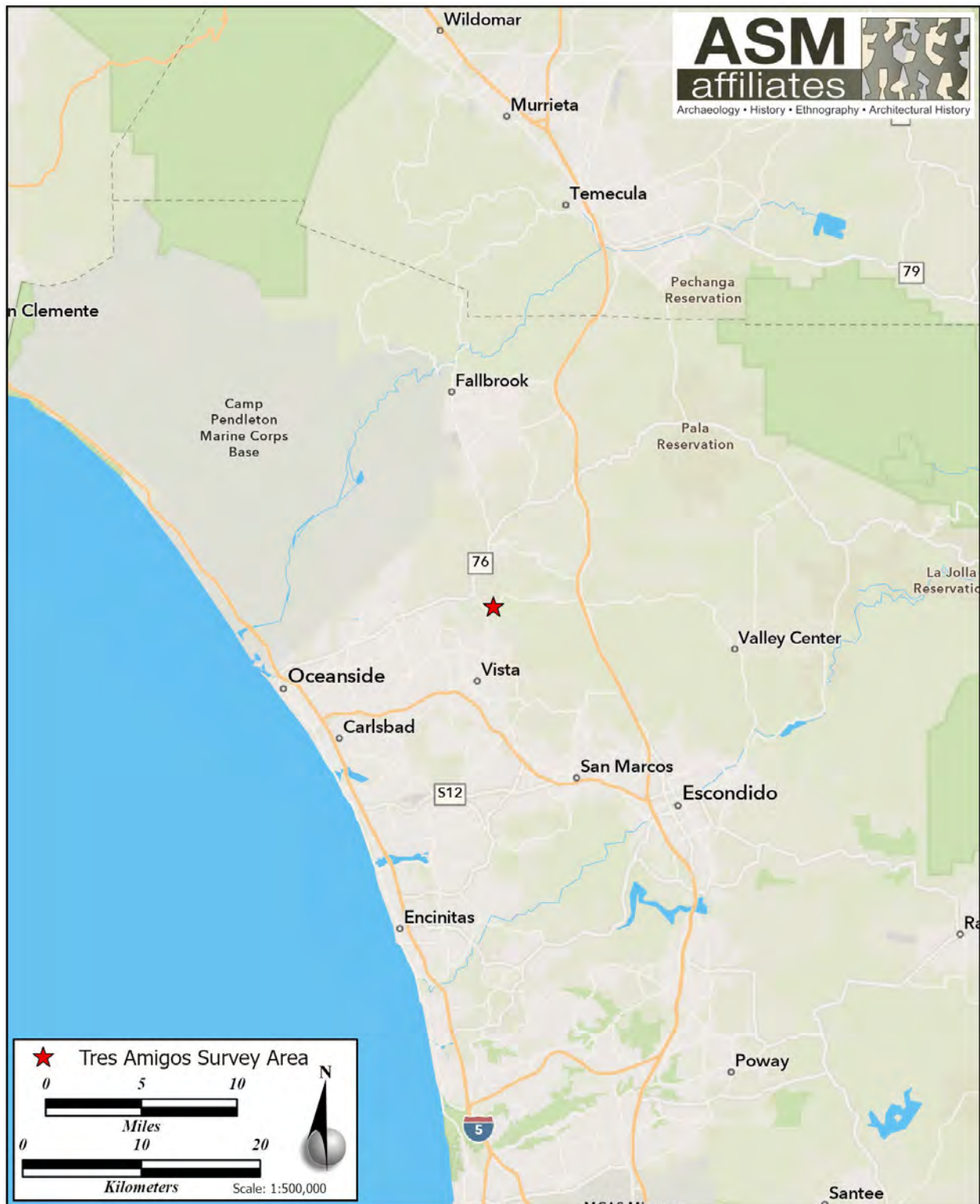


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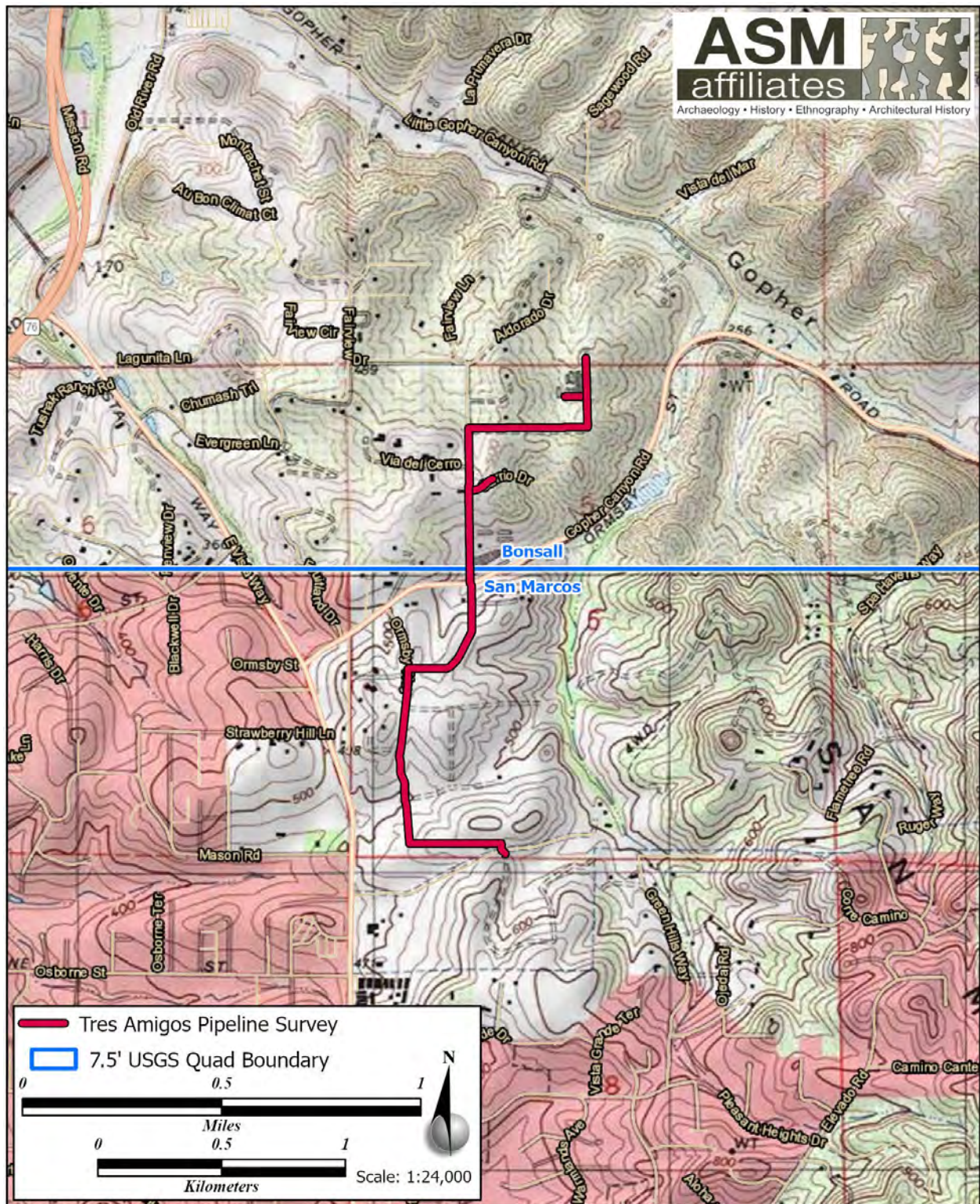


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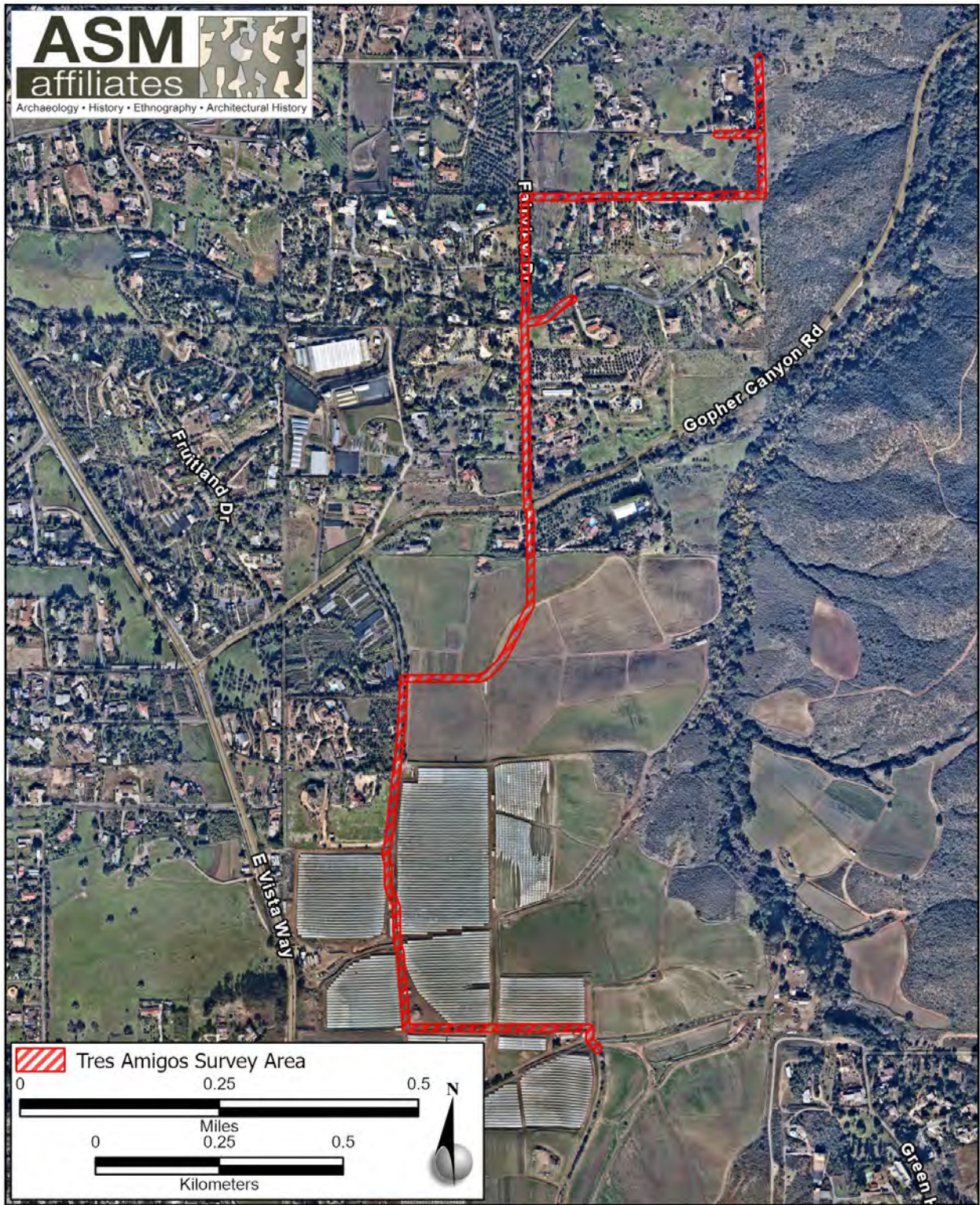
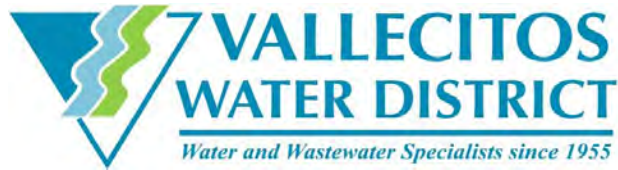


Figure 3. Project site map.

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201 Vallecitos De Oro • San Marcos, California 92069-1453 • Telephone 760-744-0460

October 3, 2023

Via Certified Mail

Kwaaymii Laguna Band of Mission Indians
Ms. Carmen Lucas
Chairperson
P.O. Box 775
Pine Valley, CA 91962

Subject: Notification of the Tres-Amigos Water Line Replacement Project - Phase I Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (Assembly Bill 52)

Dear Ms. Lucas:

This letter is formal notification of the Vallecitos Water District's (VWD) proposed Tres-Amigos Water Line Replacement Project - Phase I (Project), which is subject to compliance with the California Environmental Quality Act (CEQA). VWD is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (Assembly Bill [AB] 52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB 52, the Kwaaymii Laguna Band of Mission Indians has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 10, 2023, and shall provide the name of the Tribe's designated lead contact person.

Project Location

The Project is located on the Bonsall and San Marcos 7.5' U.S. Geological Survey (USGS) quadrangles in Township 11 South, Range 3 West, Section 5 San Bernardino Baseline and Meridian, San Diego County, California. See enclosed Figure 1 and Figure 2 for the project location.

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Contact Information

The Vallecitos Water District lead contact for AB 52 Consultation on this project is:

Ryan Morgan, Capital Facilities Senior Engineer
Vallecitos Water District
201 Vallecitos de Oro
San Marcos, CA 92069
(760) 744-0460
rmorgan@vwd.org

If the Kwaaymii Laguna Band of Mission Indians wishes to consult with the Vallecitos Water District regarding the Tres-Amigos Water Line Replacement Project – Phase I, please indicate in writing via letter addressed to the lead contact at the address provided above by November 10, 2023 and provide the name of the Tribe's designated lead contact person.

Sincerely,



Ryan Morgan, P.E.
Capital Facilities Senior Engineer
Vallecitos Water District

Enclosures:

- Figure 1. Vicinity Map
- Figure 2. Location Map
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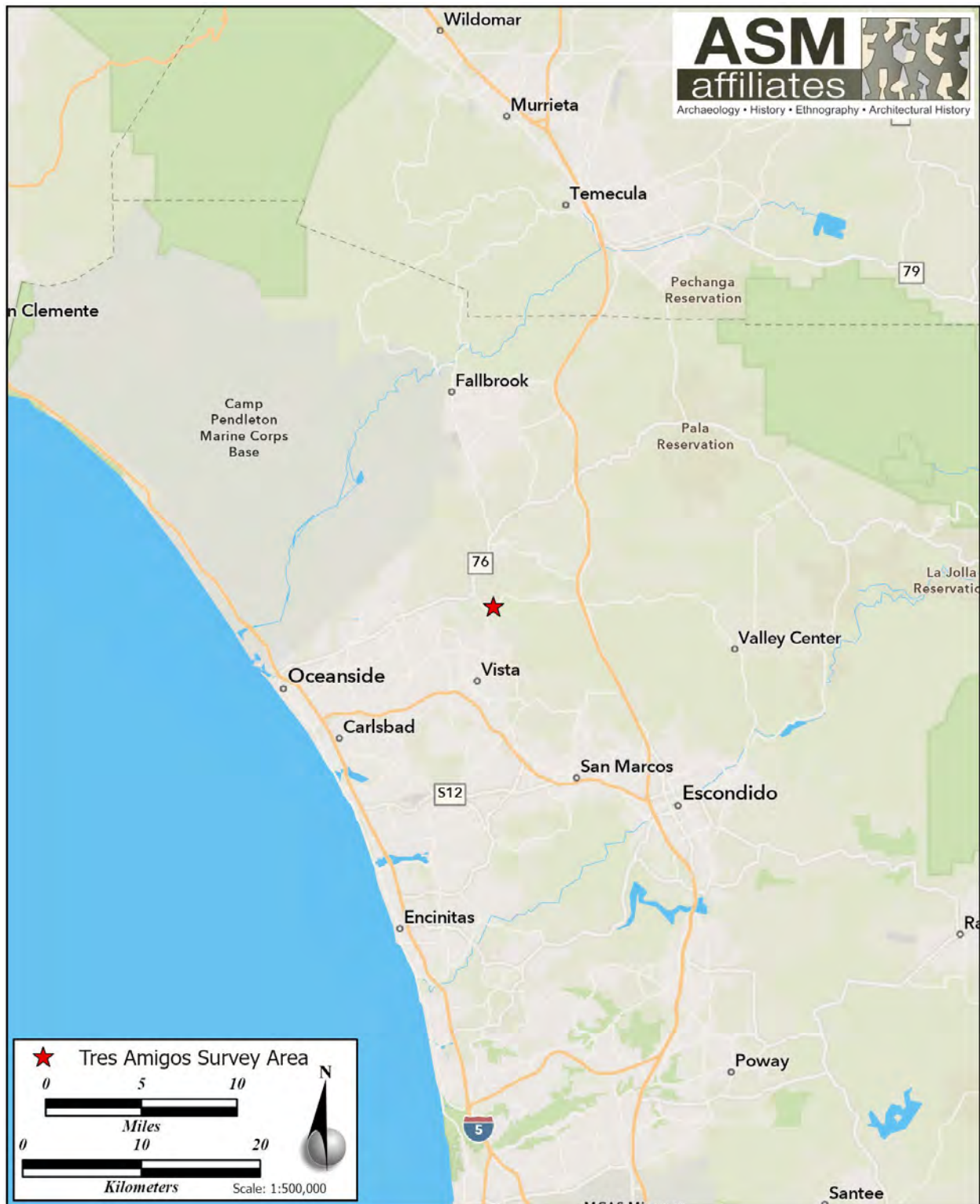


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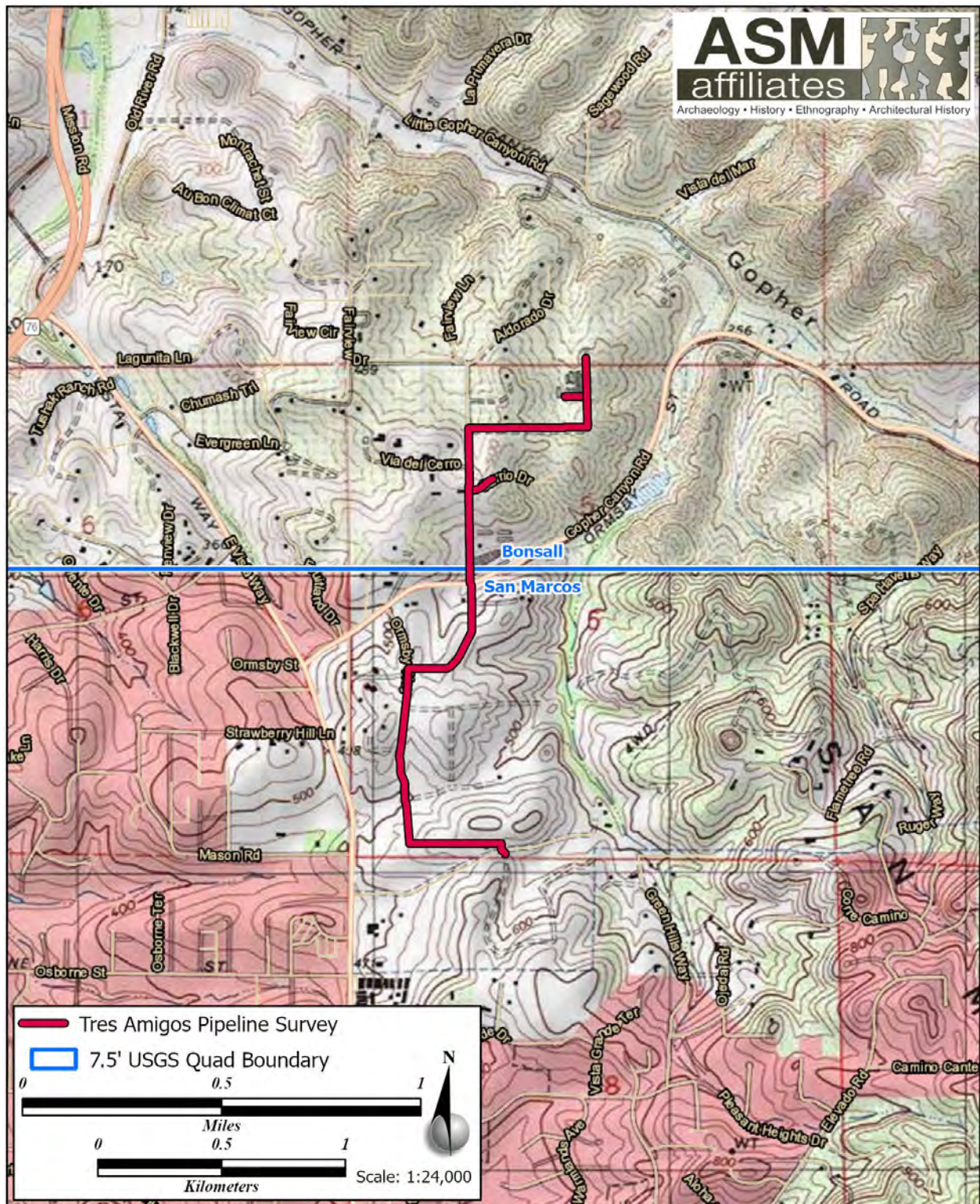


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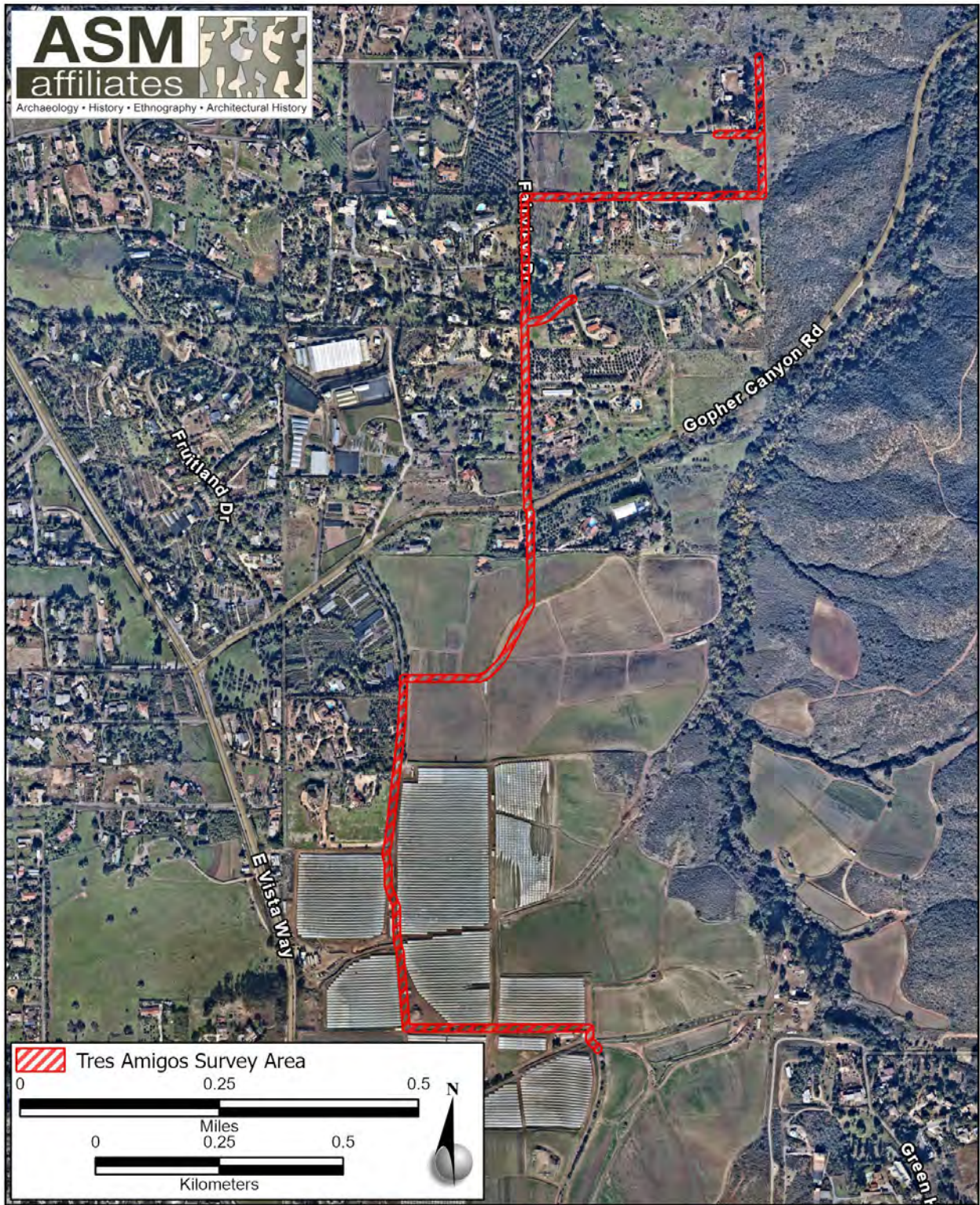
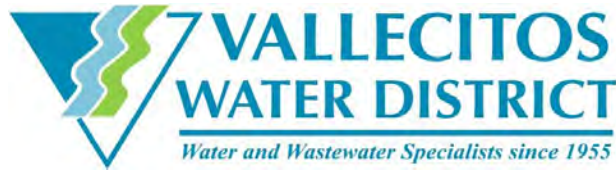


Figure 3. Project site map.

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201 Vallecitos De Oro • San Marcos, California 92069-1453 • Telephone 760-744-0460

October 3, 2023

Via Certified Mail

Iipay Nation of Santa Ysabel
Mr. Virgil Perez
Chairperson
P.O. Box 130
Santa Ysabel, CA 92070

Subject: Notification of the Tres-Amigos Water Line Replacement Project - Phase I Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (Assembly Bill 52)

Dear Mr. Perez:

This letter is formal notification of the Vallecitos Water District's (VWD) proposed Tres-Amigos Water Line Replacement Project - Phase I (Project), which is subject to compliance with the California Environmental Quality Act (CEQA). VWD is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (Assembly Bill [AB] 52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB 52, the Iipay Nation of Santa Ysabel has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 10, 2023, and shall provide the name of the Tribe's designated lead contact person.

Project Location

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Contact Information

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Ryan Morgan, Capital Facilities Senior Engineer
Vallecitos Water District
201 Vallecitos de Oro
San Marcos, CA 92069
(760) 744-0460
rmorgan@vwd.org

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Sincerely,



Ryan Morgan, P.E.
Capital Facilities Senior Engineer
Vallecitos Water District

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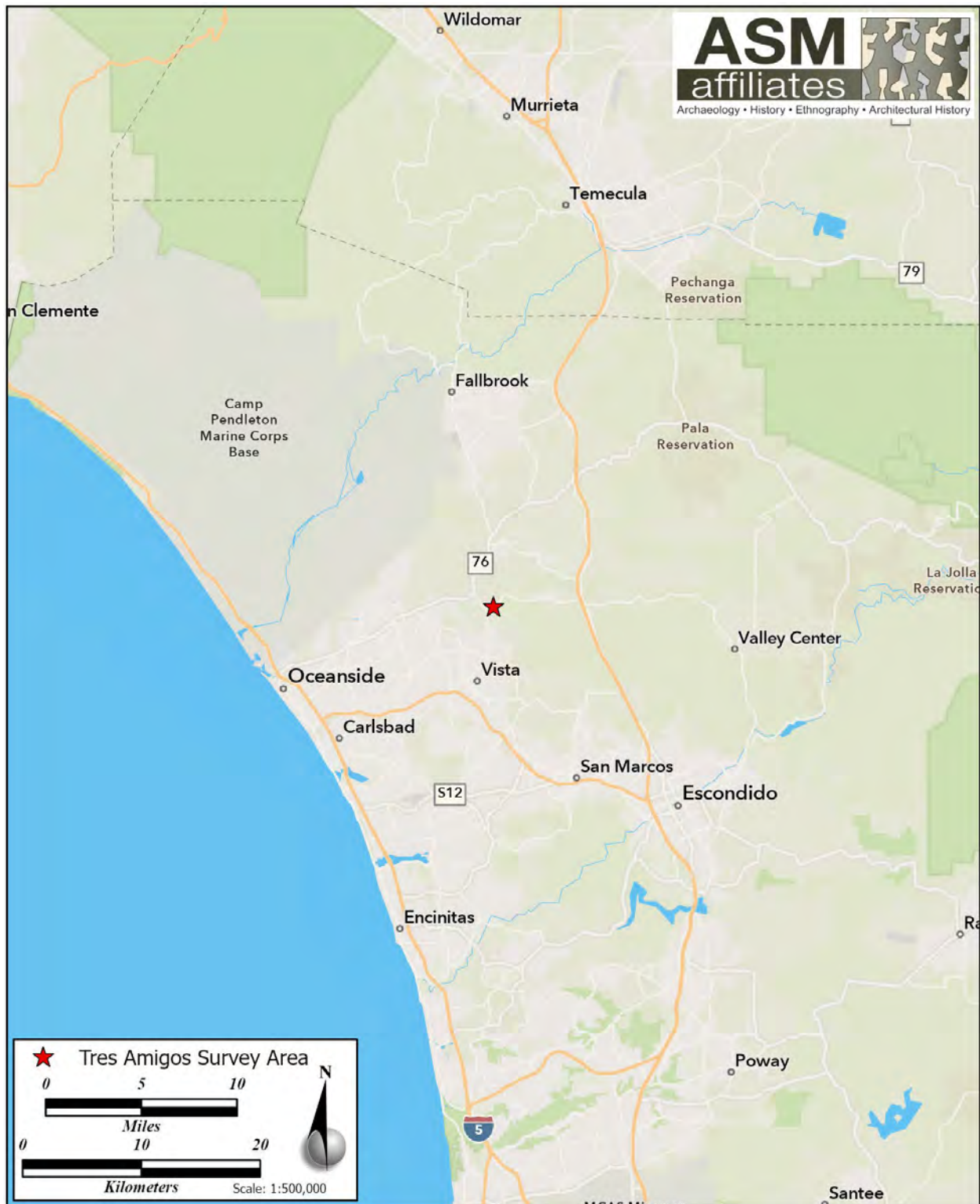


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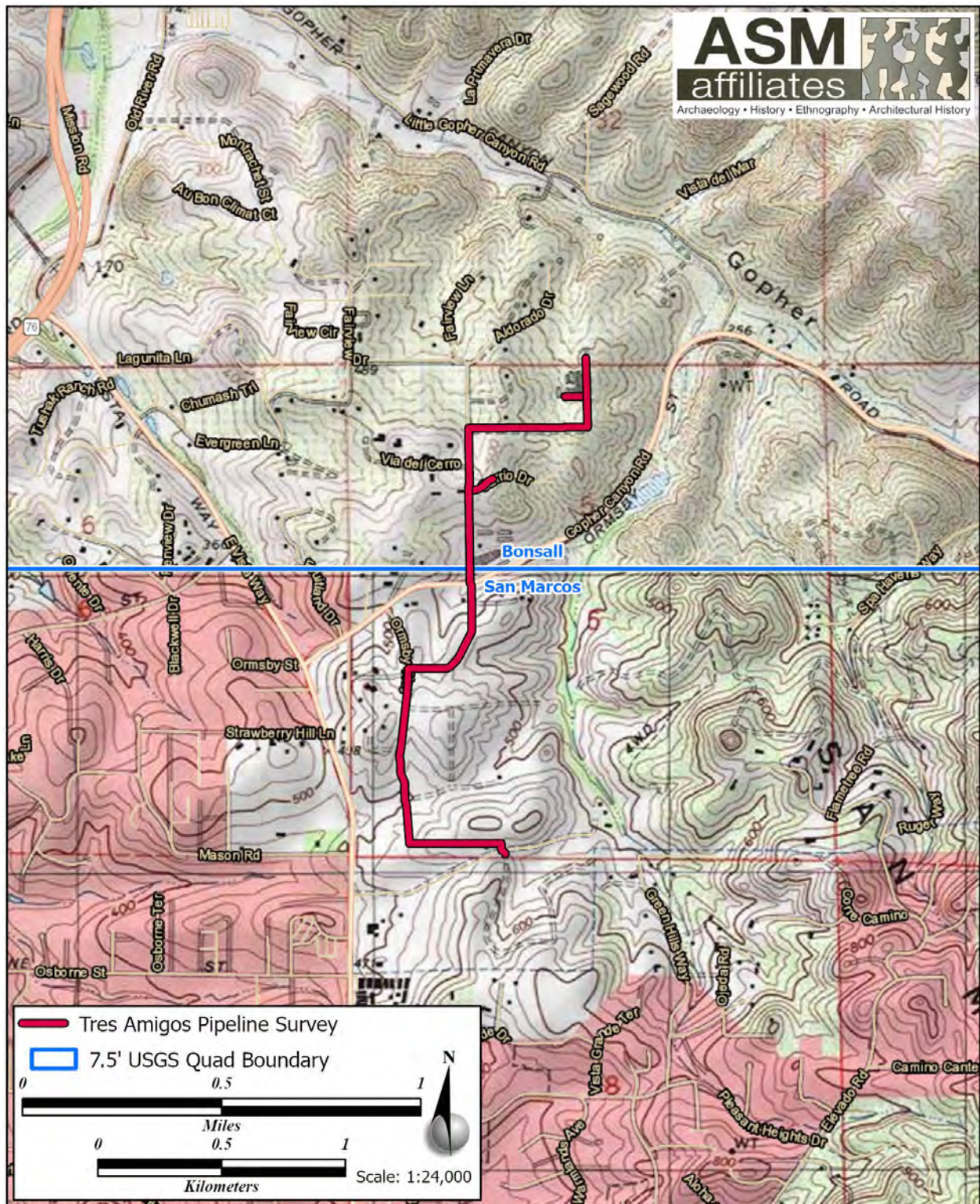


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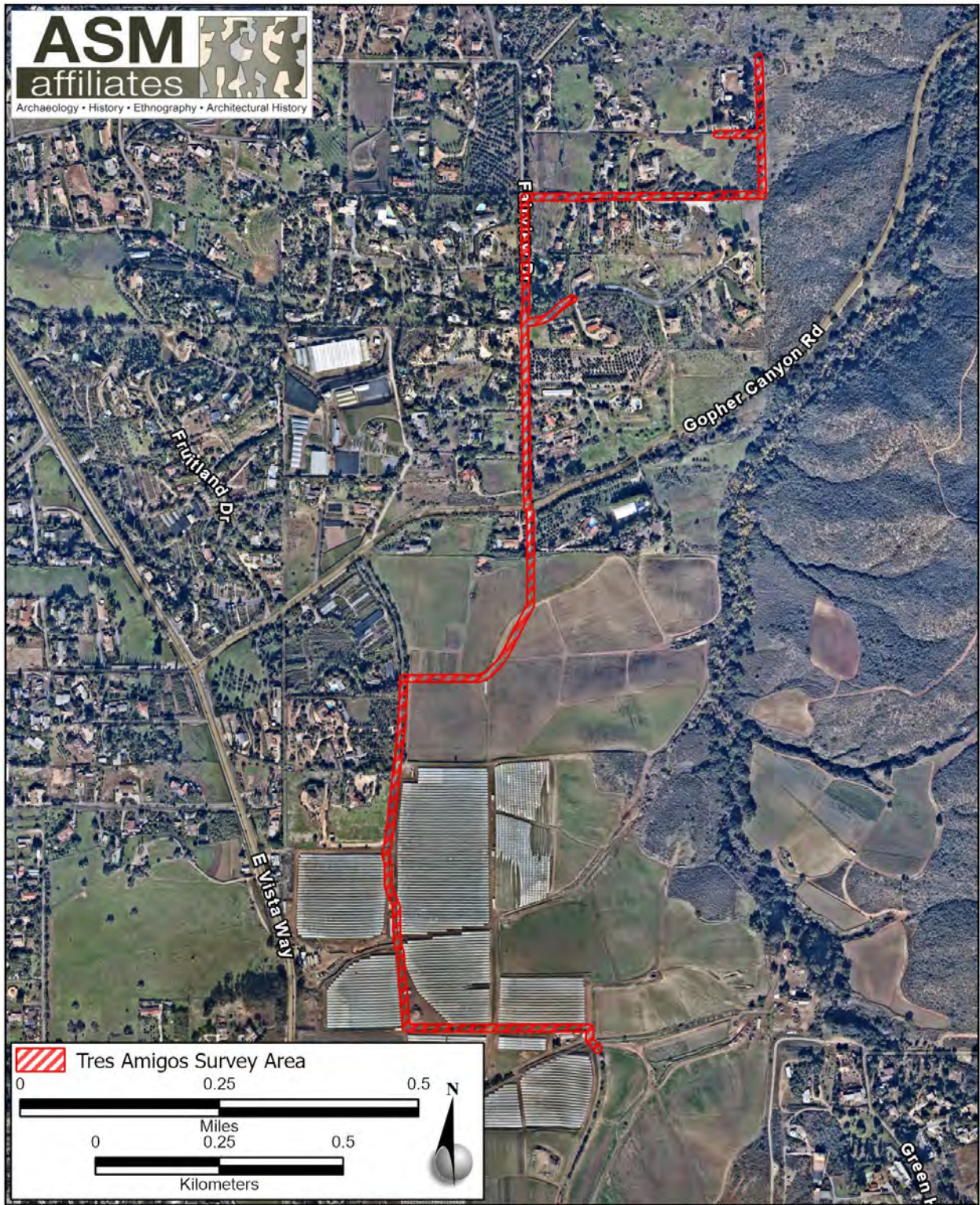
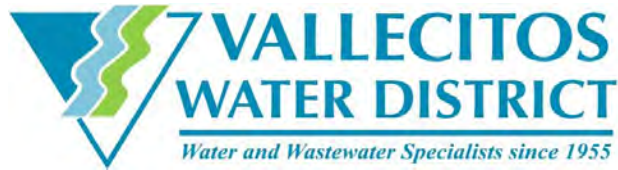


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201 Vallecitos De Oro • San Marcos, California 92069-1453 • Telephone 760-744-0460

October 3, 2023

Via Certified Mail

La Jolla Band of Luiseno Indians
Ms. Norma Contreras
Chairperson
22000 Highway 76
Pauma Valley, CA 92061

Subject: Notification of the Tres-Amigos Water Line Replacement Project - Phase I Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (Assembly Bill 52)

Dear Ms. Contreras:

This letter is formal notification of the Vallecitos Water District's (VWD) proposed Tres-Amigos Water Line Replacement Project - Phase I (Project), which is subject to compliance with the California Environmental Quality Act (CEQA). VWD is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (Assembly Bill [AB] 52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB 52, the La Jolla Band of Luiseno Indians has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 10, 2023, and shall provide the name of the Tribe's designated lead contact person.

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Vallecitos Water District

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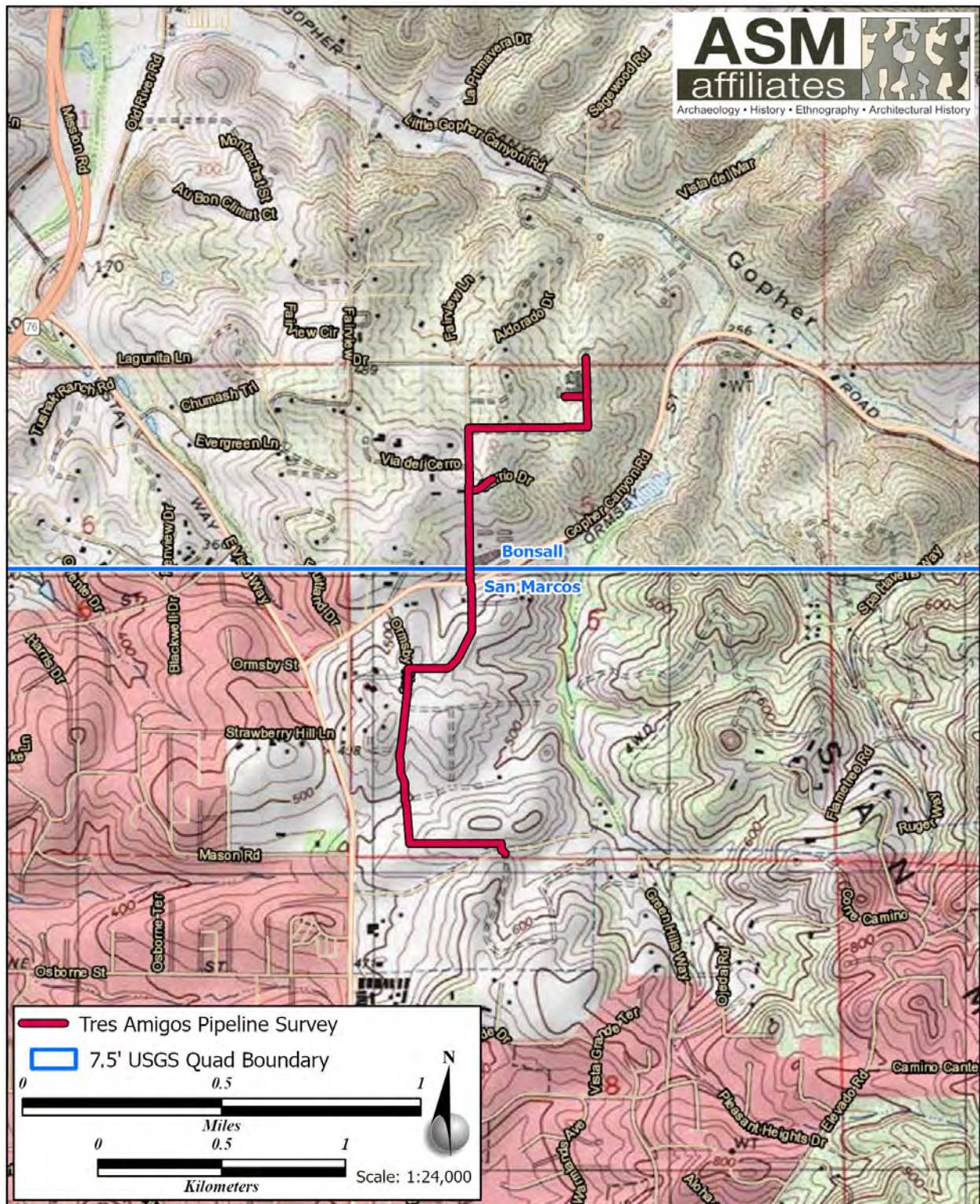


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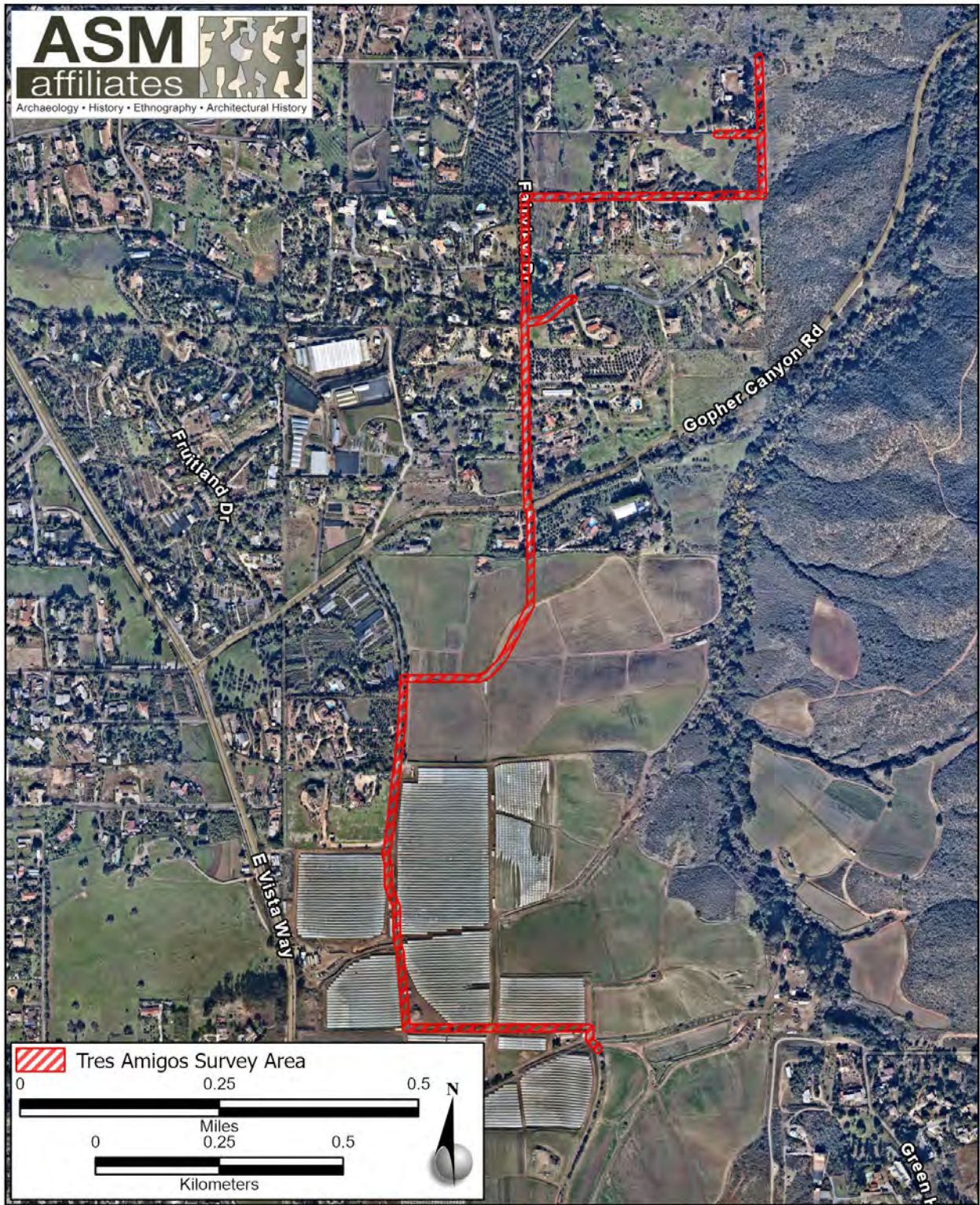
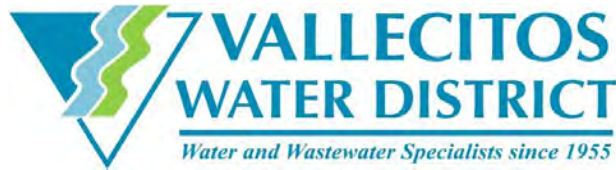


Figure 3. Project site map.

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201 Vallecitos De Oro • San Marcos, California 92069-1453 • Telephone 760-744-0460

October 3, 2023

Via Certified Mail

Iipay Nation of Santa Ysabel
Mr. Clint Linton
Director of Cultural Resources
P.O. Box 507
Santa Ysabel, CA 92070

Subject: Notification of the Tres-Amigos Water Line Replacement Project - Phase I Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (Assembly Bill 52)

Dear Mr. Linton:

This letter is formal notification of the Vallecitos Water District's (VWD) proposed Tres-Amigos Water Line Replacement Project - Phase I (Project), which is subject to compliance with the California Environmental Quality Act (CEQA). VWD is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (Assembly Bill [AB] 52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB 52, the Iipay Nation of Santa Ysabel has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 10, 2023, and shall provide the name of the Tribe's designated lead contact person.

Project Location

The Project is located on the Bonsall and San Marcos 7.5' U.S. Geological Survey (USGS) quadrangles in Township 11 South, Range 3 West, Section 5 San Bernardino Baseline and Meridian, San Diego County, California. See enclosed Figure 1 and Figure 2 for the project location.

Project Description

The VWD Tres Amigos Waterline comprises approximately 19,000 feet of pipelines ranging from 6-inch to 12-inch diameter. The water pipelines located in the northern limits of the VWD boundary were installed in the 1950s and 1960s, extending from the North Twin Oaks Tank No. 2 in Pleasant Heights Drive to north of Carrio Drive. The original Tres Amigos Line Extension Project occurred in 1958, which installed 6-inch and 8-inch diameter tar-wrapped 12-14-gauge steel pipelines. This material is considered a steam pipeline and is inadequate for pressurized water distribution systems.

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Temporary work areas are generally within existing roadways or areas immediately adjacent to existing roads, and would be used for construction traffic, detours, and laydown of materials, temporary soil stockpiles, and equipment staging.

Contact Information

The Vallecitos Water District lead contact for AB 52 Consultation on this project is:

Ryan Morgan, Capital Facilities Senior Engineer
Vallecitos Water District
201 Vallecitos de Oro
San Marcos, CA 92069
(760) 744-0460
rmorgan@vwd.org

If the Lipay Nation of Santa Ysabel wishes to consult with the Vallecitos Water District regarding the Tres-Amigos Water Line Replacement Project – Phase I, please indicate in writing via letter addressed to the lead contact at the address provided above by November 10, 2023 and provide the name of the Tribe's designated lead contact person.

Sincerely,



Ryan Morgan, P.E.
Capital Facilities Senior Engineer
Vallecitos Water District

Enclosures:

- Figure 1. Vicinity Map
- Figure 2. Location Map
- Figure 3. Project Site Map

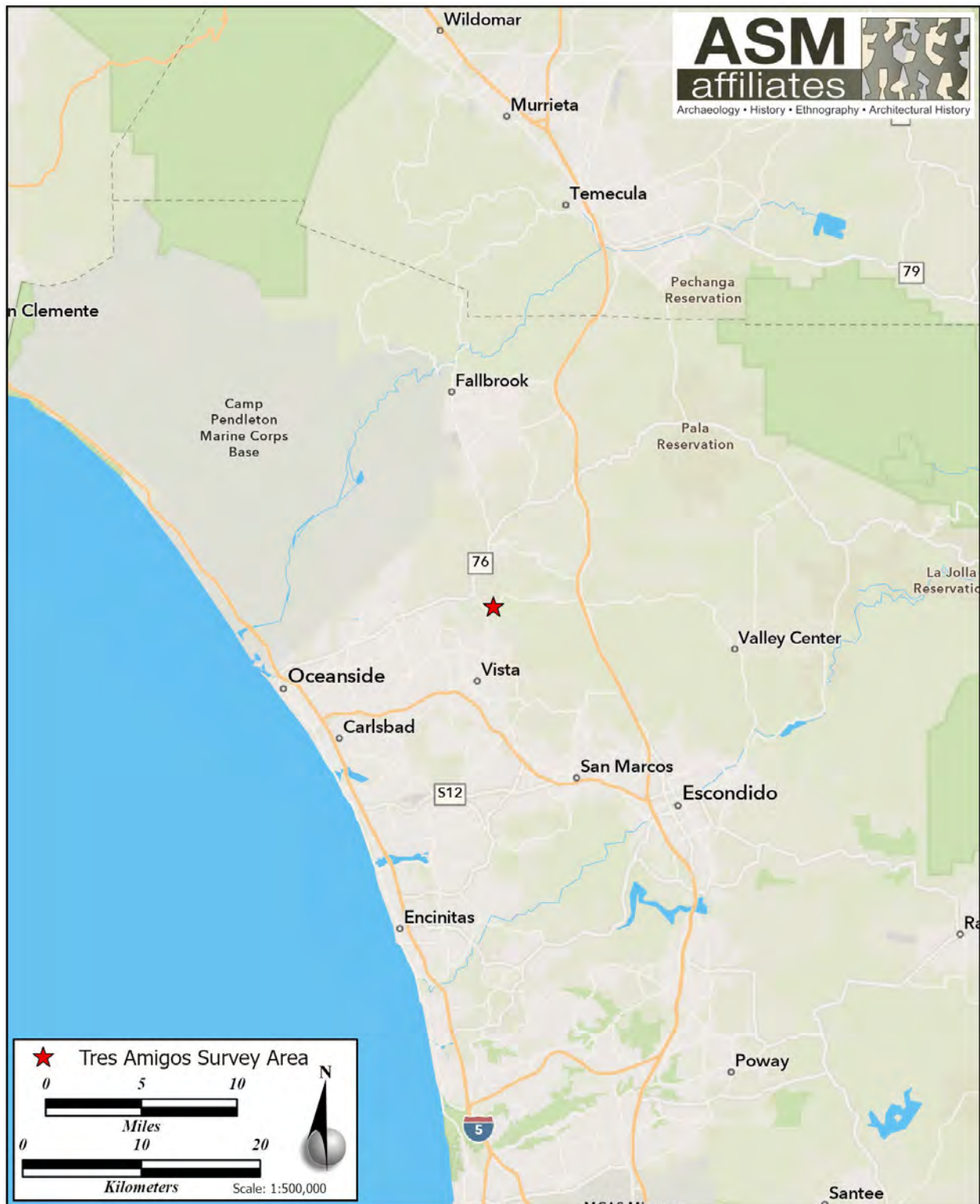


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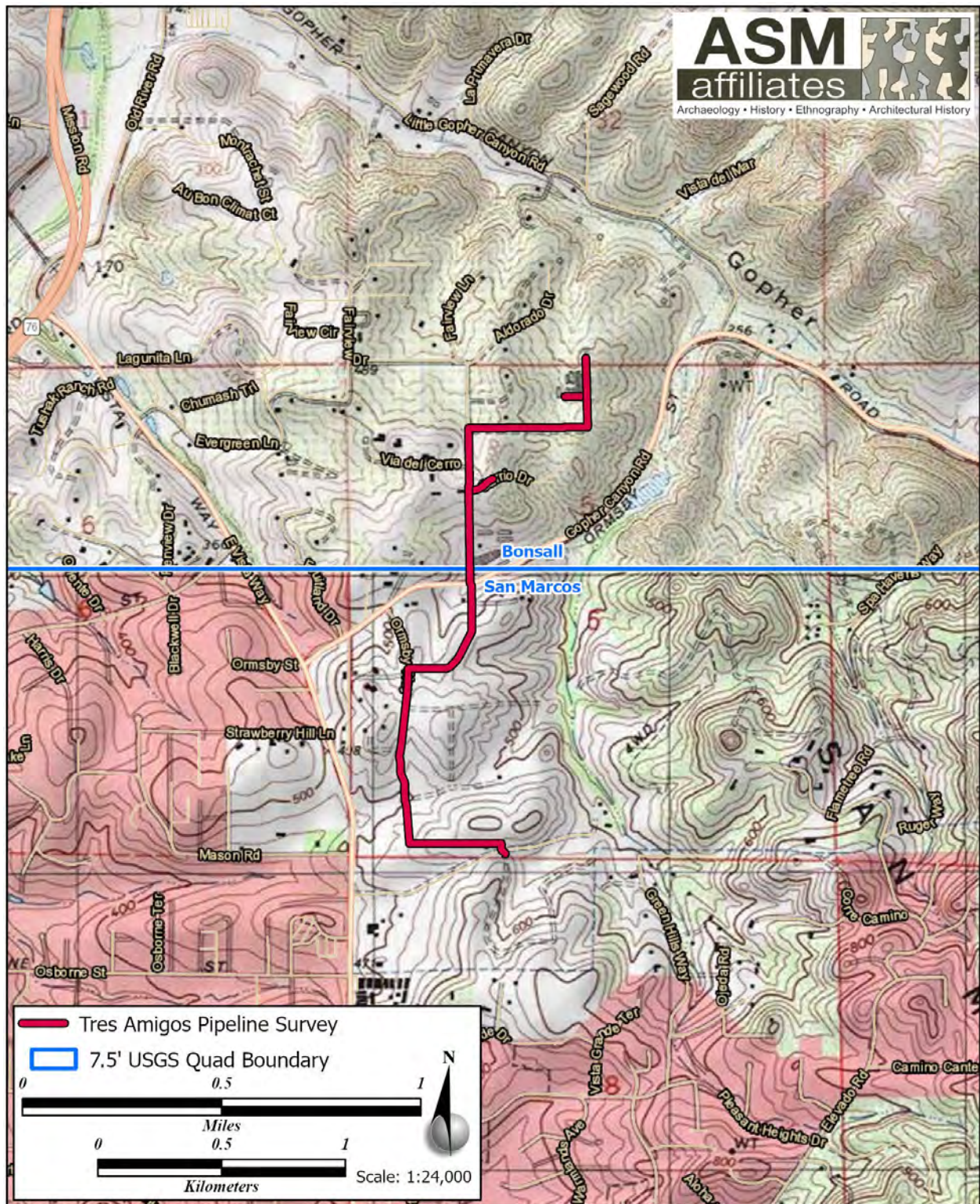


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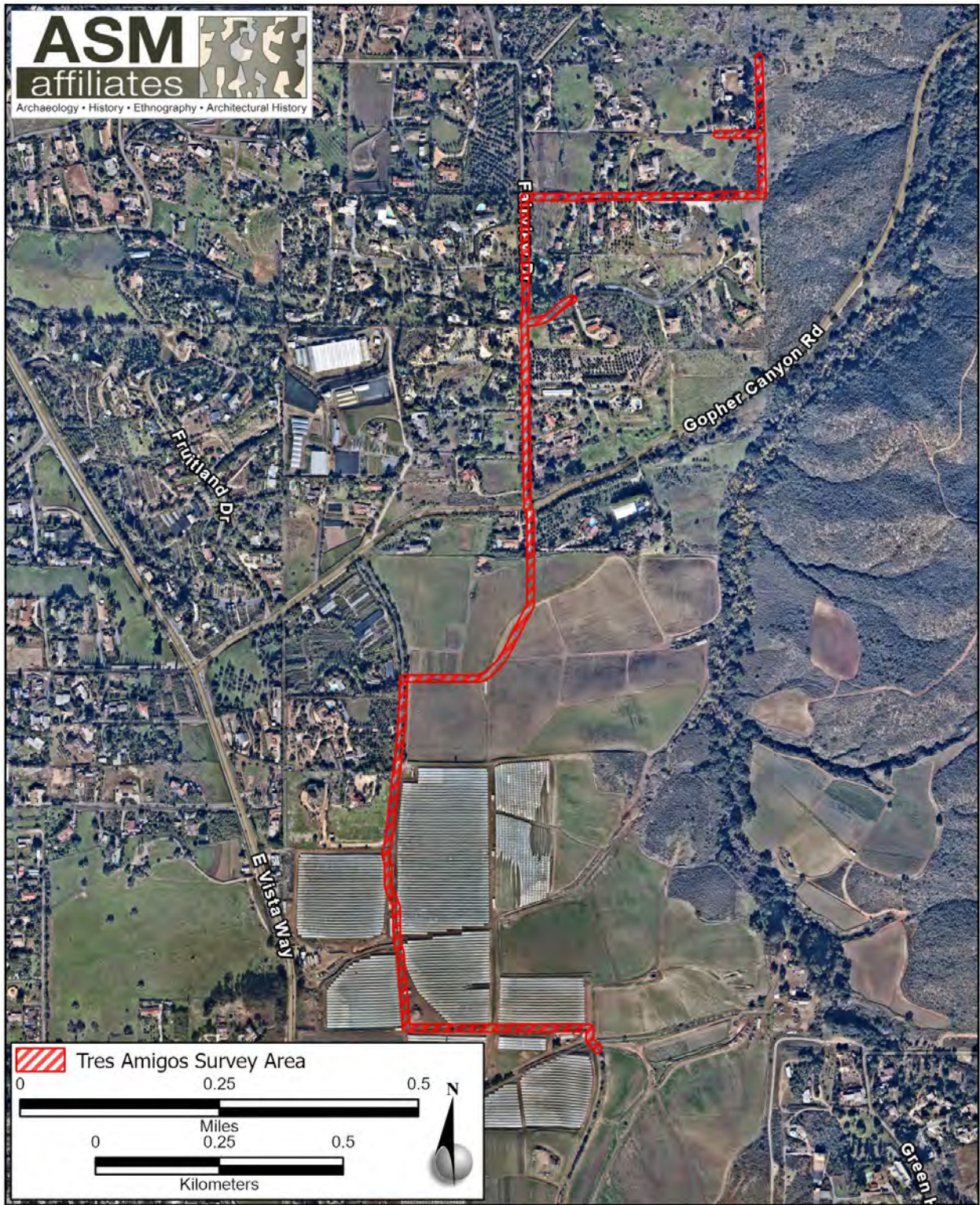
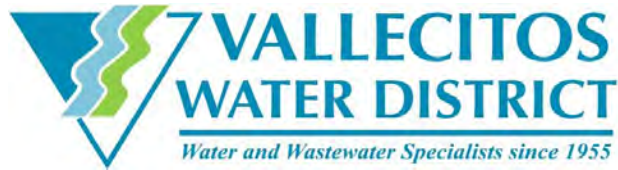


Figure 3. Project site map.

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201 Vallecitos De Oro • San Marcos, California 92069-1453 • Telephone 760-744-0460

October 3, 2023

Via Certified Mail

La Posta Band of Diegueno Mission Indians
Ms. Gwendolyn Parado
Chairperson
8 Crestwood Road
Boulevard, CA 91905

Subject: Notification of the Tres-Amigos Water Line Replacement Project - Phase I Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (Assembly Bill 52)

Dear Ms. Parado:

This letter is formal notification of the Vallecitos Water District's (VWD) proposed Tres-Amigos Water Line Replacement Project - Phase I (Project), which is subject to compliance with the California Environmental Quality Act (CEQA). VWD is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (Assembly Bill [AB] 52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB 52, the La Posta Band of Diegueno Mission Indians has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 10, 2023, and shall provide the name of the Tribe's designated lead contact person.

Project Location

The Project is located on the Bonsall and San Marcos 7.5' U.S. Geological Survey (USGS) quadrangles in Township 11 South, Range 3 West, Section 5 San Bernardino Baseline and Meridian, San Diego County, California. See enclosed Figure 1 and Figure 2 for the project location.

Project Description

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Contact Information

The Vallecitos Water District lead contact for AB 52 Consultation on this project is:

Ryan Morgan, Capital Facilities Senior Engineer
Vallecitos Water District
201 Vallecitos de Oro
San Marcos, CA 92069
(760) 744-0460
rmorgan@vwd.org

If the La Posta Band of Diegueno Mission Indians wishes to consult with the Vallecitos Water District regarding the Tres-Amigos Water Line Replacement Project – Phase I, please indicate in writing via letter addressed to the lead contact at the address provided above by November 10, 2023 and provide the name of the Tribe's designated lead contact person.

Sincerely,



Ryan Morgan, P.E.
Capital Facilities Senior Engineer
Vallecitos Water District

Enclosures:

- Figure 1. Vicinity Map
- Figure 2. Location Map
- Figure 3. Project Site Map

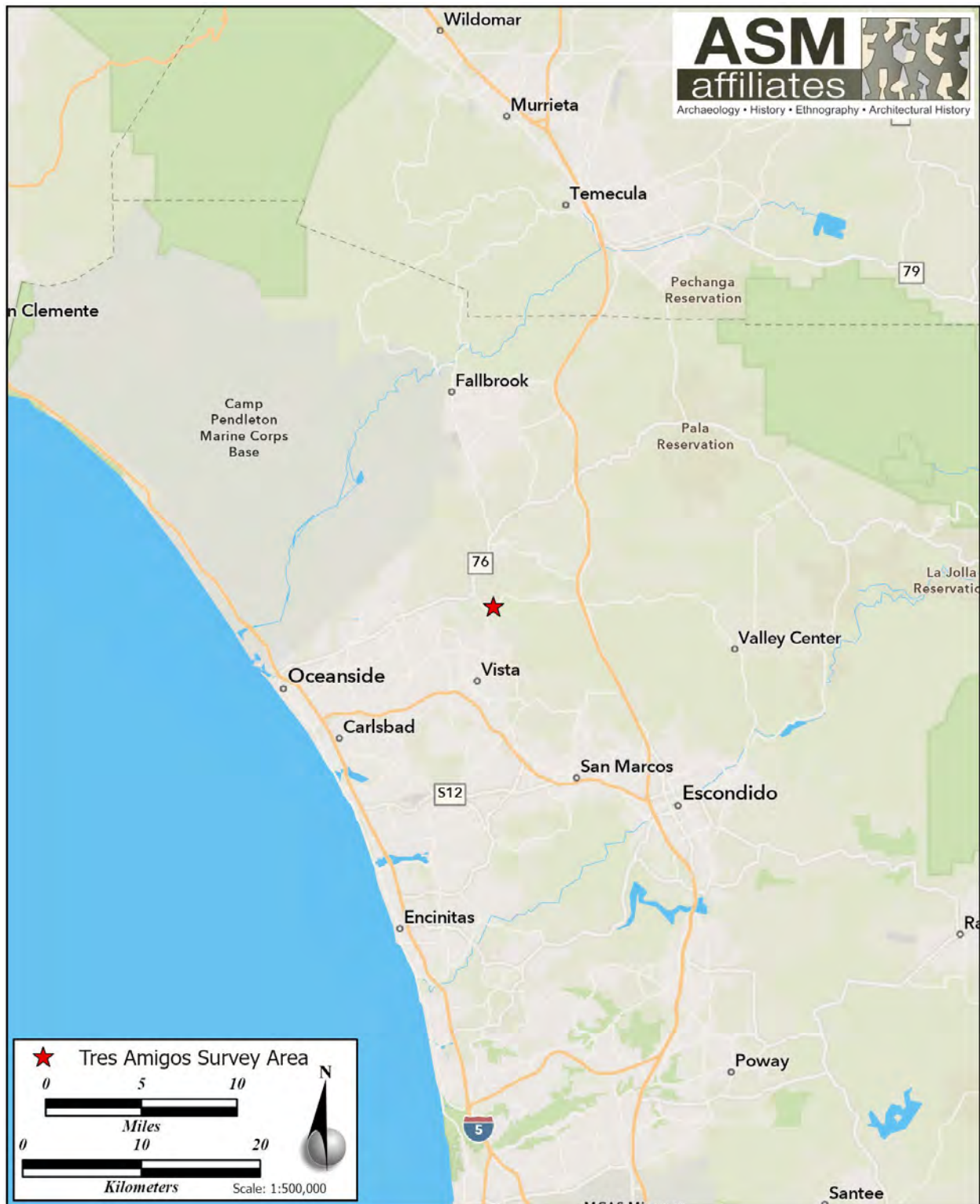


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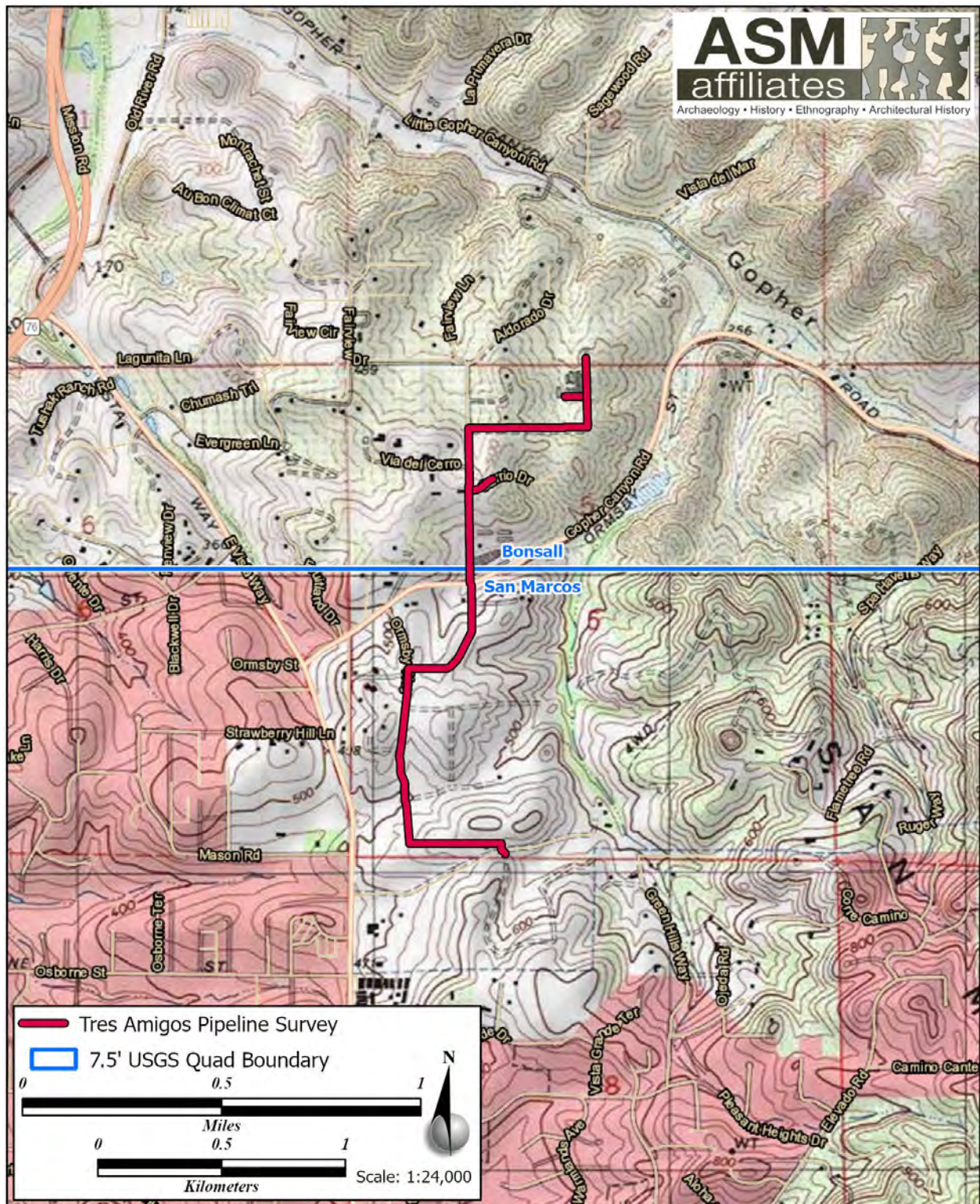


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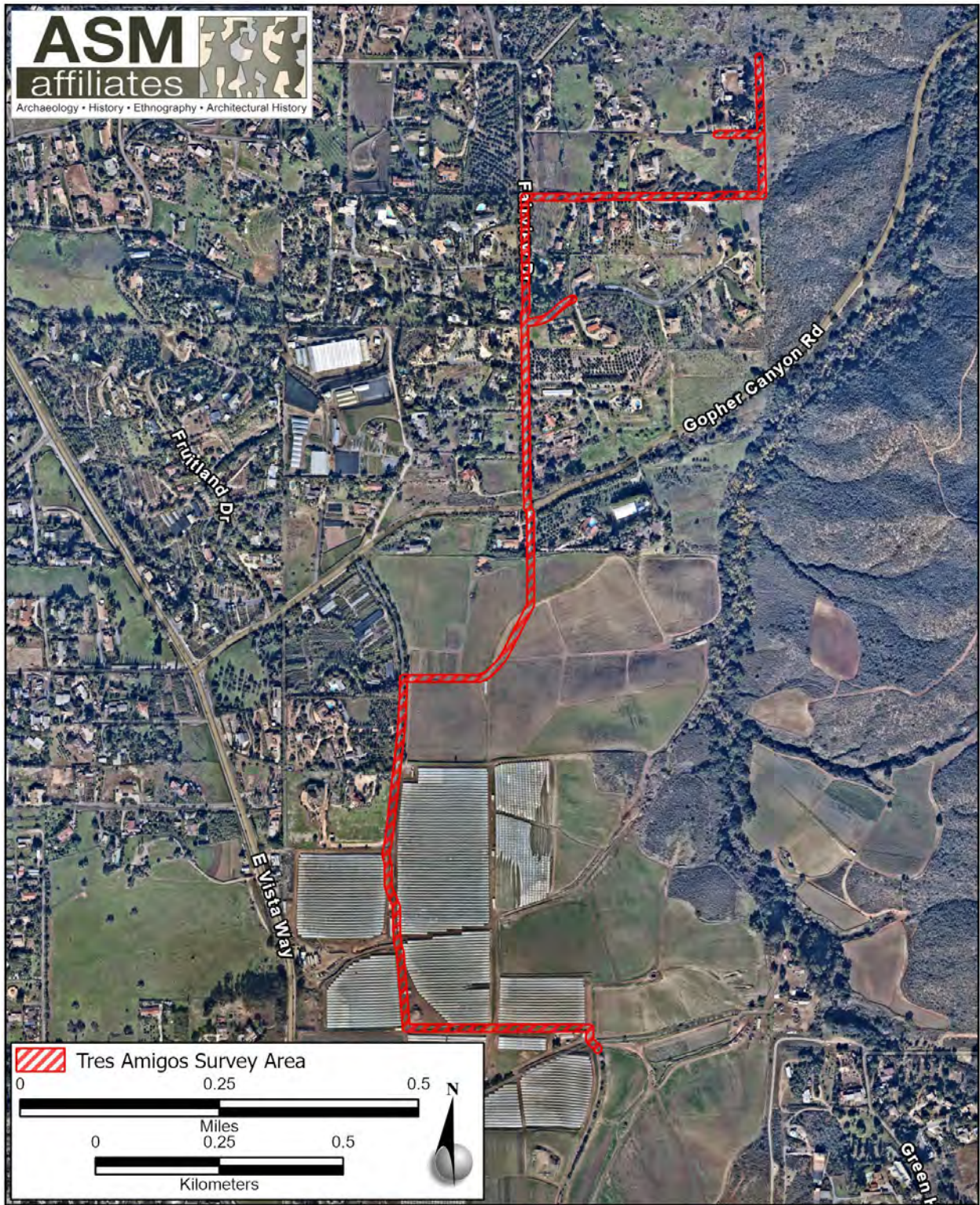
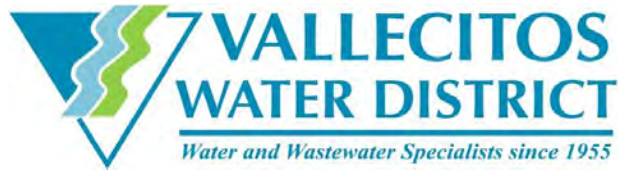


Figure 3. Project site map.

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201 Vallecitos De Oro • San Marcos, California 92069-1453 • Telephone 760-744-0460

October 3, 2023

Via Certified Mail

La Posta Band of Diegueno Mission Indians
Javaughn Miller
Tribal Administrator
8 Crestwood Road
Boulevard, CA 91905

Subject: Notification of the Tres-Amigos Water Line Replacement Project - Phase I Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (Assembly Bill 52)

Dear Miller:

This letter is formal notification of the Vallecitos Water District's (VWD) proposed Tres-Amigos Water Line Replacement Project - Phase I (Project), which is subject to compliance with the California Environmental Quality Act (CEQA). VWD is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (Assembly Bill [AB] 52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB 52, the La Posta Band of Diegueno Mission Indians has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 10, 2023, and shall provide the name of the Tribe's designated lead contact person.

Project Location

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Project Description

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Contact Information

The Vallecitos Water District lead contact for AB 52 Consultation on this project is:

Ryan Morgan, Capital Facilities Senior Engineer
Vallecitos Water District
201 Vallecitos de Oro
San Marcos, CA 92069
(760) 744-0460
rmorgan@vwd.org

If the La Posta Band of Diegueno Mission Indians wishes to consult with the Vallecitos Water District regarding the Tres-Amigos Water Line Replacement Project – Phase I, please indicate in writing via letter addressed to the lead contact at the address provided above by November 10, 2023 and provide the name of the Tribe's designated lead contact person.

Sincerely,



Ryan Morgan, P.E.
Capital Facilities Senior Engineer
Vallecitos Water District

Enclosures:

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- Figure 2. Location Map
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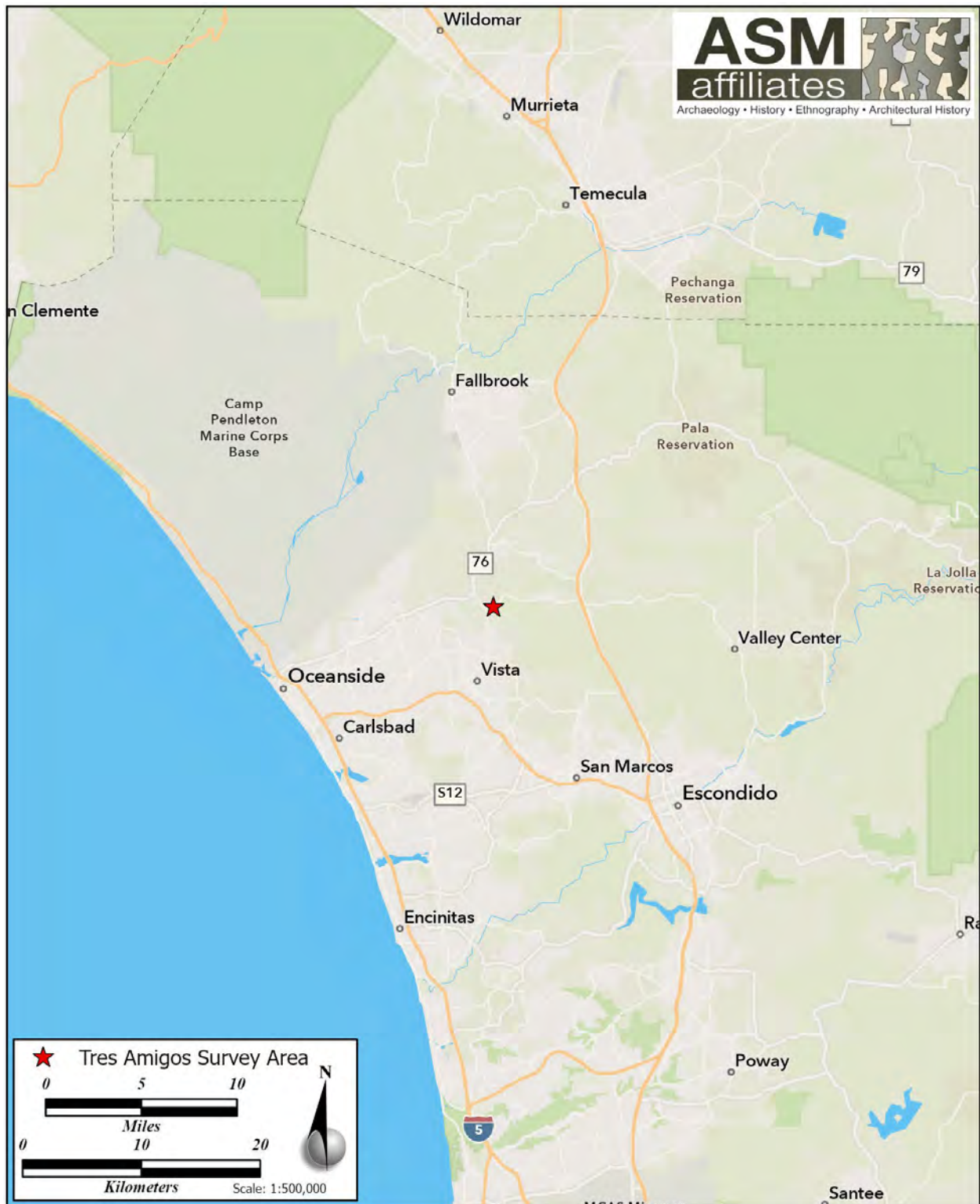


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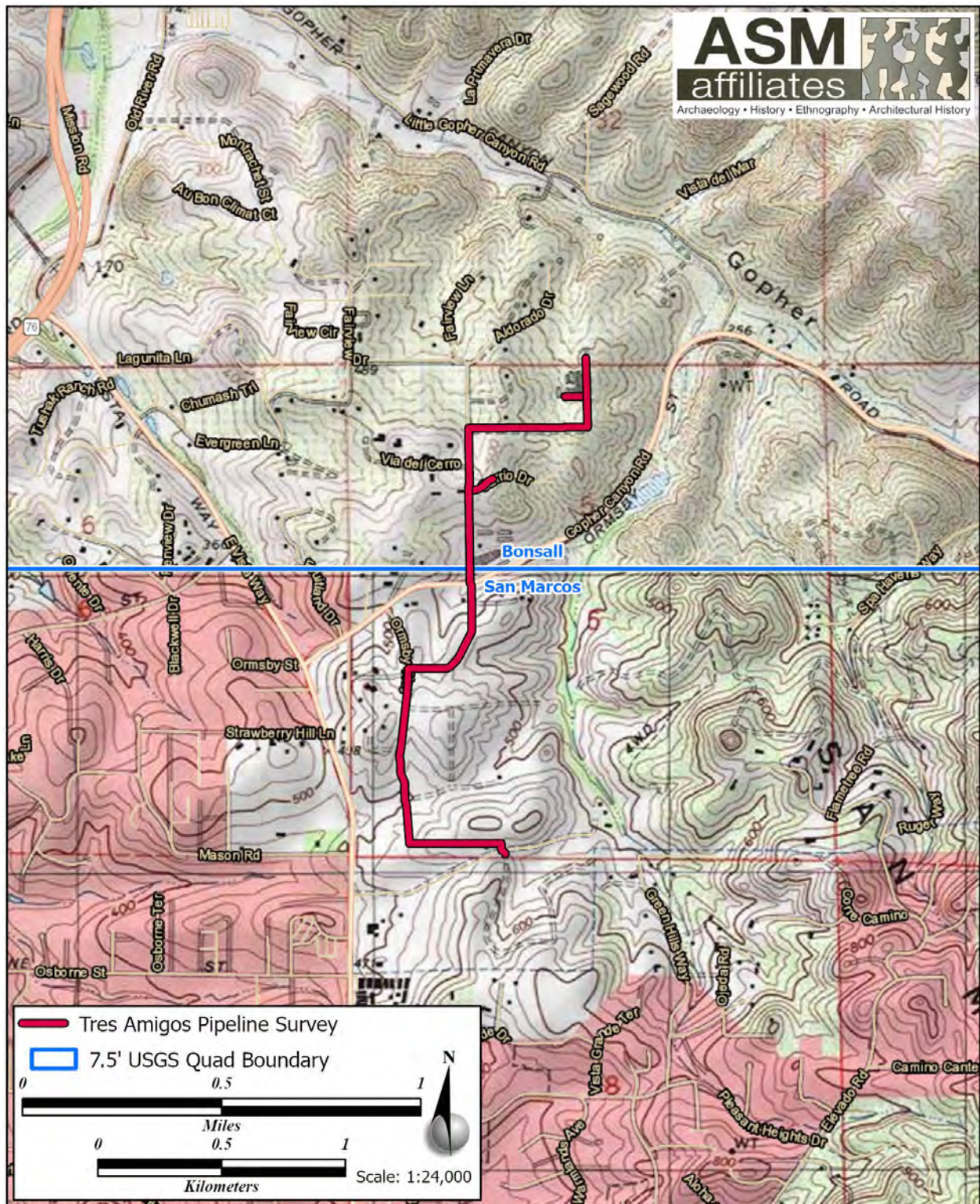


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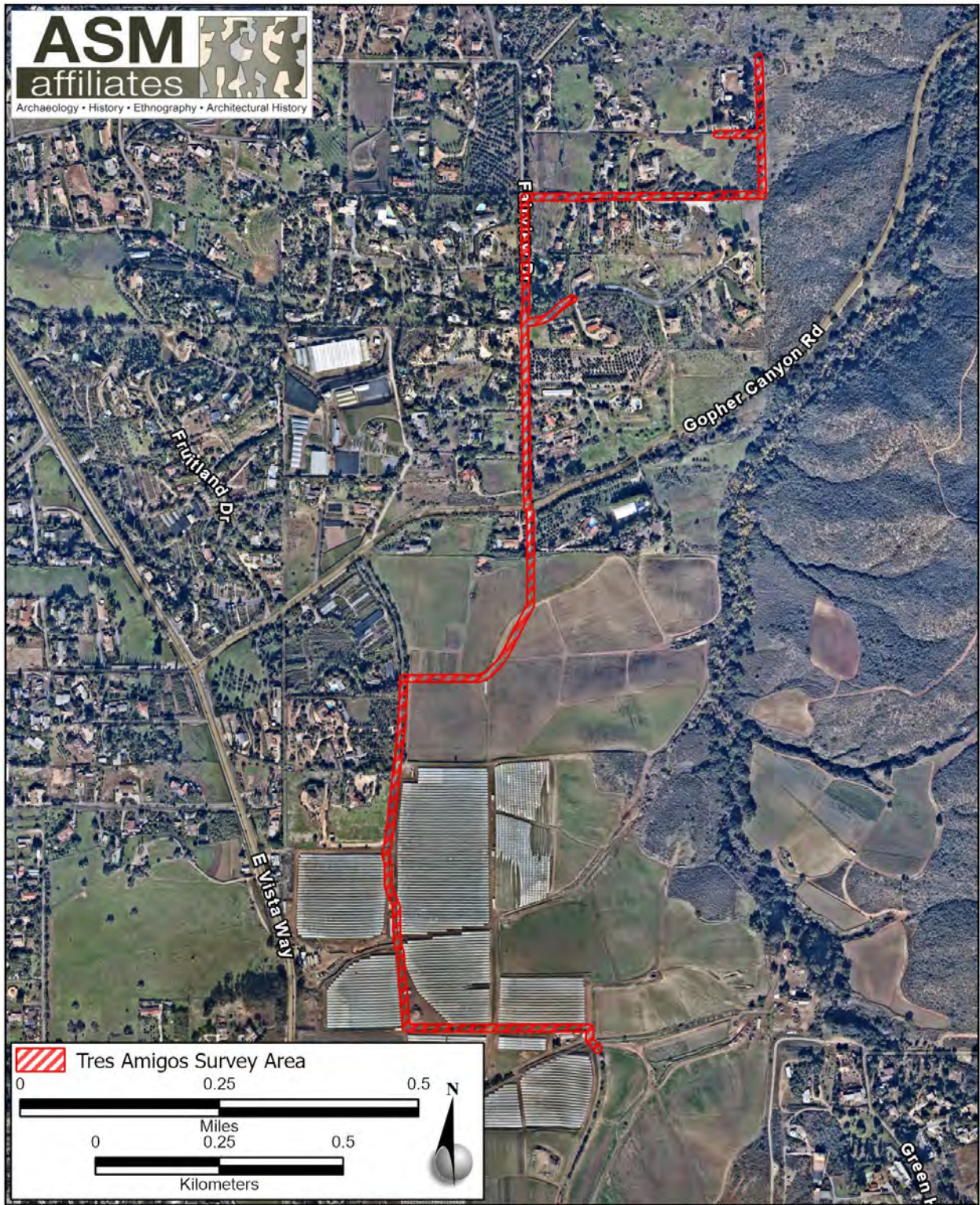
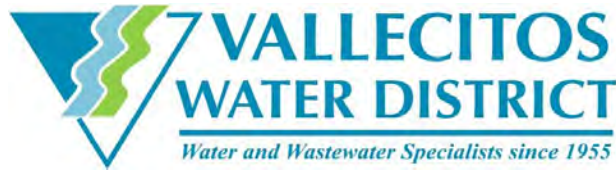


Figure 3. Project site map.

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201 Vallecitos De Oro • San Marcos, California 92069-1453 • Telephone 760-744-0460

October 3, 2023

Via Certified Mail

Pechanga Band of Indians
Mr. Mark Macarro
Chairperson
P.O. Box 1477
Temecula, CA 92593

Subject: Notification of the Tres-Amigos Water Line Replacement Project - Phase I Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (Assembly Bill 52)

Dear Mr. Macarro:

This letter is formal notification of the Vallecitos Water District's (VWD) proposed Tres-Amigos Water Line Replacement Project - Phase I (Project), which is subject to compliance with the California Environmental Quality Act (CEQA). VWD is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (Assembly Bill [AB] 52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB 52, the Pechanga Band of Indians has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 10, 2023, and shall provide the name of the Tribe's designated lead contact person.

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Contact Information

The Vallecitos Water District lead contact for AB 52 Consultation on this project is:

Ryan Morgan, Capital Facilities Senior Engineer
Vallecitos Water District
201 Vallecitos de Oro
San Marcos, CA 92069
(760) 744-0460
rmorgan@vwd.org

If the Pechanga Band of Indians wishes to consult with the Vallecitos Water District regarding the Tres-Amigos Water Line Replacement Project – Phase I, please indicate in writing via letter addressed to the lead contact at the address provided above by November 10, 2023 and provide the name of the Tribe's designated lead contact person.

Sincerely,



Ryan Morgan, P.E.
Capital Facilities Senior Engineer
Vallecitos Water District

Enclosures:

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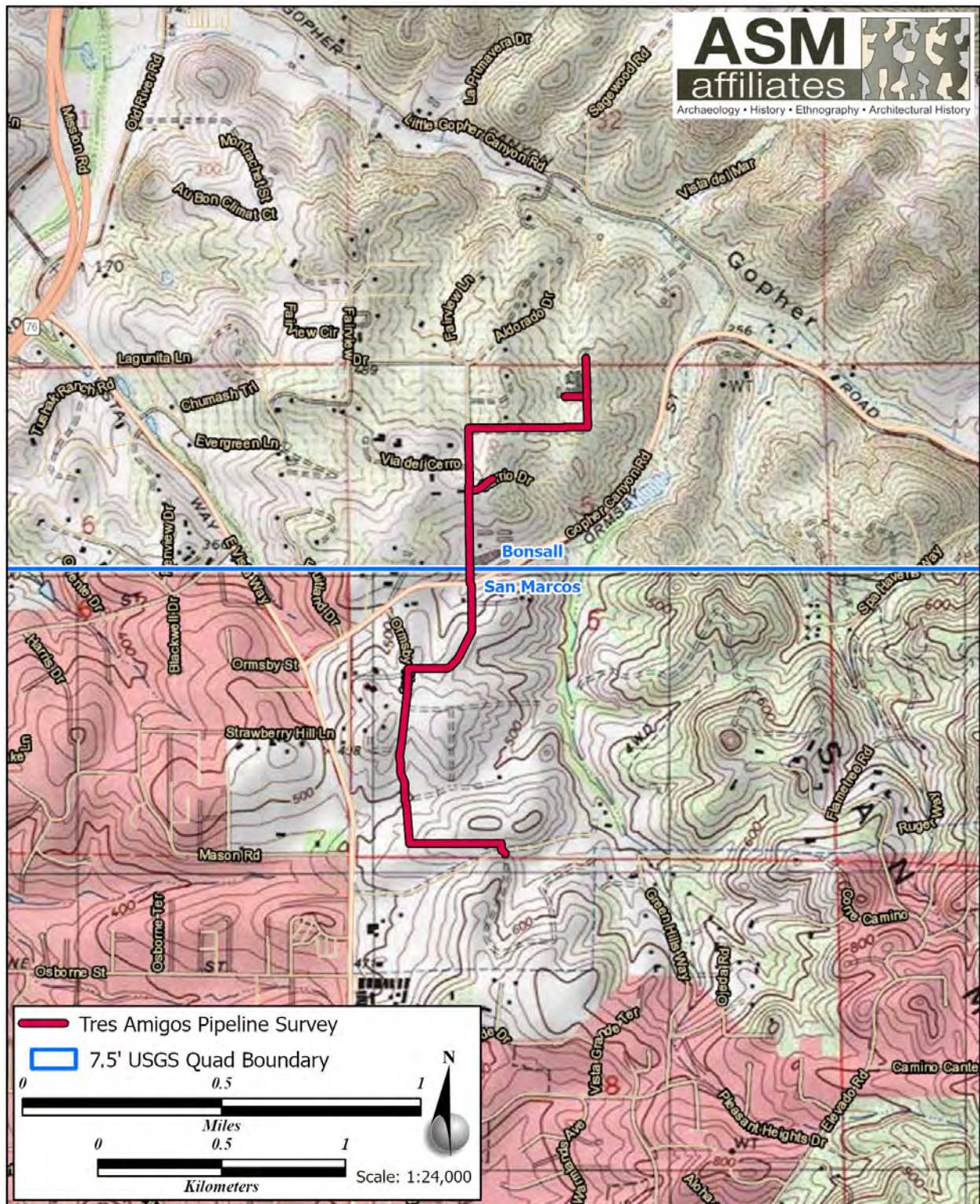


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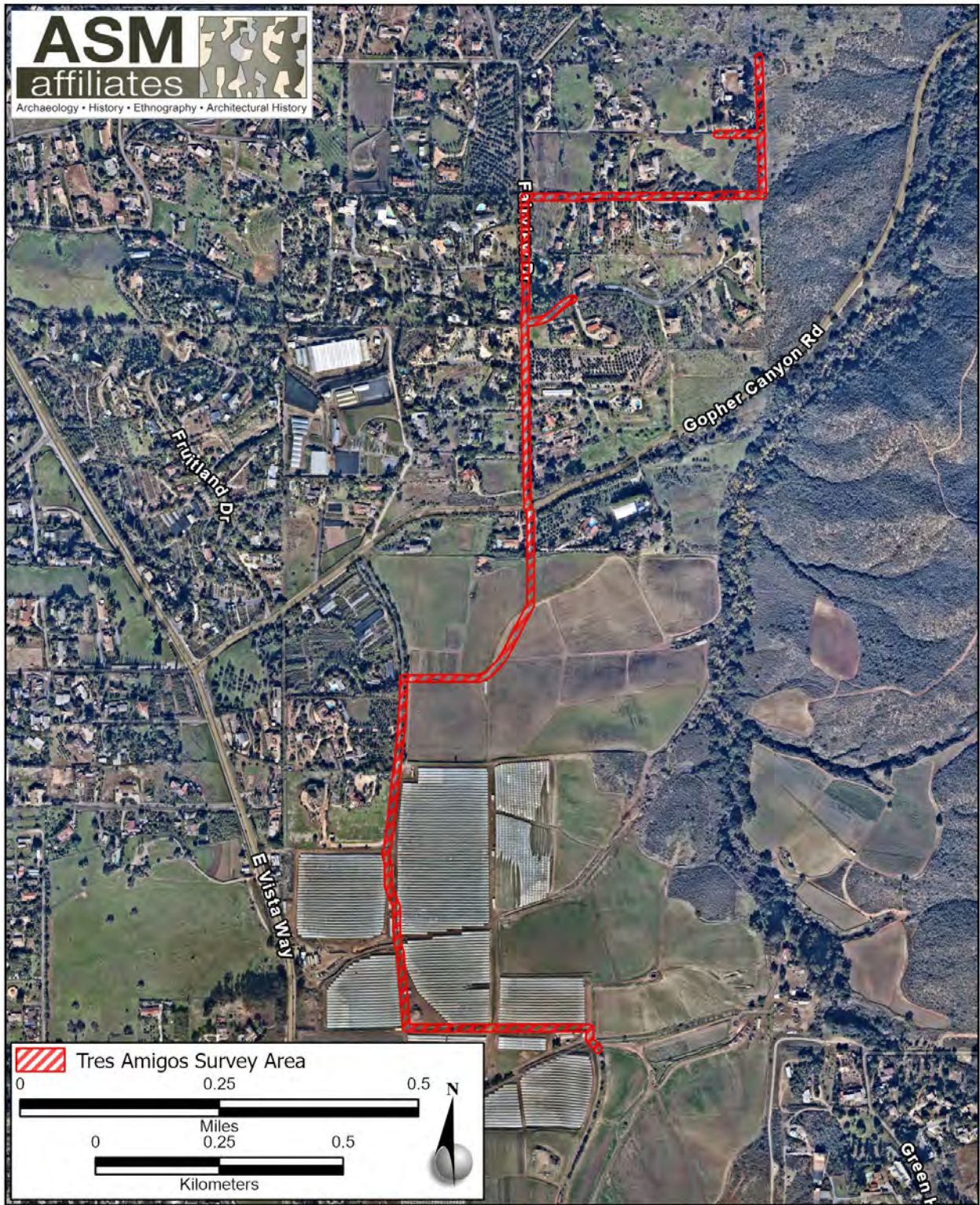
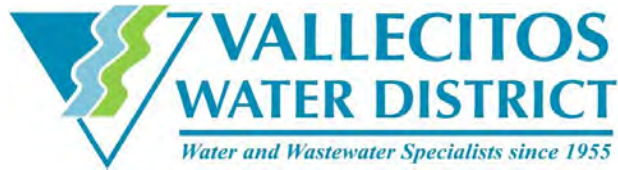


Figure 3. Project site map.

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201 Vallecitos De Oro • San Marcos, California 92069-1453 • Telephone 760-744-0460

October 3, 2023

Via Certified Mail

Manzanita Band of Kumeyaay Nation
Ms. Anglea Elliott Santos
Chairperson
P.O. Box 1302
Boulevard, CA 91905

Subject: Notification of the Tres-Amigos Water Line Replacement Project - Phase I Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (Assembly Bill 52)

Dear Ms. Elliott Santos:

This letter is formal notification of the Vallecitos Water District's (VWD) proposed Tres-Amigos Water Line Replacement Project - Phase I (Project), which is subject to compliance with the California Environmental Quality Act (CEQA). VWD is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (Assembly Bill [AB] 52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB 52, the Manzanita Band of Kumeyaay Nation has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 10, 2023, and shall provide the name of the Tribe's designated lead contact person.

Project Location

The Project is located on the Bonsall and San Marcos 7.5' U.S. Geological Survey (USGS) quadrangles in Township 11 South, Range 3 West, Section 5 San Bernardino Baseline and Meridian, San Diego County, California. See enclosed Figure 1 and Figure 2 for the project location.

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Contact Information

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Ryan Morgan, Capital Facilities Senior Engineer
Vallecitos Water District
201 Vallecitos de Oro
San Marcos, CA 92069
(760) 744-0460
rmorgan@vwd.org

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Ryan Morgan, P.E.
Capital Facilities Senior Engineer
Vallecitos Water District

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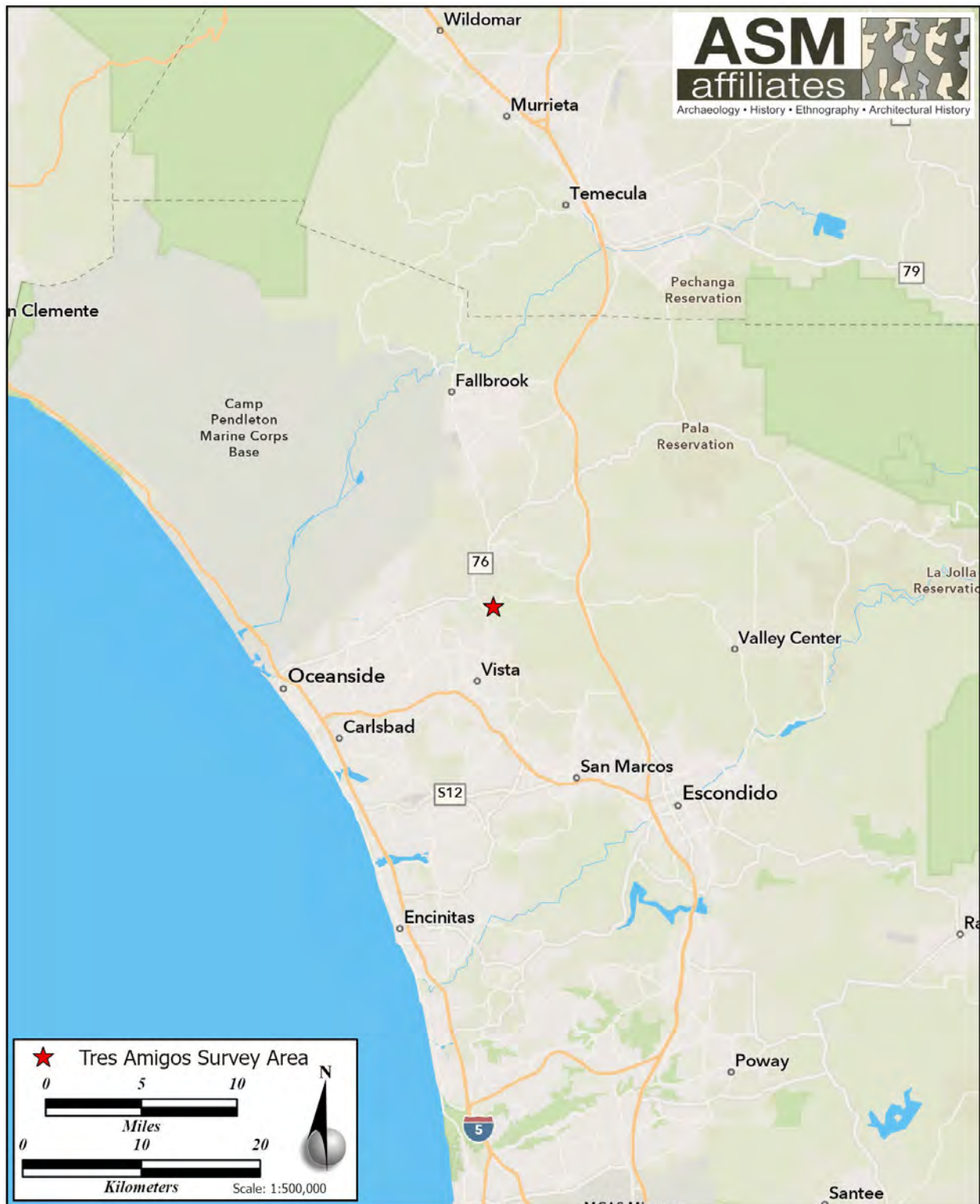


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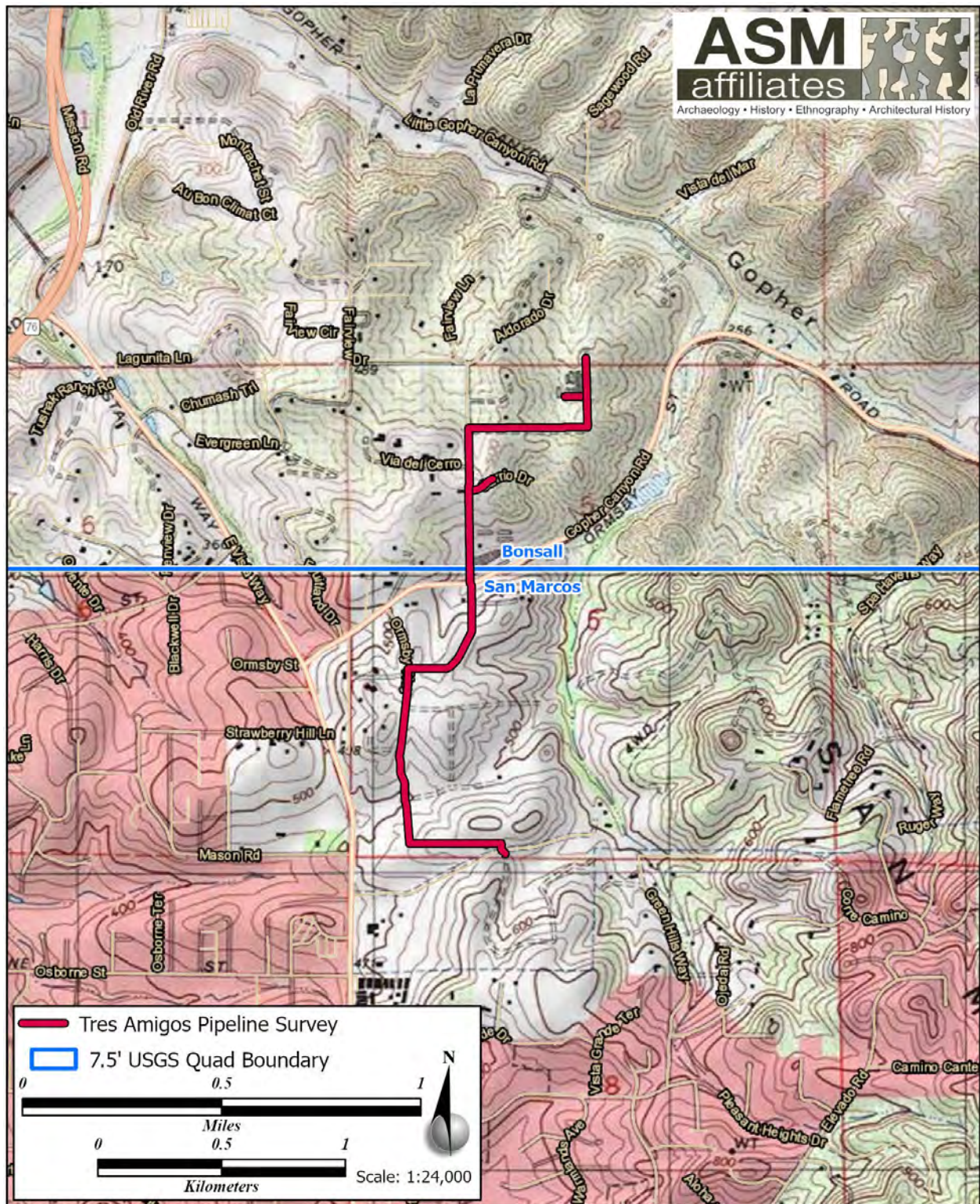


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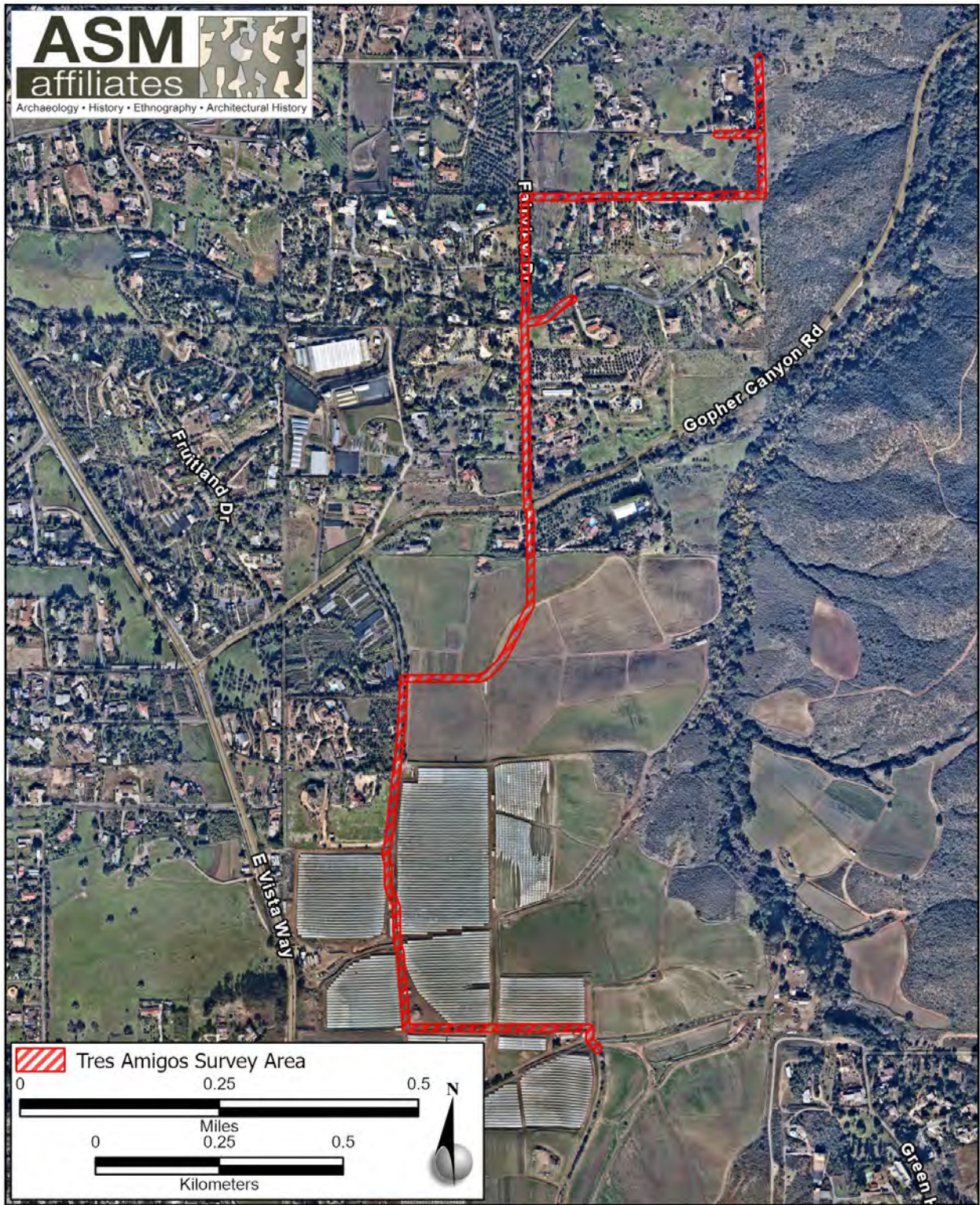
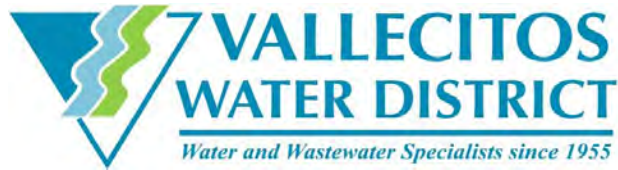


Figure 3. Project site map.

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201 Vallecitos De Oro • San Marcos, California 92069-1453 • Telephone 760-744-0460

October 3, 2023

Via Certified Mail

Pechanga Band of Indians
Mr. Paul Macarro
Cultural Resources Coordinator
P.O. Box 1477
Temecula, CA 92593

Subject: Notification of the Tres-Amigos Water Line Replacement Project - Phase I Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (Assembly Bill 52)

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Ryan Morgan, Capital Facilities Senior Engineer
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201 Vallecitos de Oro
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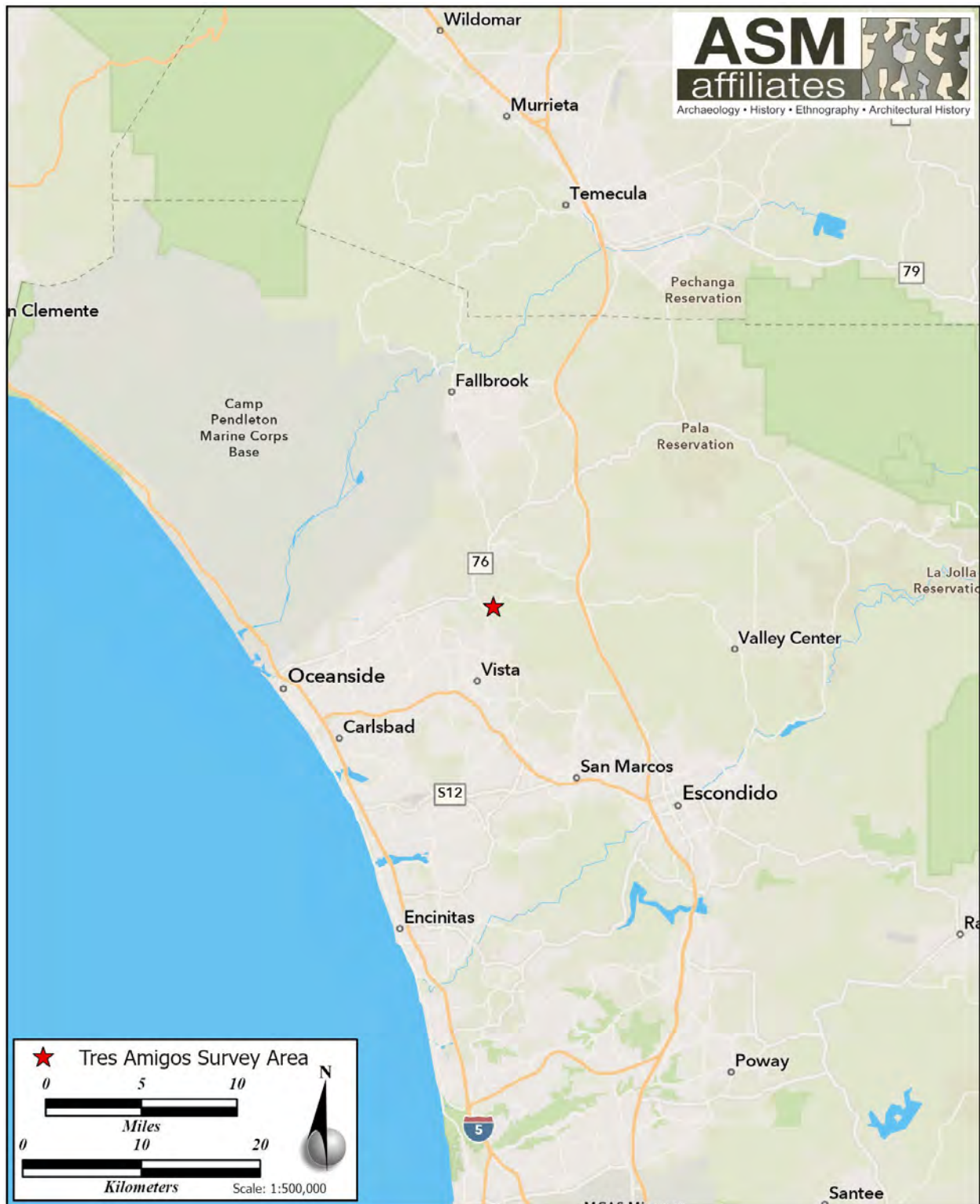


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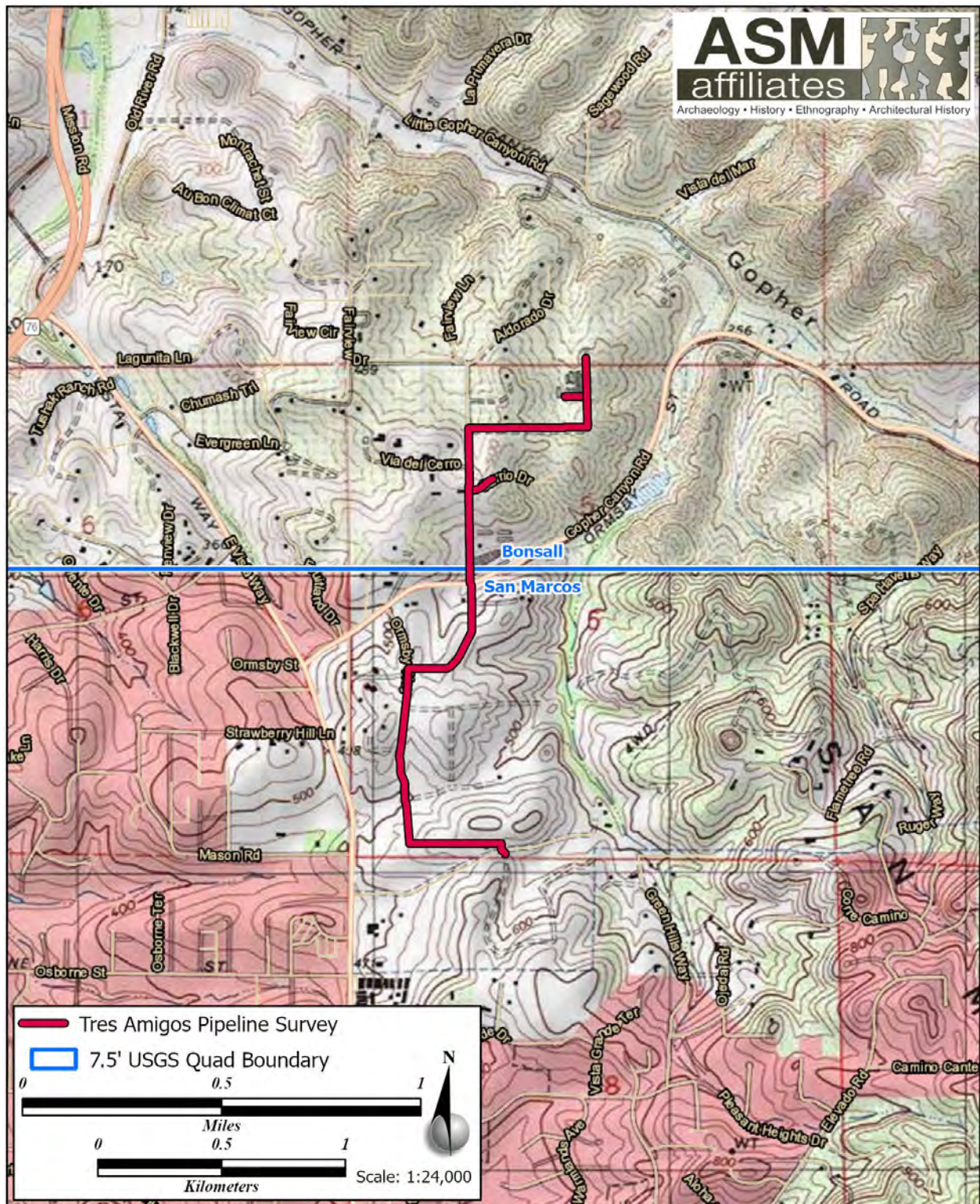


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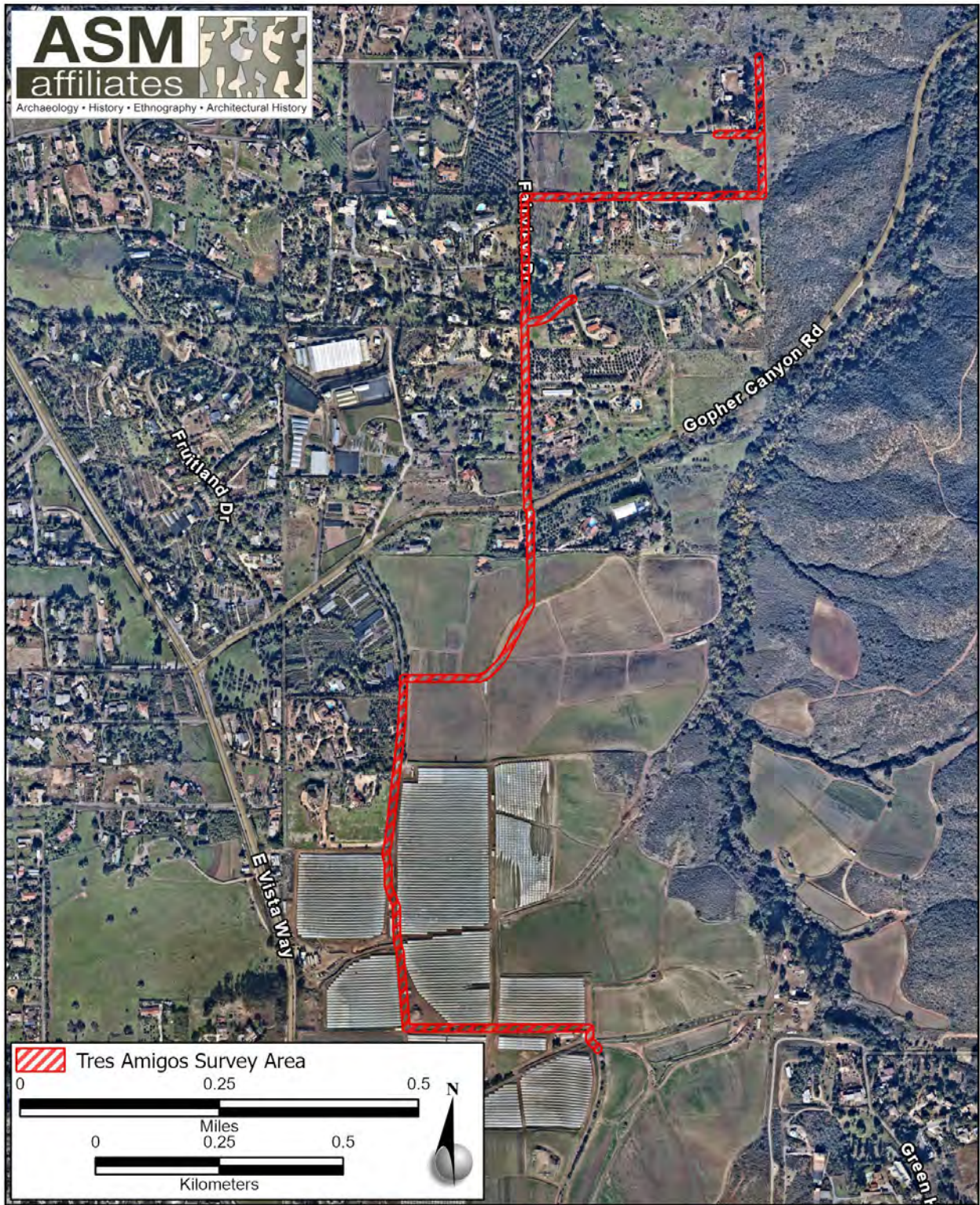
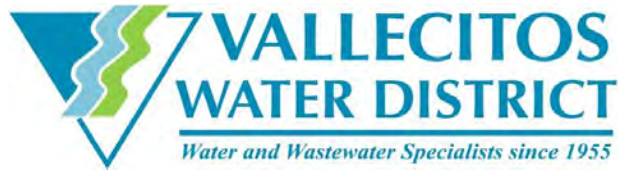


Figure 3. Project site map.

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201 Vallecitos De Oro • San Marcos, California 92069-1453 • Telephone 760-744-0460

October 3, 2023

Via Certified Mail

Mesa Grande Band of Diegueno Mission Indians
Mr. Michael Linton
Chairperson
P.O. Box 270
Santa Ysabel, CA 92070

Subject: Notification of the Tres-Amigos Water Line Replacement Project - Phase I Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (Assembly Bill 52)

Dear Mr. Linton:

This letter is formal notification of the Vallecitos Water District's (VWD) proposed Tres-Amigos Water Line Replacement Project - Phase I (Project), which is subject to compliance with the California Environmental Quality Act (CEQA). VWD is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (Assembly Bill [AB] 52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB 52, the Mesa Grande Band of Diegueno Mission Indians has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 10, 2023, and shall provide the name of the Tribe's designated lead contact person.

Project Location

The Project is located on the Bonsall and San Marcos 7.5' U.S. Geological Survey (USGS) quadrangles in Township 11 South, Range 3 West, Section 5 San Bernardino Baseline and Meridian, San Diego County, California. See enclosed Figure 1 and Figure 2 for the project location.

Project Description

The VWD Tres Amigos Waterline comprises approximately 19,000 feet of pipelines ranging from 6-inch to 12-inch diameter. The water pipelines located in the northern limits of the VWD boundary were installed in the 1950s and 1960s, extending from the North Twin Oaks Tank No. 2 in Pleasant Heights Drive to north of Carrio Drive. The original Tres Amigos Line Extension Project occurred in 1958, which installed 6-inch and 8-inch diameter tar-wrapped 12-14-gauge steel pipelines. This material is considered a steam pipeline and is inadequate for pressurized water distribution systems.

Due to the frequency of pipeline ruptures, this Project will replace approximately 12,000 feet of the Tres Amigos water pipelines beginning south of Green Hills Way, traveling northbound in VWD easements and in Ormsby Way. The pipeline corridor veers east in an existing VWD easement from Ormsby Way, travels northbound in alignment with Fairview Drive, and crosses Gopher Canyon Road, continuing northbound in Fairview Drive. North of the Carrio Drive / Fairview Drive intersection, the pipeline travels northeast in VWD easements through private properties to a dead-end at VWD's northern boundary (end of the Project). A key Project objective includes relocating the existing pipelines out of private backyards and into more accessible areas.

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Temporary work areas are generally within existing roadways or areas immediately adjacent to existing roads, and would be used for construction traffic, detours, and laydown of materials, temporary soil stockpiles, and equipment staging.

Contact Information

The Vallecitos Water District lead contact for AB 52 Consultation on this project is:

Ryan Morgan, Capital Facilities Senior Engineer
Vallecitos Water District
201 Vallecitos de Oro
San Marcos, CA 92069
(760) 744-0460
rmorgan@vwd.org

If the Mesa Grande Band of Diegueno Mission Indians wishes to consult with the Vallecitos Water District regarding the Tres-Amigos Water Line Replacement Project – Phase I, please indicate in writing via letter addressed to the lead contact at the address provided above by November 10, 2023 and provide the name of the Tribe's designated lead contact person.

Sincerely,



Ryan Morgan, P.E.
Capital Facilities Senior Engineer
Vallecitos Water District

Enclosures:

- Figure 1. Vicinity Map
- Figure 2. Location Map
- Figure 3. Project Site Map

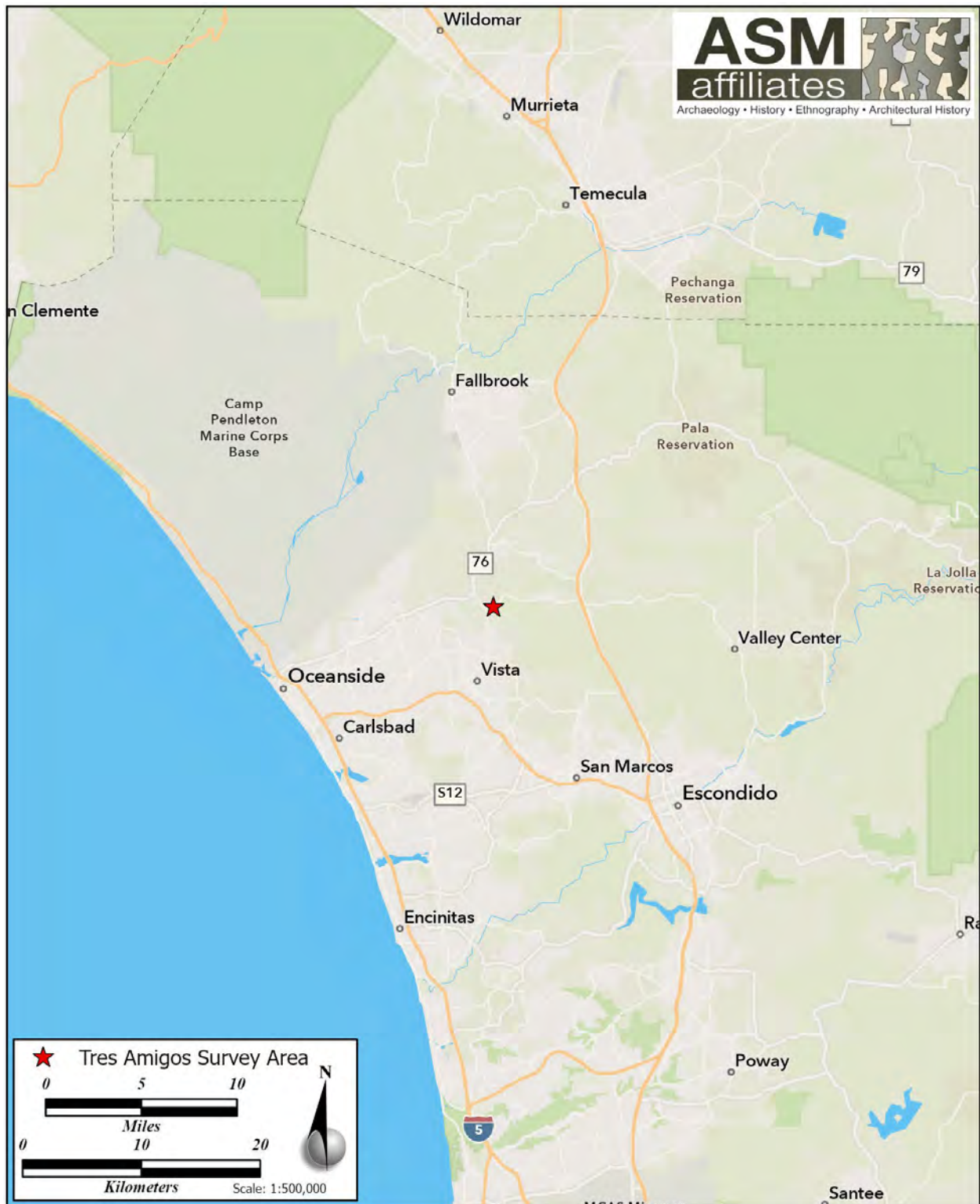


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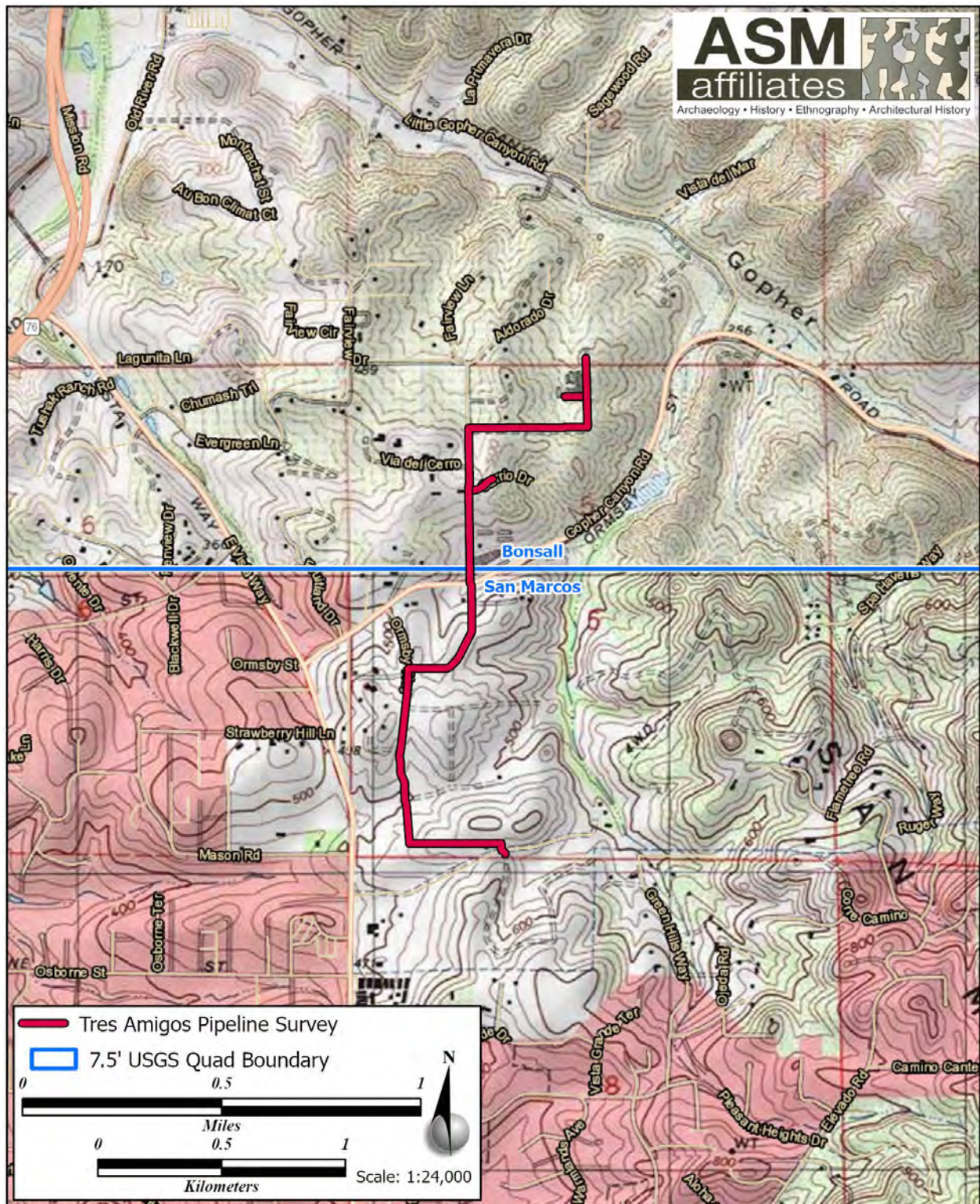


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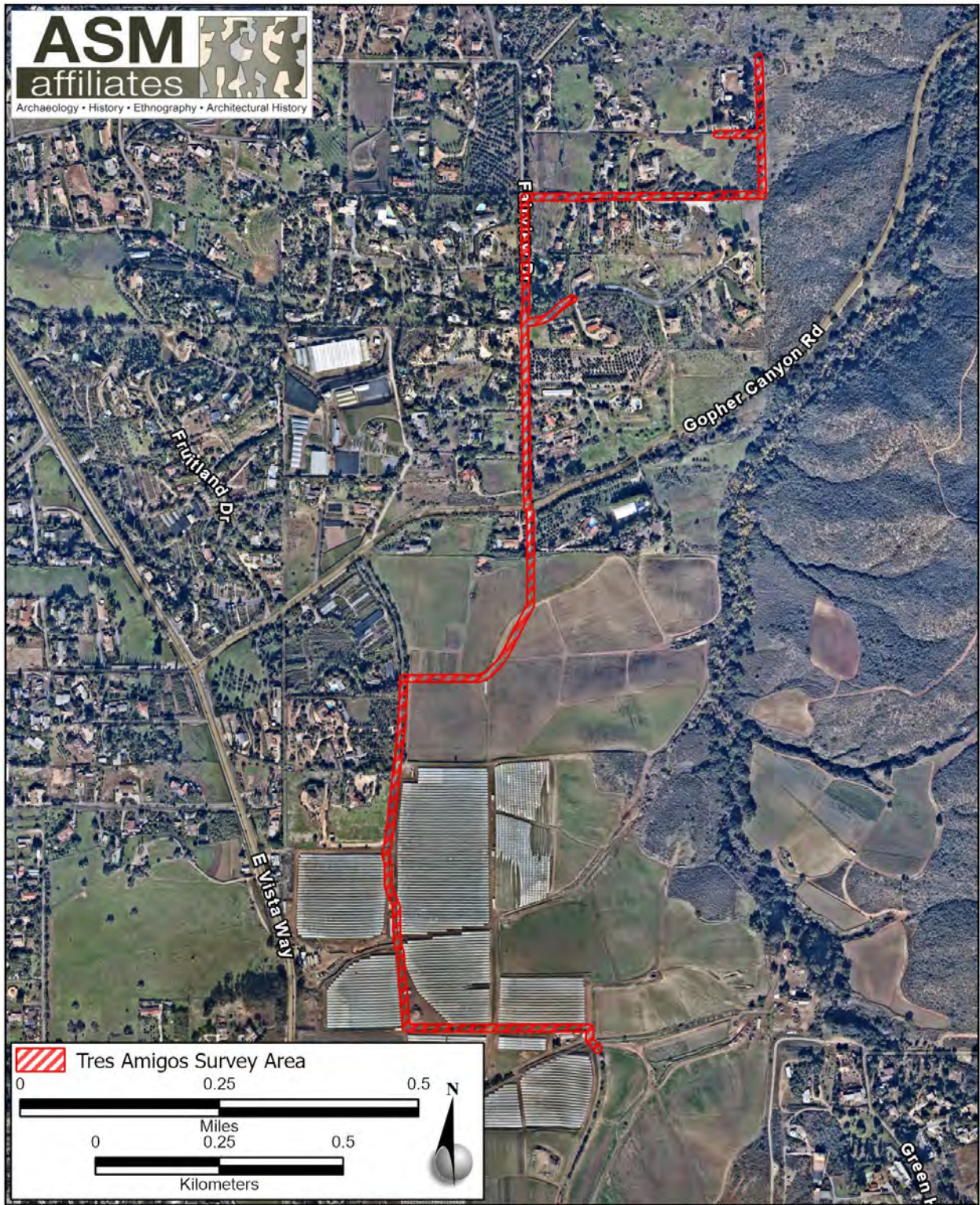
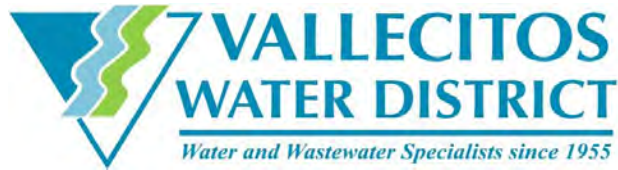


Figure 3. Project site map.

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201 Vallecitos De Oro • San Marcos, California 92069-1453 • Telephone 760-744-0460

October 3, 2023

Via Certified Mail

Rincon Band of Luiseno Indians
Ms. Cheryl Madrigal
Tribal Historic Preservation Officer
One Government Center Lane
Valley Center, CA 92082

Subject: Notification of the Tres-Amigos Water Line Replacement Project - Phase I Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (Assembly Bill 52)

Dear Ms. Madrigal:

This letter is formal notification of the Vallecitos Water District's (VWD) proposed Tres-Amigos Water Line Replacement Project - Phase I (Project), which is subject to compliance with the California Environmental Quality Act (CEQA). VWD is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (Assembly Bill [AB] 52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB 52, the Rincon Band of Luiseno Indians has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 10, 2023, and shall provide the name of the Tribe's designated lead contact person.

Project Location

The Project is located on the Bonsall and San Marcos 7.5' U.S. Geological Survey (USGS) quadrangles in Township 11 South, Range 3 West, Section 5 San Bernardino Baseline and Meridian, San Diego County, California. See enclosed Figure 1 and Figure 2 for the project location.

Project Description

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Contact Information

The Vallecitos Water District lead contact for AB 52 Consultation on this project is:

Ryan Morgan, Capital Facilities Senior Engineer
Vallecitos Water District
201 Vallecitos de Oro
San Marcos, CA 92069
(760) 744-0460
rmorgan@vwd.org

If the Rincon Band of Luiseno Indians wishes to consult with the Vallecitos Water District regarding the Tres-Amigos Water Line Replacement Project – Phase I, please indicate in writing via letter addressed to the lead contact at the address provided above by November 10, 2023 and provide the name of the Tribe's designated lead contact person.

Sincerely,



Ryan Morgan, P.E.
Capital Facilities Senior Engineer
Vallecitos Water District

Enclosures:

- Figure 1. Vicinity Map
- Figure 2. Location Map
- Figure 3. Project Site Map



Figure 1. Project vicinity map.

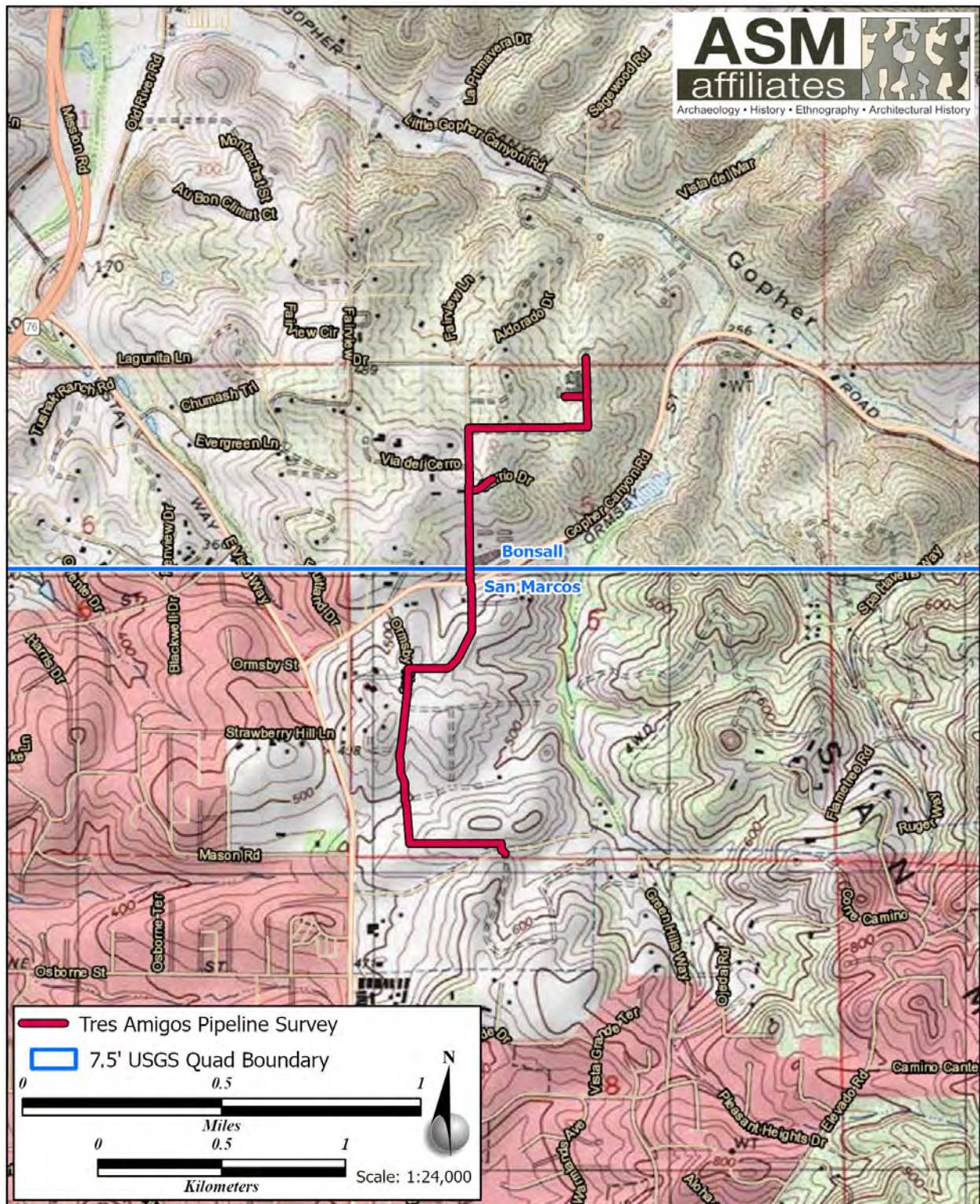


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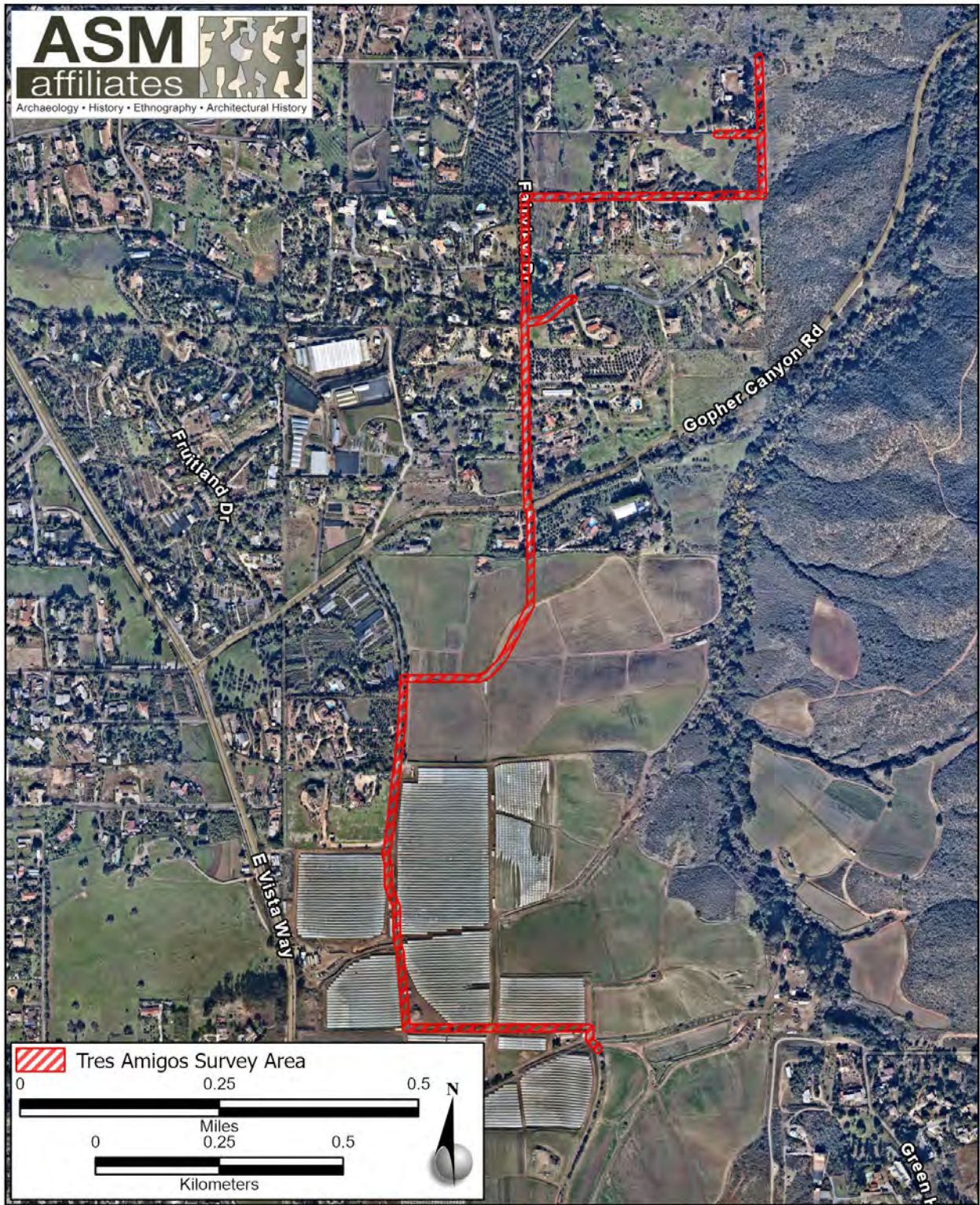
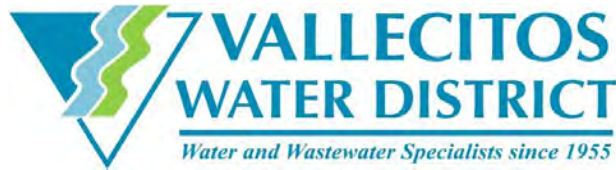


Figure 3. Project site map.

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201 Vallecitos De Oro • San Marcos, California 92069-1453 • Telephone 760-744-0460

October 3, 2023

Via Certified Mail

Pala Band of Mission Indians
Shasta Gaughen
Tribal Historic Preservation Officer
PMB 50, 35008 Pala Temecula Rd.
Pala, CA 92059

Subject: Notification of the Tres-Amigos Water Line Replacement Project - Phase I Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (Assembly Bill 52)

Dear Gaughen:

This letter is formal notification of the Vallecitos Water District's (VWD) proposed Tres-Amigos Water Line Replacement Project - Phase I (Project), which is subject to compliance with the California Environmental Quality Act (CEQA). VWD is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (Assembly Bill [AB] 52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB 52, the Pala Band of Mission Indians has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 10, 2023, and shall provide the name of the Tribe's designated lead contact person.

Project Location

The Project is located on the Bonsall and San Marcos 7.5' U.S. Geological Survey (USGS) quadrangles in Township 11 South, Range 3 West, Section 5 San Bernardino Baseline and Meridian, San Diego County, California. See enclosed Figure 1 and Figure 2 for the project location.

Project Description

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Contact Information

The Vallecitos Water District lead contact for AB 52 Consultation on this project is:

Ryan Morgan, Capital Facilities Senior Engineer
Vallecitos Water District
201 Vallecitos de Oro
San Marcos, CA 92069
(760) 744-0460
rmorgan@vwd.org

If the Pala Band of Mission Indians wishes to consult with the Vallecitos Water District regarding the Tres-Amigos Water Line Replacement Project – Phase I, please indicate in writing via letter addressed to the lead contact at the address provided above by November 10, 2023 and provide the name of the Tribe's designated lead contact person.

Sincerely,



Ryan Morgan, P.E.
Capital Facilities Senior Engineer
Vallecitos Water District

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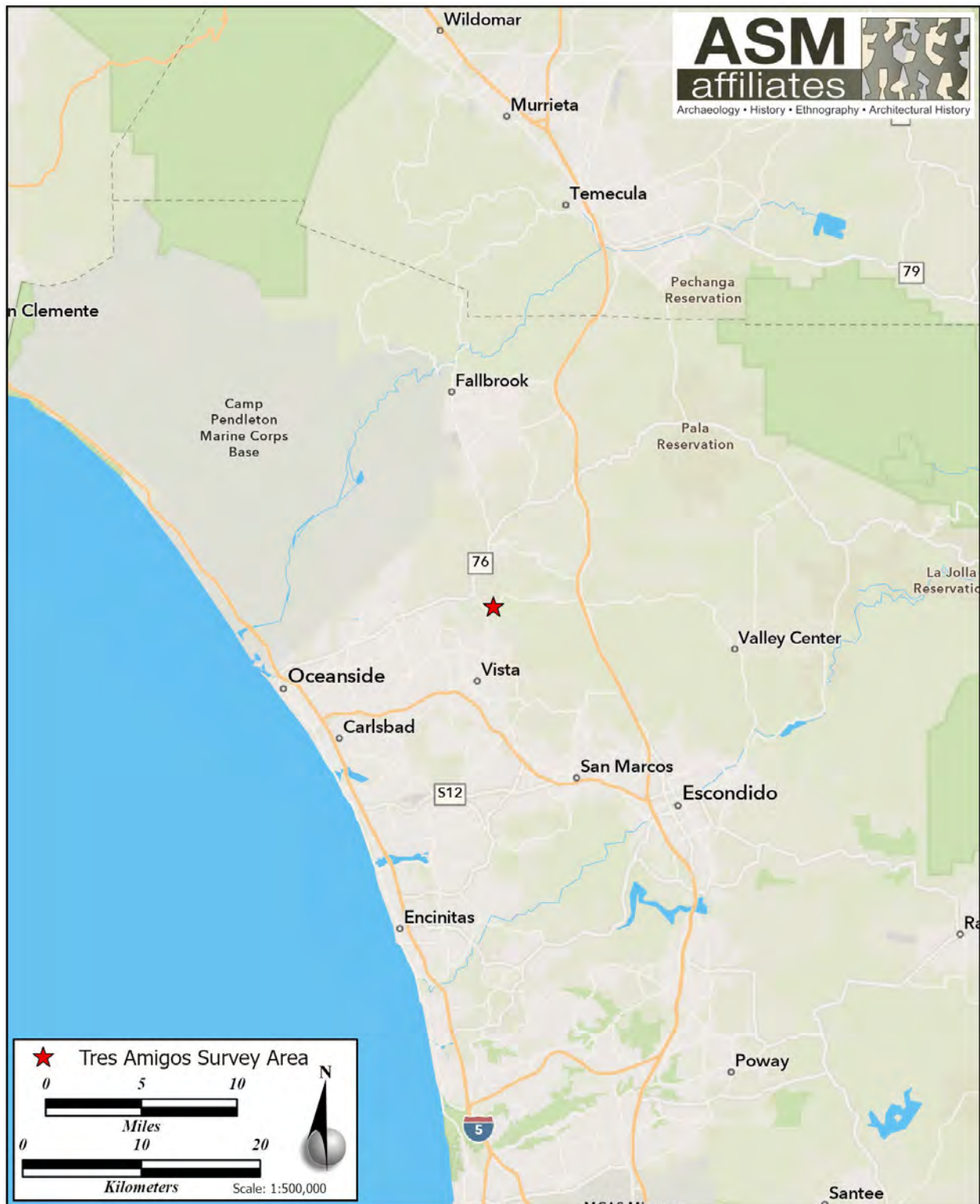


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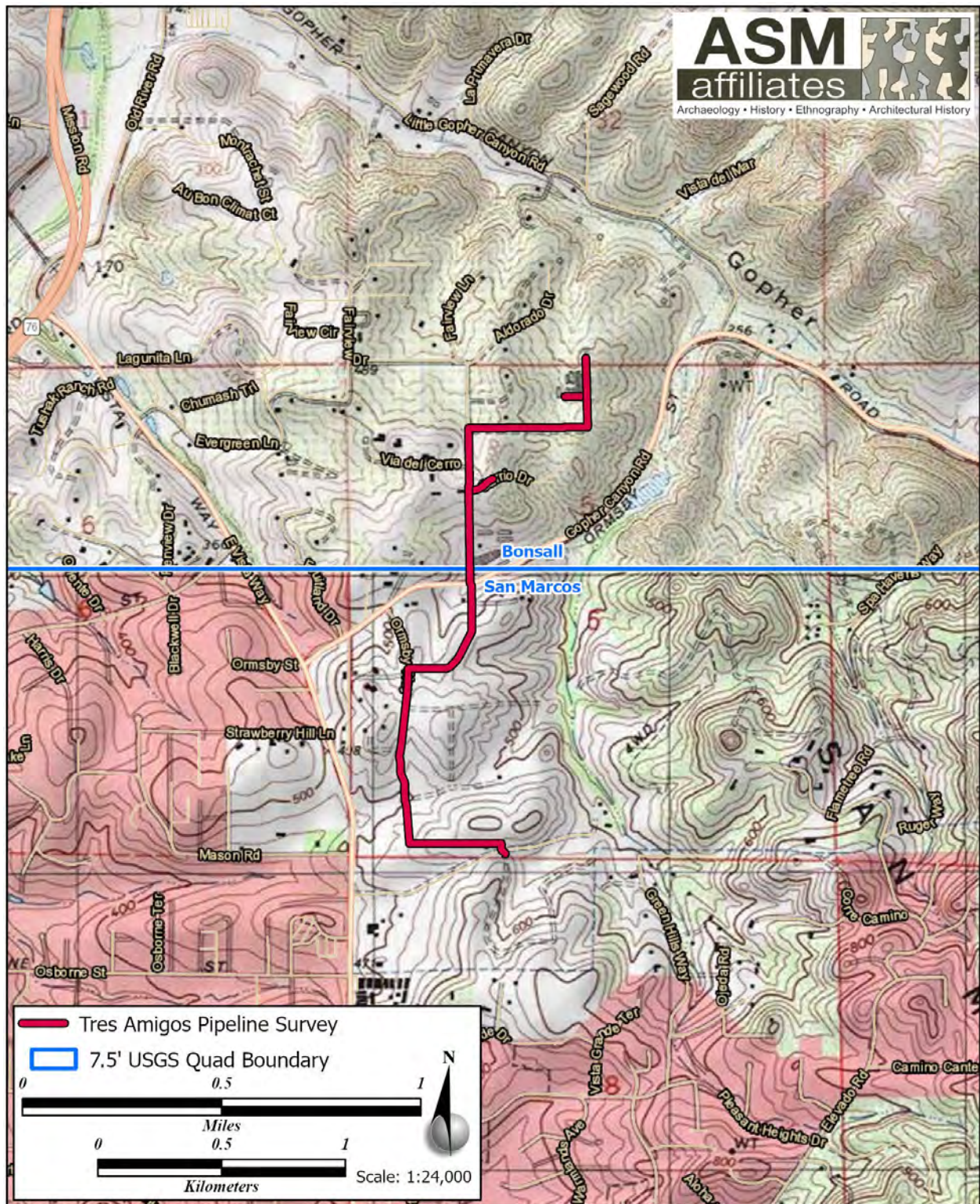


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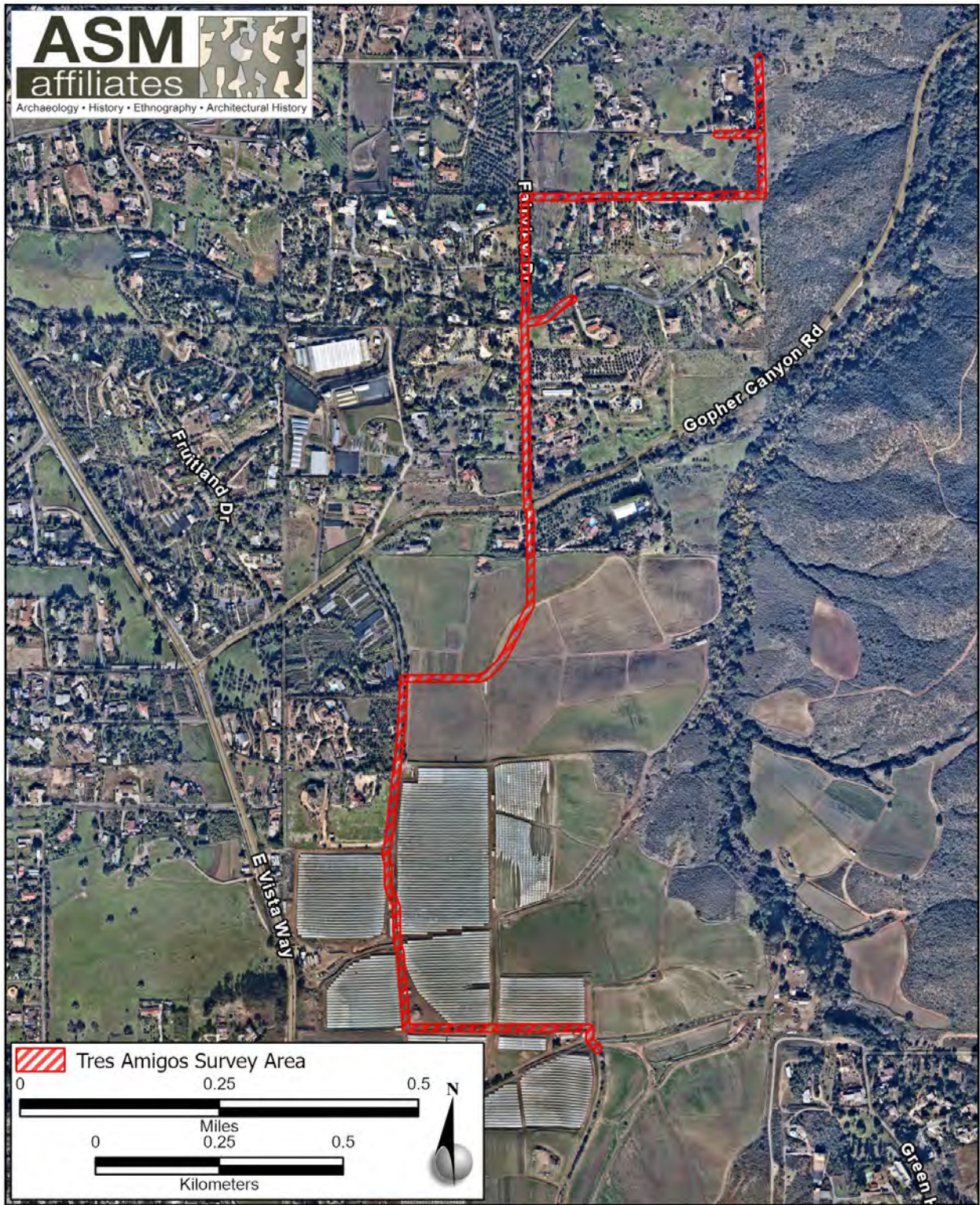
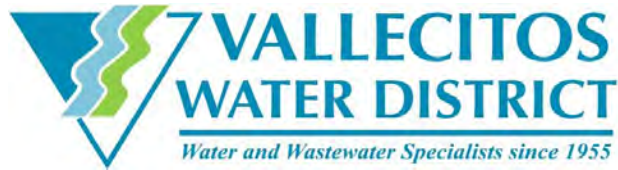


Figure 3. Project site map.

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201 Vallecitos De Oro • San Marcos, California 92069-1453 • Telephone 760-744-0460

October 3, 2023

Via Certified Mail

Rincon Band of Luiseno Indians
Mr. Bo Mazzetti
Chairperson
One Government Center Lane
Valley Center, CA 92082

Subject: Notification of the Tres-Amigos Water Line Replacement Project - Phase I Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (Assembly Bill 52)

Dear Mr. Mazzetti:

This letter is formal notification of the Vallecitos Water District's (VWD) proposed Tres-Amigos Water Line Replacement Project - Phase I (Project), which is subject to compliance with the California Environmental Quality Act (CEQA). VWD is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (Assembly Bill [AB] 52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB 52, the Rincon Band of Luiseno Indians has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 10, 2023, and shall provide the name of the Tribe's designated lead contact person.

Project Location

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Project Description

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Contact Information

The Vallecitos Water District lead contact for AB 52 Consultation on this project is:

Ryan Morgan, Capital Facilities Senior Engineer
Vallecitos Water District
201 Vallecitos de Oro
San Marcos, CA 92069
(760) 744-0460
rmorgan@vwd.org

If the Rincon Band of Luiseno Indians wishes to consult with the Vallecitos Water District regarding the Tres-Amigos Water Line Replacement Project – Phase I, please indicate in writing via letter addressed to the lead contact at the address provided above by November 10, 2023 and provide the name of the Tribe's designated lead contact person.

Sincerely,



Ryan Morgan, P.E.
Capital Facilities Senior Engineer
Vallecitos Water District

Enclosures:

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- Figure 2. Location Map
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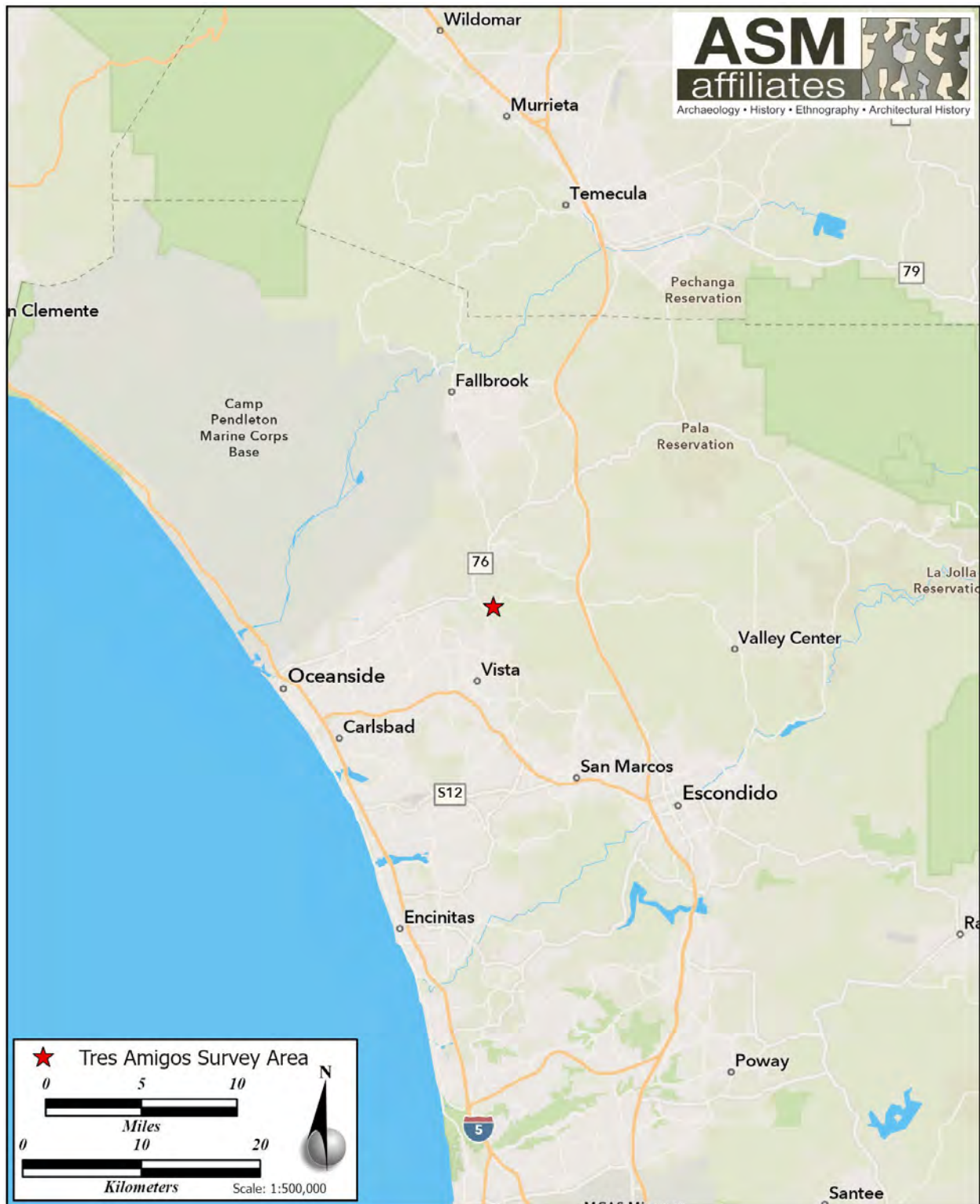


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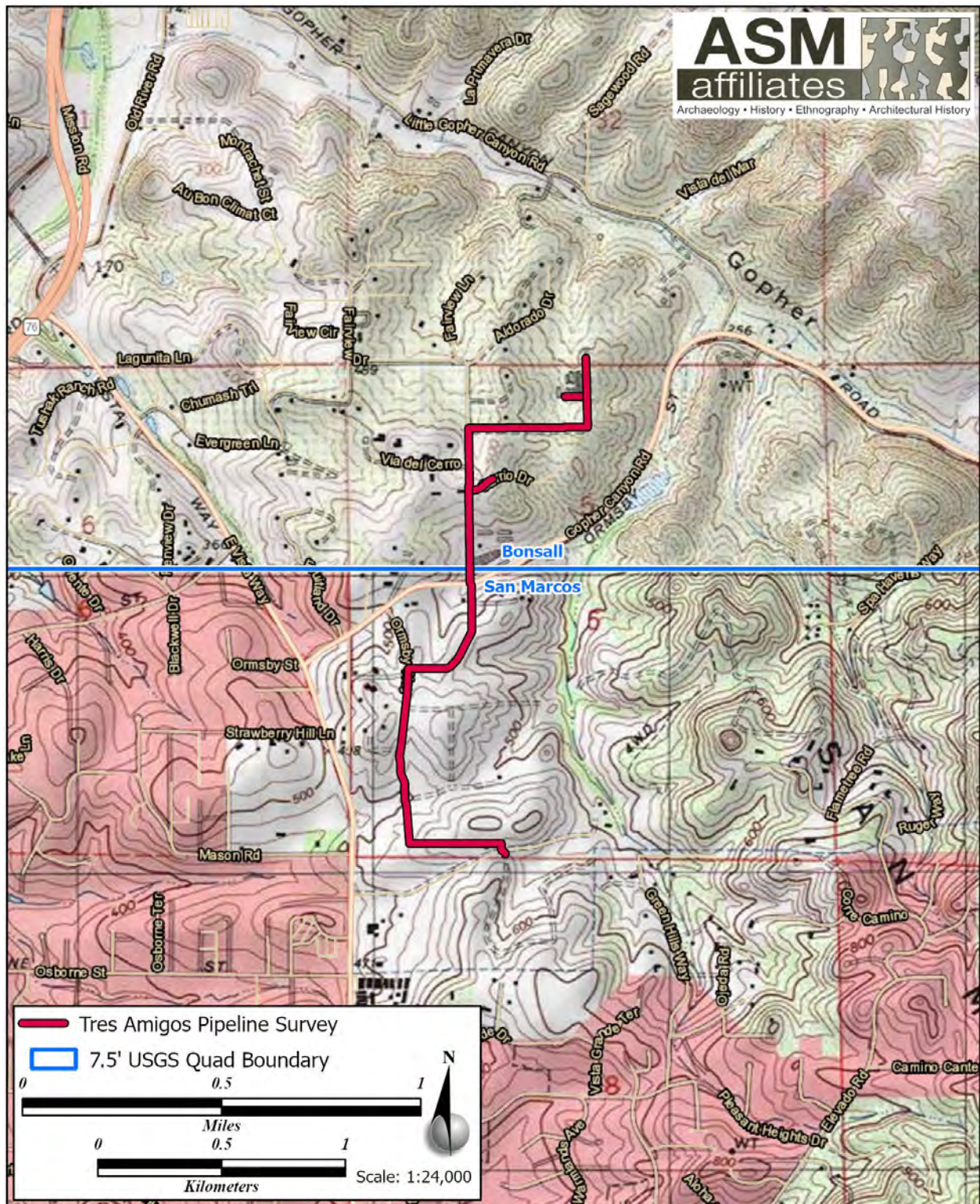


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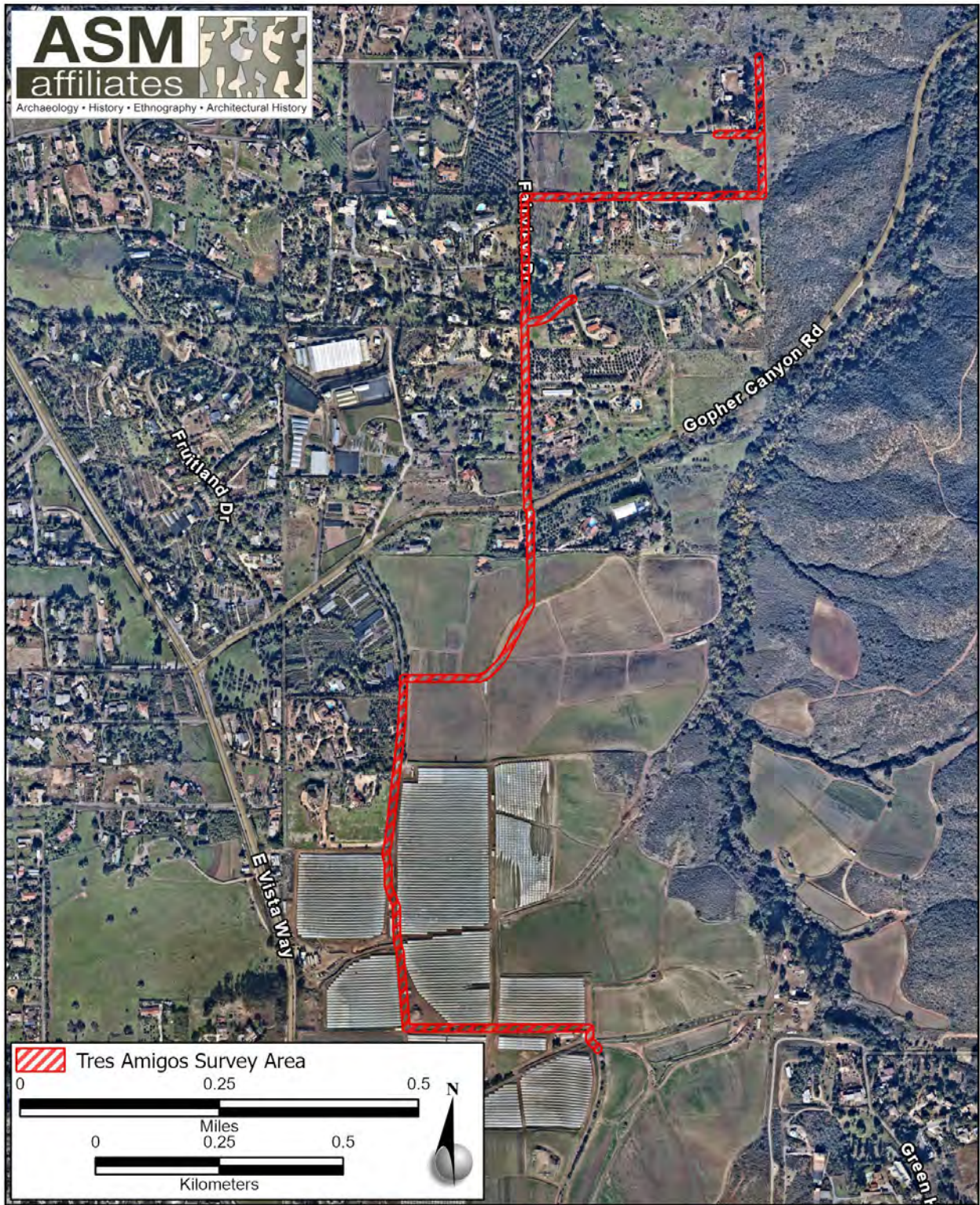
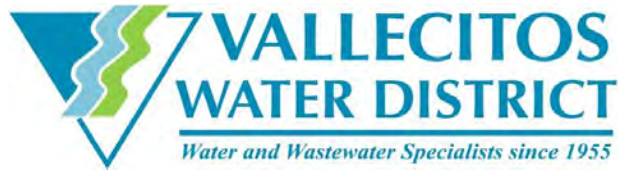


Figure 3. Project site map.

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201 Vallecitos De Oro • San Marcos, California 92069-1453 • Telephone 760-744-0460

October 3, 2023

Via Certified Mail

Pauma Band of Luiseno Indians
Mr. Temet Aguilar
Chairperson
P.O. Box 369
Pauma Valley, CA 92061

Subject: Notification of the Tres-Amigos Water Line Replacement Project - Phase I Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (Assembly Bill 52)

Dear Mr. Aguilar:

This letter is formal notification of the Vallecitos Water District's (VWD) proposed Tres-Amigos Water Line Replacement Project - Phase I (Project), which is subject to compliance with the California Environmental Quality Act (CEQA). VWD is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (Assembly Bill [AB] 52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB 52, the Pauma Band of Luiseno Indians has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 10, 2023, and shall provide the name of the Tribe's designated lead contact person.

Project Location

The Project is located on the Bonsall and San Marcos 7.5' U.S. Geological Survey (USGS) quadrangles in Township 11 South, Range 3 West, Section 5 San Bernardino Baseline and Meridian, San Diego County, California. See enclosed Figure 1 and Figure 2 for the project location.

Project Description

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Contact Information

The Vallecitos Water District lead contact for AB 52 Consultation on this project is:

Ryan Morgan, Capital Facilities Senior Engineer
Vallecitos Water District
201 Vallecitos de Oro
San Marcos, CA 92069
(760) 744-0460
rmorgan@vwd.org

If the Pauma Band of Luiseno Indians wishes to consult with the Vallecitos Water District regarding the Tres-Amigos Water Line Replacement Project – Phase I, please indicate in writing via letter addressed to the lead contact at the address provided above by November 10, 2023 and provide the name of the Tribe's designated lead contact person.

Sincerely,



Ryan Morgan, P.E.
Capital Facilities Senior Engineer
Vallecitos Water District

Enclosures:

- Figure 1. Vicinity Map
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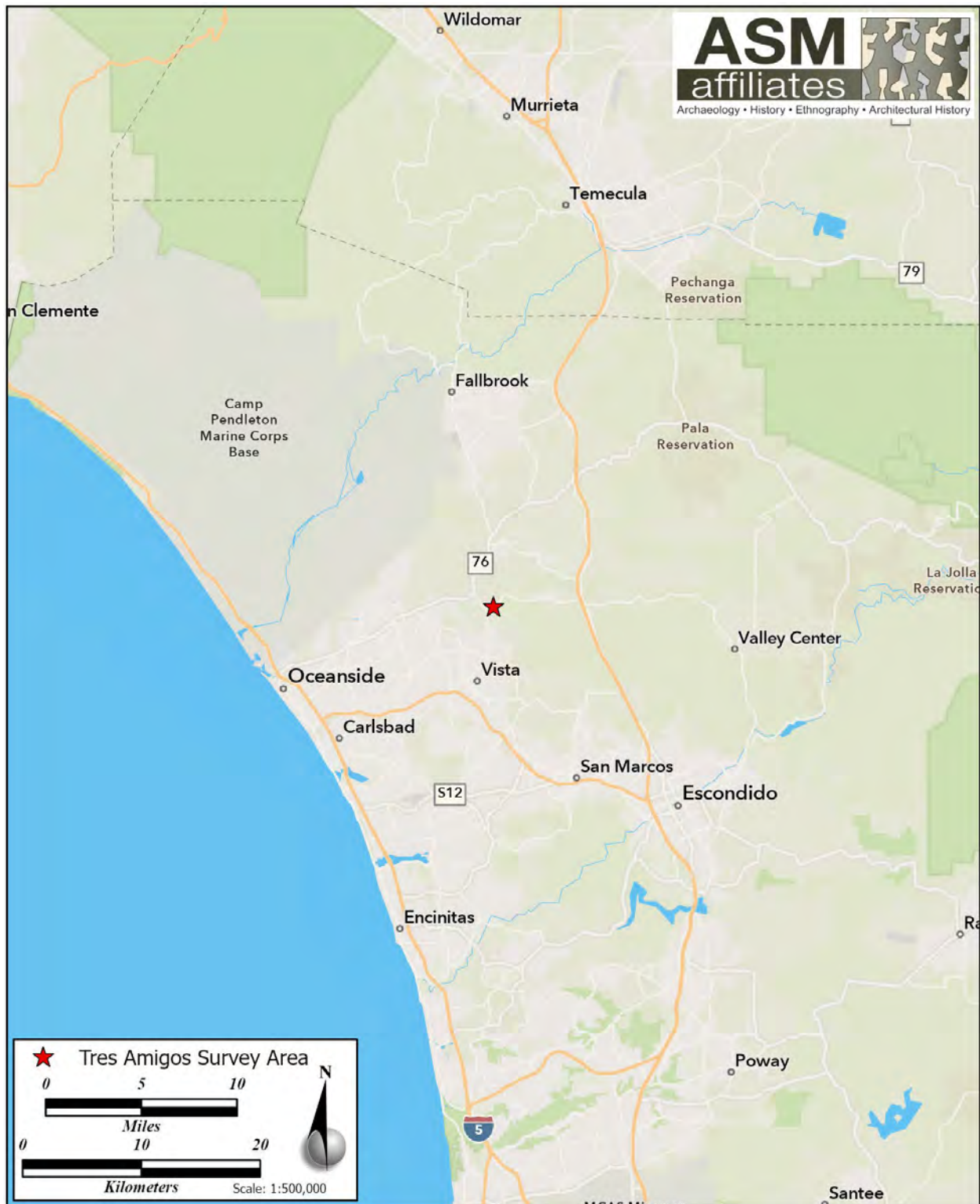


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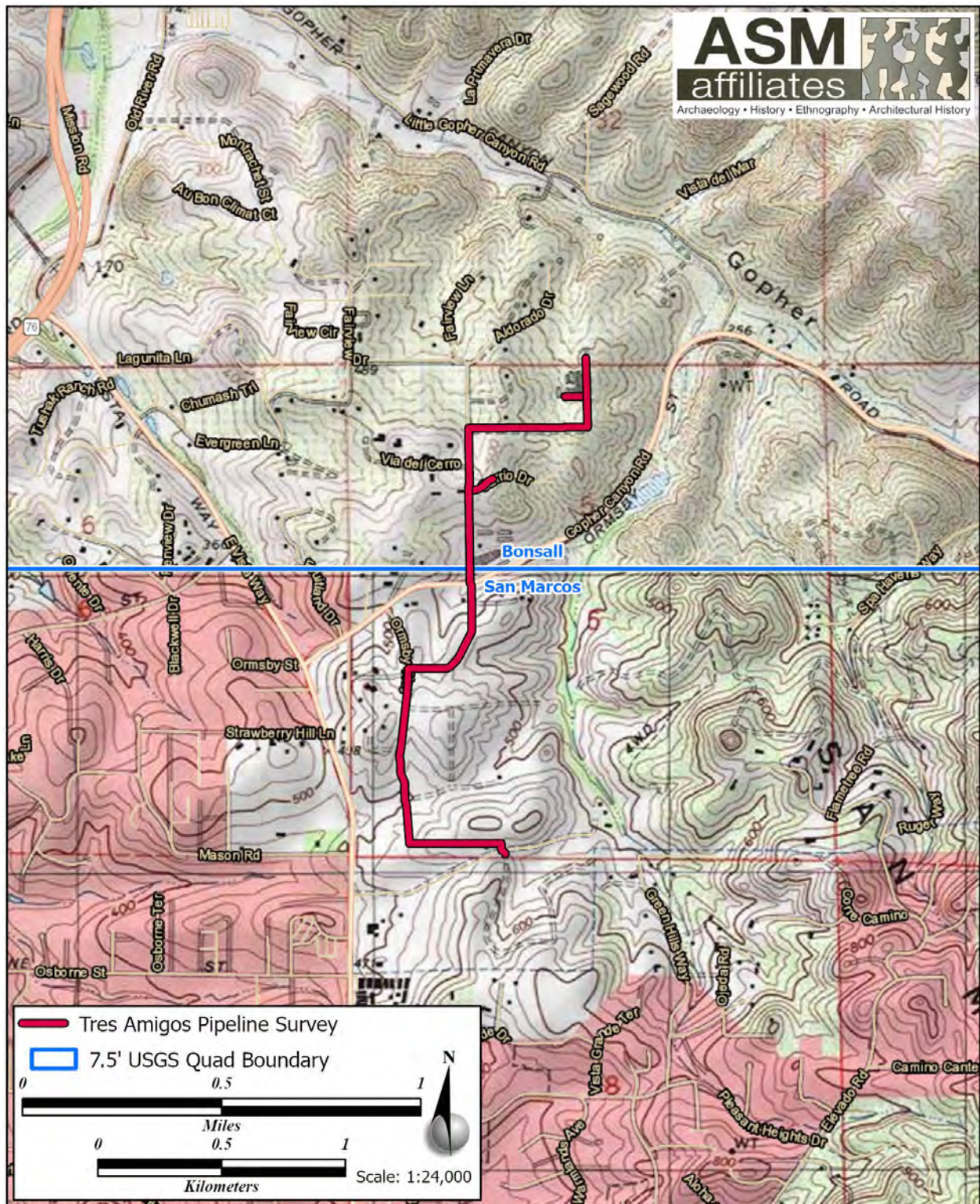


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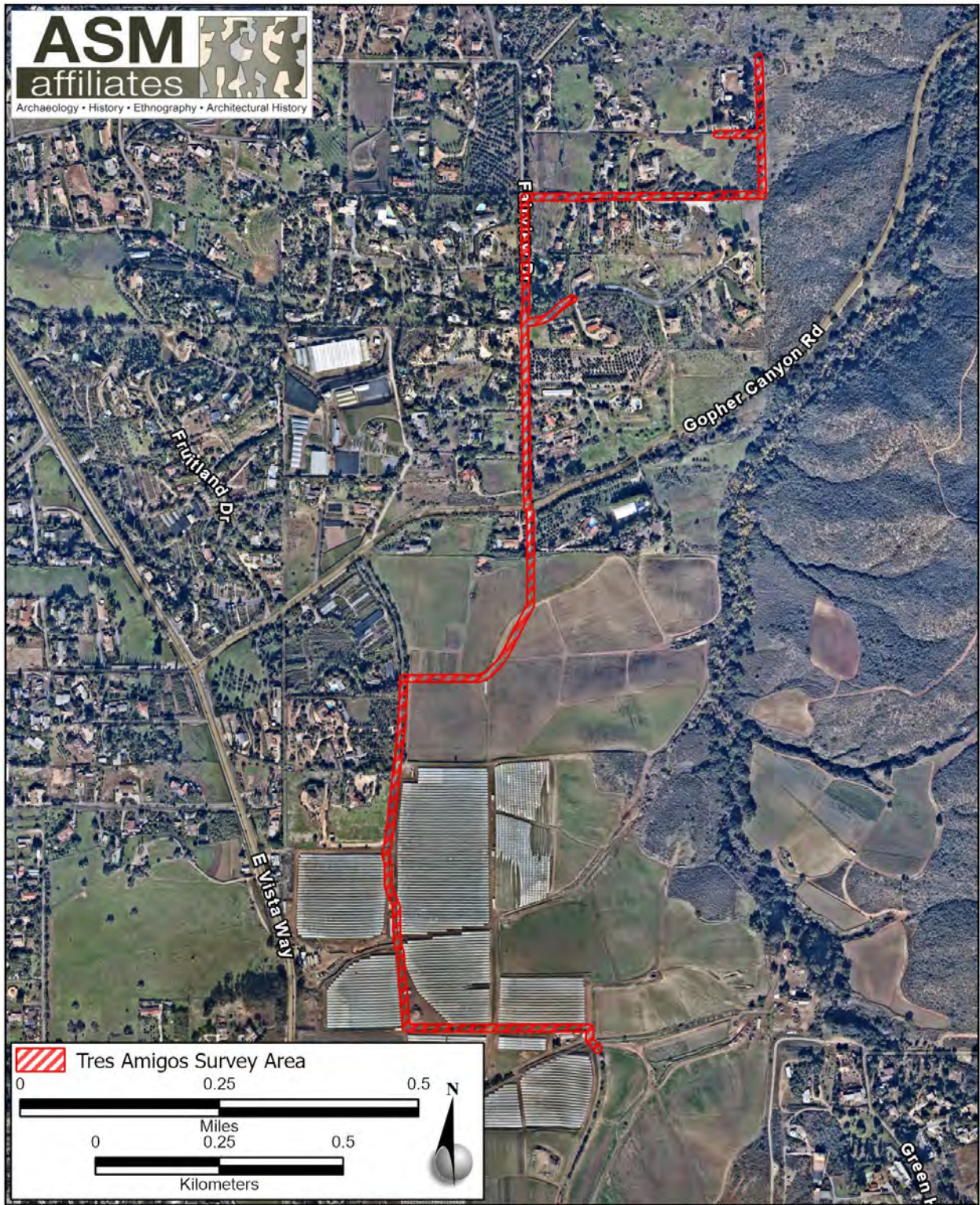
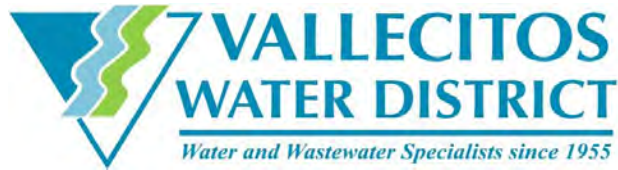


Figure 3. Project site map.

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201 Vallecitos De Oro • San Marcos, California 92069-1453 • Telephone 760-744-0460

October 3, 2023

Via Certified Mail

San Luis Rey Band of Mission Indians
C. Mojado
Chairperson
1889 Sunset Drive
Vista, CA 92081

Subject: Notification of the Tres-Amigos Water Line Replacement Project - Phase I Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (Assembly Bill 52)

Dear Mojado:

This letter is formal notification of the Vallecitos Water District's (VWD) proposed Tres-Amigos Water Line Replacement Project - Phase I (Project), which is subject to compliance with the California Environmental Quality Act (CEQA). VWD is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (Assembly Bill [AB] 52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB 52, the San Luis Rey Band of Mission Indians has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 10, 2023, and shall provide the name of the Tribe's designated lead contact person.

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Vallecitos Water District
201 Vallecitos de Oro
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Vallecitos Water District

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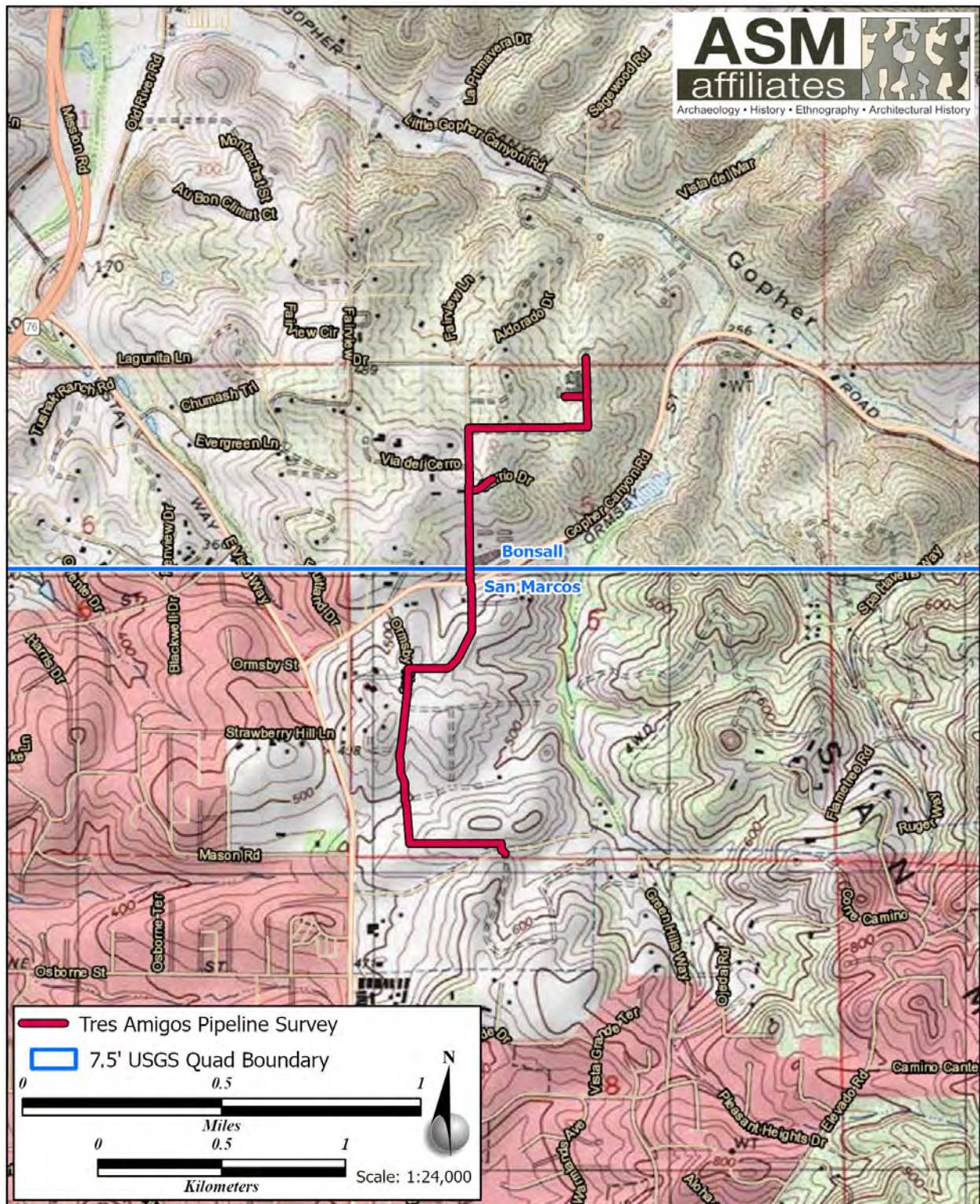


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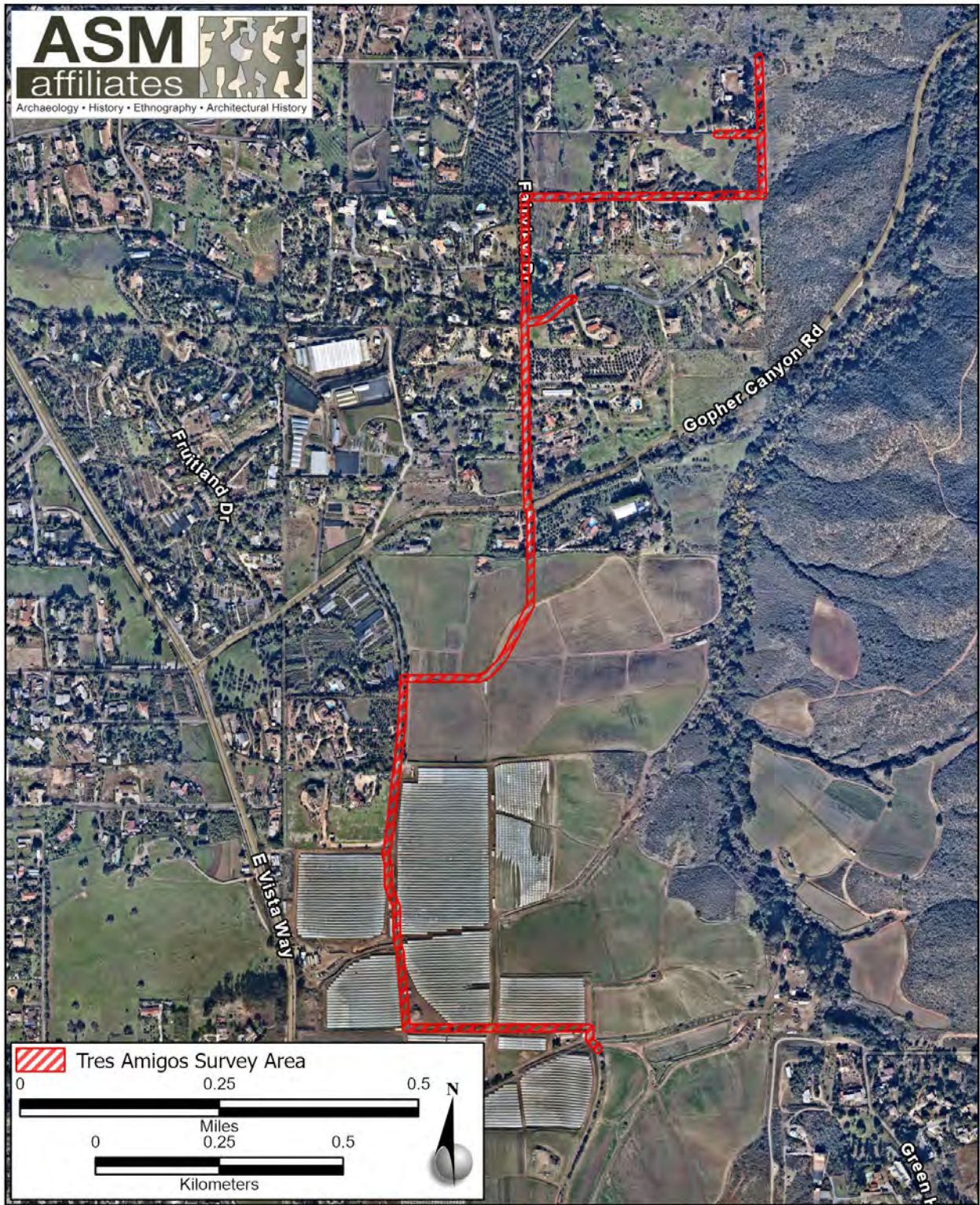
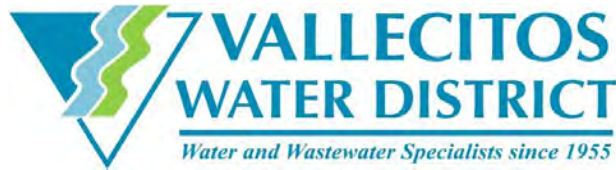


Figure 3. Project site map.

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201 Vallecitos De Oro • San Marcos, California 92069-1453 • Telephone 760-744-0460

October 3, 2023

Via Certified Mail

San Luis Rey Band of Mission Indians
San Luis Rey Tribal Council
1889 Sunset Drive
Vista, CA 92081

Subject: Notification of the Tres-Amigos Water Line Replacement Project - Phase I Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (Assembly Bill 52)

Dear Tribal Council:

This letter is formal notification of the Vallecitos Water District's (VWD) proposed Tres-Amigos Water Line Replacement Project - Phase I (Project), which is subject to compliance with the California Environmental Quality Act (CEQA). VWD is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (Assembly Bill [AB] 52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB 52, the San Luis Rey Band of Mission Indians has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 10, 2023, and shall provide the name of the Tribe's designated lead contact person.

Project Location

The Project is located on the Bonsall and San Marcos 7.5' U.S. Geological Survey (USGS) quadrangles in Township 11 South, Range 3 West, Section 5 San Bernardino Baseline and Meridian, San Diego County, California. See enclosed Figure1 and Figure 2 for the project location.

Project Description

The VWD Tres Amigos Waterline comprises approximately 19,000 feet of pipelines ranging from 6-inch to 12-inch diameter. The water pipelines located in the northern limits of the VWD boundary were installed in the 1950s and 1960s, extending from the North Twin Oaks Tank No. 2 in Pleasant Heights Drive to north of Carrio Drive. The original Tres Amigos Line Extension Project occurred in 1958, which installed 6-inch and 8-inch diameter tar-wrapped 12-14-gauge steel pipelines. This material is considered a steam pipeline and is inadequate for pressurized water distribution systems.

Due to the frequency of pipeline ruptures, this Project will replace approximately 12,000 feet of the Tres Amigos water pipelines beginning south of Green Hills Way, traveling

northbound in VWD easements and in Ormsby Way. The pipeline corridor veers east in an existing VWD easement from Ormsby Way, travels northbound in alignment with Fairview Drive, and crosses Gopher Canyon Road, continuing northbound in Fairview Drive. North of the Carrio Drive / Fairview Drive intersection, the pipeline travels northeast in VWD easements through private properties to a dead-end at VWD's northern boundary (end of the Project). A key Project objective includes relocating the existing pipelines out of private backyards and into more accessible areas.

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Temporary work areas are generally within existing roadways or areas immediately adjacent to existing roads, and would be used for construction traffic, detours, and laydown of materials, temporary soil stockpiles, and equipment staging.

Contact Information

The Vallecitos Water District lead contact for AB 52 Consultation on this project is:

Ryan Morgan, Capital Facilities Senior Engineer
Vallecitos Water District
201 Vallecitos de Oro
San Marcos, CA 92069
(760) 744-0460
rmorgan@vwd.org

If the San Luis Rey Band of Mission Indians wishes to consult with the Vallecitos Water District regarding the Tres-Amigos Water Line Replacement Project – Phase I, please indicate in writing via letter addressed to the lead contact at the address provided above by November 10, 2023 and provide the name of the Tribe's designated lead contact person.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ryan Morgan', with a long horizontal line extending to the right.

Ryan Morgan, P.E.
Capital Facilities Senior Engineer
Vallecitos Water District

Enclosures:

- Figure 1. Vicinity Map
- Figure 2. Location Map
- Figure 3. Project Site Map

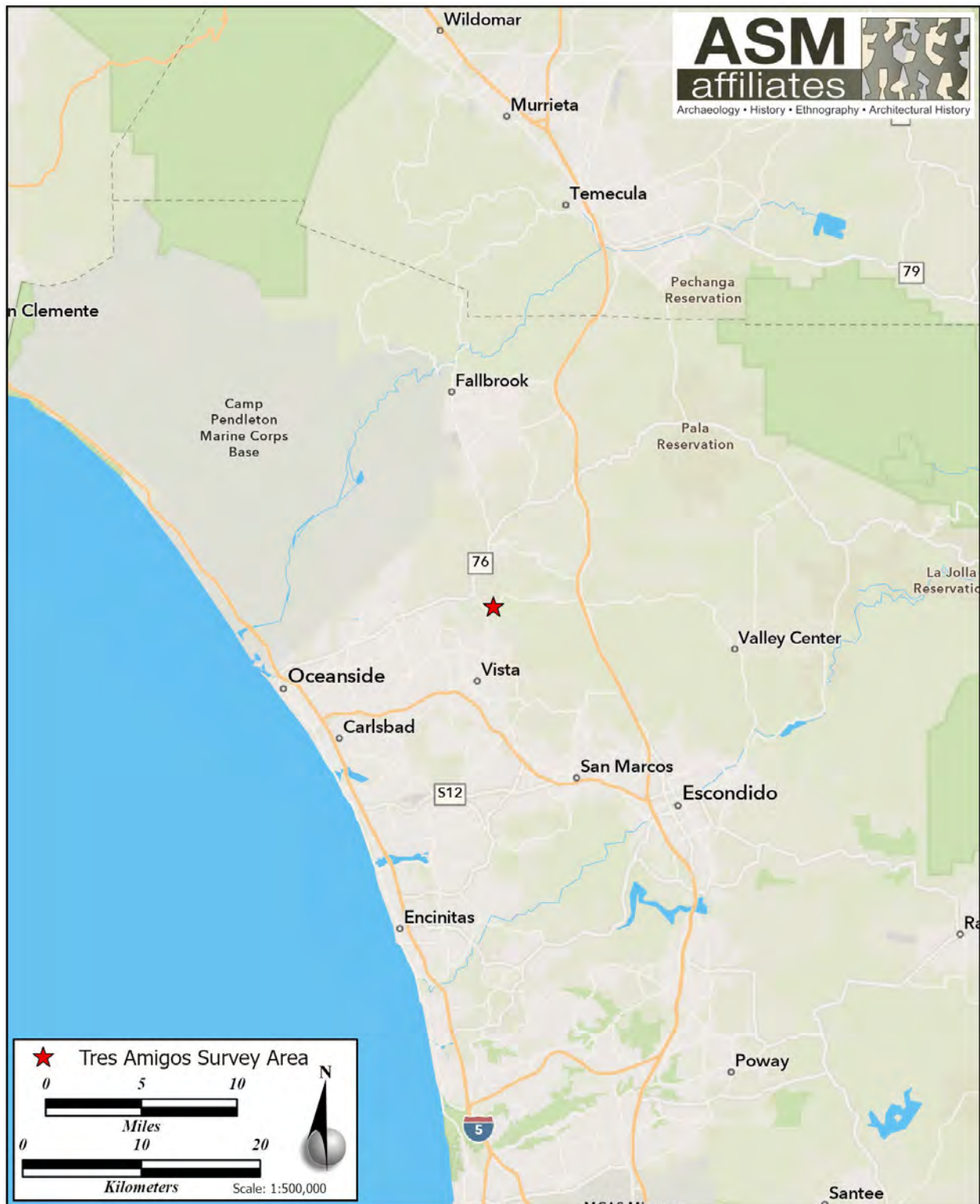


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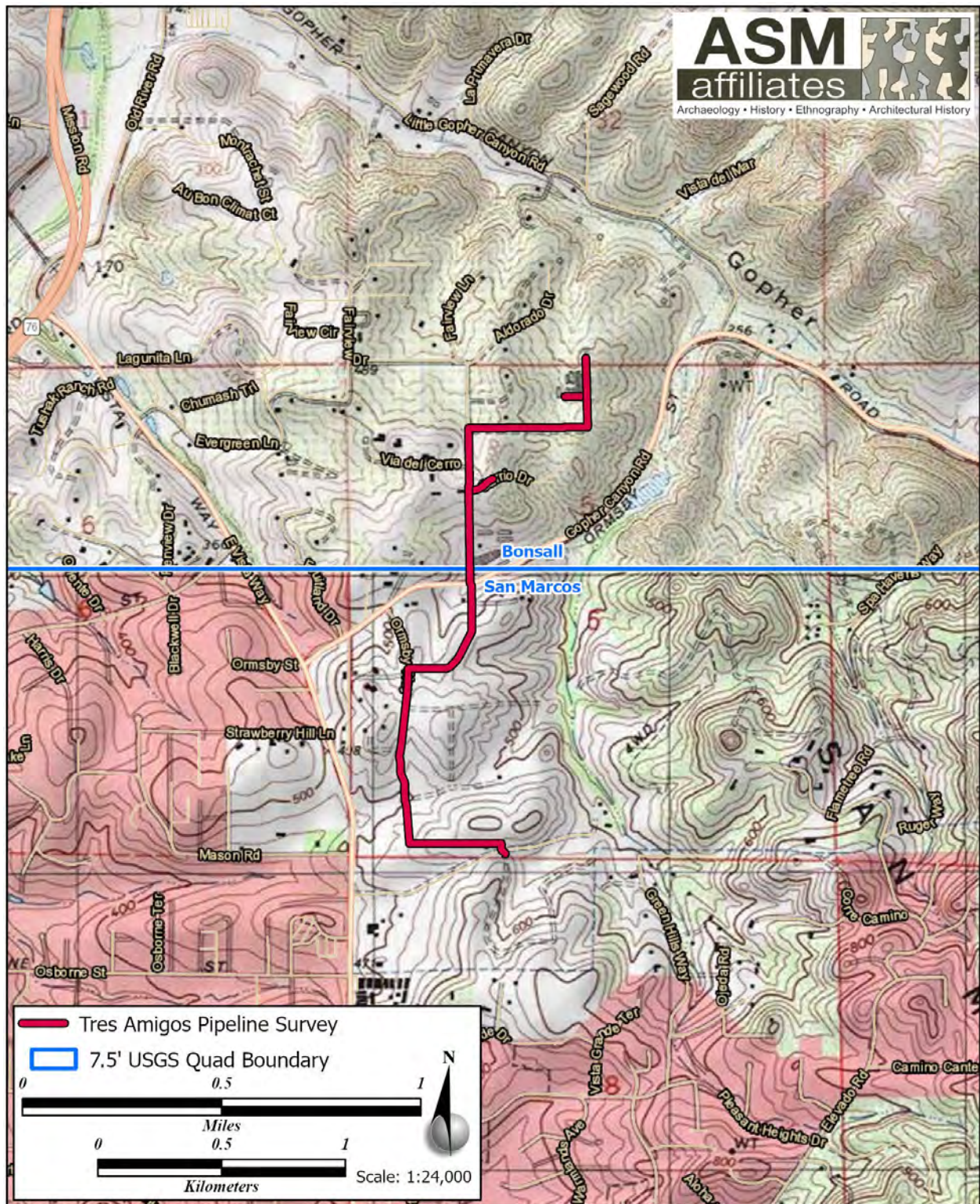


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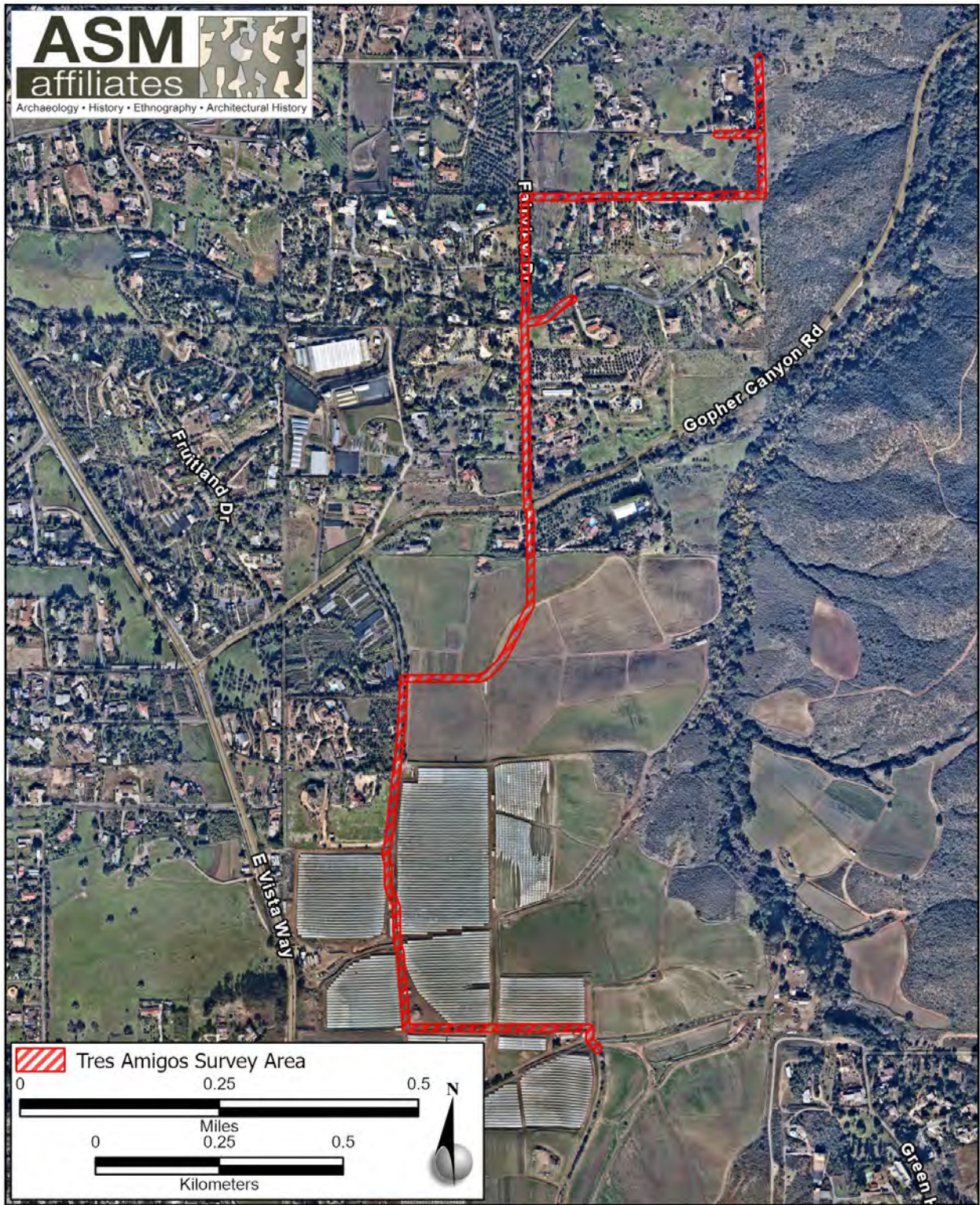
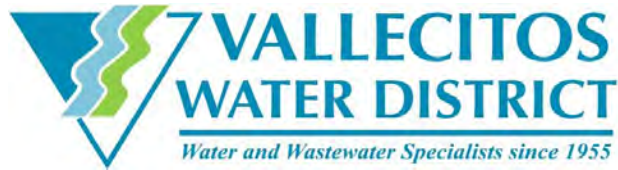


Figure 3. Project site map.

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201 Vallecitos De Oro • San Marcos, California 92069-1453 • Telephone 760-744-0460

October 3, 2023

Via Certified Mail

Soboba Band of Luiseno Indians
Mr. Isaiah Vivanco
Chairperson
P.O. Box 487
San Jacinto, CA 92581

Subject: Notification of the Tres-Amigos Water Line Replacement Project - Phase I Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (Assembly Bill 52)

Dear Mr. Vivanco:

This letter is formal notification of the Vallecitos Water District's (VWD) proposed Tres-Amigos Water Line Replacement Project - Phase I (Project), which is subject to compliance with the California Environmental Quality Act (CEQA). VWD is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (Assembly Bill [AB] 52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB 52, the Soboba Band of Luiseno Indians has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 10, 2023, and shall provide the name of the Tribe's designated lead contact person.

Project Location

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Project Description

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Temporary work areas are generally within existing roadways or areas immediately adjacent to existing roads, and would be used for construction traffic, detours, and laydown of materials, temporary soil stockpiles, and equipment staging.

Contact Information

The Vallecitos Water District lead contact for AB 52 Consultation on this project is:

Ryan Morgan, Capital Facilities Senior Engineer
Vallecitos Water District
201 Vallecitos de Oro
San Marcos, CA 92069
(760) 744-0460
rmorgan@vwd.org

If the Soboba Band of Luiseno Indians wishes to consult with the Vallecitos Water District regarding the Tres-Amigos Water Line Replacement Project – Phase I, please indicate in writing via letter addressed to the lead contact at the address provided above by November 10, 2023 and provide the name of the Tribe's designated lead contact person.

Sincerely,



Ryan Morgan, P.E.
Capital Facilities Senior Engineer
Vallecitos Water District

Enclosures:

- Figure 1. Vicinity Map
- Figure 2. Location Map
- Figure 3. Project Site Map

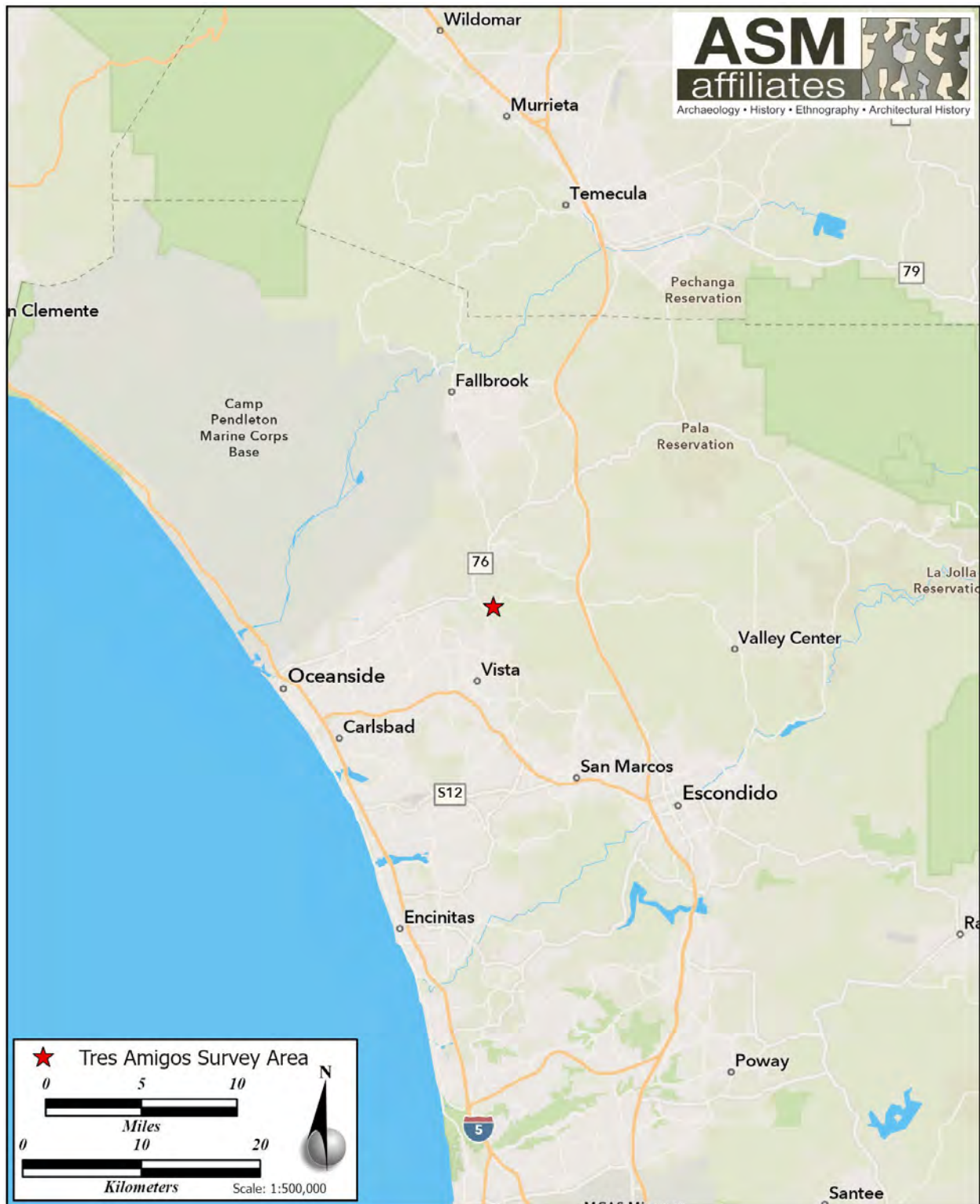


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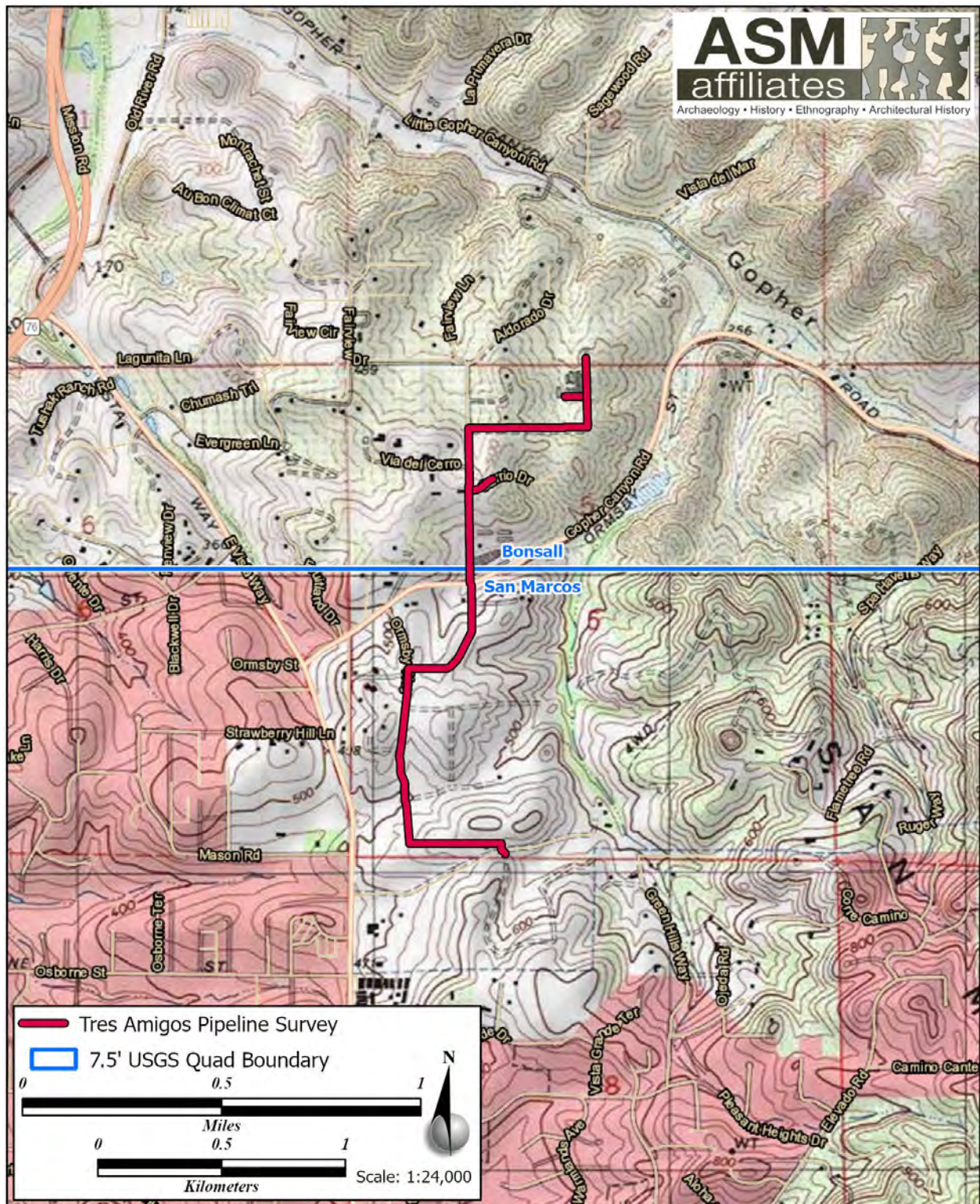


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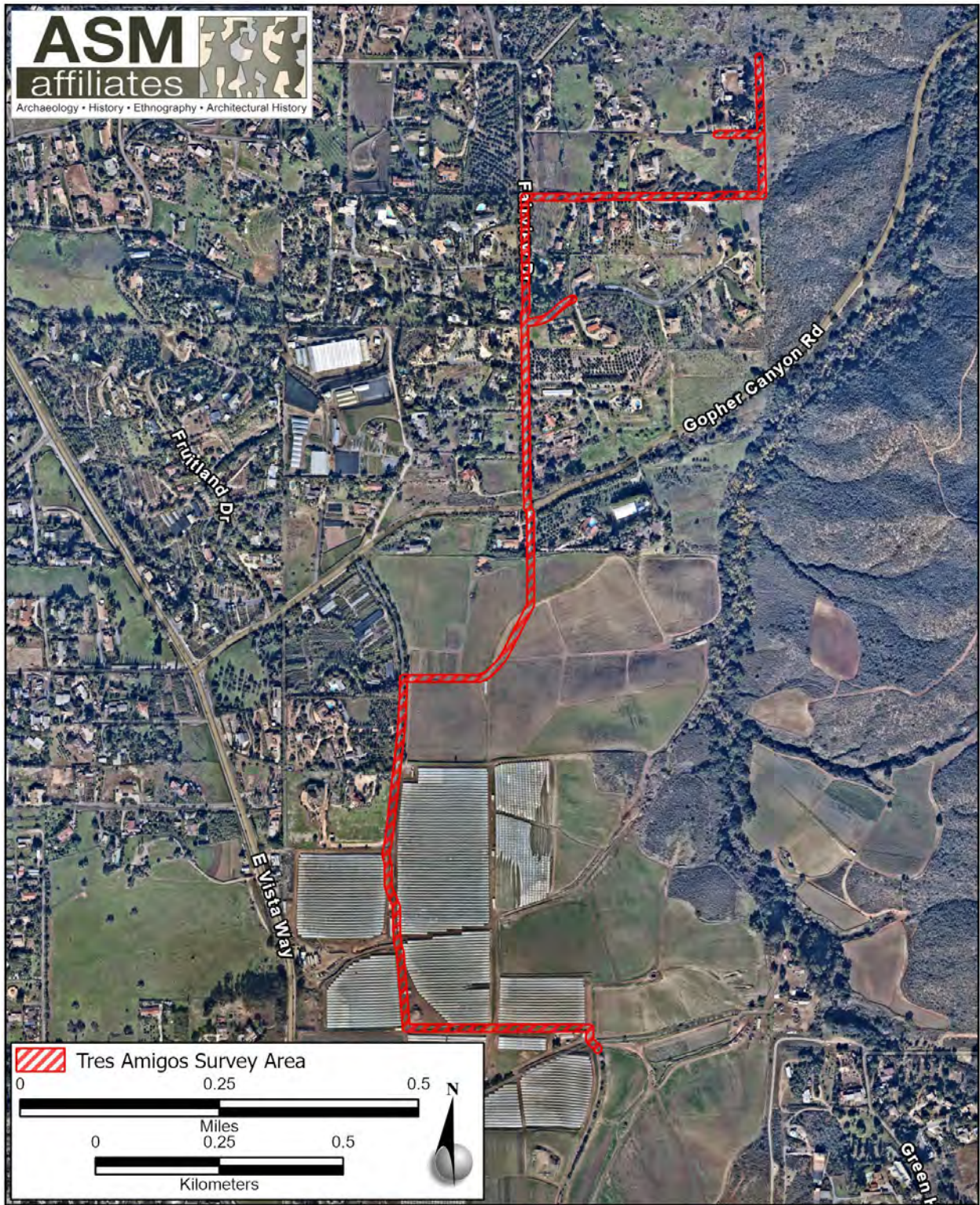
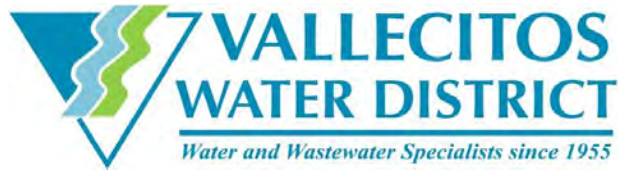


Figure 3. Project site map.

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201 Vallecitos De Oro • San Marcos, California 92069-1453 • Telephone 760-744-0460

October 3, 2023

Via Certified Mail

Viejas Band of Kumeyaay Indians
Mr. Ernest Pingleton
Tribal Historic Officer, Resource Management
1 Viejas Grade Road
Alpine, CA 91901

Subject: Notification of the Tres-Amigos Water Line Replacement Project - Phase I Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (Assembly Bill 52)

Dear Mr. Pingleton:

This letter is formal notification of the Vallecitos Water District's (VWD) proposed Tres-Amigos Water Line Replacement Project - Phase I (Project), which is subject to compliance with the California Environmental Quality Act (CEQA). VWD is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (Assembly Bill [AB] 52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB 52, the Viejas Band of Kumeyaay Indians has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 10, 2023, and shall provide the name of the Tribe's designated lead contact person.

Project Location

The Project is located on the Bonsall and San Marcos 7.5' U.S. Geological Survey (USGS) quadrangles in Township 11 South, Range 3 West, Section 5 San Bernardino Baseline and Meridian, San Diego County, California. See enclosed Figure 1 and Figure 2 for the project location.

Project Description

The VWD Tres Amigos Waterline comprises approximately 19,000 feet of pipelines ranging from 6-inch to 12-inch diameter. The water pipelines located in the northern limits of the VWD boundary were installed in the 1950s and 1960s, extending from the North Twin Oaks Tank No. 2 in Pleasant Heights Drive to north of Carrio Drive. The original Tres Amigos Line Extension Project occurred in 1958, which installed 6-inch and 8-inch diameter tar-wrapped 12-14-gauge steel pipelines. This material is considered a steam pipeline and is inadequate for pressurized water distribution systems.

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Contact Information

The Vallecitos Water District lead contact for AB 52 Consultation on this project is:

Ryan Morgan, Capital Facilities Senior Engineer
Vallecitos Water District
201 Vallecitos de Oro
San Marcos, CA 92069
(760) 744-0460
rmorgan@vwd.org

If the Viejas Band of Kumeyaay Indians wishes to consult with the Vallecitos Water District regarding the Tres-Amigos Water Line Replacement Project – Phase I, please indicate in writing via letter addressed to the lead contact at the address provided above by November 10, 2023 and provide the name of the Tribe's designated lead contact person.

Sincerely,



Ryan Morgan, P.E.
Capital Facilities Senior Engineer
Vallecitos Water District

Enclosures:

- Figure 1. Vicinity Map
- Figure 2. Location Map
- Figure 3. Project Site Map

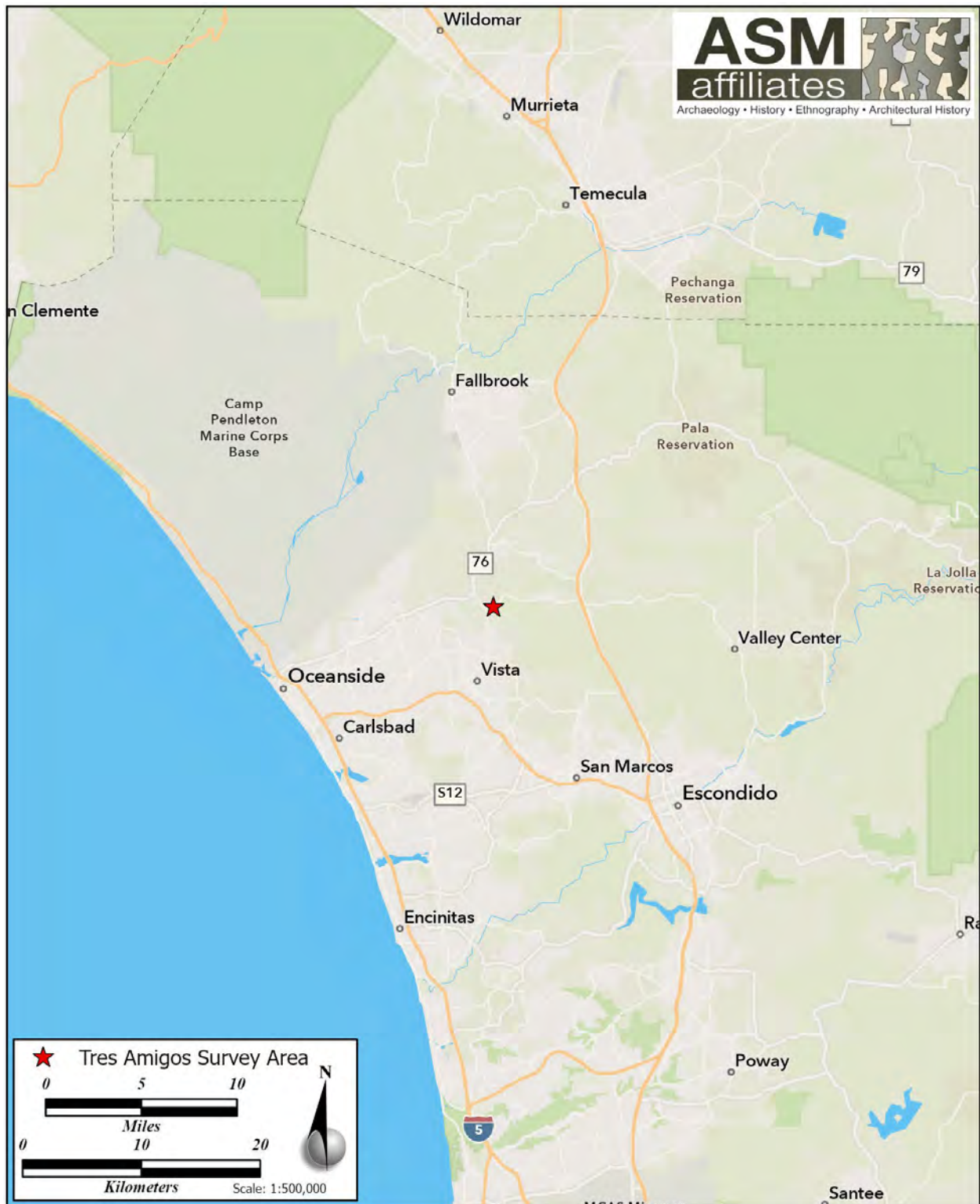


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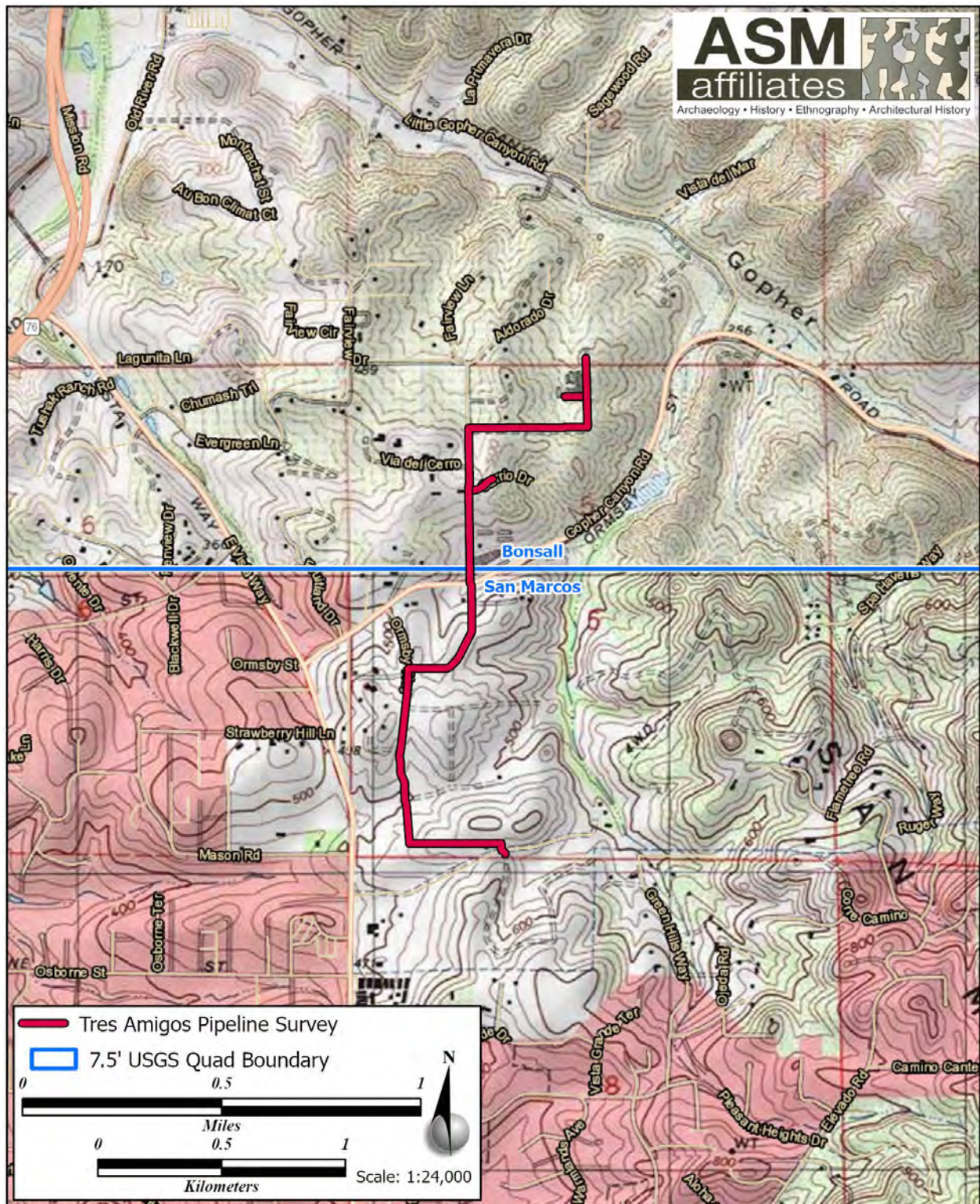


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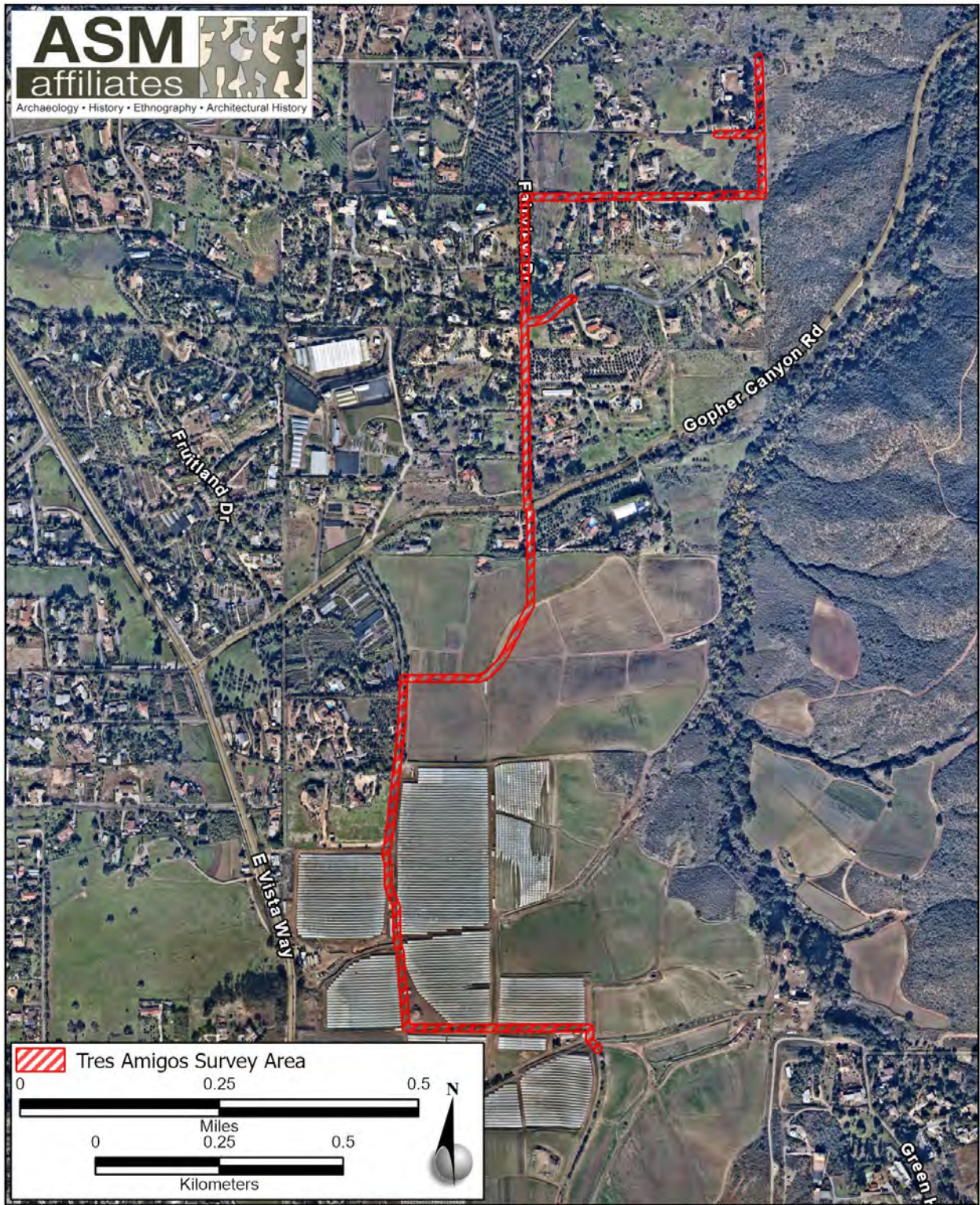
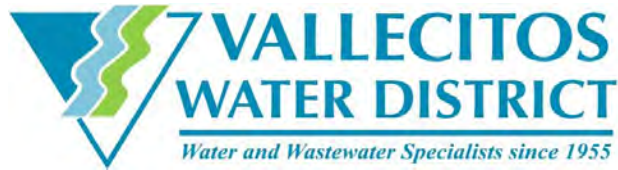


Figure 3. Project site map.

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201 Vallecitos De Oro • San Marcos, California 92069-1453 • Telephone 760-744-0460

October 3, 2023

Via Certified Mail

Soboba Band of Luiseno Indians
Mr. Joseph Ontiveros
Cultural Resource Department
P.O. Box 487
San Jacinto, CA 92581

Subject: Notification of the Tres-Amigos Water Line Replacement Project - Phase I Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (Assembly Bill 52)

Dear Mr. Ontiveros:

This letter is formal notification of the Vallecitos Water District's (VWD) proposed Tres-Amigos Water Line Replacement Project - Phase I (Project), which is subject to compliance with the California Environmental Quality Act (CEQA). VWD is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (Assembly Bill [AB] 52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB 52, the Soboba Band of Luiseno Indians has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 10, 2023, and shall provide the name of the Tribe's designated lead contact person.

Project Location

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Project Description

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Contact Information

The Vallecitos Water District lead contact for AB 52 Consultation on this project is:

Ryan Morgan, Capital Facilities Senior Engineer
Vallecitos Water District
201 Vallecitos de Oro
San Marcos, CA 92069
(760) 744-0460
rmorgan@vwd.org

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Sincerely,



Ryan Morgan, P.E.
Capital Facilities Senior Engineer
Vallecitos Water District

Enclosures:

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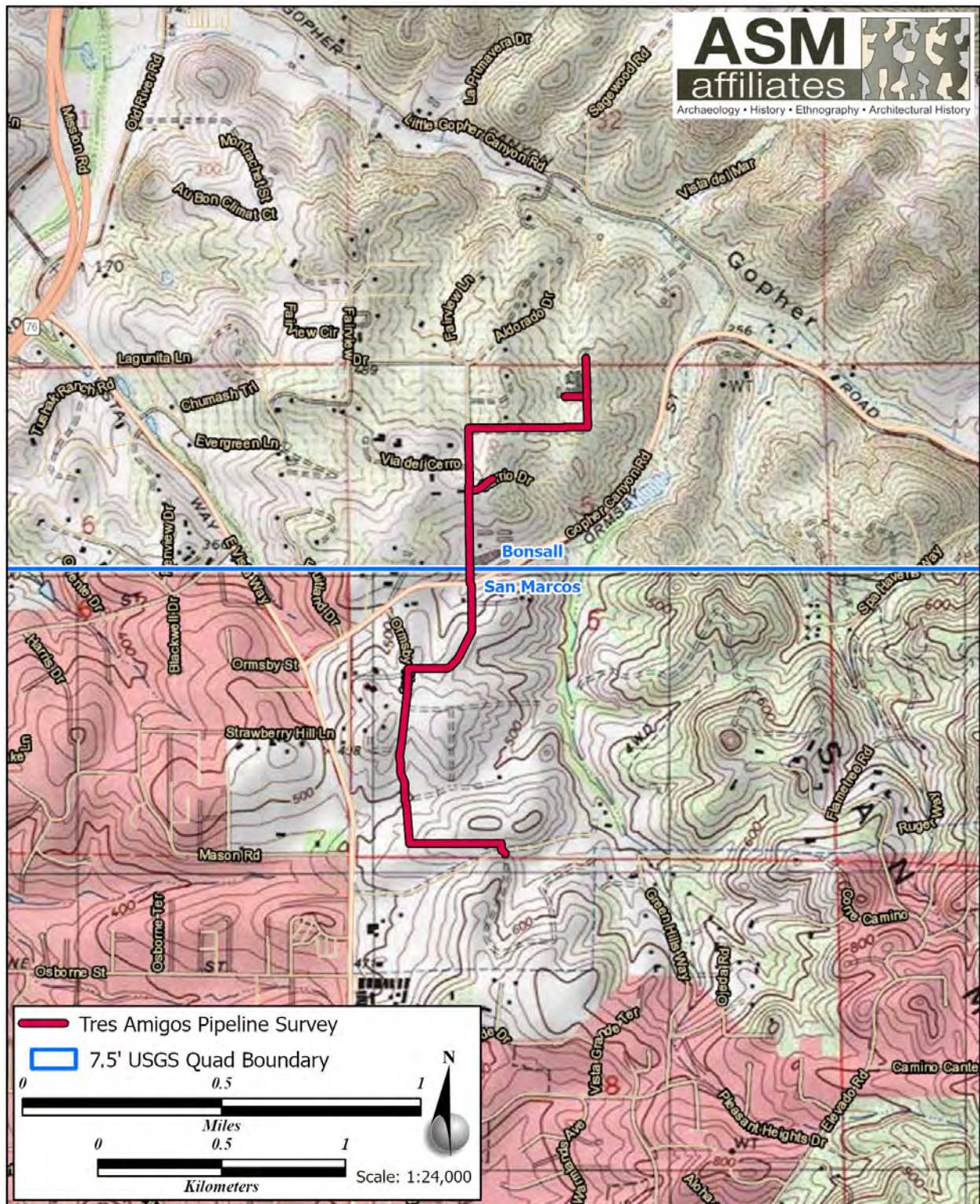


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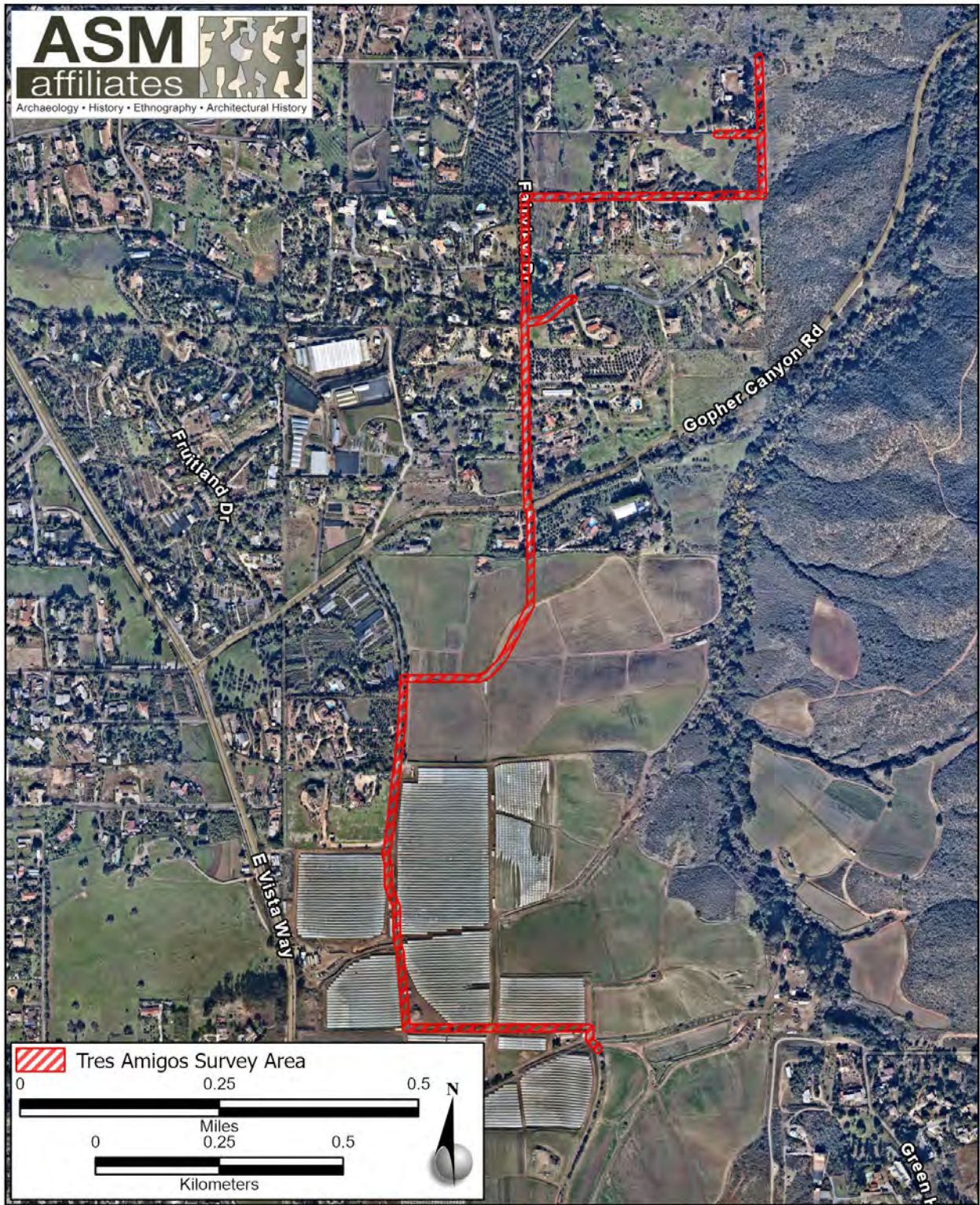
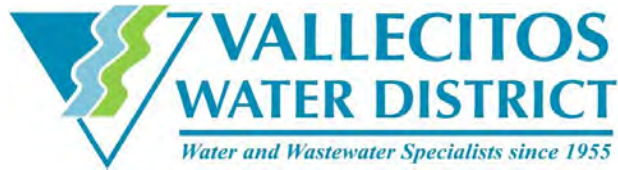


Figure 3. Project site map.

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201 Vallecitos De Oro • San Marcos, California 92069-1453 • Telephone 760-744-0460

October 3, 2023

Via Certified Mail

Sycuan Band of the Kumeyaay Nation
Ms. Kristie Orosco
Kumeyaay Resource Specialist
1 Kwaaypaay Court
El Cajon, CA 92019

Subject: Notification of the Tres-Amigos Water Line Replacement Project - Phase I Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (Assembly Bill 52)

Dear Ms. Orosco:

This letter is formal notification of the Vallecitos Water District's (VWD) proposed Tres-Amigos Water Line Replacement Project - Phase I (Project), which is subject to compliance with the California Environmental Quality Act (CEQA). VWD is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (Assembly Bill [AB] 52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB 52, the Sycuan Band of the Kumeyaay Nation has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 10, 2023, and shall provide the name of the Tribe's designated lead contact person.

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Vallecitos Water District
201 Vallecitos de Oro
San Marcos, CA 92069
(760) 744-0460
rmorgan@vwd.org

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Ryan Morgan, P.E.
Capital Facilities Senior Engineer
Vallecitos Water District

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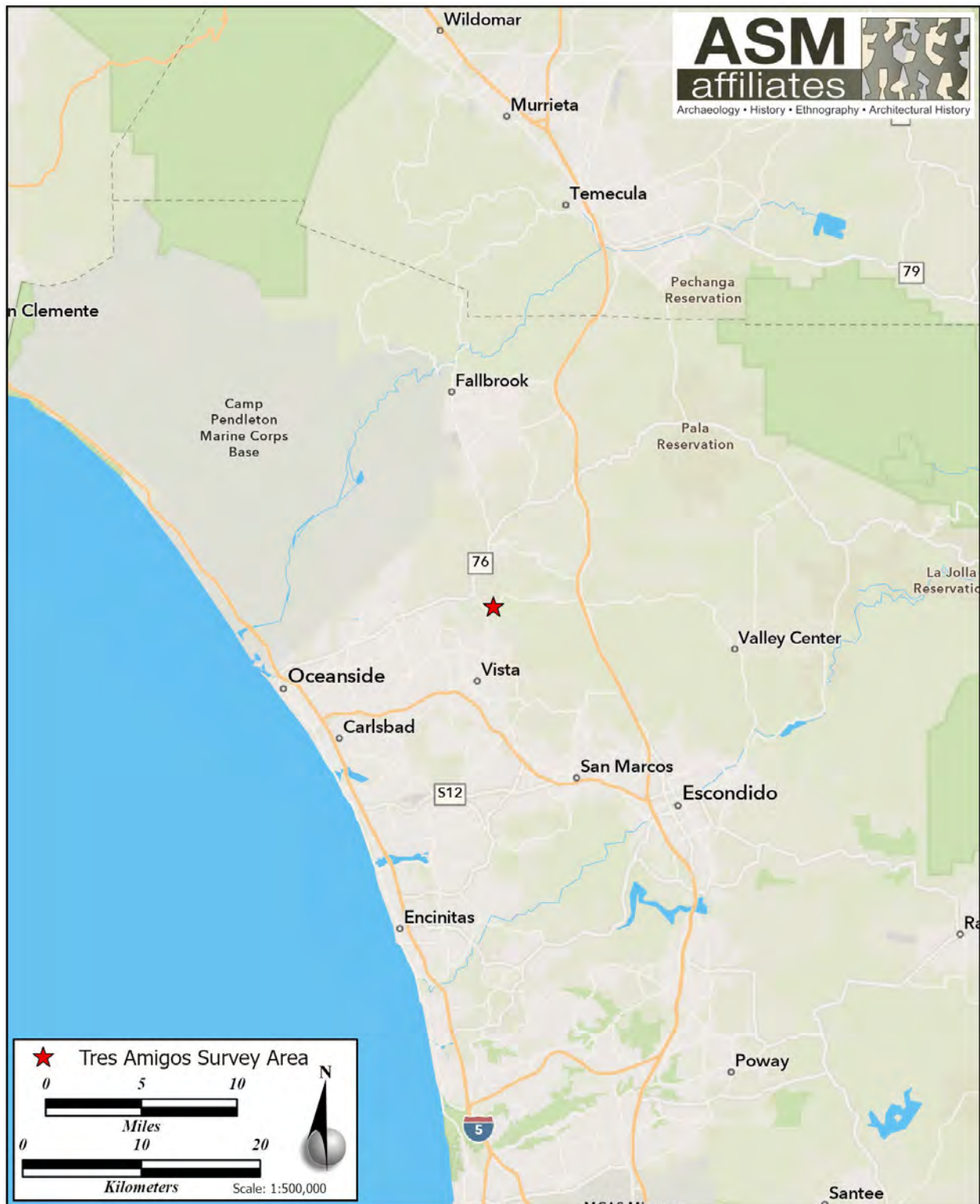


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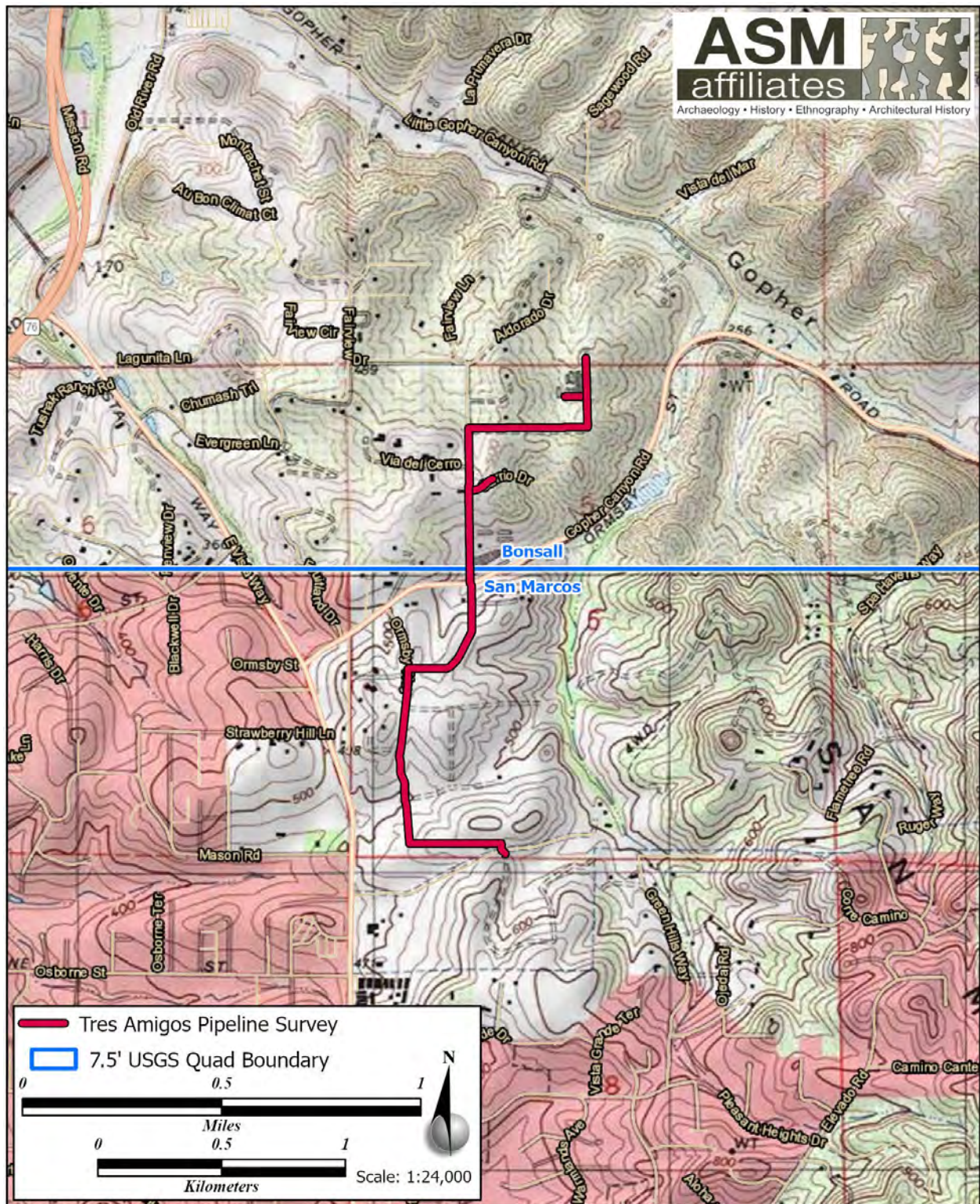


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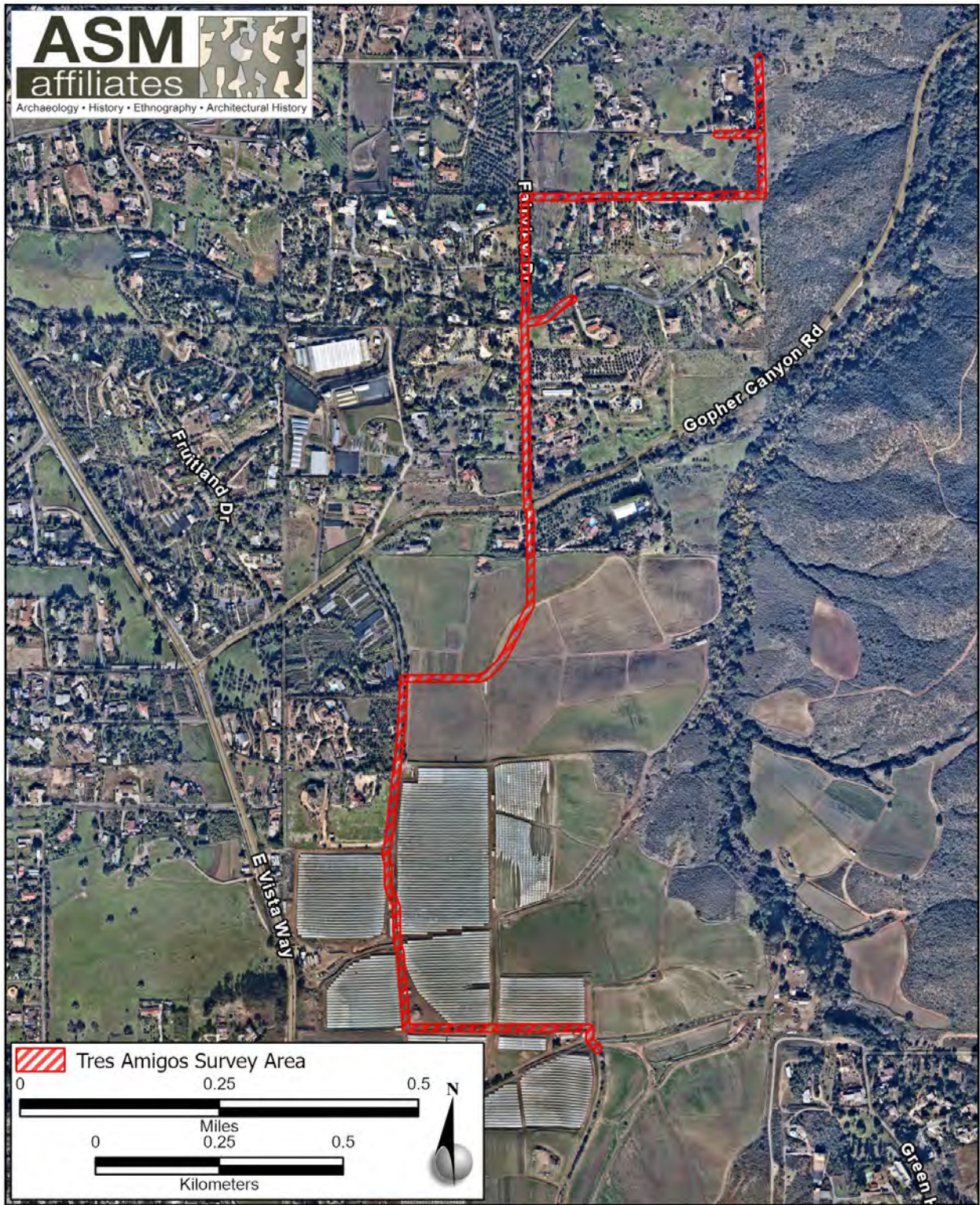
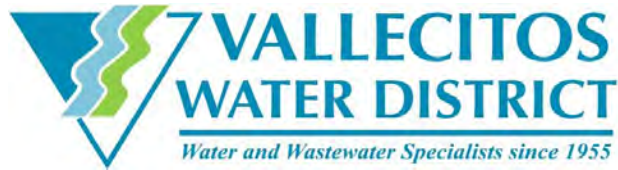


Figure 3. Project site map.

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201 Vallecitos De Oro • San Marcos, California 92069-1453 • Telephone 760-744-0460

October 3, 2023

Via Certified Mail

Sycuan Band of the Kumeyaay Nation
Mr. Cody Martinez
Chairperson
1 Kwaaypaay Court
El Cajon, CA 92019

Subject: Notification of the Tres-Amigos Water Line Replacement Project - Phase I Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (Assembly Bill 52)

Dear Mr. Martinez:

This letter is formal notification of the Vallecitos Water District's (VWD) proposed Tres-Amigos Water Line Replacement Project - Phase I (Project), which is subject to compliance with the California Environmental Quality Act (CEQA). VWD is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (Assembly Bill [AB] 52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB 52, the Sycuan Band of the Kumeyaay Nation has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 10, 2023, and shall provide the name of the Tribe's designated lead contact person.

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Ryan Morgan, Capital Facilities Senior Engineer
Vallecitos Water District
201 Vallecitos de Oro
San Marcos, CA 92069
(760) 744-0460
rmorgan@vwd.org

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Sincerely,



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Vallecitos Water District

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- Figure 2. Location Map
- Figure 3. Project Site Map

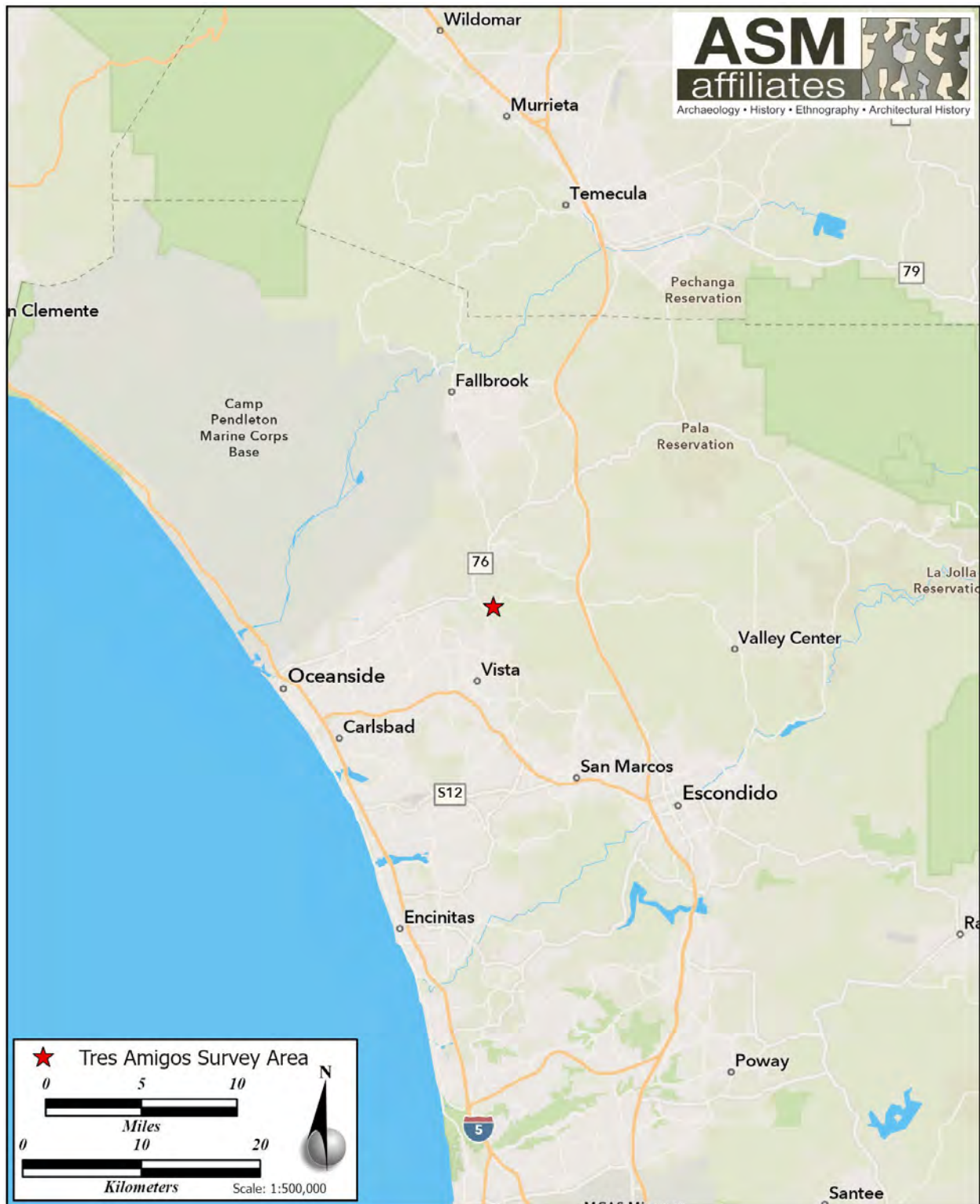


Figure 1. Project vicinity map.

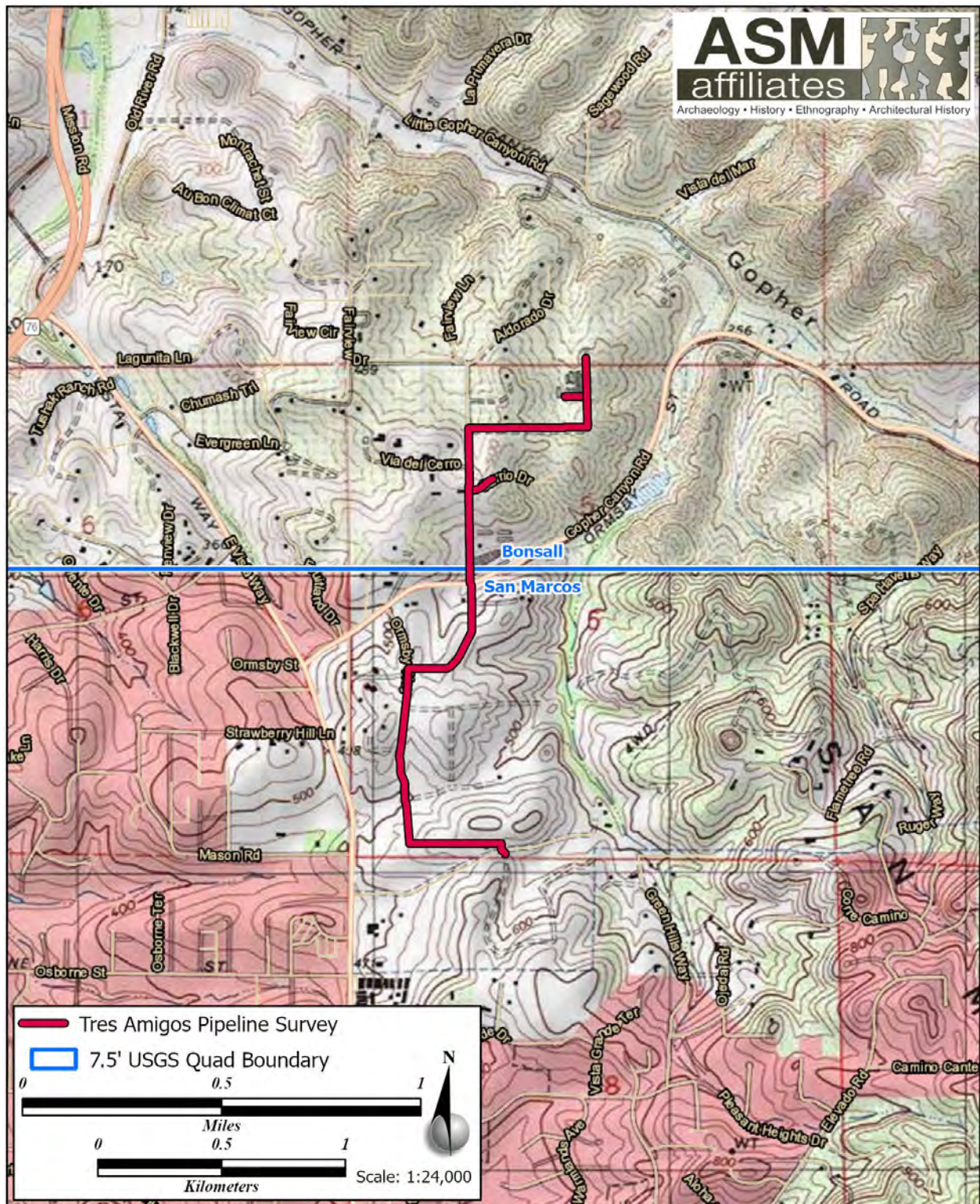


Figure 2. Project area location map.

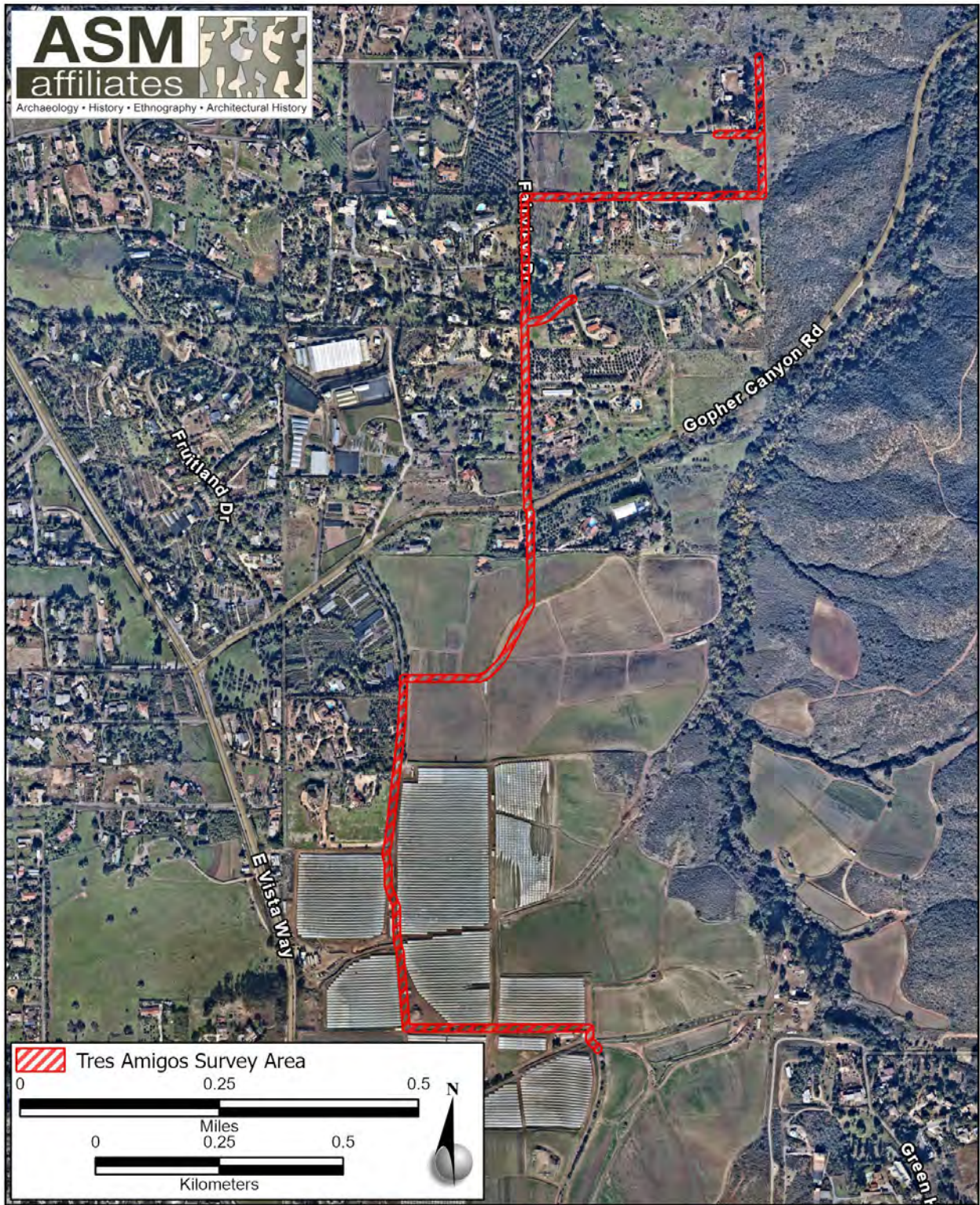
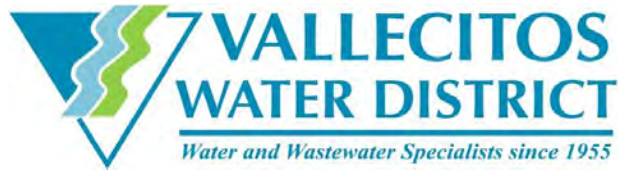


Figure 3. Project site map.

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201 Vallecitos De Oro • San Marcos, California 92069-1453 • Telephone 760-744-0460

October 3, 2023

Via Certified Mail

Viejas Band of Kumeyaay Indians
Mr. John Christman
Chairperson
1 Viejas Grade Road
Alpine, CA 91901

Subject: Notification of the Tres-Amigos Water Line Replacement Project - Phase I Pursuant to Public Resources Code Section 20180.3.1 and 21080.3.2 (Assembly Bill 52)

Dear Mr. Christman:

This letter is formal notification of the Vallecitos Water District's (VWD) proposed Tres-Amigos Water Line Replacement Project - Phase I (Project), which is subject to compliance with the California Environmental Quality Act (CEQA). VWD is the lead CEQA agency responsible for consulting with California Native American Tribes pursuant to Public Resources Codes Section 2108.3.1 and 21080.3.2 (Assembly Bill [AB] 52). Accordingly, this letter provides a brief description of the proposed project, its location, and lead agency contact information. Pursuant to AB 52, the Viejas Band of Kumeyaay Indians has 30 days to request in writing its desire to consult on this particular project. The request to consult must be received on or before November 10, 2023, and shall provide the name of the Tribe's designated lead contact person.

Project Location

The Project is located on the Bonsall and San Marcos 7.5' U.S. Geological Survey (USGS) quadrangles in Township 11 South, Range 3 West, Section 5 San Bernardino Baseline and Meridian, San Diego County, California. See enclosed Figure 1 and Figure 2 for the project location.

Project Description

The VWD Tres Amigos Waterline comprises approximately 19,000 feet of pipelines ranging from 6-inch to 12-inch diameter. The water pipelines located in the northern limits of the VWD boundary were installed in the 1950s and 1960s, extending from the North Twin Oaks Tank No. 2 in Pleasant Heights Drive to north of Carrio Drive. The original Tres Amigos Line Extension Project occurred in 1958, which installed 6-inch and 8-inch diameter tar-wrapped 12-14-gauge steel pipelines. This material is considered a steam pipeline and is inadequate for pressurized water distribution systems.

Due to the frequency of pipeline ruptures, this Project will replace approximately 12,000 feet of the Tres Amigos water pipelines beginning south of Green Hills Way, traveling northbound in VWD easements and in Ormsby Way. The pipeline corridor veers east in an existing VWD easement from Ormsby Way, travels northbound in alignment with Fairview Drive, and crosses Gopher Canyon Road, continuing northbound in Fairview Drive. North of the Carrio Drive / Fairview Drive intersection, the pipeline travels northeast in VWD easements through private properties to a dead-end at VWD's northern boundary (end of the Project). A key Project objective includes relocating the existing pipelines out of private backyards and into more accessible areas.

Most of the Project elements will be buried. The majority of the new water pipelines will be installed under existing dirt roadways in VWD easements using an open trench method. The trenches will measure 3 to 4 feet (ft) in width with depths typically no more than 5 ft below the ground surface.

Temporary work areas are generally within existing roadways or areas immediately adjacent to existing roads, and would be used for construction traffic, detours, and laydown of materials, temporary soil stockpiles, and equipment staging.

Contact Information

The Vallecitos Water District lead contact for AB 52 Consultation on this project is:

Ryan Morgan, Capital Facilities Senior Engineer
Vallecitos Water District
201 Vallecitos de Oro
San Marcos, CA 92069
(760) 744-0460
rmorgan@vwd.org

If the Viejas Band of Kumeyaay Indians wishes to consult with the Vallecitos Water District regarding the Tres-Amigos Water Line Replacement Project – Phase I, please indicate in writing via letter addressed to the lead contact at the address provided above by November 10, 2023 and provide the name of the Tribe's designated lead contact person.

Sincerely,



Ryan Morgan, P.E.
Capital Facilities Senior Engineer
Vallecitos Water District

Enclosures:

- Figure 1. Vicinity Map
- Figure 2. Location Map
- Figure 3. Project Site Map

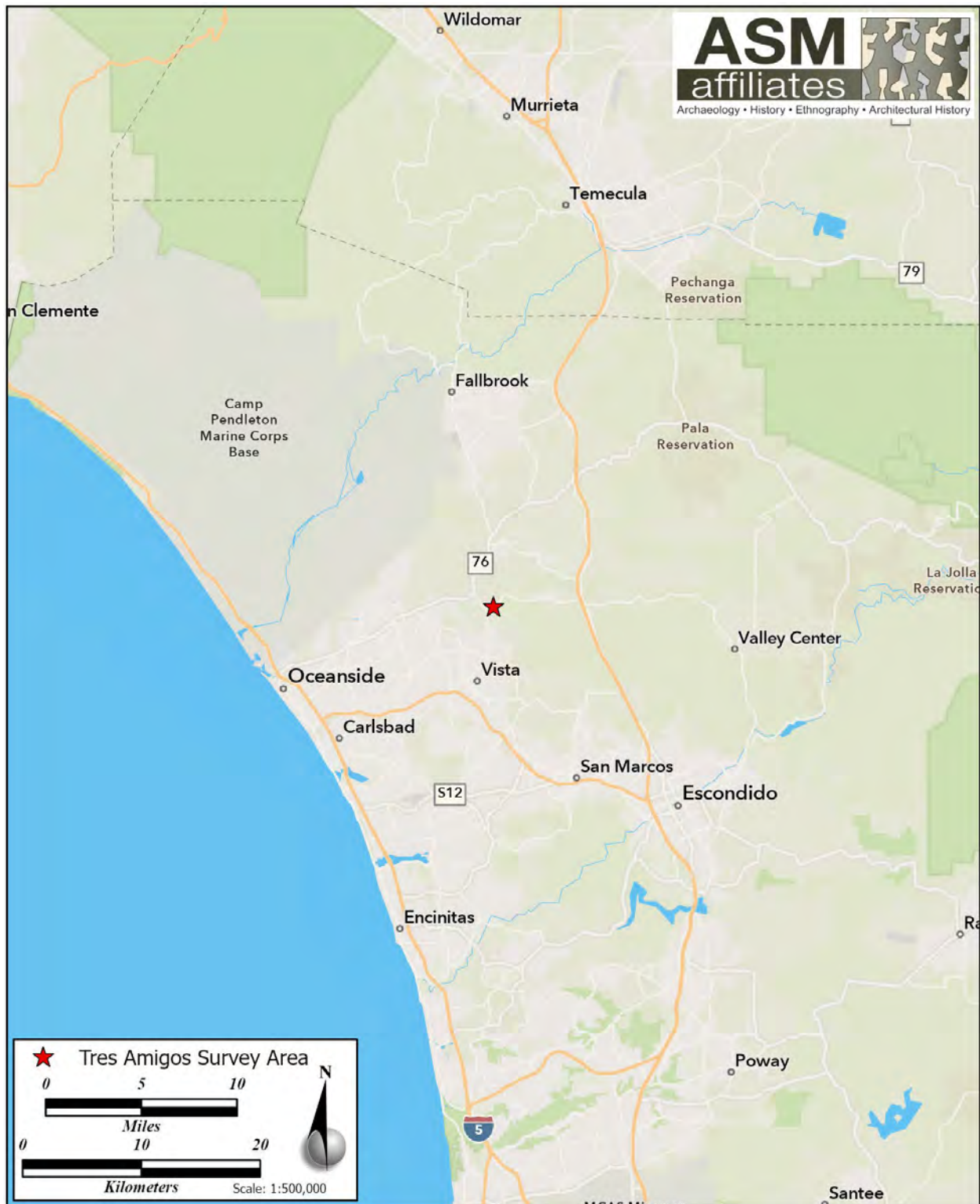


Figure 1. Project vicinity map.

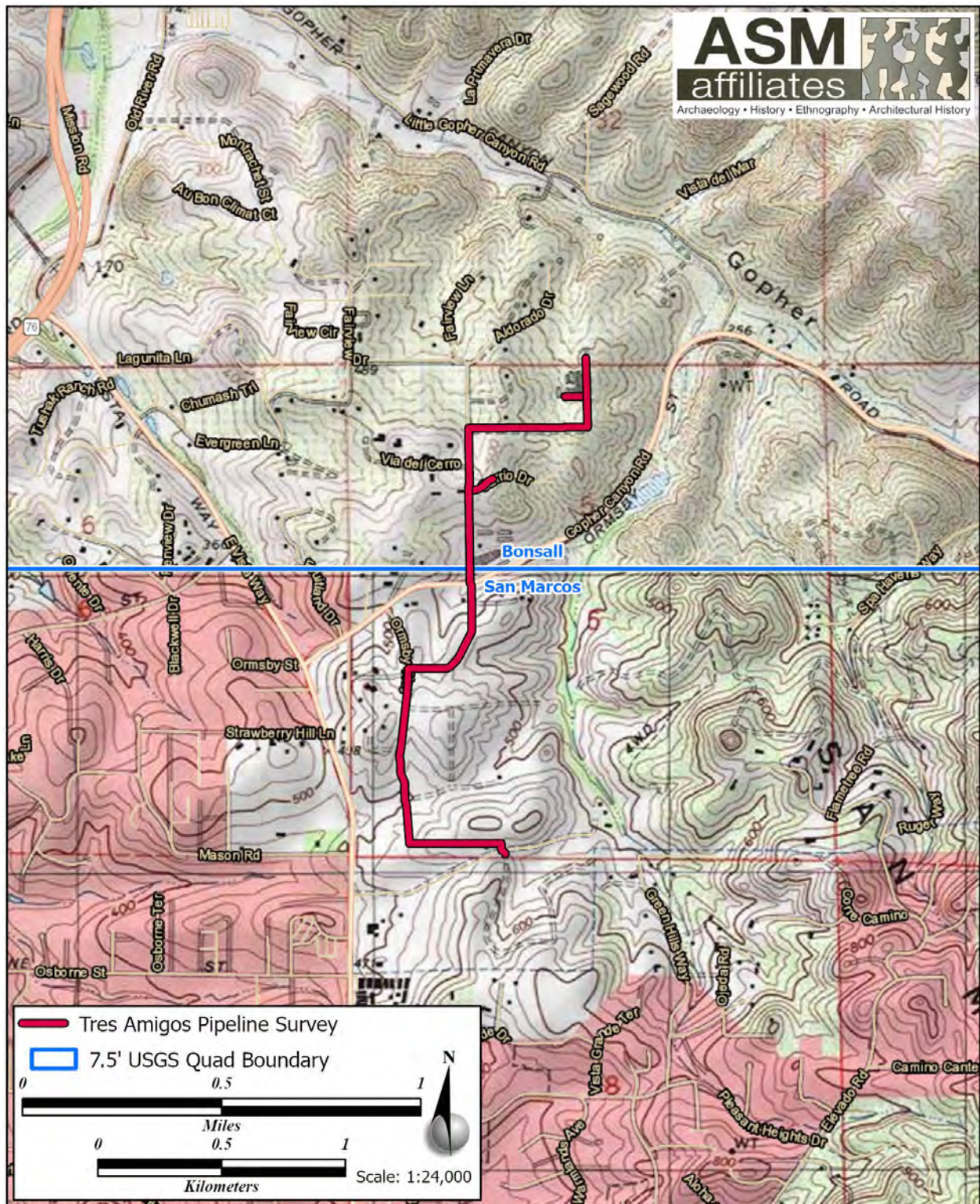


Figure 2. Project area location map.

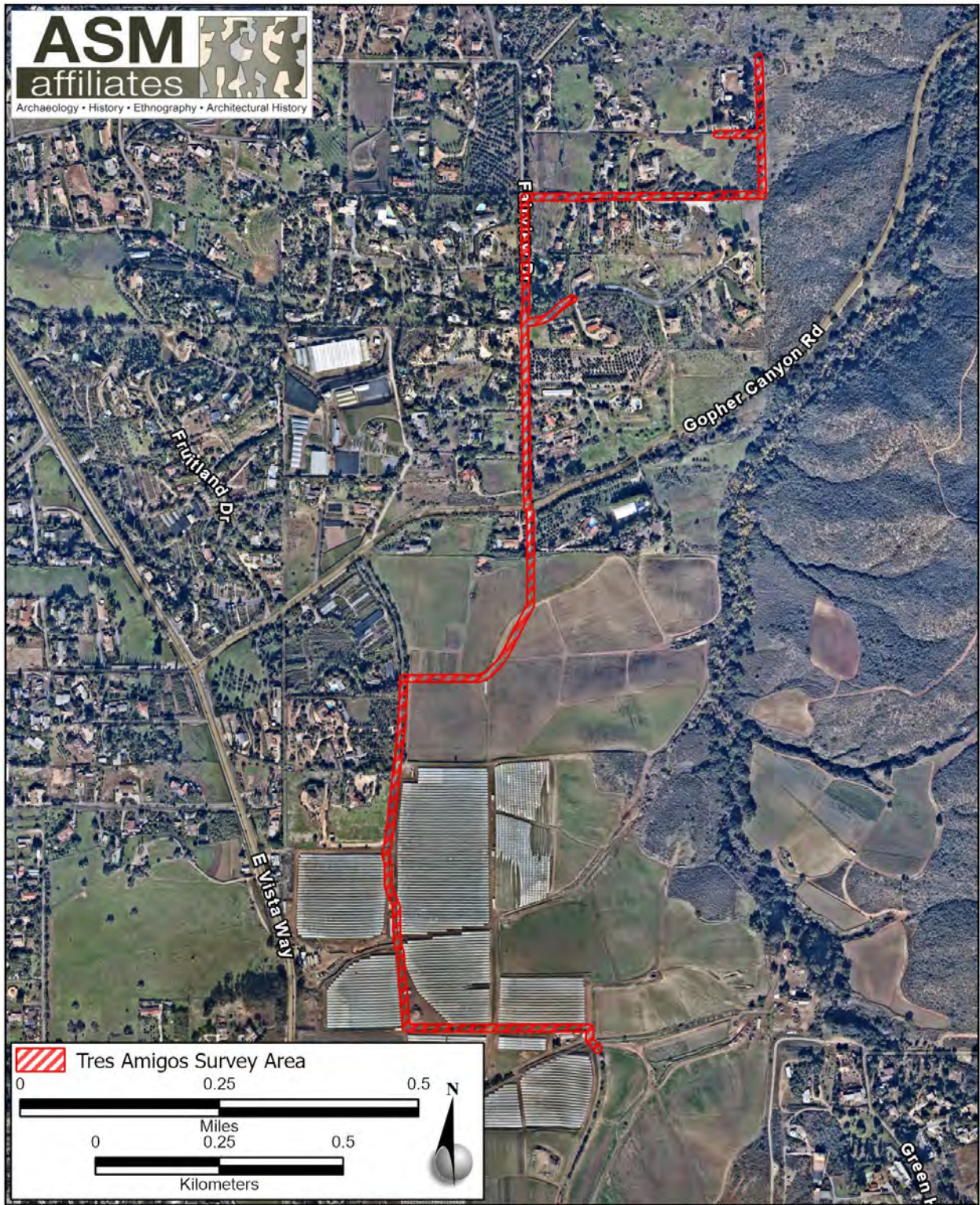


Figure 3. Project site map.

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C-3

**AB-52
Consultation
Responses**

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Alison Fisher

From: Ryan Morgan
Sent: Tuesday, October 31, 2023 10:56 AM
To: Alison Fisher; Christina Olson
Cc: julian.palacios; Steven Granados
Subject: FW: Pechanga Tribe AB52 Response to Tres Amigos Water Line Replacement

Alison,

Please file this letter with the AB 52 tribal outreach correspondence for Tres Amigos.

Thanks,

Ryan Morgan, PE
Capital Facilities Senior Engineer
Vallecitos Water District

201 Vallecitos de Oro, San Marcos, CA 92069
760-744-0460, ext. 232



From: Juan Ochoa <jochoa@pechanga-nsn.gov>
Sent: Tuesday, October 31, 2023 10:53 AM
To: Ryan Morgan <rmorgan@vwd.org>
Cc: Ebru Ozdil <eozdil@pechanga-nsn.gov>; Molly Earp <mearp@pechanga-nsn.gov>; Tina Thompson Mendoza <tmendoza@pechanga-nsn.gov>; Paul Macarro <pmacarro@pechanga-nsn.gov>
Subject: Pechanga Tribe AB52 Response to Tres Amigos Water Line Replacement

You don't often get email from jochoa@pechanga-nsn.gov. [Learn why this is important](#)

Dear Ryan Morgan,

This letter is written on behalf of the Pechanga Band of Indians (hereinafter, "the Tribe") a federally recognized Indian tribe and sovereign government in response to the AB 52 notice provided by the Vallecitos Water District (VWD).

This email serves as the Tribe's formal request to begin consultation under AB 52 for this Project. Per AB 52, we intend to assist the VWD in determining the type of environmental document that should be prepared for this Project (i.e. EIR, MND, ND); with identifying potential tribal cultural resources (TCRs); determining whether potential substantial adverse effects will occur to them; and to develop appropriate preservation, avoidance and/or mitigation measures, as appropriate. CEQA, as amended by AB 52, requires the VWD to avoid damaging effects to the significance of a tribal cultural resource. As such, the preferred TCR mitigation is complete avoidance and the Tribe requests that all efforts to preserve sensitive TCRs be made as early in the development process as possible.

Please add the Tribe to your distribution list(s) for public notices and circulation of all documents, including environmental review documents, archaeological reports, development plans, conceptual grading plans (if

available), and all other applicable documents pertaining to this Project. The Tribe further requests to be directly notified of all public hearings and scheduled approvals concerning this Project, and that these comments be incorporated into the record of approval for this Project.

The Pechanga Tribe asserts that the Undertaking is a part of ‘*Atáaxum* (Luiseño) territory, and therefore the Tribe’s aboriginal territory as evidenced by the existence of cultural features associated with religious practice and an extensive artifact record in the vicinity of the Project. This culturally sensitive area is affiliated with the Pechanga Band of Indians because of the Tribe's cultural ties to this area as well as our extensive history with the VWD and other projects within the area.

As you know, the AB 52 consultation process is ongoing and continues until appropriate mitigation has been agreed upon for the TCRs that may be impacted by the Project. As such, under both AB 52 and CEQA, we look forward to working closely with the VWD on ensuring that a full, comprehensive environmental review of the Project's impacts is completed.

In addition to those rights granted to the Tribe under AB 52, the Tribe reserves the right to fully participate in the environmental review process, as well as to provide further comment on the Project's impacts to cultural resources and potential mitigation for such impacts.

The Pechanga Tribe looks forward to working together with the Vallecitos Water District in protecting the invaluable Pechanga cultural resources found in the Project area. The formal contact person for this Project will be Ebru Ozdil. Please contact her at 951-770-6313 or at eozdil@pechanga-nsn.gov within 30 days of receiving this consultation request so that we can begin the consultation process. Thank you.

Juan Ochoa, MLIS
Assistant Tribal Historic Preservation Officer
Pechanga Cultural Resources Department
P.O. Box 2183
Temecula, CA 92593
Office:(951)-770-6308
jochoa@pechanga-nsn.gov

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Rincon Band of Luiseño Indians

CULTURAL RESOURCES DEPARTMENT

One Government Center Lane | Valley Center | CA 92082
(760) 749-1092 | Fax: (760) 749-8901 | rincon-nsn.gov



October 25, 2023

Sent via email: rmorgan@vwd.org

Attn: Ryan Morgan, Capital Facilities Senior Engineer
Vallecitos Water District
201 Vallecitos de Oro
San Marcos, CA 92069

Re: Tres Amigos Waterline Replacement Project

Dear Mr. Morgan,

This letter is written on behalf of the Rincon Band of Luiseño Indians (“Rincon Band” or “Tribe”), a federally recognized Indian Tribe and sovereign government. We have received your notification regarding the above-mentioned project, and we request consultation to assess potential impacts to cultural resources. The identified location is within the Traditional Use Area (TUA) of the Luiseño people. As such, the Rincon Band is traditionally and culturally affiliated to the project area.

After review of the provided documents and our internal information, the Rincon Band has specific concerns that the project may impact tangible Tribal Cultural Resources (TCRs), Traditional Cultural Landscapes (TCLs), and potential Traditional Cultural Properties (TCPs). Embedded in these resources and within the TUA are Rincon’s history, culture, and continuing traditional identity.

We kindly ask to be provided with copies of existing documents pertaining to the project such as the cultural survey report, including the archaeological site records, shape files, archaeological record search results, geotechnical report, and the grading plans. Upon receipt and review, the Rincon Band would like to consult on the project to learn more about any potential impacts to cultural resources.

If you have additional questions or concerns, please do not hesitate to contact our office at your convenience at (760) 749 1092 ext. 323 or via electronic mail at cmadrigal@rincon-nsn.gov. Thank you for the opportunity to protect and preserve our cultural assets.

Sincerely,

A handwritten signature in blue ink, appearing to read "Cheryl Madrigal", is written over a light blue horizontal line.

Cheryl Madrigal
Tribal Historic Preservation Officer
Cultural Resources Manager

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SAN LUIS REY BAND OF MISSION INDIANS

1889 Sunset Drive • Vista, California 92081

760-724-8505 • FAX 760-724-2172

www.slrmissionindians.org

November 1, 2023

Ryan Morgan
Capital Facilities Senior Engineer
Vallecitos Water District
201 Vallecitos De Oro
San Marcos , CA 92069

VIA ELECTRONIC MAIL
rmorgan@vwd.org

RE: Formal Request for Tribal Consultation Pursuant to the California Environmental Quality Act (CEQA), Public Resources Code section 21080.3.1, subds. (b), (d) and (e) for Tres-Amigos Water Line Replacement Project - Phase 1

Dear Mr. Morgan :

This letter constitutes a formal request for tribal consultation under the provisions of the California Environmental Quality Act (CEQA) (Public Resources Code section 21080.3.1 subdivisions (b), (d) and (e)) for Tres-Amigos Water Line Replacement Project - Phase 1 and its impacts to tribal cultural resources. The San Luis Rey Band of Mission Indians requested formal notice and information for all projects within your agency's geographical jurisdiction and received notification on October 3, 2023, regarding the above referenced project.

The San Luis Rey Band of Mission Indians requests consultation on the following topics checked below, which shall be included in consultation if requested (Public Resources Code section 21080.3.2, subd. (a)):

- Alternatives to the project
- Recommended mitigation measures
- Significant effects of the project

The San Luis Rey Band of Mission Indians also requests consultation on the following discretionary topics checked below (Public Resources Code section 21080.3.2 (subd. (a)):

- Type of environmental review necessary
- Significance of tribal cultural resources, including any regulations, policies or standards used by your agency to determine significance of tribal cultural resources

X Significance of the project's impacts on tribal cultural resources

X Project alternatives and/or appropriate measures for preservation or mitigation that we may recommend, including, but not limited to:

- (1) Avoidance and preservation of the resources in place, pursuant to Public Resources Code section 21084.3, including, but not limited to, planning and construction to avoid the resources and protect the cultural and natural context, or planning greenspace, parks or other open space, to incorporate the resources with culturally appropriate protection and management criteria;
- (2) Treating the resources with culturally appropriate dignity taking into account the tribal cultural values and meaning of the resources, including but not limited to the following:
 - a. Protecting the cultural character and integrity of the resource;
 - b. Protection the traditional use of the resource; and
 - c. Protecting the confidentiality of the resource.
- (3) Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
- (4) Protecting the resource.

Additionally, the San Luis Rey Band of Mission Indians requests to receive any cultural resources assessments or other assessments that have been completed on all or part of the project's potential "area of project effect" (APE), including, but not limited to:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:
 - A listing of any and all known cultural resources have already been recorded on or adjacent to the APE;
 - Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
 - If the probability is low, moderate, or high that cultural resources are located in the APE.
 - Whether the records search indicates a low, moderate or high probability that unrecorded cultural resources are located in the potential APE; and
 - If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.
2. The results of any archeological inventory survey that was conducted, including:
 - Any report that may contain site forms, site significance, and suggested mitigation measures.All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential

addendum, and not be made available for public disclosure in accordance with Government Code Section 6254.10.

3. The results of any Sacred Lands File (SFL) check conducted through Native American Heritage Commission. The request form can be found at http://www.nahc.ca.gov/slf_request.html. USGS 7.5-minute quadrangle name, township, range, and section required for the search.
4. Any ethnographic studies conducted for any area including all or part of the potential APE; and
5. Any geotechnical reports regarding all or part of the potential APE.

We would like to remind your agency that CEQA Guidelines section 15126.4, subdivision (b)(3) states that preservation in place is the preferred manner of mitigating impacts to archeological sites. Section 15126.4, subd. (b)(3) of the CEQA Guidelines has been interpreted by the California Court of Appeal to mean that “feasible preservation in place must be adopted to mitigate impacts to historical resources of an archeological nature unless the lead agency determines that another form of mitigation is available and provides superior mitigation of impacts.” *Madera Oversight Coalition v. County of Madera* (2011) 199 Cal.App.4th 48, disapproved on other grounds, *Neighbors for Smart Rail v. Exposition Metro Line Construction Authority* (2013) 57 Cal.4th 439.

The San Luis Rey Band of Mission Indians expects to begin consultation within 30 days of your receipt of this letter. Please contact the San Luis Rey Band of Mission Indians lead contact person identified in our previous request for notification.

Cami Mojado
Cultural Resources Manager
1889 Sunset Drive, Vista, CA 92081
Direct Cell Phone Number: 760-917-1736
Office Fax Number 760-724-2172
cjmojado@slrmissionindians.org

Sincerely,

Cami Mojado
Cultural Resources Manager
San Luis Rey Band of Mission Indians

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**Tres Amigos Water Line Replacement Project
Consultation with Rincon Band of Luiseno Indians
Tuesday, December 12, 2023 at 9:00 AM**

- Cheryl Madrigal, Rincon Band of Luiseno Indians
- Deneen Pelton, Rincon Band of Luiseno Indians
- Shuuluk Linton, Rincon Band of Luiseno Indians
- Ryan Morgan, VWD
- Christina Olson, VWD
- Alison Fisher, VWD

This Tres Amigos Water Line Replacement Project consists of 1,900 ft of underground pipeline replacement in District easements and right of way. The open trench will be approximately 3-4 feet in width and no more than 5 feet deep. Construction is estimated to begin in April or May 2024.

The pipeline experiences a lot of breaks because it is comprised of a thin 10-gauge steel steam pipe.

The alignment will be adjusted in some areas to mitigate the risks that farm equipment poses, and to relocate the water line out of private backyards and into the right-of-way or along parcel lines.

The District will take staging into consideration if the Rincon Band of Luiseno Indians (Rincon) has concerns. Rincon would like to review the staging locations and any impact to cultural, tribal, or biological resources. The District can send a map with potential staging areas to Rincon.

Rincon will review the proposed mitigation measures and send back revision comments. If resources are found, Rincon asks that they are reburied. Rincon would like to know when there are any changes to the mitigation measures.

Rincon request more information on abandonment of the steel pipe. Is it hazardous material, polluting the soil. The District will provide original as-builts to indicate the original pipe material.

Questions and Answers:

- Is this project using horizontal directional drilling (HDD) or open trench?
 - This project will be using open trench methods.
- What is the Biological impact? Rincon requests the biological report.
 - VWD to provide
- Is vegetation removal planned?
 - Since we are moving the pipeline to the roadways or parcel lines, there is nothing to clear.
 - Excavation through fill areas.
- What are the planned staging areas?
 - The contractor will secure the staging areas, but the District can provide guidance. The District will consider Rincon's requests.
- Is the District removing the old pipes or abandoning in place?

- The District will abandon them in place to avoid extensive excavation and disturbing the soil.
- Abandon in place with parallel install nearby, once the new line is operational and accepted.
- **Where are the staging areas?**
 - **The contractor is responsible for securing a staging location, but the District can guide location selection.**
- What equipment will be used?
 - Small to medium sized equipment
 - The District can provide a list of anticipated equipment
- **Was there a pedestrian survey done across the entire alignment? If so, is the proposed staging areas included within the same area?**
 - **The District will confirm**
- Are we expecting MND or EIR?
 - The District will complete a CEQA IS-MND
- When can the District provide the items requested?
 - Approximately 2-4 weeks
 - The District will compile comments from all consulting tribes before resubmission.

Action Items:

- **Vallecitos Water District to Provide:**
 - **Biological report**
 - **Map with potential staging areas**
 - **Map for the pedestrian survey**
 - **Equipment list**
 - **As-Builts to include pipe material**
 - **Anticipated Schedule**
- Rincon Band of Luiseno Indians:
 - Send response letter for a need for a follow up discussion for potential mitigation.
 - Review mitigation measure and send back revision comments

Rincon Band of Luiseño Indians

CULTURAL RESOURCES DEPARTMENT

One Government Center Lane | Valley Center | CA 92082
(760) 749-1092 | Fax: (760) 749-8901 | rincon-nsn.gov



December 12, 2023

Sent via email: rmorgan@vwd.org

Vallecitos Water District

Mr. Ryan Morgan

201 Vallecitos de Oro

San Marcos, CA 92069-1453

Re: Ongoing CEQA Consultation on the Tres Amigos Waterline Replacement Project

Dear Mr. Morgan,

This letter is written on behalf of the Rincon Band of Luiseño Indians (“Rincon Band” or “Tribe”), a federally recognized Indian Tribe and sovereign government. Thank you for providing us with the Cultural Resources Assessment as well as other project-related documents.

The Rincon Band has reviewed the provided documents and as per today’s consultation meeting, we ask for the following additional information:

- Please provide additional information such as specific locations including maps regarding the proposed or considered staging areas.
- Please confirm that the proposed staging areas have been surveyed as part of the cultural resource investigation conducted by ASM Affiliates.
- Please provide a copy of the biological report for our review.
- Please provide further information regarding the type of pipes (size, specific materials) that will be abandoned in place.

We also reviewed the proposed cultural mitigation measures as provided by you with your letter from November 21, 2023. We ask that the measures will include the repatriation of any Native American cultural materials to the consulting affiliated Tribes and recommend the following additions:

REPATRIATION: All cultural resources that are collected during the project construction will be repatriated to the Rincon Band of Luiseño Mission Indians for permanent onsite reburial. Any cultural and heritage material/artifacts identified and collected during construction grading activities are not to leave the Project area and shall remain onsite in a secure location until final disposition and included in the final Phase IV monitoring report. Materials collected previously during survey and testing, are to be returned to the site for reburial. Resource evaluations shall be limited to nondestructive analysis.

Onsite Resource Reburial: Upon completion of all ground-disturbing and grading activities on the Project site, the Tribal Representative(s) and representatives from the Tribe(s) will rebury any

Bo Mazzetti
Chairman

Tishmall Turner
Vice Chair

Laurie E. Gonzalez
Council Member

John Constantino
Council Member

Joseph Linton
Council Member

resources recovered from the Project site in an open space area that will remain free from any active recreational uses or any further excavation or ground disturbance. Any reburial site shall be culturally appropriate and explicitly approved in writing by the consulting Tribe(s). The reburial location will be covered first by a layer of geomat and then backfilled with clean fill dirt. Once reburial activities are completed, the site will be protected via a restrictive covenant or similar deed restriction that prohibits future excavation or disturbance of the reburial location.

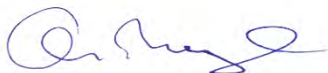
The Rincon Band will document the reburial location with GPS coordinates, add the data to internal GIS systems, and complete a form for submittal to the NAHC.

REPORTING: A final Phase IV report shall be completed by the project archaeologist no later than 90 days after monitoring has been completed. The report will include the results of monitoring including a list of project personnel, a catalog of any cultural resources that were identified, any associated DPR 523 Forms and/or confidential maps, details of the location of the final disposition of cultural resources, any issues or problems that occurred during monitoring, and any other pertinent information. Once completed, the project archaeologist will submit a draft to the Lead Agency for review and approval. Upon approval by the Lead Agency, a complete final report shall be submitted to the appropriate Information Center, the Rincon Band of Luiseño Indians, any relevant curation facility, and the landowner/applicant.

In addition, we ask that the Rincon Band be afforded the opportunity to monitor the ground disturbances associated with this project.

We are looking forward to further consultation on this project. If you have additional questions or concerns, please do not hesitate to contact our office at your convenience at (760) 297-2635 or via electronic mail at cmadrigan@rincon-nsn.gov. We look forward to working together to protect and preserve our cultural assets.

Sincerely,



Cheryl Madrigal
Tribal Historic Preservation Officer
Cultural Resources Manager

**Tres Amigos Water Line Replacement Project
Consultation with Pechanga Band of Indians
January 9, 2024 at 2:00 PM**

- Paul Macarro, Cultural Coordinator, Pechanga Band of Mission Indians
- Molly Earp, Cultural Planning Specialist, Pechanga Band of Mission Indians
- Juan Ochoa, Assistant Tribal Preservation Officer, Pechanga Band of Mission Indians
- Ryan Morgan, VWD
- Christina Olson, VWD
- Alison Fisher, VWD

The Tres Amigos Water Line Replacement Project will replace approximately 12,000 LF of pipeline with new 8" PVC pipeline to meet current standards. The water line in Bonsall and San Marcos has a history of breaks because it is comprised of a thin 10-gauge steel steam pipe.

The new alignment will relocate the water line away from private backyards and into the right-of-way or along parcel lines. Open trench construction methods will be used for pipeline installation with 3-4 ft wide and 5 ft deep trenches.

The project is being finalized now and will go out to bid in a couple months.

Questions and Concerns:

- The depths of excavation are up to 5 ft, correct?
 - Yes, that is correct.
- The Pechanga Band of Indians would like to know the depths of original road. What are the original disturbance depths?
 - The District would need to do further research to determine the original road fill zones and depths.
- What are the planned staging areas?
 - The staging areas are determined by the contractor. They may utilize the right-of-way or secure an agreement with a property owner. The District will graphically draw up predictable areas that may be used by the contractor for staging.
- Ancestral villages are located near the project.
- The Pechanga Band of Indians noted that it is likely that there will be artifacts due to the following factors:
 - If CEQA was not used and/or an archaeologist was not on site when the original roads were constructed, the fill "dury soil" most likely contains artifacts. Aerials from 1967 show the roads of Osborne Street and East Vista Way.
 - There is potentially undisturbed soil below the plow zone (4-6 ft) in farmland.
 - The project is near San Luis Rey River, which is why there are villages nearby. The water gives a good idea where people were living. Burial practices are where water joins into larger creeks.
 - To the north and the south there are large sites for tribal resources.

- 8 reported sites from 350 yards to 1 mile away
- The District will give concern to observations when excavating and trenching.
- Is the District consulting with other tribes?
 - Yes, the District has had other tribal consultations.
- Pechanga Band of Indians requests tribal monitors.
- Pechanga Band of Indians requests that cultural resources stay on sight during the duration of the work. If a location is being chosen, they can write the location into the CRMP (Cultural Resources Mitigation Plan).
- What is the process of approval?
 - The Draft IS/MND will go to the Board of Directors on January 17, 2024. That will open the 30-day public review period for comment. Once that review period closes, staff will go back to the Board of Directors for final approval of the IS/MND. Staff will continue to consult with Pechanga Band of Indians during the public review period and will complete consultation before final approval with the Board of Directors. Construction is planned for July.
- Pechanga Band of Indians recommends starting the contract process before the Final IS/MND is approved.

Action Items:

- Vallecitos Water District
 - Research the depths and year of the original construction of the road, so we know if CEQA or an archaeologist was used.
 - Identify potential staging areas that the contractor may use.
 - Send meeting minutes.
- Pechanga Band of Indians
 - Review Tribal Cultural Resource Mitigation Language provided previously.

D

**Geotechnical
Investigation
Report**

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GEOTECHNICAL INVESTIGATION REPORT

November 9, 2021

Prepared For:

Vallecitos Water District

Mr. Lito Santos, P.E.,
201 Vallecitos De Oro
San Marcos, California 92069



N|V|5

NV5 West, Inc.
15092 Avenue of Science, Suite 200
San Diego, CA 92128

Vallecitos Water District
Tres Amigos Waterline Replacement Project
Vista, California

NV5 PROJECT NUMBER 227520-0000851.00

Mr. Lito Santos P.E.,
Vallecitos Water District
201 Vallecitos De Oro,
San Marcos, California 92069

November 9, 2021
NV5 Project Number 227520-0000851.00

Subject: Geotechnical Investigation Report

Project: Vallecitos Water District
Tres Amigos Waterline Replacement Project
San Marcos, California

Dear Mr. Santos:

This report presents the results of NV5 West, Inc.'s (NV5) preliminary geotechnical investigation for the subject project. The purpose of this investigation was to evaluate the subsurface conditions for the proposed water system improvements including the removal and replacement of approximately 7,800 linear feet of water pipelines. The results of the geotechnical field exploration, laboratory tests, and preliminary geotechnical engineering recommendations and conclusions are presented herewith.

Based on the subsurface exploration, subsequent testing of the subsurface soils, and engineering analyses, it was concluded that the construction of the proposed project is geotechnically feasible. The geotechnical information presented herein is intended to assist the project design team and construction contractor(s) in their understanding of the geotechnical factors affecting the proposed project. The preliminary recommendations should be incorporated into the project design and implemented during construction.

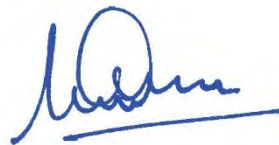
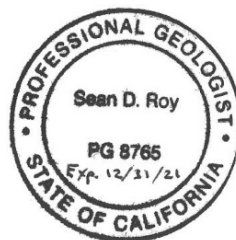
NV5 appreciates the opportunity to provide this geotechnical engineering service for this project and looks forward to continuing its role as your geotechnical engineering consultant.

Respectfully submitted,

NV5 West, Inc.



Sean Roy, PG
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WB/SR/PC/MC

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1.0 INTRODUCTION

This report presents the results of NV5's preliminary geotechnical investigation for the proposed Tres Amigos Waterline Replacement Project located in Vista, California for the Vallecitos Water District (VWD). The approximate location of the project area is shown in *Figure 1, Site Location Map*.

The purpose of this study was to evaluate the subsurface conditions and to provide preliminary geotechnical recommendations for the design and construction of the new improvements. This report summarizes the data collected and presents NV5's findings, conclusions, and preliminary recommendations.

This report has been prepared for the exclusive use of the client and its consultants/contractors to describe the geotechnical factors at the project sites which should be considered in the design and construction of the proposed project. In particular, it should be noted that this report has not been prepared from the perspective of a construction bid preparation instrument and should be considered by prospective bidders only as a source of general information subject to interpretation and refinement by their own expertise and experience, particularly with regard to construction feasibility.

2.0 SCOPE OF SERVICES

NV5's scope of services for this project included the following tasks:

- Review of readily available background data, including published geologic maps, topographic maps, seismic hazard maps and literature relevant to the subject site.
- Review of preliminary project plans.
- A site reconnaissance to observe the general surficial site conditions and to select specific exploratory locations.
- Review of geotechnical maps and literature pertaining to the site and vicinity.
- Preparation of a Health and Safety Plan (HASP) addressing the site field exploration work.
- Preparation and submittal of an encroachment permit to the County of San Diego for borings located in the right-of-way.
- Field reconnaissance of the site to observe the general surficial site conditions and to select and mark out the proposed exploratory boring locations. Underground Service Alert (USA) notification for subsurface utility clearance prior to excavation.
- Investigation of the underlying geotechnical conditions within the project area by sampling and logging a total of six (6) exploratory borings at selected locations to maximum depths ranging between approximately 12 to 16.5 feet below ground surface (bgs). Soil samples obtained from the borings were transported to NV5's in-house laboratory for observation and testing.
- Performing laboratory testing on selected representative bulk and relatively undisturbed soil samples obtained during the field exploration program to evaluate their pertinent geotechnical engineering properties.

- Performing an assessment of general seismic conditions and geologic hazards affecting the site area and their possible impact on the subject project.
- Engineering evaluation of the geotechnical data collected to develop geotechnical recommendations for the design and construction of the proposed project.
- Preparation of this report including reference maps and graphics, presenting NV5's findings, conclusions and geotechnical design recommendations specifically addressing the following items:
 - Evaluation of general subsurface conditions and description of types, distribution, and engineering characteristics of subsurface materials.
 - Evaluation of project feasibility including excavatability, excavation stability, and suitability of on-site soils for backfill.
 - Recommendations and geotechnical parameters to be used for the design of the project, including earthwork and pipeline backfill.

3.0 SITE AND PROJECT DESCRIPTION

The project site is located in the vicinity of Gopher Canyon Road and East Vista Way near Vista in San Diego County, California. NV5 understands that Vallecitos Water District (VWD) is removing and replacing approximately 7,800 linear feet of water pipeline, located within the northern limits of the District's service area. The anticipated depth of cover over the proposed pipeline is generally three to four feet with as much as eight feet where the pipeline exits Ormsby Way back to Bonsall Farms. Land use in the project area north of Gopher Canyon Road is generally residential and the area to the south is generally agricultural. Topography along the project alignment consists of rolling hills with the alignment rising and falling between a high of approximately 582 feet above mean sea level (MSL) near the southern end of the pipeline and a low of approximately 431 feet above MSL near the north end of the pipeline. Grades along the alignment range from relatively flat near the topographic highs and lows to approximately 17 percent on the slope north of Carrio Drive. The site location, with respect to the surrounding roadways, development and other features is shown on the attached *Figure 1, Site Location Map*.

4.0 FIELD EXPLORATION PROGRAM

Prior to conducting field activities, NV5 obtained an Excavation Permit from the County of San Diego Department of Public Works (Permit No. DPW2021-RWEXCP-74339). On August 30, 2021, field reconnaissance was conducted to observe site conditions and mark out the proposed boring locations for the planned subsurface explorations. As required by law, Dig Alert was notified of the locations of the exploratory borings prior to drilling.

4.1 EXPLORATORY DRILLING

The subsurface conditions at the project site were explored on September 8th, 2021 by drilling, logging and sampling a total of six (6) exploratory borings (B-1 through B-6) with depths ranging from 12 to

16.5 feet below ground surface (bgs) by Baja Exploration using a CME-75 drill rig. The approximate locations of the exploratory borings are shown on *Figure 2, Exploration Location Map*.

The materials encountered in the exploratory borings were continually observed, classified, and logged by an NV5 Geologist in general accordance with the Unified Soil Classification System. The logs of the exploratory borings are presented in *Appendix A, Field Exploration Logs*. Subsequent to logging and sampling, the exploratory borings were backfilled with soil cuttings and the two borings locations in the pavement along Fairview Drive (B-2 and B-3) were patched with Aquaphalt™ in accordance with County requirements.

Representative bulk-disturbed and relatively undisturbed drive samples were retrieved during exploratory drilling at selected depths appropriate to our investigation. The samples were labeled in the field and transported to our laboratory for observation, evaluation, and testing.

5.0 LABORATORY TESTING

Laboratory testing was performed on selected representative bulk soil samples, obtained from the exploratory excavations, to aid in the material classifications and to evaluate engineering properties of the materials encountered (see *Appendix B, Laboratory Test Results*). The following tests were performed:

- Moisture content and dry density (ASTM D2216 and ASTM D2937);
- Particle size analyses (ASTM D6913);
- Expansion index (ASTM D4829);
- Atterberg limits (ASTM D4318);
- Maximum density curve (ASTM D1557);
- Direct shear (ASTM D3080); and
- Corrosivity test series, including sulfate content, chloride content, pH-value, and electrical resistivity (CTM 417, 422, and 532/643).

Testing was performed in general accordance with applicable ASTM standards and California Test Methods. A summary of the laboratory testing program and the laboratory test results are presented in *Appendix B*.

6.0 GEOLOGY

6.1 GEOLOGIC SETTING

The project is located in San Diego County within the coastal section of the Peninsular Ranges geomorphic province. This province is characterized by northwest-trending mountain ranges bordered by relatively straight-sided, sediment-floored valleys. The northwest trend is also reflected in the direction of the dominant geologic structural features, which consist of northwest-southeast trending faults and fault zones associated with the San Andreas and related fault systems. Two major northwest-trending fault zones traverse the San Diego metropolitan and the inland county areas: the

Rose Canyon-Newport Inglewood (connected) fault zones located roughly 13 miles to the west and the Elsinore fault zone located roughly 14 miles east of the site.

Typical stratigraphy in the Peninsular Ranges includes Mesozoic (between approximately 250 and 65 million years old) igneous intrusive and metamorphic rocks exposed in the eastern portion of the province, Cenozoic (less than 65 million years old) marine and non-marine sedimentary units overlying Mesozoic basement rocks in coastal areas and Quaternary (less than approximately 2 million years old) deposits overlying older strata in valleys and larger drainages.

6.2 SUBSURFACE CONDITIONS

Geologic materials encountered during the subsurface explorations largely consisted of natural deposits mapped as mid-Cretaceous aged Tonalite deposits (Kt) on published geologic maps. *Figure 3, Regional Geologic Map* presents the general distribution of geologic units in the site area. As encountered in the exploratory borings, the soils ranged from brown to orange-brown to yellow brown, dry to moist, sandy lean clay (CL), clayey sand (SC), silty gravel (GM), sandy silt (ML), and moderately-to-intensely weathered granitic rock (Kt). The geologic conditions of the general site area are displayed in *Figure 3, Regional Geologic Map*. Detailed information concerning the subsurface geologic units encountered and their depths are discussed below (listed from top to bottom) and presented in *Appendix A, Field Exploration Logs*.

- **Fill Material** - Fill material was present in borings B-2 through B-6 to depths of approximately 1 to 2 feet bgs. The fill materials were variable, moist, and consisted of light brown, sandy silt (ML), dark brown, fine- to coarse-grained sandy lean clay (CL), brown to red brown, fine- to coarse-grained clayey sand (SC), and gray silty gravel (GM).
- **Colluvial Deposits** - Unmapped colluvial deposits were encountered in boring B-1, B-3, B-4 and B-5 with thicknesses ranging from 2 to 4.5 feet. Colluvial deposits consisted of red brown to dark brown, moist, fine- to coarse-grained clayey sand (SC) to sandy lean clay (CL).
- **Tonalite, undivided (Kt)** - Granitic bedrock materials were encountered beneath the fill or colluvial deposits in all borings at depths ranging from 2 to 6.5 feet bgs. These materials generally consisted of light gray to dark red brown, moist, medium-grained phaneritic texture, moderately to highly weathered, moderately hard rock that mechanically breaks down to a silty sand (SM).

6.3 GROUNDWATER

Groundwater was not encountered in our exploratory borings to the total depth explored of up to approximately 16.5 feet. NV5 has researched the California State Department of Water Resources Water Data Library <http://wdl.water.ca.gov/waterdatalibrary/> to obtain available historical information regarding groundwater levels in the general vicinity of the site. Review of the reported historic groundwater level in a well located at 33.2498 degrees north and -117.2218 degree west, near the corner of Gopher Canyon Road and Fairview Drive, was 64 feet below ground surface (bgs) in 1966. Groundwater may also be present in other areas not explored by this investigation. Groundwater levels may vary due to seasonal fluctuations and factors such as a substantial increase in surface water infiltration from landscape irrigation, agricultural activity, storage facility leaks or unusually heavy

precipitation. There is uncertainty in the accuracy of short-term groundwater level measurements, particularly in fine-grained soil. The groundwater level as reported herein, should not be interpreted to represent an accurate or permanent condition.

6.4 FAULTS

The numerous faults in California include active, potentially active and inactive faults. As used in this report, the definitions of fault terms are based on those developed for the *Alquist-Priolo Special Studies Zones Act of 1972* and published by the California Division of Mines and Geology (Hart and Bryant, 1997). Active faults are defined as those that have experienced surface displacement within Holocene time (approximately the last 11,000 years) and/or have been included within any of the state-designated Earthquake Fault Zones (previously known as *Alquist-Priolo Special Studies Zones*). Faults are considered potentially active if they exhibit evidence of surface displacement since the beginning of Quaternary time (approximately two million years ago) but not since the beginning of Holocene time. Inactive faults are those that have not had surface movement since the beginning of Quaternary time.

Review of geologic maps and literature pertaining to the general site area indicates that the site is not located within a state-designated Earthquake Fault Zone. Review of the *State of California, Special Studies Zones* indicates that the project site does not lie within an identified earthquake fault zone. In addition, there are no known major or active faults mapped on the project site. Evidence for active faulting at the site was not observed during the subsurface investigation. The relative location of the site to known active faults in the region is depicted on *Figure 4, Regional Fault Map*. The distance from the site to the projection of traces of surface rupture along major active earthquake fault zones, that could affect the site are listed in the following Table 1.

Table 1 - Distance from the Site to Major Active Faults

Fault Name	Distance From the Site
Newport Inglewood Connected	13 miles
Elsinore Fault Zone	14 miles
Rose Canyon	14 miles
Coronado Bank	30 miles
Palos Verdes Connected	30 miles
San Joaquin Hills	36 miles
Earthquake Valley	37 miles
San Jacinto	38 miles
Chino	45 miles
San Andreas	54 miles
Pinto Mtn	63 miles
Sierra Madre Connected	68 miles
North Frontal (West)	74 miles
Helendale-So Lockhart	78 miles
Landers	79 miles
Lenwood-Lockhart-Old Woman Springs	83 miles

Source: https://earthquake.usgs.gov/cfusion/hazfaults_2008_search/

7.0 SEISMIC AND GEOTECHNICAL HAZARDS

The principal seismic considerations for most pipelines and water systems in California are damage caused by surface rupturing of fault traces, ground shaking, seismically induced ground settlement and liquefaction. Potential impacts to the project due to faulting, seismicity and other geologic hazards are discussed in the following sections.

7.1 FAULT RUPTURE

The site is not located within an Earthquake Fault Zone delineated by the State of California for the hazard of fault surface rupture. The surface traces of any active or potentially active faults are not known to pass directly through, or to project toward the site. Therefore, the potential for damage due to surface rupture of faults at the project site is considered low.

7.2 SEISMIC SHAKING

The project site is located in an area of California considered a seismically active area, and as such, the seismic hazard that most likely to impact the site is ground shaking resulting from an earthquake along one of the known active faults in the region.

Preliminary seismic parameters were developed for the project site based on the 2019 California Building Code (CBC) and ASCE 7-16 guidance document. Using the Structural Engineers Association of California's U.S. Seismic Design Maps Online Calculator (<https://seismicmaps.org/>), based on site latitude = 33.24273005 degrees North and longitude = -117.22440330 degrees West.

The earthquake hazard level of the Maximum Considered Earthquake (MCE) is defined in ASCE 7-16 as the ground motion having a probability of exceedance of 2 percent in 50 years. The preliminary seismic design parameters for the project area are presented in the following table.

Table 2 - Recommended 2019 CBC Seismic Design Parameters

Design Parameter	Recommended Value	Reference
Site Class	C	CBC Section 1613.3.2
Mapped Spectral Accelerations for short periods, S_s	0.936g	CBC Section 1613.2.1
Mapped Spectral Accelerations for 1-sec period, S_1	0.345g	CBC Section 1613.2.1
Short-Period Site Coefficient, F_a	1.2	CBC Table 1613.3.1
Long-Period Site Coefficient, F_v	1.5	CBC Table 1613.3.1
⁽⁴⁾ MCE _R (5% damped) spectral response acceleration for short periods adjusted for site class, S_{MS}	1.124g	CBC Section 1613.3.3

Design Parameter	Recommended Value	Reference
⁽¹⁾ MCE _R (5% damped) spectral response acceleration at 1-second period adjusted for site class, S _{M1}	0.517g	CBC Section 1613.3.3
Design spectral response acceleration (5% damped) at short periods, S _{DS}	0.749g	CBC Section 1613.3.4
Design spectral response acceleration (5% damped) at 1-second period, S _{D1}	0.345g	CBC Section 1613.3.4
Seismic Design Category	D	CBC Section 1613.3.5
⁽²⁾ MCE _G Peak Ground Acceleration adjusted for site class effects, PGA _M	0.485g	ASCE 7-16 Section 11.8.3

- (1) MCE_R = Risk-adjusted Maximum Considered Earthquake
- (2) MCE_G = Geometric-mean Maximum Considered Earthquake

7.3 LIQUEFACTION AND SEISMICALLY-INDUCED SETTLEMENT

Liquefaction of soils can be caused by ground shaking during earthquakes. Research and historical data indicate that loose, relatively clean granular soils are susceptible to liquefaction and dynamic settlement, whereas the stability of the majority of clayey silts, silty clays and clays is not adversely affected by ground shaking. Liquefaction is generally known to occur in saturated cohesionless soils at depths shallower than approximately 50 feet. The potential for liquefaction under the same conditions of ground shaking intensity and duration will decrease for sands that are more well-graded, more irregular and gritty, coarser and denser. Also, a pronounced decrease in liquefaction potential will occur with the increase in fine-grained (i.e., silt and clay) content. Seed and others have suggested that a non-liquefiable classification be assigned if the clay fraction is 15 percent or greater (*Guidelines for Evaluating and Mitigating Seismic Hazards in California, Special Publication 117, CDMG, Ch. 6, 1997*). Dynamic settlement due to earthquake shaking can occur in both dry and saturated sands. The potential consequences of liquefaction to engineered structures include loss of bearing capacity, buoyancy forces on underground structures (including pipelines), increased lateral earth pressures on retaining walls, and lateral spreading. Pipes constructed in soils that become liquefied may become buoyant.

The alignments of the proposed water pipelines and improvements are underlain by moderately to intensely weathered granitic rock. The water table is interpreted to be over 60 feet bgs across the project area. Therefore, the potential for liquefaction is not anticipated to be a design consideration.

7.4 LANDSLIDES AND SLOPE INSTABILITY

There are no large steep slopes on or in close proximity to the project alignment. Based on the investigation and NV5's review of published maps and aerial photography, there appears to be no indications of landslides or deep-seated instability in the project area. It is NV5's opinion that the potential damage to the planned improvements due to landsliding or slope instability is considered low.

7.5 SUBSIDENCE

Typically, soil subsidence occurs when groundwater (near the surface or in a deep aquifer) is lowered past its historical level. This occurrence results in an increase of effective stress within a soil layer which typically translates into additional soil consolidation. The project pipelines and other improvements are not located in an area of known ground subsidence due to the withdrawal of subsurface fluids. Accordingly, the potential damage to proposed project improvements from subsidence occurring due to the withdrawal of oil, gas, or water is considered low.

7.6 TSUNAMIS, INUNDATION SEICHES, AND FLOODING

The project site is at an elevation in excess of 430 feet above mean sea level and is approximately 9.5 miles from the Pacific Ocean. Therefore, tsunamis (seismic sea waves) are not considered a hazard at the site. The site is not located near to or downslope of any large body of water that could affect the site in the event of an earthquake-induced failure or seiche (oscillation in a body of water due to earthquake shaking). The site is located in a Zone X, areas determined to be outside the 0.2 percent annual chance floodplain.

7.7 EXPANSIVE SOILS

The project site is underlain predominantly by weathered granitic rock at depth. A representative sample of the fill and colluvial soils overlying the granitic rock in boring B5 was tested for expansion potential and was found to have “medium” expansion potential. These materials are generally considered unsuitable for use as structural fills, backfill of pipeline trenches, temporary excavations, or other underground structures.

Table 3 – Expansion Index Test Results

Test Location	Depth (feet)	Material Type	Expansion Index
B-5	1 - 3	Sandy Lean CLAY (CL)	57

8.0 CONCLUSIONS AND DESIGN RECOMMENDATIONS

8.1 GENERAL

Based on the data obtained from the subsurface exploration, the associated laboratory test results, engineering analyses, and experience with similar site conditions, it is NV5’s opinion that the proposed project is feasible from a geotechnical standpoint, provided that the recommendations in this report are incorporated into the design plans and implemented during construction. The following sections present recommendations pertaining to the geotechnical engineering design and construction for this project.

8.2 RIPPABILITY/EXCAVATIBILITY

Based on NV5's subsurface exploration, the soils underlying the site area are predominately sandy clay, clayey sand, silty gravel, sandy silt, and moderately to intensely weathered granitic rock. Bedrock outcrops are present at the surface in some areas along the project alignment, and underlie the entire project area at depth. It is anticipated that the on-site soils can be generally excavated by modern heavy-duty excavating equipment in good operating conditions. However, difficult excavation should be anticipated in the weathered granitic rock. Hard corestones (floaters) may also be encountered during excavation of the weathered, decomposed materials. Excavations in hard, relatively unweathered rock, corestones, or cobbles are anticipated to be difficult and may require heavy ripping, hydraulic hammering, blasting, rock drilling, rock-splitting, and/or other methods to facilitate excavation. In addition, excavations of hard rock and cobbles will also produce oversize materials that are unsuitable for use in backfill and structural fills.

8.3 GRADING AND EARTHWORK

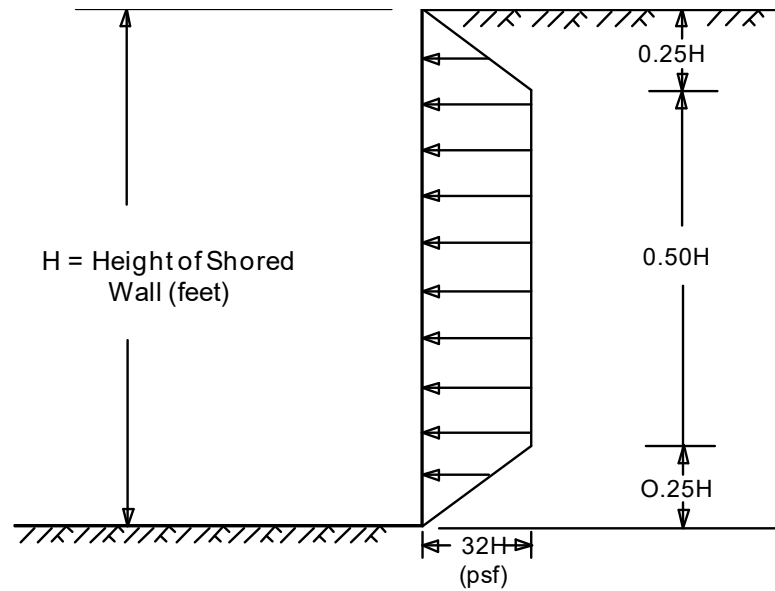
Although major earthwork is not planned for this project, site earthwork should be performed in accordance with the recommendations in the following sections and the Typical Earthwork Guidelines provided in *Appendix C*. In the event of conflict, the recommendations presented herein supersede those of *Appendix C*.

8.4 TEMPORARY EXCAVATIONS AND SHORING

Temporary, shallow excavations with vertical side slopes less than 4 feet high will generally be stable, although there is a potential for sloughing. Trench excavations should be performed in accordance with Cal-OSHA regulations. For planning purposes, the native soil materials may be considered as Type C, as defined in the current Cal-OSHA soil classification, with temporary excavation slopes of 1.5:1 (horizontal: vertical). Stockpiled (excavated) materials should be placed at a lateral distance more than the depth of excavation, but no closer than 4 feet.

Temporary shoring may be accomplished by several methods including: hydraulic shores and trench plates; trench boxes; and soldier piles and lagging. For vertical excavations less than about 15 feet in height, cantilevered shoring may be used. Cantilevered shoring may also be used for deeper excavations; however, the total deflection at the top of the wall should not exceed half-inch. Therefore, shoring of excavations deeper than about 15 feet may need to be accomplished with the aid of tied back earth anchors. The excavation support system should be designed to resist lateral earth pressures of the soil and hydrostatic pressures. Preliminary design of cantilevered temporary shoring, a triangular distribution of lateral earth pressure may be used. It may be assumed that the subgrade soils, with a level surface behind the cantilevered shoring, will exert an equivalent fluid pressure of 40 pcf.

Tied-back or braced shoring should be designed to resist a trapezoidal distribution of lateral earth pressure. The recommended pressure distribution, for the case where the grade is level behind the shoring, is illustrated in the following diagram with the pressure equal to $32H$ in psf, where H is the height of the shored wall in feet.



Any surcharge (live, including traffic, or dead load) located within a 1:1 (H:V) plane drawn upward from the base of the shored excavation should be added to the lateral earth pressures. The vertical loads imposed by existing structures, if any, should be determined by the structural engineer. The lateral load contribution of a uniform surcharge load located across the 1:1 (H:V) zone behind the excavation may be calculated in accordance with *Figure 5, Lateral Surcharge Loads*. Lateral load contributions of surcharges located at a distance behind the shored wall should be provided by NV5 once the load configurations and layouts are known. As a minimum, a 2-ft equivalent soil surcharge is recommended to account for nominal construction traffic loads.

The actual shoring design should be provided by a registered civil engineer in the State of California experienced in the design and construction of shoring under similar conditions. Once the final excavation and shoring plans are complete, the plans and the design should be reviewed by NV5 for conformance with the design intent and geotechnical recommendations. The shoring system should further satisfy requirements of Cal-OSHA.

8.5 DEWATERING

Groundwater was not encountered in our borings to the total depth explored of approximately 16.5 feet below the existing ground surface. Dewatering is not generally anticipated during the proposed construction. However, any cases of seepage or heavy precipitation should be monitored during construction. The groundwater table is subject to fluctuations in response to several factors. If dewatering is necessary, the actual means and methods of any dewatering scheme should be established by a contractor with local experience. It is important to note that temporary dewatering, if necessary, will require a permit and plan that complies with Regional Water Quality Control Board (RWQCB) regulations.

8.6 TRENCH BOTTOM STABILITY

The bottom of onsite excavations are anticipated to expose relatively dense materials, which should provide a suitable base for construction of the pipelines. For the design of flexible conduits, a modulus of soil reaction (E') of 600 pounds per square inch (psi) is recommended.

If water is encountered during excavations or if the soils become wet or saturated, they may be prone to settlement due to construction activities such as placement and compaction of backfill soils. Buried improvements underlain by these soils could also be damaged or subjected to unacceptable settlement due to subsidence of these soils. If wet or unusually soft conditions are encountered in the trench bottom, the bottom of the excavations will need to be stabilized. A typical stabilization method includes overexcavation of the soft or saturated soil and replacement with properly compacted fill, gravel or lean concrete to form a "mat" or stable working surface in the bottom of the excavation. There are other acceptable methods that can be implemented to mitigate the presence of compressible soils or unstable trench bottom conditions, and specific recommendations for a particular alternative can be discussed based on the actual construction techniques and conditions encountered.

8.7 PIPE BEDDING AND PIPE ZONE BACKFILL

It is recommended that pipe bedding and pipe zone backfill materials be placed in the trench to provide uniform support and protection for the pipe. Bedding or Pipe zone is defined as that material supporting, surrounding and extending to one foot above the top of the pipe. A cement slurry may not be used as bedding. The bedding materials should be approved by the geotechnical consultant prior to hauling on site. A 6-inch layer of pipe bedding consisting of clean sand having a minimum sand equivalent (SE) of 30 should be placed beneath the pipe. The pipe bedding zone shall be compacted to a minimum of 90 percent relative compaction. If crushed rock is used as bedding, we recommend the crushed rock be wrapped in filter fabric to mitigate the potential for migration of fines into the voids that could result in settlement. Care should be taken by the contractor during placement of the pipe bedding so that uniform contact between the bedding and pipe is attained. The pipe bedding shall be compacted under the haunches and alongside the pipe and care should be taken by the contractor to not damage the pipe. Pipe zone backfill should be placed in loose lift thicknesses not exceeding 8 inches and compacted by mechanical means to attain a relative compaction of 90 percent based on ASTM D1557. Flooding or jetting should not be allowed. Mechanical compaction and hand tamping should be performed carefully as to not damage the pipe.

8.8 TRENCH BACKFILL PLACEMENT AND COMPACTION

The trench backfill material should be free of debris, organic matter, or other deleterious materials. The majority of the on-site granular soils should generally be suitable for use as backfill material, while the sandy lean clay (CL) material is generally considered unsuitable for use as backfill material due to the potential for expansion. The backfill materials should not contain rocks or lumps larger than 3 inches, and not more than approximately 30 percent of particles larger than $\frac{3}{4}$ -inch. Large size materials should be screened and removed from the site or broken to acceptable sized pieces. Backfill should be placed in loose lifts not exceeding 8 inches in thickness and compacted to at least 90 percent of the maximum dry density as evaluated by the latest version of ASTM D1557. Trench backfill should be compacted in uniform lifts (not exceeding 6 inches in compacted thickness) by mechanical means to at least 90 percent relative compaction (ASTM D1557).

Water jetting should not be used for compaction. Imported backfill, if needed, should consist of granular, non-expansive soil with an Expansion Index (EI) of 20 or less and should not contain any contaminated soil, debris, organic matter, or other deleterious materials. At least 70% passing by weight of its particles shall pass a U.S. Standard ¾ - inch sieve. The sand equivalent (SE) of the imported material to be used for trench backfill shall be 20 or greater. Import material should be evaluated for suitability by the geotechnical consultant prior to transporting to the site. For the design of thrust blocks, please refer to *Figure 6, Thrust Block Detail*.

The upper 12 inches of subgrade soil and all rock base should be compacted to at least 95 percent. The moisture content of the backfill should be maintained within 2 percent of optimum moisture content during compaction. All backfill should be mechanically compacted. Flooding or jetting is not recommended and should not be allowed.

8.9 CORROSION POTENTIAL

The California Department of Transportation (Caltrans) Corrosion Guidelines (Version 3.2, dated May 2021) considers a site to be corrosive to structural elements “if one or more of the following conditions exist for the representative soil and/or water samples taken at the site: Chloride concentration is 500 ppm or greater, sulfate concentration of 1,500 ppm or greater, or the pH of 5.5 or less”. Minimum resistivity in soil or water is considered an indicator parameter and is not used to define a corrosive soil environment. Caltrans’ Guidelines state that a “minimum resistivity value for soil and/or water less than 1,500 Ohm-cm indicates the presence of high quantities of soluble salts and a higher propensity for corrosion”.

Representative samples of the site soils obtained from the borings were tested to evaluate the corrosion potential. The tests include pH, electrical resistivity, and soluble chloride and sulfate concentrations. Results of the corrosivity tests performed are summarized in the Table 4 below and presented in *Appendix B – Laboratory Test Results*.

Table 4 - Corrosivity Test Results

Test Location	Depth (feet)	Material Type	pH	Minimum Resistivity (ohm-cm)	Water Soluble Sulfate Content (ppm)	Water Soluble Chloride Content (ppm)
B-1	1 - 3	Sandy Lean CLAY (CL)	7.9	3300	<30	11
B-5	1-3	Sandy Lean CLAY (CL)	7.3	920	130	75

General recommendations to address the corrosion potential of the on-site soils are provided below. If additional recommendations are desired, it is recommended that a corrosion specialist be consulted.

Based on experience and the Caltrans Corrosion Guidelines, the site soils are not considered to be corrosive to steel based on the chloride content test results. The sulfate test results do not suggest the potential for site soils to be corrosive to steel and concrete.

As indicated in the 2006 edition (second edition) of “Corrosion Basics - An Introduction”, a general guideline for soil resistivity and corrosion-severity ratings is presented in the following table:

Table 5 - Soil Resistivity Versus Corrosion Severity

Soil Resistivity	Corrosivity
<1,000 ohm-cm	Extremely Corrosive
1,000 to 3,000 ohm-cm	Highly Corrosive
3,000 to 5,000 ohm-cm	Corrosive
5,000 to 10,000 ohm-cm	Moderately Corrosive
10,000 to 20,000 ohm-cm	Mildly Corrosive
>20,000 ohm-cm	Essentially Noncorrosive

Soil resistivity is not the only parameter affecting the risk of corrosion damage; and a high soil resistivity will not guarantee the absence of serious corrosion. For example, the American Water Works Association (AWWA) has developed a numerical soil-corrosivity scale, applicable to cast-iron alloys. The test results do suggest the potential for soils to be “corrosive” to “extremely corrosive” to ferrous metal pipes.

Any imported soils should be evaluated for corrosion characteristics if they will be in contact with buried or at-grade structures and pipelines and appropriate mitigation measures should be included in the design. It is recommended that a corrosion specialist be contacted to determine if mitigation measures are necessary.

9.0 DESIGN REVIEW AND CONSTRUCTION MONITORING

Geotechnical review of plans and specifications is of paramount importance in engineering practice. Additionally, observation and testing of the backfill, subgrade, and base will be important to the performance of the proposed improvements. The following sections present NV5’s recommendations relative to the review of construction documents and the monitoring of construction activities.

9.1 PLANS AND SPECIFICATIONS

The design plans and specifications should be reviewed by us prior to bidding and construction, as the geotechnical recommendations may need to be re-evaluated in consideration of the actual design configuration. This review is necessary to evaluate whether the recommendations contained in this report and future reports have been properly incorporated into the project plans and specifications.

9.2 CONSTRUCTION MONITORING

Site preparation, removal of unsuitable soils, assessment of imported fill materials, backfill placement, and other earthwork operations should be observed and tested. The substrata exposed during the construction may differ from that encountered in the test excavations. Continuous observation by a representative of NV5 during construction allows for evaluation of the soil/rock conditions as they are encountered and allows the opportunity to recommend appropriate revisions where necessary.

10.0 LIMITATIONS

The recommendations and opinions expressed in this report are based on NV5's review of background documents and on information developed during this study. It should be noted that this study did not evaluate the possible presence of hazardous materials on any portion of the site. More detailed limitations of this geotechnical study are presented in the GBA's information bulletin in *Appendix D, GBA Important Information About This Geotechnical Engineering Report*.

Due to the limited nature of NV5's field explorations, conditions not observed and described in this report may be present on the site. Uncertainties relative to subsurface conditions can be reduced through additional subsurface exploration. Additional subsurface evaluation and laboratory testing can be performed upon request. It should be understood that conditions different from those anticipated in this report may be encountered during the proposed structure construction operations.

Site conditions, including ground-water level, can change with time as a result of natural processes or the activities of man at the subject site or at nearby sites. Changes to the applicable laws, regulations, codes, and standards of practice may occur as a result of government action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which NV5 has no control.

NV5's recommendations for this site are, to a high degree, dependent upon appropriate quality control of subgrade preparation, fill/backfill placement, etc. Accordingly, the recommendations are made contingent upon the opportunity for NV5 to observe grading operations and foundation excavations for the proposed construction. If parties other than NV5 are engaged to provide such services, such parties must be notified that they will be required to assume complete responsibility as the geotechnical engineer of record for the geotechnical phase of the project by concurring with the recommendations in this report and/or by providing alternative recommendations.

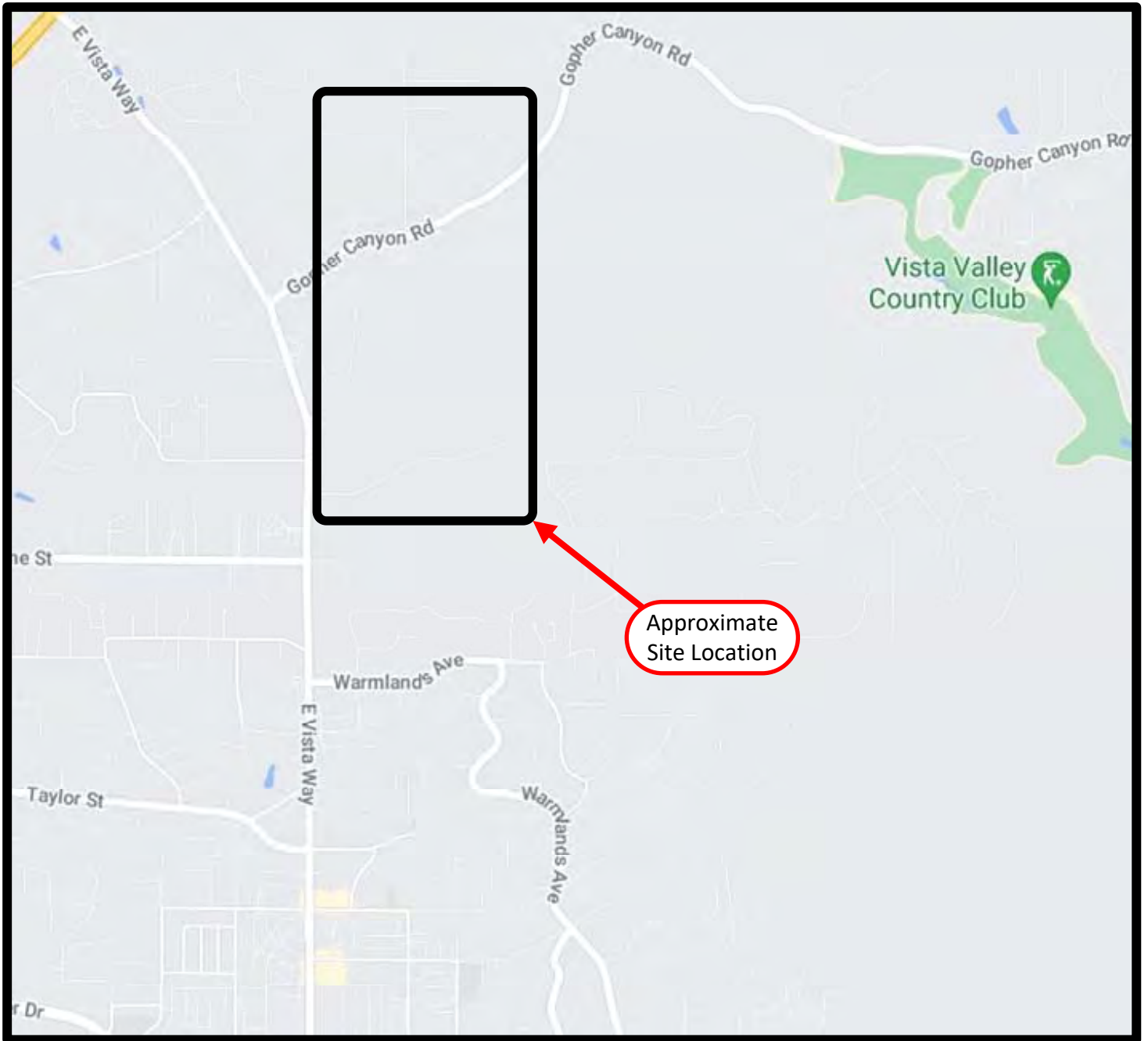
This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. NV5 should be contacted if the reader requires additional information or has questions regarding the content, interpretations presented, or completeness of this document.

NV5 has endeavored to perform this study using the degree of care and skill ordinarily exercised under similar circumstances by reputable geotechnical professionals with experience in this area in similar soil/rock conditions. No other warranty, either expressed or implied, is made as to the conclusions and recommendations contained in this study.

11.0 SELECTED REFERENCES

- American Society of Civil Engineers / Structural Engineering Institute (ASCE/SEI), 2016; Minimum Design Loads for Buildings and Other Structures, ASCE/SEI 7-16.
- ASTM, 2001, Soil and Rock: American Society for Testing and Materials: vol. 4.08 for ASTM test methods D-420 to D-4914; and vol. 4.09 for ASTM test methods D-4943 to highest number.
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- CBC, 2019, California Building Code.
- California Department of Conservation, Division of Mines and Geology, 1998, Maps of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada: International Conference of Building Officials, dated February, Scale 1 inch = 4 kilometers.
- California Department of Transportation, 2021, Corrosion Guidelines. Version 3.2, dated May
- California Geological Survey, 2008a; Special Publication 117A, Guidelines for Evaluating and Mitigating Seismic Hazards in California
- California Geological Survey, 2008ba, "Appendix A: California Fault Parameters for the National Seismic Hazard Maps and Working Group on California Earthquake Probabilities 2007," Special Report 203A.
- California Geological Survey, 2010; Fault Activity Map of California.
- Federal Emergency Management Agency, National Flood Hazard Layer FIRMette, 06073C0488G and 06073C0776G, effective May 16, 2012.
- Hart, E.W., and Bryant, W.A., 1997, Fault-Rupture Hazard Zones in California, Alquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Fault Zone Maps: California Department of Conservation, Division of Mines and Geology Special Publication 42, 38 pp.,
- Ishihara, K., 1985, Stability of Natural Deposits during Earthquakes: Proceedings, 11th International Conference on Soil Mechanics and Foundation Engineering, Volume 1, pp. 321-376.
- Jennings, C.W., and Saucedo, G. J. 1999, Simplified Fault Activity Map of California, Map Sheet 54, (Revised 2003 by Topozada, T., and Branum, D.).
- Kennedy, M.P. and Tan, S.S., 2007, Geologic Map of the Oceanside 30' x 60' Quadrangle, California, California Geological Survey Map No. 2, scale 1:100,000.
- USGS California Land Subsidence Areas, https://ca.water.usgs.gov/land_subsidence/california-subsidence-areas.html

FIGURES



No Scale



Reference: Google Maps 2021



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Project No: **227520-0000851.00**

Drafted By: **WB**

Date: **August 2021**

SITE LOCATION MAP
 Vallecitos Water District
 Waterline Replacement Project
 Vista, CA

FIGURE
1

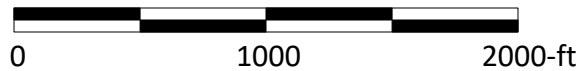


Legend



B-6

Approximate location of soil boring



Reference: Google Earth 2021



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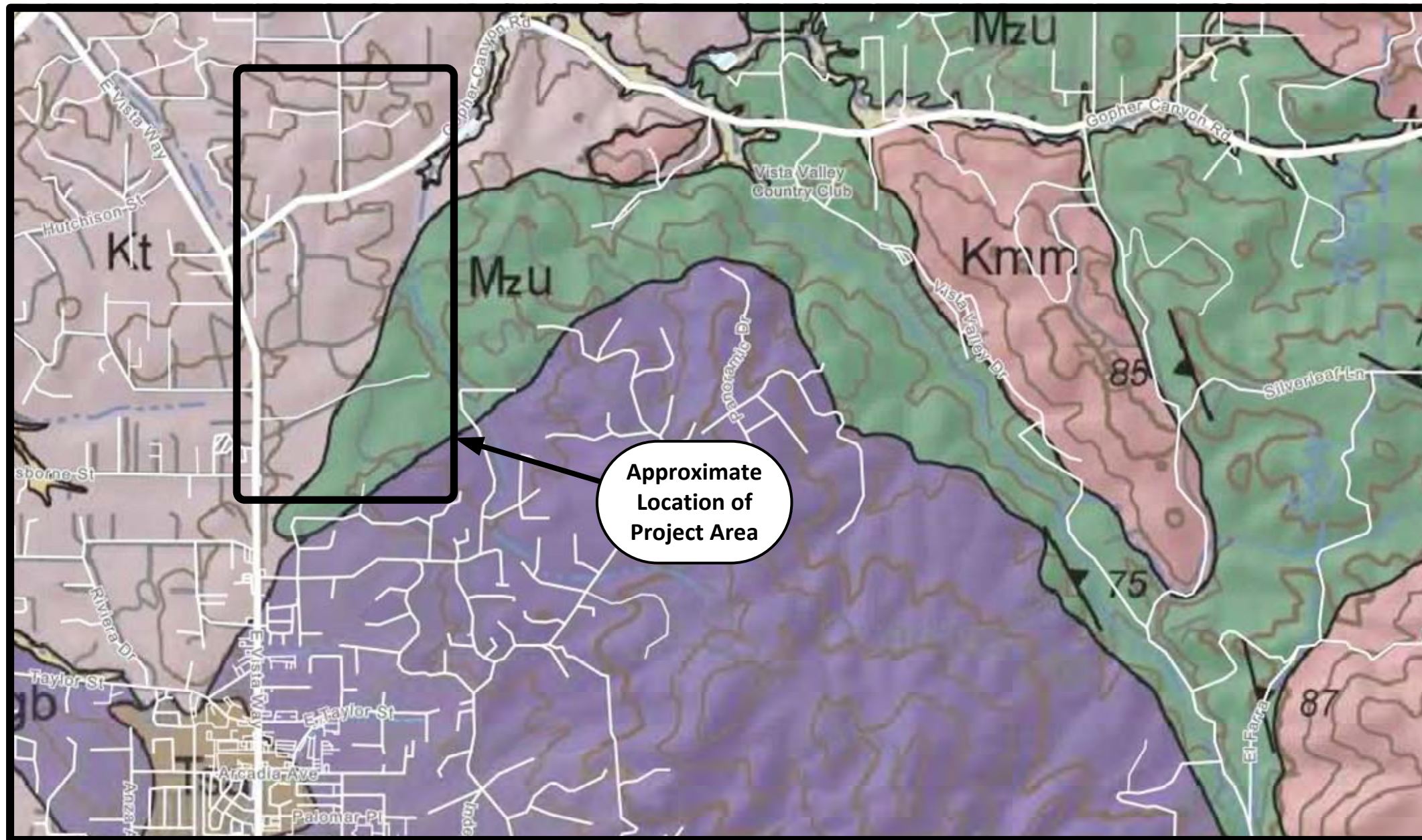
Date: **August 2021**

EXPLORATION LOCATION MAP

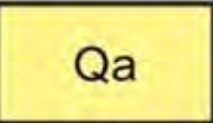
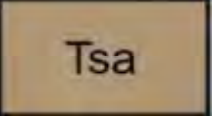

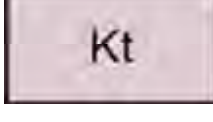
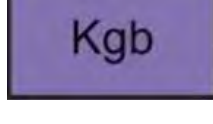
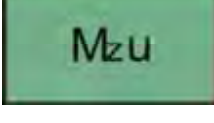
Vallecitos Water District
 Waterline Replacement Project
 Vista, CA

FIGURE

2




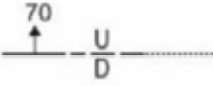
Description of Map Units

-  Qa Alluvial flood-plain deposits (late Holocene)
-  Tsa Santiago Formation (mid-Eocene)
-  Kmm Monzogranite of Merriam Mountain (mid-Cretaceous)
-  Kt Tonalite, undivided (mid-Cretaceous)
-  Kgb Gabbro, undivided (mid-Cretaceous)
-  Mzu Metasedimentary and metavolcanic rocks, undivided (Mesozoic)

Approximate Scale in Miles

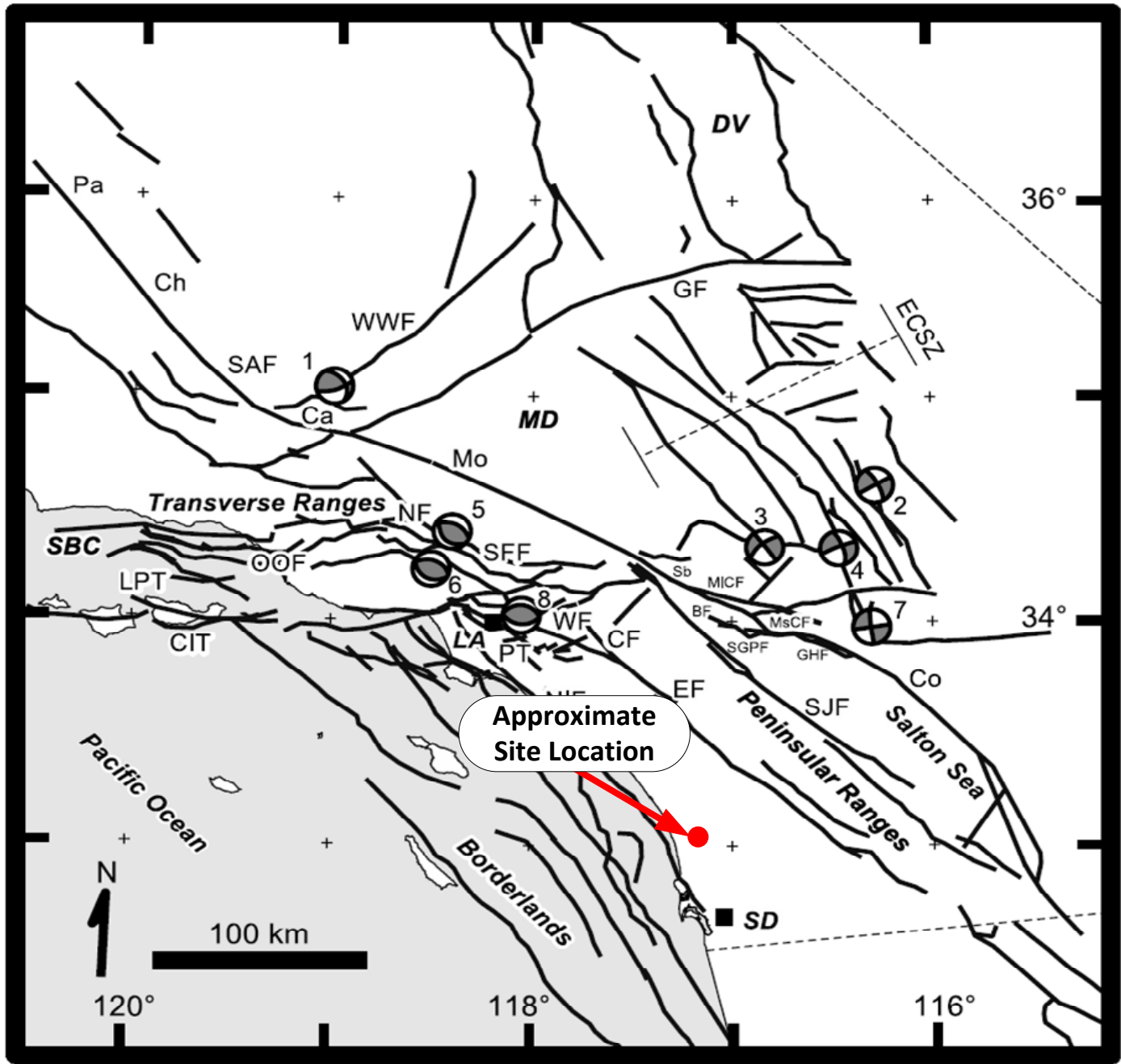


Map Symbols

-  Contact - Contact between geologic units; generally approximately located; dotted where concealed.
-  Fault - Solid where accurately located; dashed where approximately located; dotted where concealed. U = upthrown block, D = downthrown block. Arrow and number indicate direction and angle of dip of fault plane.



Reference : Geologic Map of the Oceanside 30x60-minute Quadrangle, California – 2007, Kennedy, M.P., Tan, S.S., Bovard, K.R., Alvarez, R.M., Watson, M.J., and Gutierrez, C.I.: California Geological Survey Map No. 2, scale 1:100,000



Map of southern California showing the geographic regions, faults and focal mechanisms of the more significant earthquakes. **Regions:** Death Valley, DV; Mojave Desert MD; Los Angeles, LA; Santa Barbara Channel, SBC; and San Diego, SD. **Indicated Faults:** Banning fault, BF; Channel Island thrust, CIT; Chino fault, CF; Eastern California Shear Zone, ECSZ; Elsinore fault, EF; Garlock fault, GF; Garnet Hill fault, GHF; Lower Pitas Point thrust, LPT; Mill Creek fault, MICF; Mission Creek fault, MsCF; Northridge fault, NF; Newport Inglewood fault, NIF; offshore Oak Ridge fault, OOF; Puente Hills thrust, PT; San Andreas fault (sections: Parkfield, Pa; Cholame, Ch; Carrizo; Ca; Mojave, Mo; San Bernardino, Sb; and Coachella, Co); San Fernando fault, SFF; San Gorgonio Pass fault, SGPF; San Jacinto fault, SJF; Whittier fault, WF; and White Wolf fault, WWF. **Earthquake Focal Mechanisms:** 1952 Kern County, 1; 1999 Hector Mine, 2; 1992 Big Bear, 3; 1992 Landers, 4; 1971 San Fernando, 5; 1994 Northridge, 6; 1992 Joshua Tree, 7; and 1987 Whittier Narrows, 8.

Reference: Plesch, Andreas et. al., 2007, Community Fault Model (CFM) for Southern California; in the *Bulletin of the Seismological Society of America*, Vol. 97, No. 6. pp. 1793-1802, dated December.

For Schematic Use Only-Not a Construction Drawing



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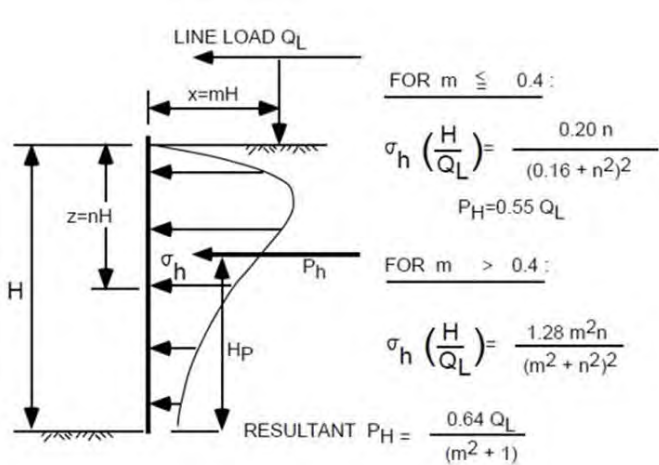
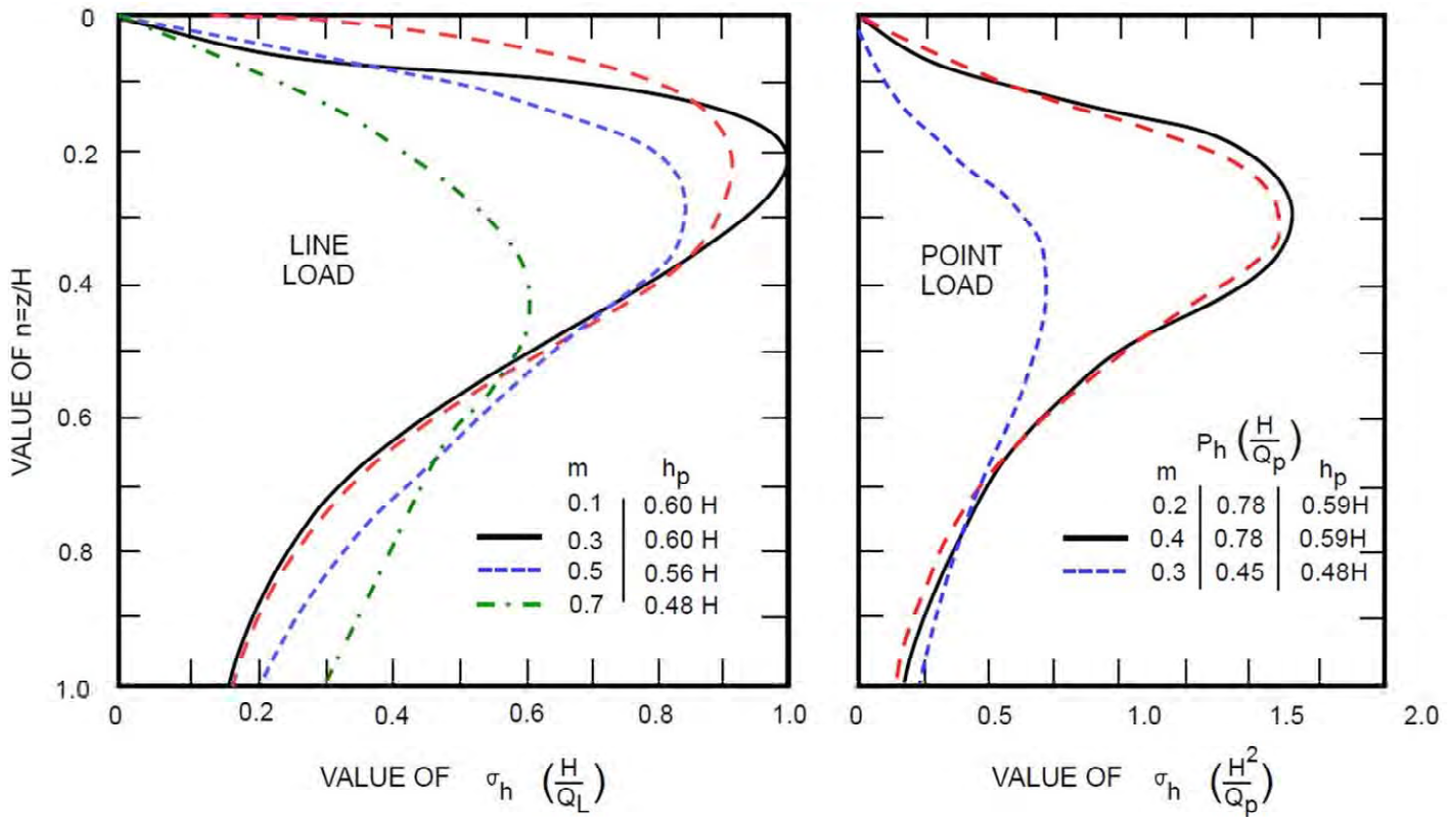
Date: August 2021

REGIONAL FAULT MAP

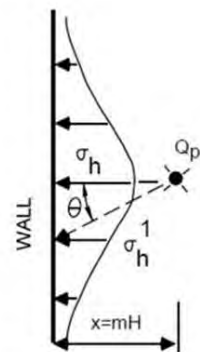
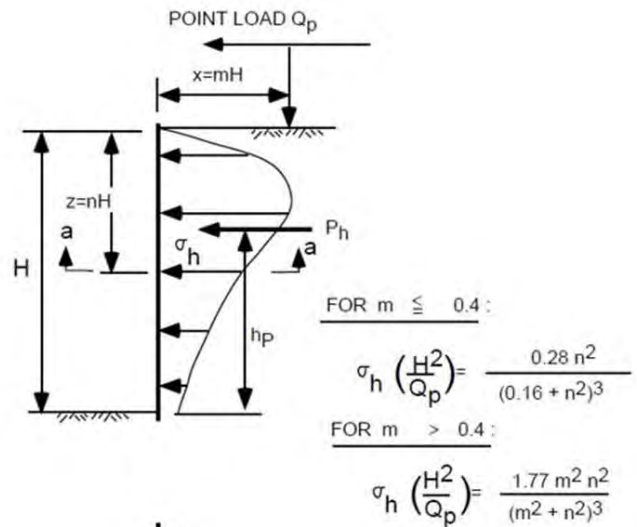
Vallecitos Water District
Waterline Replacement Project
Vista, CA

FIGURE

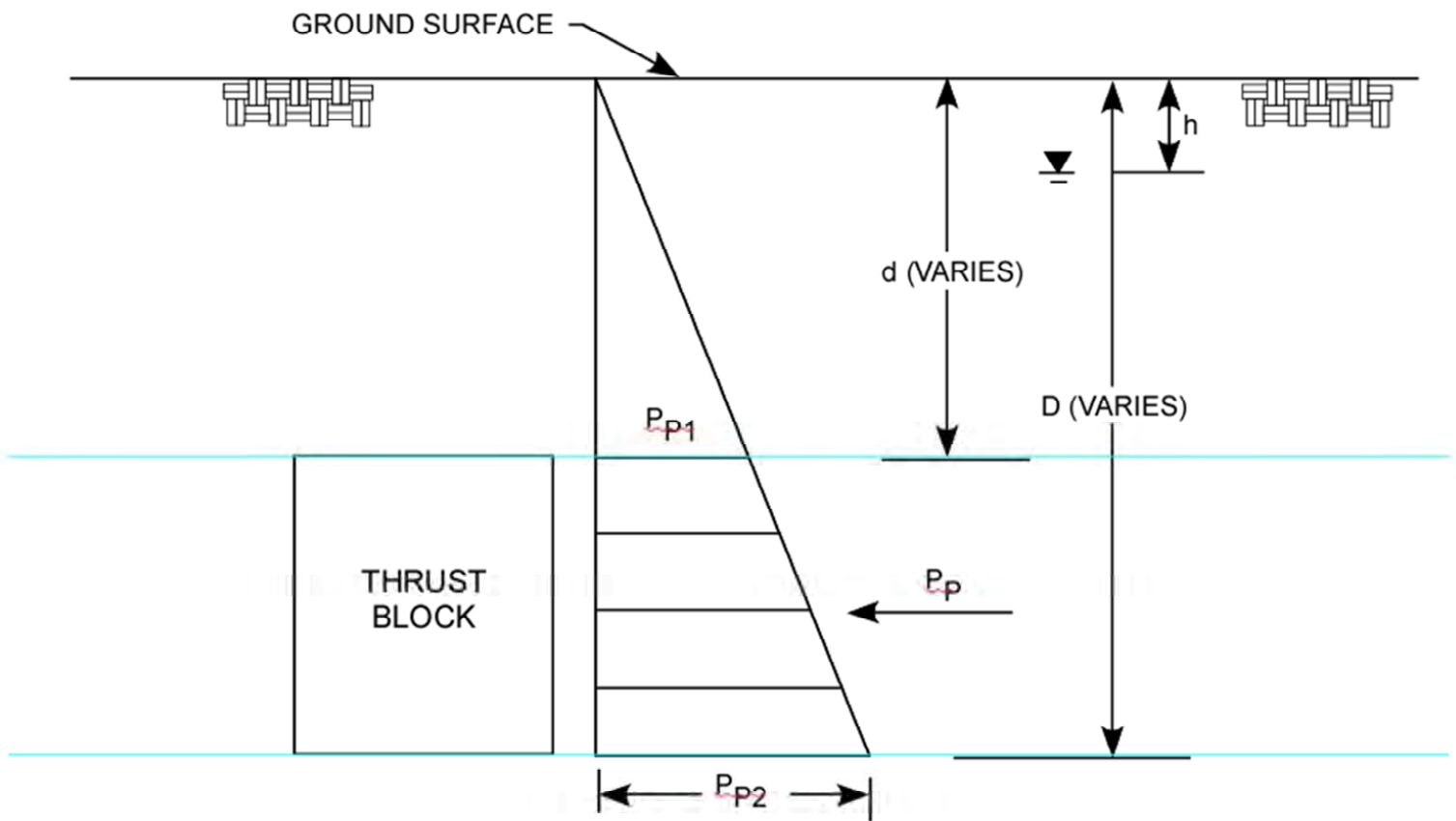
4




PRESSURE FROM LINE LOAD Q_L
(BOUSSINESQ EQUATION MODIFIED BY EXPERIMENT)



$$\sigma_1 = \sigma_h \cos 2(1.1 \theta)$$



Notes:

1. Groundwater Below block:
 $P_p = 175 (D^2 - d^2)$ lb/ft
2. Groundwater Above block:
 $P_p = 1.4 (D - d)[115h + 52(D - d)]$ lb/ft
3. Assumes Backfill is Granular Material
4. Assumes Thrust Block is adjacent to competent material
5. D, d, and h are in feet
6.  Groundwater Table

APPENDIX A

Field Exploration Logs

SAMPLE/SAMPLER TYPE GRAPHICS

	AUGER SAMPLE
	STANDARD PENETRATION SPLIT SPOON SAMPLER
	BULK / GRAB SAMPLE
	CALIFORNIA MODIFIED SPLIT SPOON SAMPLER
	SHELBY TUBE SAMPLER
	HQ ROCK CORE SAMPLE
	NQ ROCK CORE SAMPLE

GROUNDWATER LEVEL GRAPHICS

	WATER LEVEL (during drilling operations)
	WATER LEVEL (immediately after drilling completion)
	WATER LEVEL (additional levels after drilling completion)
	OBSERVED SEEPAGE

NOTES

- The report and graphics key are an intergral part of these logs. All data and interpretations in this log are subject to the explanations and limitations stated in the report.
- Lines separating strata on the logs represent approximate boundaries only. Actual transitions may be gradual or differ from those shown.
- No warranty is provided as to the continuity of soil or rock conditions between individual sample locations.
- Logs represent general soil or rock conditions observed at the point of exploration on the date indicated.
- In general, Unified Soil Classification System (USCS) designations presented on the logs were based on visual classification in the field and were modified where appropriate based on gradation and index property testing.
- Fine grained soils that plot within the hatched area on the Plasticity Chart, and coarse grained soils with between 5 and 12% passing the No. 200 sieve require dual USCS symbols, i.e., GW-GM, GP-GM, GW-GC, GP-GC, GC-GM, SW-SM, SP-SM, SW-SC, SP-SC, SC-SM.
- If sampler is not able to be driven at least 6 inches then Y/X indicates Y number of blows required to drive the identified sampler X inches with a 140 pound hammer falling 30 inches.

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487)

GRAVELS (More than half of coarse fraction is larger than the #200 sieve)	CLEAN GRAVEL WITH <5% FINES	Cu ≥ 4 and 1 ≤ Cc ≤ 3		GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
		Cu < 4 and/or 1 > Cc > 3		GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
	GRAVELS WITH 5 TO 12% FINES	Cu ≥ 4 and 1 ≤ Cc ≤ 3		GW-GM	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
		Cu < 4 and/or 1 > Cc > 3		GW-GC	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
				GP-GM	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
				GP-GC	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
	GRAVELS WITH >12% FINES			GM	SILTY GRAVELS, GRAVEL-SILT-SAND MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
				GC-GM	CLAYEY GRAVELS, GRAVEL-SAND-CLAY-SILT MIXTURES
	COARSE GRAINED SOILS (More than half of coarse fraction is smaller than the #4 sieve)	CLEAN SANDS WITH <5% FINES	Cu ≥ 6 and 1 ≤ Cc ≤ 3		SW
		Cu < 6 and/or 1 > Cc > 3		SP	POORLY-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
SAND WITH 5 TO 12% FINES		Cu ≥ 6 and 1 ≤ Cc ≤ 3		SW-SM	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
				SW-SC	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
				SP-SM	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
				SP-SC	POORLY-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
SANDS WITH >12% FINES				SM	SILTY SANDS, SAND-GRAVEL-SILT MIXTURES
				SC	CLAYEY SANDS, SAND-GRAVEL-CLAY MIXTURES
				SC-SM	CLAYEY SANDS, SAND-SILT-CLAY MIXTURES
FINE GRAINED SOILS (More than half of material is smaller than the #200 sieve)		SILTS AND CLAYS (Liquid Limit less than 50)			ML
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				CL-ML	INORGANIC CLAYS-SILTS OF LOW PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
	SILTS AND CLAYS (Liquid Limit greater than 50)			OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY
				MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT
				CH	INORGANIC CLAYS OF HIGH PLASTICITY FAT CLAYS
		OH	ORGANIC CLAYS & ORGANIC SILTS OF MEDIUM-TO-HIGH PLASTICITY		



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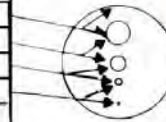
Date: September 2021

BORING LOG LEGEND
Vallecitos Water District
Tres Amigos Waterline Replacement
Vista, California

CHART
1

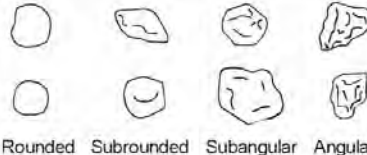
GRAIN SIZE

DESCRIPTION	SIEVE SIZE	GRAIN SIZE	APPROXIMATE SIZE
Boulders	>12 in.	>12 in. (304.8 mm.)	Larger than basketball-sized
Cobbles	3 - 12 in.	3 - 12 in. (76.2 - 304.8 mm.)	Fist-sized to basketball-sized
Gravel	coarse	3/4 - 3 in.	Thumb-sized to fist-sized
	fine	#4 - 3/4 in.	Pea-sized to thumb-sized
Sand	coarse	#10 - #4	Rock salt-sized to pea-sized
	medium	#40 - #10	Sugar-sized to rock salt-sized
	fine	#200 - #40	Four-sized to sugar-sized
Fines	Passing #200	<0.0029 in. (0.074 mm.)	Flour-sized and smaller



ANGULARITY

DESCRIPTION	CRITERIA
Angular	Particles have sharp edges and relatively plane sides with unpolished surfaces
Subangular	Particles are similar to angular description but have rounded edges
Subrounded	Particles have nearly plane sides but have well-rounded edges
Rounded	Particles have smoothly curved sides and no edges



PLASTICITY

DESCRIPTION	CRITERIA
Non-plastic	A 1/8-in. (3 mm.) thread cannot be rolled at any water content.
Low (L)	The thread can barely be rolled and the lump or thread cannot be formed when drier than the plastic limit.
Medium (M)	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump or thread crumbles when drier than the plastic limit.
High (H)	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump or thread can be formed without crumbling when drier than the plastic limit.

MOISTURE CONTENT

DESCRIPTION	CRITERIA
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below groundwater table

REACTION WITH HYDROCHLORIC ACID

DESCRIPTION	CRITERIA
None	No visible reaction
Weak	Some reaction, with bubbles forming slowly
Strong	Violet reaction, with bubbles forming immediately

APPARENT DENSITY - COARSE-GRAINED SOIL

APPARENT DENSITY	SPT-N ₆₀ (#blows/ft)	CALIFORNIA MODIFIED SPLIT SPOON SAMPLER (#blows/ft)
Very Loose	<4	<5
Loose	4 - 10	6 - 15
Medium Dense	11 - 30	16 - 45
Dense	31 - 50	46 - 75
Very Dense	>50	>75

CONSISTENCY - FINE-GRAINED SOIL

CONSISTENCY	SPT-N ₆₀ (#blows/ft)	CRITERIA	P.P. (TSF)
Very Soft	<2	Thumb will penetrate soil more than 1 in. (25 mm.)	<0.25
Soft	2 - 4	Thumb will penetrate soil about 1 in. (25 mm.)	0.25 - 0.5
Medium Stiff	5 - 8	Thumb will indent soil about 1/4-in. (6 mm.)	0.5 - 1.0
Stiff	9 - 15	Thumb will not indent soil but readily indented with thumbnail	1.0 - 2.0
Very Stiff	16 - 30	Readily indented with nail not thumb	2.0 - 4.0
Hard	>30	Thumbnail will not indent soil	>4.0

STRUCTURE

DESCRIPTION	CRITERIA
Stratified	Alternating layers of varying material or color with layers at least 1/4-in. (6 mm.) thick, note thickness
Laminated	Alternating layers of varying material or color with layers less than 1/4-in. (6 mm.) thick, note thickness
Fissured	Breaks along definite planes of fracture with little resistance to fracturing
Slickensided	Fracture planes appear polished or glossy, sometimes striated
Blocky	Cohesive soil that can be broken down into smaller angular lumps which resist further breakdown
Lensed	Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay, note thickness
Homogeneous	Same color and appearance throughout

CEMENTATION

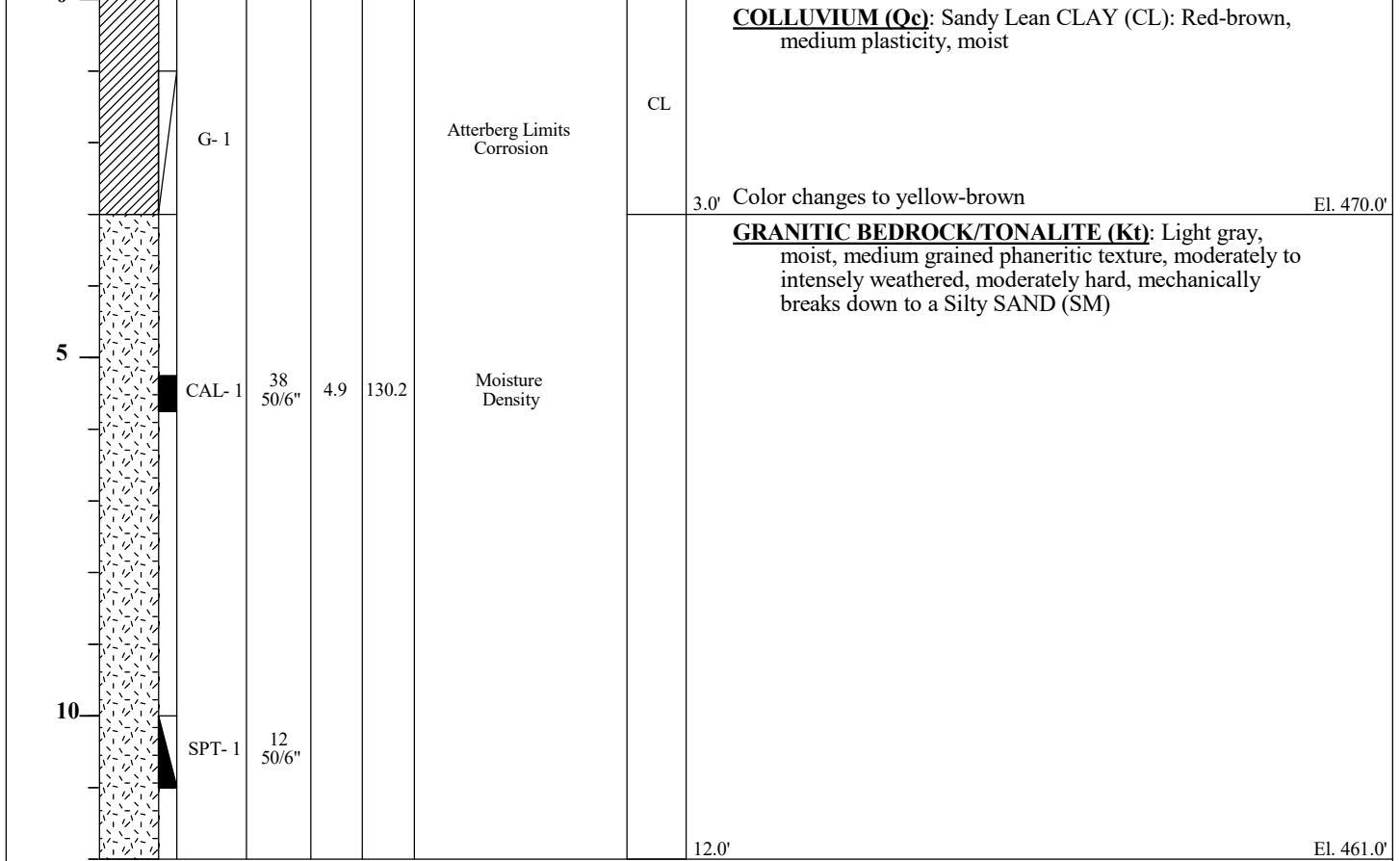
DESCRIPTION	CRITERIA
Weakly	Crumbles or breaks with handling or slight finger pressure
Moderately	Crumbles or breaks with considerable finger pressure
Strongly	Will not crumble or break with finger pressure

Date	Started: 9/8/21	Project Number 227520-0000851.00	Project Vallecitos Tres Amigos		Boring No. B-1
	Completed: 9/8/21				
	Hammer Efficiency: 73.9%	Rig Type: CME-75	Logged By: W. Barton	Reviewed By: S. Roy	

Latitude: 33.254283	Longitude: -117.219144	Surface Elevation: 473'
---------------------	------------------------	-------------------------

Groundwater Depth (ft.) Depth (ft.)	Graphical Log	Sample Taken	Sample ID	Penetration Resistance (Blows per 6 in.)	Moisture Content (%)	Dry Weight (pcf)	Other Tests and Remarks	USCS Class.	Location: Approximately 900' east of Fairview Drive, 1200' northeast of B-2 loc:			
									Sample Type		Groundwater	
									Depth (ft)	Hour	Date	

Visual Classification										
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Notes: Drilled using 6-inch O.D. Hollow-Stem Auger. Refusal encountered at 12' bgs. Groundwater not encountered. Backfilled with soil cuttings.

Date	Started: 9/8/21	Project Number 227520-0000851.00	Project Vallecitos Tres Amigos		Boring No. B-2															
	Completed: 9/8/21																			
	Hammer Efficiency: 73.9%	Rig Type: CME-75	Logged By: W. Barton	Reviewed By: S. Roy																
Latitude: 33.251901		Longitude: -117.221951		Surface Elevation: 517'																
Groundwater Depth (ft.)	Graphical Log	Sample Taken	Sample ID	Penetration Resistance (Blows per 6 in.)	Moisture Content (%)	Dry Weight (pcf)	Other Tests and Remarks	USCS Class.	Location: Approximately 150' south of Carrio Dr.											
									Sample Type G - Bulk / Grab Sample SPT - 2" O.D. 1.4" I.D. Tube Sample CAL - 3" O.D. 2.4" I.D. Ring Sample NR - No Recovery * - Uncorrected Blow Counts											
<table border="1"> <thead> <tr> <th colspan="3">Groundwater</th> </tr> <tr> <th>Depth (ft)</th> <th>Hour</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>									Groundwater			Depth (ft)	Hour	Date						
Groundwater																				
Depth (ft)	Hour	Date																		
Visual Classification																				

0	Graphical Log	Sample ID	Penetration Resistance (Blows per 6 in.)	Moisture Content (%)	Dry Weight (pcf)	Other Tests and Remarks	USCS Class.	0.3' Asphalt Concrete: 3" AC no base	El. 516.8'
								FILL: Clayey SAND (SC): Brown, moist, fine-coarse sand, fine-coarse gravel El. 515.0'	
								GRANITIC BEDROCK/TONALITE (Kt): Gray, moist, medium grained phaneritic texture, moderately to highly weathered, moderately hard, mechanically breaks down to a Silty SAND (SM) Weathering increases	
5		CAL-1	30 50/2"	4.0		Moisture			
10		SPT-1	25 50/1"						
15		SPT-2	50/5"					15.4'	El. 501.6'

Notes: Drilled using 6-inch O.D. Hollow-Stem Auger. Refusal encountered at 15.4' bgs. Groundwater not encountered. Backfilled with soil cuttings. Patched with Aquaphalt.



Date	Started: 9/8/21	Project Number 227520-0000851.00	Project Vallecitos Tres Amigos		Boring No. B-3
	Completed: 9/8/21		Rig Type: CME-75	Logged By: W. Barton	Reviewed By: S. Roy
	Hammer Efficiency: 73.9%	Latitude: 33.250113		Longitude: -117.221917	Surface Elevation: 470'

Groundwater Depth (ft.)	Graphical Log	Sample Taken	Sample ID	Penetration Resistance (Blows per 6 in.)	Moisture Content (%)	Dry Weight (pcf)	Other Tests and Remarks	USCS Class.	Location: Approximately 200' north of Gopher Canyon Rd.		
									Groundwater		
Sample Type											
G - Bulk / Grab Sample									Depth (ft)	Hour	Date
SPT - 2" O.D. 1.4" I.D. Tube Sample											
CAL - 3" O.D. 2.4" I.D. Ring Sample											
NR - No Recovery											
* - Uncorrected Blow Counts											
Visual Classification											
0								GM	FILL: Silty GRAVEL (GM): Grey, moist, subangular gravel		
			G-1						1.0'		El. 469.0'
								CL	COLLUVIUM(Qc): Sandy Lean CLAY (CL): Red-brown, moist, fine sand, trace subrounded gravel		
									4.0'		El. 466.0'
5			CAL-1	26 50/6"	9.1	114.7	Direct Shear Moisture Density		GRANITIC BEDROCK/TONALITE (Kt): Dark red-brown, moist, medium grained phaneritic texture, moderately to intensely weathered, moderately hard, mechanically breaks down to a Silty SAND (SM)		
10			SPT-1	13 13 20							
15			SPT-2	23 50/3"					15.8'		El. 454.3'

Notes: Drilled using 6-inch O.D. Hollow-Stem Auger. Refusal encountered at 15.75' bgs. Groundwater not encountered. Backfilled with soil cuttings.

Date	Started: 9/8/21	Project Number 227520-0000851.00	Project Vallecitos Tres Amigos		Boring No. B-4
	Completed: 9/8/21				
	Hammer Efficiency: 73.9%	Rig Type: CME-75	Logged By: W. Barton	Reviewed By: S. Roy	

Latitude: 33.245655		Longitude: -117.223341		Surface Elevation: 583'									
Groundwater Depth (ft.) Depth (ft.)	Graphical Log	Sample Taken	Sample ID	Penetration Resistance (Blows per 6 in.)	Moisture Content (%)	Dry Weight (pcf)	Other Tests and Remarks	USCS Class.	Location: North end of farm, approximately 1900' north of Tres Amigos Ranch				
									Sample Type		Groundwater		
									G - Bulk / Grab Sample SPT - 2" O.D. 1.4" I.D. Tube Sample CAL - 3" O.D. 2.4" I.D. Ring Sample NR - No Recovery * - Uncorrected Blow Counts		Depth (ft)	Hour	Date
Visual Classification													

0		G-1					Maximum Density Sieve Analysis		SC	FILL: Clayey SAND (SC): Red-brown, fine-coarse sand, trace gravel		1.0'	El. 582.0'
									SC	COLLUVIUM (Qc): Clayey SAND (SC): Red-brown, moist, fine-coarse sand, trace gravel, subrounded gravel		3.0'	El. 580.0'
										GRANITIC BEDROCK/TONALITE (Kt): Yellow-gray, moist, medium grained phaneritic texture, moderately to intensely weathered, moderately hard, mechanically breaks down to a Silty SAND (SM)			
5		CAL-1	38 50/3"	8.0	108.6	Moisture Density							
10		SPT-1	10 50/6"										
15		SPT-2	50/4"								15.3'	El. 567.7'	


Notes: Drilled using 6-inch O.D. Hollow-Stem Auger. Refusal encountered at 15.3' bgs. Groundwater not encountered. Backfilled with soil cuttings.

Date	Started: 9/8/21	Project Number 227520-0000851.00	Project Vallecitos Tres Amigos		Boring No. B-5
	Completed: 9/8/21		Rig Type: CME-75	Logged By: W. Barton	Reviewed By: S. Roy
	Hammer Efficiency: 73.9%				

Latitude: 33.242960	Longitude: -117.224246	Surface Elevation: 505'
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Groundwater Depth (ft.) Depth (ft.)	Graphical Log	Sample Taken	Sample ID	Penetration Resistance (Blows per 6 in.)	Moisture Content (%)	Dry Weight (pcf)	Other Tests and Remarks	USCS Class.	Location: West side of farm, approximately 1000' north of Tres Amigos Ranch I			
									Sample Type		Groundwater	
									G - Bulk / Grab Sample SPT - 2" O.D. 1.4" I.D. Tube Sample CAL - 3" O.D. 2.4" I.D. Ring Sample NR - No Recovery * - Uncorrected Blow Counts		Depth (ft)	Hour

Visual Classification										
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0		G- 1	8 13 20	11.9	Expansion Index Corrosion	Moisture	CL	FILL: Sandy Lean CLAY (CL): Dark brown, moist, medium plasticity, with fine-coarse sand		
								2.0'	El. 503.0'	
								COLLUVIUM (Qc): Sandy Lean CLAY (CL): Dark brown, moist, medium plasticity, fine-coarse sand		
5		SPT- 1	17 28 50/6"				CL	Increase in moisture		
								Hard, trace weathered granite		
6.5'		SPT- 2	13 30 34				CL	Hard, trace weathered granite		
								6.5'		
10		SPT- 3					CL	GRANITIC BEDROCK/TONALITE (Kt): Light gray, moist, medium grained phaneritic texture, moderately to intensely weathered, moderately hard, mechanically breaks down to a Silty SAND (SM)		
								Weathering increases		
15							CL	Increase in weathering and moisture		
								16.5'		
El. 488.5'										

Notes: Drilled using 6-inch O.D. Hollow-Stem Auger. Boring terminated at 16.5' bgs. Refusal not encountered. Groundwater not encountered. Backfilled with soil cuttings.

Date	Started: 9/8/21	Project Number 227520-0000851.00	Project Vallecitos Tres Amigos		Boring No. B-6
	Completed: 9/8/21		Rig Type: CME-75	Logged By: W. Barton	Reviewed By: S. Roy
	Hammer Efficiency: 73.9%				

Latitude: 33.241349	Longitude: -117.220684	Surface Elevation: 571'
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Groundwater Depth (ft.) Depth (ft.)	Graphical Log	Sample Taken	Sample ID	Penetration Resistance (Blows per 6 in.)	Moisture Content (%)	Dry Weight (pcf)	Other Tests and Remarks	USCS Class.	Location: Southeast side of farm, approximately 0.33 miles down Tres Amigos R			
									Sample Type		Groundwater	
									G - Bulk / Grab Sample SPT - 2" O.D. 1.4" I.D. Tube Sample CAL - 3" O.D. 2.4" I.D. Ring Sample NR - No Recovery * - Uncorrected Blow Counts		Depth (ft)	Hour

Visual Classification

0									ML	FILL: Sandy SILT (ML): Light brown, moist, medium plasticity, fine-medium grained sand	El. 569.0'
5			G-1								
				CAL-1	43 50/3"	6.0	124.0	Direct Shear Moisture Density			
10										Color changes to light grey, increase in moisture content	
				G-2							
15				SPT-1	20 50/2"						
				SPT-2	50/2"						
											El. 555.8'

Notes: Drilled using 6-inch O.D. Hollow-Stem Auger. Refusal encountered at 15.2' bgs. Groundwater not encountered. Backfilled with soil cuttings.

Sampling Methods

Representative bulk-disturbed and relatively undisturbed drive samples were retrieved during exploratory drilling at selected depths appropriate to our investigation. The samples were labeled in the field and transported to our laboratory for observation, evaluation, and testing. The drive samples were obtained using the California Modified Split Spoon (CAL) and Standard Penetration Test (SPT) samplers, as described below.

California Modified Split Spoon (CAL) Sampler

A split-barrel drive sampler was driven with a 140-pound hammer allowed to drop freely 30 inches in general accordance with ASTM D1587. The sampler has external and internal diameters of approximately 3.0 and 2.4 inches, respectively, and the inside of the sampler is lined with 1-inch-long brass rings. The drive sampler was driven a maximum of 18 inches (or to refusal) and the number of blows per 6-inch interval, or any portion thereof, were recorded during sampling and are presented on the logs of the borings. The relatively undisturbed soil samples within the rings were removed, sealed, and transported to the laboratory for observation and testing.

Standard Penetration Test (SPT) Sampler

A split-barrel SPT sampler was driven with a 140-pound hammer (using a 30-inches drop) in general accordance with ASTM D1586. The sampler has external and internal diameters of 2.0 and 1.4 inches, respectively. The SPT sampler was driven 18 inches (or to refusal) and the number of blows per 6-inch interval was recorded on the field boring logs. The uncorrected N-value (numbers of blows for the last two 6-inch intervals or any portion thereof) is presented on the borings logs. The soil samples retrieved from the STP sampler were logged and transported to the laboratory for classification and testing.

Note: The penetration resistance (blows/foot) shown on the logs of the exploratory borings represents field penetration that has not been corrected for overburden pressure, sampler size, hammer type, borehole diameter, rod length, sampling method or any other correction factor.

Logging Methods

Earth materials encountered during the field investigation were classified in accordance with the Unified Soil Classification System (USCS) and augmented with ASTM Standard Testing for Soil (see Appendix B). The apparent density of materials was derived from blow counts (ASTM D1586). The number of blows recorded for the last twelve inches of the drive sampler was used to determine the uncorrected “N-value” in accordance with ASTM D1586. The uncorrected “N-value” was used to determine consistency of cohesive soils (clays and silts) and apparent density of granular soils (sands and gravels) using the following charts (Chart 1 and Chart 2).

APPENDIX B

Laboratory Test Results

SUMMARY OF LABORATORY TEST RESULTS

In-situ Moisture and Density Tests

The in-situ moisture contents and dry densities of selected samples obtained from the test borings were evaluated in general accordance with the latest version of D2216 and D2937 laboratory test methods. The method involves obtaining the moist weight of the sample and then drying the sample to obtain its dry weight. The moisture content is calculated by taking the difference between the wet and dry weights, dividing it by the dry weight of the sample and expressing the result as a percentage. The results of the in-situ moisture content and density tests are presented in the following table and on the logs of exploratory borings in Appendix A.

**RESULTS OF MOISTURE CONTENT AND DENSITY TESTS
(ASTM D2216 and ASTM D2937)**

Sample Location	Moisture Content (percent)	Dry Density (pounds per cubic foot)
Boring 1 @ 5.25 - 5.75 feet	4.9	130.2
Boring 2 @ 5.2 - 5.7 feet	4.0	-
Boring 3 @ 5.5 - 6.0 feet	9.1	114.7
Boring 4 @ 5.25 - 5.75 feet	8.0	108.6
Boring 5 @ 5 - 6.5 feet	11.9	-
Boring 6 @ 5.25 - 5.75 feet	6.0	124.0

Classification

Soils were visually and texturally classified in general accordance with the Unified Soil Classification System (ASTM D2487). Soil classifications are indicated on the logs of the exploratory borings presented in Appendix A.

Particle-size Distribution Tests

An evaluation of the grain-size distribution of selected soil samples was performed in general accordance with the latest version of ASTM D6913. These test results were utilized in evaluating the soil classifications in accordance with the Unified Soil Classification System. Particle size distribution test results are presented on the laboratory test sheets attached in this appendix.

Expansion Index Tests

Expansion index tests were performed on samples of the on-site soils. The tests were performed in general accordance with ASTM D4829. The result of the tests are presented below and attached in this appendix.

RESULTS OF EXPANSION INDEX TESTS (ASTM D4829)

Location	Material Type	Initial Moisture Content, %	Final Moisture Content, %	Dry Density, pcf	Initial Saturation, %	Expansion Index	Potential Expansion
Boring 3 @ 1 - 3 ft.	Dark Brown Sandy Lean CLAY (CL)	10.0	21.7	109.2	49.7	57	Medium

Atterberg Limits Test

An Atterberg limits test was performed on a select soil sample in general accordance with ASTM D4318. The test is useful to aid in classification of soils and in evaluating their expansion and strength characteristics. Test results are summarized below and attached in this appendix.

RESULTS OF ATTERBERG LIMITS TEST (ASTM D4318)

Sample Location & Depth (ft.)	Material Type (USCS)	Liquid Limit	Plastic Limit	Plasticity Index
B-1 @ 1 - 3 feet	Sandy Lean CLAY (CL)	26	16	10

Maximum Dry Density Tests

Maximum dry density testing was performed on samples of the on-site soils. The tests were performed in general accordance with ASTM D1557. The results of the tests are presented below and attached in this appendix.

RESULTS OF MAXIMUM DRY DENSITY TESTS (ASTM D1557)

Location	B - 2 @ 1 - 3 feet	B - 4 @ 1 - 3 feet
Maximum Dry Density	141.1	134.7
Optimum Moisture Content	7.8	7.9
Material Type	Brown Clayey SAND (SC) w/Trace Asphalt	Red Brown Clayey SAND (SC)

Direct Shear

Direct shear testing was performed on representative relatively undisturbed samples in general accordance with ASTM D3080 to evaluate the shear strength characteristics of the on-site materials. The test method consists of placing the soil sample in the direct shear device, applying a series of normal stresses, and then shearing the sample at the constant rate of shearing deformation. The shearing force and horizontal displacements are measured and recorded as the soil specimen is sheared. The shearing is continued well beyond the point of maximum stress until the stress reaches a constant or residual value. The results of the tests are presented in the following table and attached in this appendix.

RESULTS OF DIRECT SHEAR TESTS (ASTM D3080)

Location	USCS Classification	Peak Friction (degrees)	Ultimate Friction (degrees)	Peak Cohesion (psf)	Ultimate Cohesion (psf)	Notes
Boring 3 @ 5.5 - 6 ft.	Weathered Granitic Rock	33	25	47	3	Relatively Undisturbed
Boring 6 @ 5.25 - 5.75 ft.	Brown Silty SAND (SM) w/DG	44	35	401	144	Relatively Undisturbed

Soil Corrosivity Test

Water soluble sulfate & chloride, resistivity and pH testing was performed by Clarkson Laboratory and Supply Inc., in general accordance with California Test Methods 643, 417 and 422 to provide an indication of the degree of corrosivity of the subgrade soils at locations tested with regard to concrete and normal grade steel.

RESULTS OF CORROSIVITY TESTS (CTM 417, CTM 422 and CTM 643)

Sample Location	B-1 @ 1 - 3 ft	B-5 @ 1 - 3 ft
pH	7.9	7.3
Minimum Resistivity (Ohm-cm)	3300	920
Water Soluble Sulfates (ppm)	<30	130
Water Soluble Chlorides (ppm)	11	75
Material Type	CL	CL



In-Situ Moisture & Density
(ASTM D2216 & ASTM D2937)

Date: 10/19/2021 Job Number: 227520-0000851.00
Client: Vallecitos Water District Report Number: 8653
Client Address: San Marcos, CA Lab Number: 121896, 121898-12899
Project Name: Tres Amigos Waterline Replacement 121901, 121903-121904
Project Address: San Marcos, CA

Date Sampled: 9/8/2021 Sampled By: William Barton
Date Recieved: 9/9/2021 Submitted By: William Barton

Lab Number	121896	121898	12899	121901	121903
Exploration No.	B1	B2	B3	B4	B5
Depth, ft.	5.25-5.75	5.2-5.9	5.5-6	5.25-5.75	5-6.5
Mositure Content, %	4.9	4.0	9.1	8.0	11.9
Dry Density, pcf	130.2	-	114.7	108.6	-

Lab Number	121904				
Exploration No.	B6				
Depth, ft.	5.25-5.75				
Mositure Content, %	6.0				
Dry Density, pcf	124.0				

Respectfully Submitted,
NV5 West, Inc.



REPORT OF SIEVE ANALYSIS TEST

ASTM D6913 - Soil

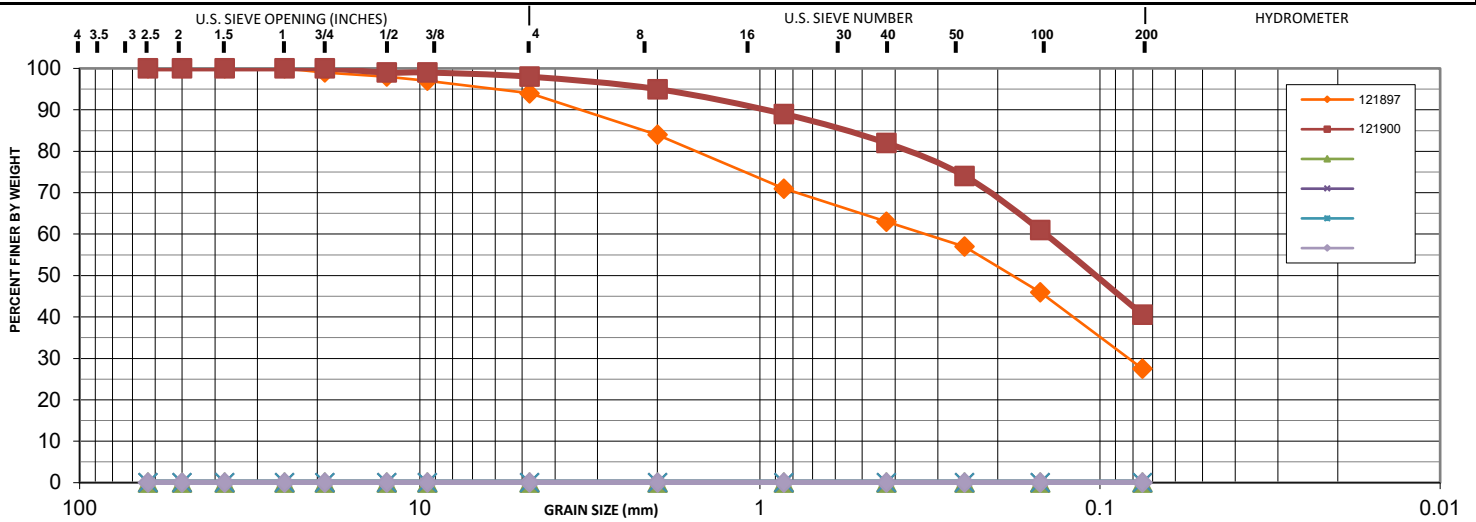
Date: October 19, 2021
 Client: Vallecitos Water District
 Address: San Marcos, CA

Job Number: 227520-0000851.00

Project : Tres Amigos Waterline Replacement
 Project Address: San Marcos, CA
 Date Sampled: 9/8/2021
 Date Submitted: 4/20/2021

Report No.: 8653
 Lab Number: 121897 & 121900
 Sampled By: William Barton
 Submitted By: William Barton

	121897	121900				
Material	Brown Clayey SAND (SC) w/Trace Asphalt	Red Brown Clayey SAND (SC)				
Source	Onsite	Onsite				
Sample Location	B2 @ 1'-3'	B4 @ 1'-3'				
Date Tested	10/1/2021	10/1/2021				
Tested By	Tony Echeverria	Tony Echeverria				



CBL	GRAVEL		SAND			SILT or CLAY
	coarse	fine	coarse	medium	fine	

Sample ID:	121897	121900			
Sieve Size			% Passing		
63mm (2 1/2")	100	100			
50mm (2")	100	100			
37.5mm (1 1/2")	100	100			
25mm (1")	100	100			
19mm (3/4")	99	100			
12.5mm (1/2")	98	99			
9.5mm (3/8")	97	99			
4.75mm (#4)	94	98			
2mm (#10)	84	95			
850µm (#20)	71	89			
425µm (#40)	63	82			
250µm (#60)	57	74			
150 µm (#100)	46	61			
75 µm (#200) washµ	27.5	40.6			
Coef. of Curvature (C _c)	NR	NR			
Coef. of Uniformity (C _u)	NR	NR			
% Gravel	6	2			
% Sand	67	57			
% Fines	27.5	40.6			
USCS Class:	SC	SC			

Respectfully Submitted,
 NV5 West, Inc.



Expansion Index Test Report
(ASTM D4829)

Date: 10/19/2021
Client: Vallecitos Water District
Client Address: San Marcos, CA
Project Name: Tres Amigos Waterline Replacement
Project Address: San Marcos, CA
Job Number: 227520-0000851.00
Report Number: 8653
Lab Number: 121902
Date Sampled: 9/8/2021
Date Submitted: 9/9/2021
Sampled By: William Barton
Submitted By: William Barton

Lab Number	121092			
Material Location	B5 @ 1'-3'			
Material Type	Dark Brown Sandy Lean CLAY (CL)			
Material Source	Onsite			
Initial Moisture Content, %	10.0			
Final Moisture Content, %	21.7			
Dry Density, pcf	109.2			
Initial Saturation, %	49.7			
Initial Dial Reading	0.613			
Final Dial Reading	0.670			
Expansion Index	57			
Potential Expansion	Medium			

Respectfully Submitted,
NV5 West, Inc.



REPORT LIQUID LIMIT, PLASTIC LIMIT & PLASTICITY INDEX TEST
(ASTM D4318)

Date: 10/19/2021
 Client: Vallecitos Water District
 Client Address: San Marcos, CA

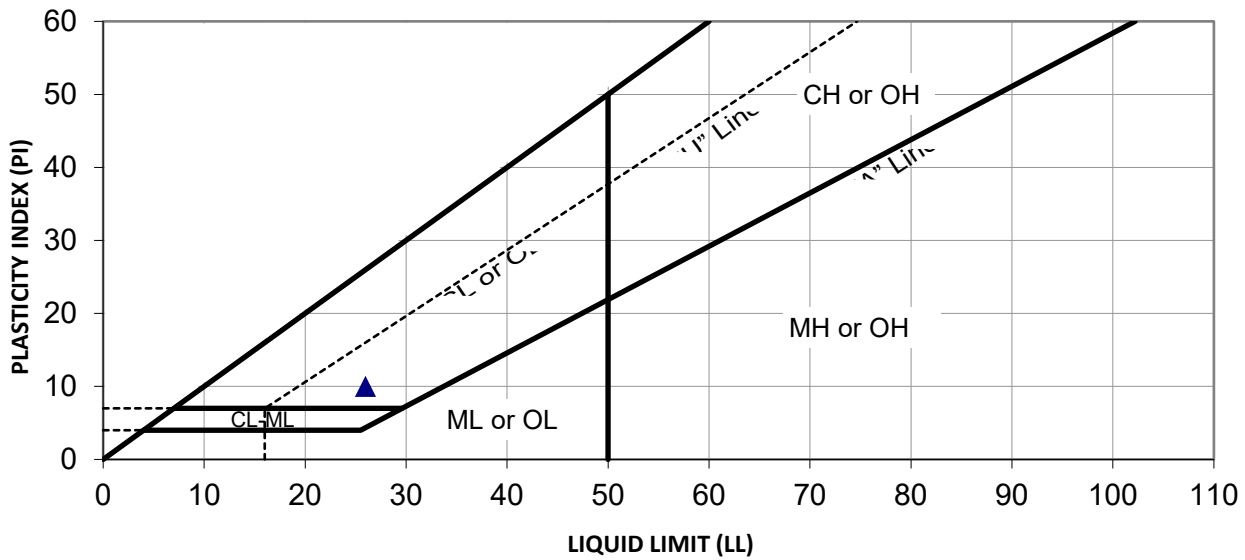
Job Number: 227520-0000851.00

Project Name: Tres Amigos Waterline Replacement
 Project Address: San Marcos, CA

Report Number: 8653
 Lab Number: 121895

Date Sampled: 9/8/2021
 Date Submitted: 9/9/2021
 Material Description: Red Brown Sandy Lean CLAY (CL)
 Sample Location: B1 @ 1'-3'

Sampled By: William Barton
 Submitted By: William Barton
 Material Source: Onsite



Sample ID	Souce/Location Depth	%>#40	Test Results			USCS	
			LL	PL	PI	Class	Group Name
121895	B1 @ 1'-3'	NR	26	16	10	CL	Lean CLAY

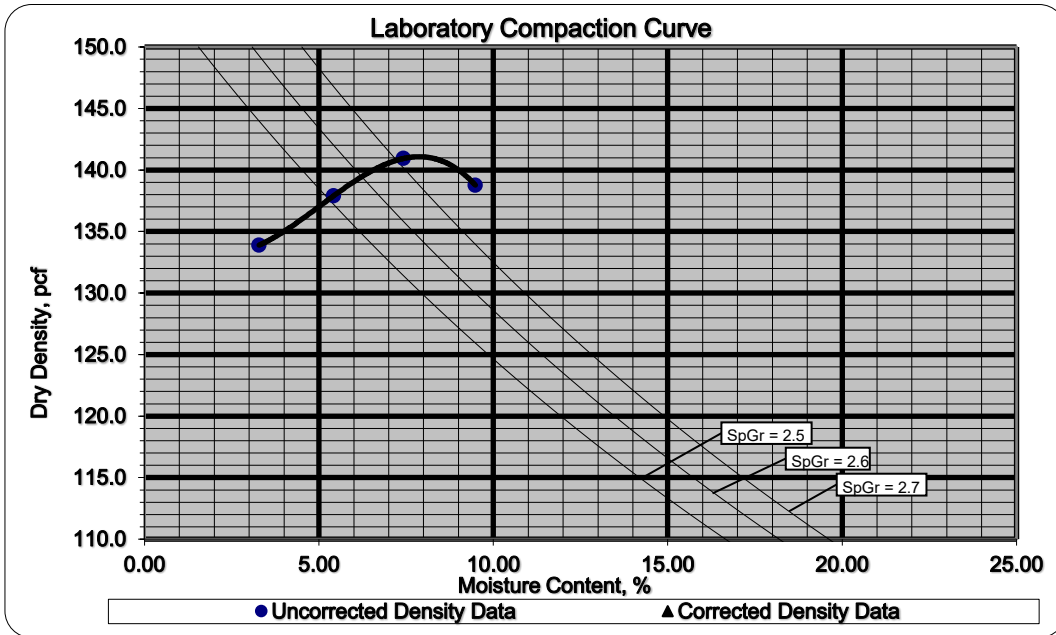
NOTE: Classification for material passing #40 sieve only.

Respectfully Submitted,
NV5 West, Inc.



Report of Moisture/Density Relationship Test
(ASTM D1557)

Date:	10/19/2021		
Client:	Vallecitos Water District		
Client Address:	San Marcos, CA	Job Number:	227520-0000851
Project Name:	Tres Amigos Waterline Replacement	Report Number:	8653
Project Address:	San Marcos, CA	Lab Number:	121897
Date Sampled:	09/08/21	Sampled By:	William Barton
Date Submitted:	09/09/21	Submitted By:	William Barton
Sample Location:	B2 @1'-3'	Test Designation:	ASTM_D1557
Material Description:	Brown Clayey SAND (SC) w/Trace Asphalt	Method:	B
Material Source:	Onsite	Method of Sample Preparation:	Dry
Oversize Correction?	No	Type of Hammer Used:	Automatic
Sieve Results (Retained %):		Curve Number:	1
3/4":	0	3/8":	3
		#4:	6



Respectfully Submitted,
NV5 West, Inc.

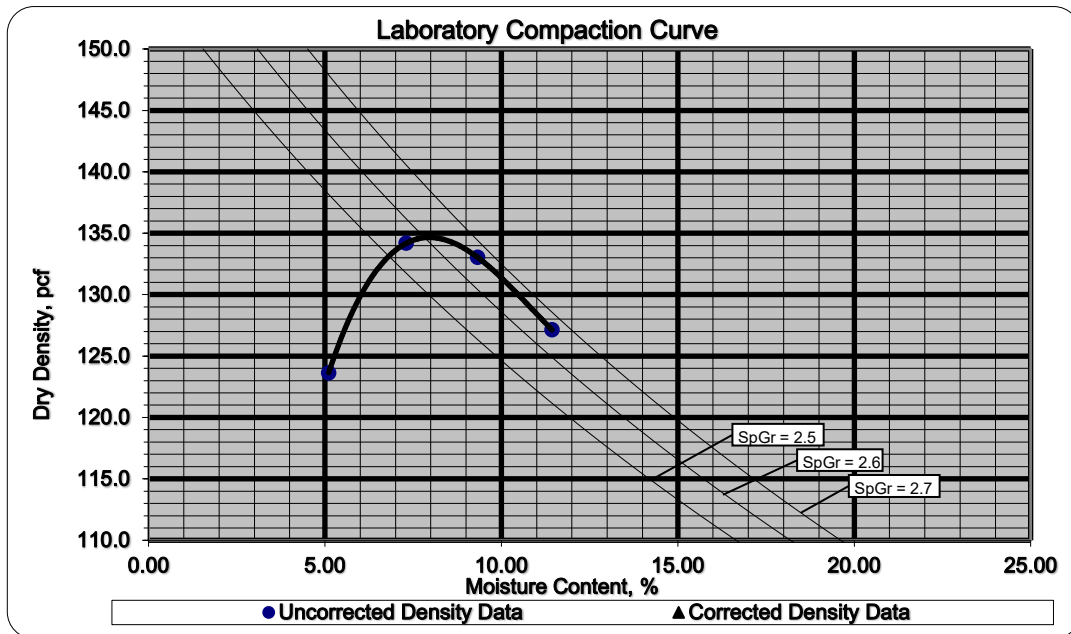
Test Results	
Maximum Density, pcf	141.1
Optimum Moisture, %	7.8

Oversize Corrected Results	
Maximum Density, pcf	N/A
Optimum Moisture, %	N/A



Report of Moisture/Density Relationship Test
(ASTM D1557)

Date:	10/19/2021		
Client:	Vallecitos Water District		
Client Address:	San Marcos, CA	Job Number:	227520-0000851
Project Name:	Tres Amigos Waterline Replacement	Report Number:	8653
Project Address:	San Marcos, CA	Lab Number:	121900
Date Sampled:	09/08/21	Sampled By:	William Barton
Date Submitted:	09/09/21	Submitted By:	William Barton
Sample Location:	B4 @1'-3'	Test Designation:	ASTM_D1557
Material Description:	Red Brown Clayey SAND (SC)	Method:	A
Material Source:	Onsite	Method of Sample Preparation:	Dry
Oversize Correction?	No	Type of Hammer Used:	Automatic
Sieve Results (Retained %):		Curve Number:	2
3/4":	0	3/8":	1
		#4:	2



Respectfully Submitted,
NV5 West, Inc.

Test Results	
Maximum Density, pcf	134.7
Optimum Moisture, %	7.9

Oversize Corrected Results	
Maximum Density, pcf	N/A
Optimum Moisture, %	N/A

DIRECT SHEAR TEST (ASTM D3080)

Project No. 227520-0000851.00
 Client: Vallecitos Water District
 Proj. Name: Tres Amigos Waterline Replacement
 Location: San Marcos, CA
 Sample date: 9/8/2021

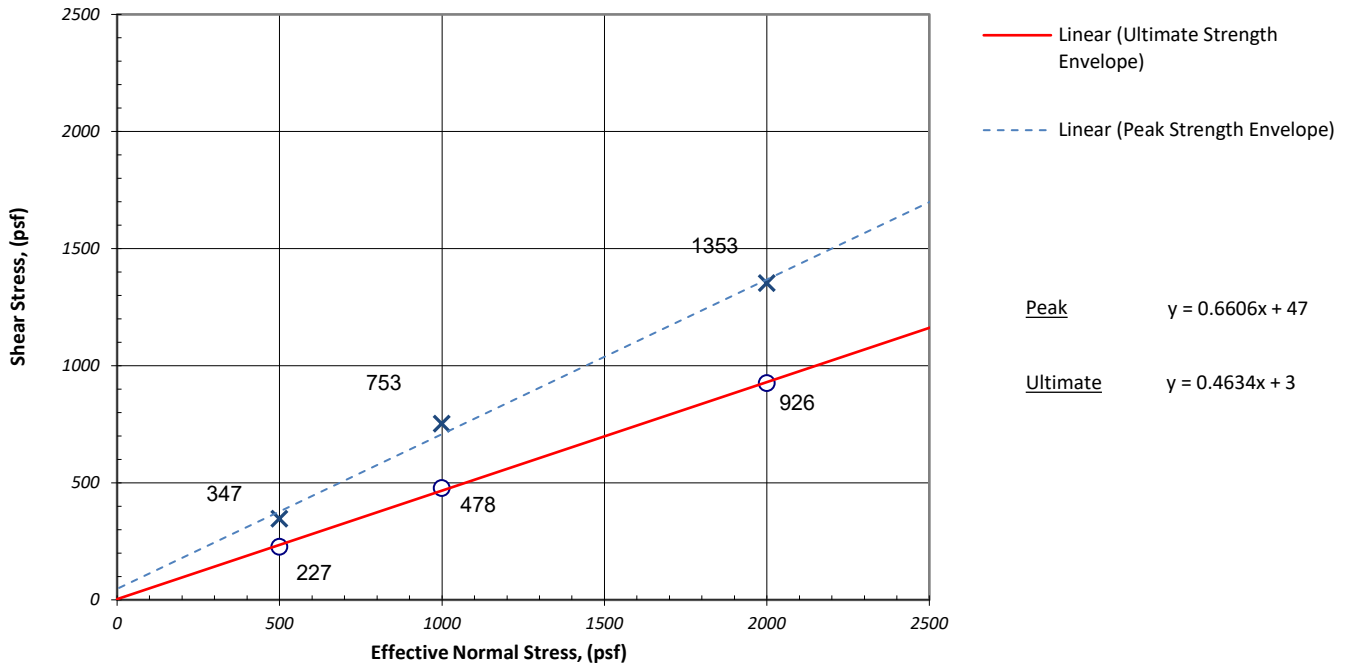
Date: 10/8/2021
 Report No.: 8653
 Lab No.: 121899
 Date Rcvd: 9/9/2021
 Test Date: 9/30/2021

Sample Location: 5.5'-6' Boring No. B3

TEST DATA:

Normal Stress, (ksf)		0.5 ksf	1 ksf	2 ksf
Initial	Water Content (%)	9.1	9.1	9.1
	Dry Density	116.1	116.1	111.9
	Saturation (%)	36.1	36.1	33.5
Final	Water Content (%)	25.1	24.0	23.1
	Dry Density	114.7	115.5	110.7
	Saturation (%)	97.4	94.3	83.0
Normal Stress (psf)		500	1000	2000
Ultimate Shear Stress (psf)		227	478	926
Peak Shear Stress (psf)		347	753	1353

Sample Type: Relatively Undisturbed
 Description: Weathered Granitic Rock
 Color: Dark Red Brown
 Tested By: Tony Echeverria



Peak Cohesion, C'(psf): **47**
 Peak Friction, Φ' (deg): **33**

Ultimate Cohesion, C'(psf): **3**
 Ultimate Friction, Φ' (deg): **25**

Respectfully Submitted,
 NV5 West, Inc.



NV5
 15092 Avenue of Science, Ste 200
 San Diego CA 92128
 p. 858 385 0500 f. 858 715 5810

DIRECT SHEAR TEST (ASTM D3080)

Project No. 227520-0000851.00
 Client: Vallecitos Water District
 Proj. Name: Tres Amigos Waterline Replacement
 Location: San Marcos, CA
 Sample date: 9/8/2021

Date: 10/8/2021
 Report No.: 8653
 Lab No.: 121904
 Date Rcvd: 9/9/2021
 Test Date: 10/5/2021

Sample Location: 5.25'-5.75'

Boring No. B6

TEST DATA:

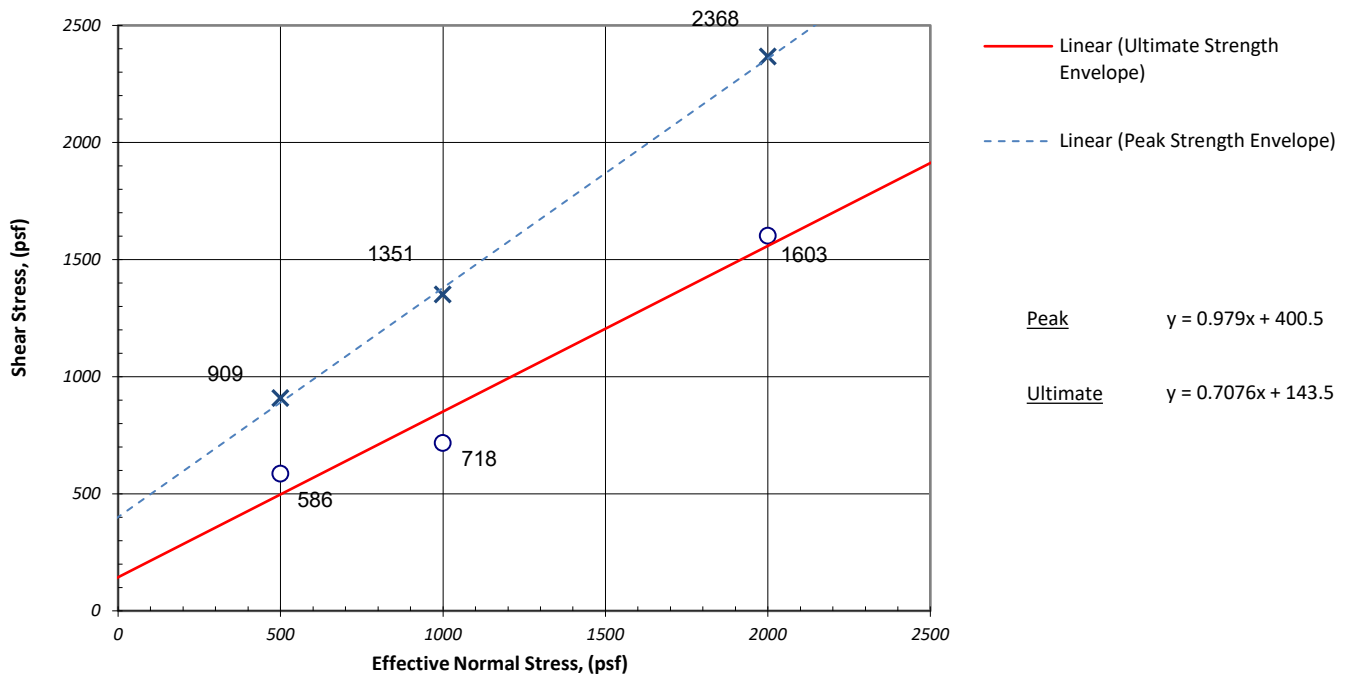
Normal Stress, (ksf)		0.5 ksf	1 ksf	2 ksf
Initial	Water Content (%)	6.0	6.0	6.0
	Dry Density	130.7	134.1	128.2
	Saturation (%)	34.4	36.9	32.6
Final	Water Content (%)	15.3	15.9	14.8
	Dry Density	130.4	133.8	129.3
	Saturation (%)	87.1	97.5	82.6
Normal Stress (psf)		500	1000	2000
Ultimate Shear Stress (psf)		586	718	1603
Peak Shear Stress (psf)		909	1351	2368

Sample Type: Relatively Undisturbed

Description: Weathered Granitic Rock/
Silty SAND (SM) w/DG

Color: Brown

Tested By: Chirag Padhiar / Tony Echeverria



Peak Cohesion, C'(psf): **401**

Ultimate Cohesion, C'(psf): **144**

Peak Friction, Φ' (deg): **44**

Ultimate Friction, Φ' (deg): **35**

Respectfully Submitted,
NV5 West, Inc.



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APPENDIX C

Typical Earthwork Guidelines

TYPICAL EARTHWORK GUIDELINES

1. GENERAL

These guidelines and the standard details attached hereto are presented as general procedures for earthwork construction for sites having slopes less than 10 feet high. They are to be utilized in conjunction with the project grading plans. These guidelines are considered a part of the geotechnical report, but are superseded by recommendations in the geotechnical report in the case of conflict. Evaluations performed by the consultant during the course of grading may result in new recommendations which could supersede these specifications and/or the recommendations of the geotechnical report. It is the responsibility of the contractor to read and understand these guidelines as well as the geotechnical report and project grading plans.

- 1.1. The contractor shall not vary from these guidelines without prior recommendations by the geotechnical consultant and the approval of the client or the client's authorized representative. Recommendations by the geotechnical consultant and/or client shall not be considered to preclude requirements for approval by the jurisdictional agency prior to the execution of any changes.
- 1.2. The contractor shall perform the grading operations in accordance with these specifications, and shall be responsible for the quality of the finished product notwithstanding the fact that grading work will be observed and tested by the geotechnical consultant.
- 1.3. It is the responsibility of the grading contractor to notify the geotechnical consultant and the jurisdictional agencies, as needed, prior to the start of work at the site and at any time that grading resumes after interruption. Each step of the grading operations shall be observed and documented by the geotechnical consultant and, where needed, reviewed by the appropriate jurisdictional agency prior to proceeding with subsequent work.
- 1.4. If, during the grading operations, geotechnical conditions are encountered which were not anticipated or described in the geotechnical report, the geotechnical consultant shall be notified immediately and additional recommendations, if applicable, may be provided.
- 1.5. An as-graded report shall be prepared by the geotechnical consultant and signed by a registered engineer and registered engineering geologist. The report documents the geotechnical consultants' observations, and field and laboratory test results, and provides conclusions regarding whether or not earthwork construction was performed in accordance with the geotechnical recommendations and the grading plans. Recommendations for foundation design, pavement design, subgrade treatment, etc., may also be included in the as-graded report.
- 1.6. For the purpose of evaluating quantities of materials excavated during grading and/or locating the limits of excavations, a licensed land surveyor or civil engineer shall be retained.

2. SITE PREPARATION

Site preparation shall be performed in accordance with the recommendations presented in the following sections.

- 2.1. The client, prior to any site preparation or grading, shall arrange and attend a pre-grading meeting between the grading contractor, the design engineer, the geotechnical consultant, and representatives of appropriate governing authorities, as well as any other involved parties. The parties shall be given two working days notice.
- 2.2. Clearing and grubbing shall consist of the substantial removal of vegetation, brush, grass, wood, stumps, trees, tree roots greater than 1/2-inch in diameter, and other deleterious materials from the areas to be graded. Clearing and grubbing shall extend to the outside of the proposed excavation and fill areas.
- 2.3. Demolition in the areas to be graded shall include removal of building structures, foundations, reservoirs, utilities (including underground pipelines, septic tanks, leach fields, seepage pits, cisterns, etc.), and other manmade surface and subsurface improvements, and the backfilling of mining shafts, tunnels and surface depressions. Demolition of utilities shall include capping or rerouting of pipelines at the project perimeter, and abandonment of wells in accordance with the requirements of the governing authorities and the recommendations of the geotechnical consultant at the time of demolition.
- 2.4. The debris generated during clearing, grubbing and/or demolition operations shall be removed from areas to be graded and disposed of off site at a legal dump site. Clearing, grubbing, and demolition operations shall be performed under the observation of the geotechnical consultant.
- 2.5. The ground surface beneath proposed fill areas shall be stripped of loose or unsuitable soil. These soils may be used as compacted fill provided they are generally free of organic or other deleterious materials and evaluated for use by the geotechnical consultant. The resulting surface shall be evaluated by the geotechnical consultant prior to proceeding. The cleared, natural ground surface shall be scarified to a depth of approximately 8 inches, moisture conditioned, and compacted in accordance with the specifications presented in Section 4 of these guidelines.

3. REMOVALS AND EXCAVATIONS

Removals and excavations shall be performed as recommended in the following sections.

- 3.1. Removals
 - 3.1.1. Materials which are considered unsuitable shall be excavated under the observation of the geotechnical consultant in accordance with the recommendations contained herein. Unsuitable materials include, but may not be limited to, dry, loose, soft, wet, organic, compressible natural soils, fractured, weathered, soft bedrock, and undocumented or otherwise deleterious fill materials.

3.1.2. Materials deemed by the geotechnical consultant to be unsatisfactory due to moisture conditions shall be excavated in accordance with the recommendations of the geotechnical consultant, watered or dried as needed, and mixed to generally uniform moisture content in accordance with the specifications presented in Section 4 of this document.

3.2. Excavations

3.2.1. Temporary excavations no deeper than 4 feet in firm fill or natural materials may be made with vertical side slopes. To satisfy California Occupational Safety and Health Administration (CAL OSHA) requirements, any excavation deeper than 4 feet shall be shored or laid back at a 1:1 inclination or flatter, depending on material type, if construction workers are to enter the excavation.

4. COMPACTED FILL

Fill shall be constructed as specified below or by other methods recommended by the geotechnical consultant. Unless otherwise specified, fill soils shall be compacted to 90 percent relative compaction, as evaluated in accordance with ASTM Test Method D1557.

- 4.1. Prior to placement of compacted fill, the contractor shall request an evaluation of the exposed ground surface by the geotechnical consultant. Unless otherwise recommended, the exposed ground surface shall then be scarified to a depth of approximately 8 inches and watered or dried, as needed, to achieve a generally uniform moisture content at or near the optimum moisture content. The scarified materials shall then be compacted to 90 percent relative compaction. The evaluation of compaction by the geotechnical consultant shall not be considered to preclude any requirements for observation or approval by governing agencies. It is the contractor's responsibility to notify the geotechnical consultant and the appropriate governing agency when project areas are ready for observation, and to provide reasonable time for that review.
- 4.2. Excavated on-site materials which are in general compliance with the recommendations of the geotechnical consultant may be utilized as compacted fill provided they are generally free of organic or other deleterious materials and do not contain rock fragments greater than 6 inches in dimension. During grading, the contractor may encounter soil types other than those analyzed during the preliminary geotechnical study. The geotechnical consultant shall be consulted to evaluate the suitability of any such soils for use as compacted fill.
- 4.3. Where imported materials are to be used on site, the geotechnical consultant shall be notified three working days in advance of importation in order that it may sample and test the materials from the proposed borrow sites. No imported materials shall be delivered for use on site without prior sampling, testing, and evaluation by the geotechnical consultant.

- 4.4. Soils imported for on-site use shall preferably have very low to low expansion potential (based on UBC Standard 18-2 test procedures). Lots on which expansive soils may be exposed at grade shall be undercut 3 feet or more and capped with very low to low expansion potential fill. In the event expansive soils are present near the ground surface, special design and construction considerations shall be utilized in general accordance with the recommendations of the geotechnical consultant.
- 4.5. Fill materials shall be moisture conditioned to near optimum moisture content prior to placement. The optimum moisture content will vary with material type and other factors. Moisture conditioning of fill soils shall be generally uniform in the soil mass.
- 4.6. Prior to placement of additional compacted fill material following a delay in the grading operations, the exposed surface of previously compacted fill shall be prepared to receive fill. Preparation may include scarification, moisture conditioning, and recompaction.
- 4.7. Compacted fill shall be placed in horizontal lifts of approximately 8 inches in loose thickness. Prior to compaction, each lift shall be watered or dried as needed to achieve near optimum moisture condition, mixed, and then compacted by mechanical methods, using sheepsfoot rollers, multiple-wheel pneumatic-tired rollers, or other appropriate compacting rollers, to the specified relative compaction. Successive lifts shall be treated in a like manner until the desired finished grades are achieved.
- 4.8. Fill shall be tested in the field by the geotechnical consultant for evaluation of general compliance with the recommended relative compaction and moisture conditions. Field density testing shall conform to ASTM D1556-00 (Sand Cone method), D2937-00 (Drive-Cylinder method), and/or D2922-96 and D3017-96 (Nuclear Gauge method). Generally, one test shall be provided for approximately every 2 vertical feet of fill placed, or for approximately every 1000 cubic yards of fill placed. In addition, on slope faces one or more tests shall be taken for approximately every 10,000 square feet of slope face and/or approximately every 10 vertical feet of slope height. Actual test intervals may vary as field conditions dictate. Fill found to be out of conformance with the grading recommendations shall be removed, moisture conditioned, and compacted or otherwise handled to accomplish general compliance with the grading recommendations.
- 4.9. The contractor shall assist the geotechnical consultant by excavating suitable test pits for removal evaluation and/or for testing of compacted fill.
- 4.10. At the request of the geotechnical consultant, the contractor shall "shut down" or restrict grading equipment from operating in the area being tested to provide adequate testing time and safety for the field technician.
- 4.11. The geotechnical consultant shall maintain a map with the approximate locations of field density tests. Unless the client provides for surveying of the test locations, the locations shown by the geotechnical consultant will be estimated. The geotechnical consultant shall not be held responsible for the accuracy of the horizontal or vertical locations or elevations.

- 4.12. Grading operations shall be performed under the observation of the geotechnical consultant. Testing and evaluation by the geotechnical consultant does not preclude the need for approval by or other requirements of the jurisdictional agencies.
- 4.13. Fill materials shall not be placed, spread or compacted during unfavorable weather conditions. When work is interrupted by heavy rains, the filling operation shall not be resumed until tests indicate that moisture content and density of the fill meet the project specifications. Regrading of the near-surface soil may be needed to achieve the specified moisture content and density.
- 4.14. Upon completion of grading and termination of observation by the geotechnical consultant, no further filling or excavating, including that planned for footings, foundations, retaining walls or other features, shall be performed without the involvement of the geotechnical consultant.
- 4.15. Fill placed in areas not previously viewed and evaluated by the geotechnical consultant may have to be removed and recompacted at the contractor's expense. The depth and extent of removal of the unobserved and undocumented fill will be decided based upon review of the field conditions by the geotechnical consultant.
- 4.16. Off-site fill shall be treated in the same manner as recommended in these specifications for on-site fills. Off-site fill subdrains temporarily terminated (up gradient) shall be surveyed for future locating and connection.

5. OVERSIZED MATERIAL

Oversized material shall be placed in accordance with the following recommendations.

- 5.1. During the course of grading operations, rocks or similar irreducible materials greater than 6 inches in dimension (oversized material) may be generated. These materials shall not be placed within the compacted fill unless placed in general accordance with the recommendations of the geotechnical consultant.
- 5.2. Where oversized rock (greater than 6 inches in dimension) or similar irreducible material is generated during grading, it is recommended, where practical, to waste such material off site, or on site in areas designated as "nonstructural rock disposal areas." Rock designated for disposal areas shall be placed with sufficient sandy soil to generally fill voids. The disposal area shall be capped with a 5-foot thickness of fill which is generally free of oversized material.
- 5.3. Rocks 6 inches in dimension and smaller may be utilized within the compacted fill, provided they are placed in such a manner that nesting of rock is not permitted. Fill shall be placed and compacted over and around the rock. The amount of rock greater than $\frac{3}{4}$ -inch in dimension shall generally not exceed 40 percent of the total dry weight of the fill mass, unless the fill is specially designed and constructed as a "rock fill."

- 5.4. Rocks or similar irreducible materials greater than 6 inches but less than 4 feet in dimension generated during grading may be placed in windrows and capped with finer materials in accordance with the recommendations of the geotechnical consultant and the approval of the governing agencies. Selected native or imported granular soil (Sand Equivalent of 30 or higher) shall be placed and flooded over and around the windrowed rock such that voids are filled. Windrows of oversized materials shall be staggered so that successive windrows of oversized materials are not in the same vertical plane. Rocks greater than 4 feet in dimension shall be broken down to 4 feet or smaller before placement, or they shall be disposed of off site.

6. SLOPES

The following sections provide recommendations for cut and fill slopes.

6.1. Cut Slopes

- 6.1.1. The geotechnical consultant shall observe cut slopes during excavation. The geotechnical consultant shall be notified by the contractor prior to beginning slope excavations.
- 6.1.2. If, during the course of grading, adverse or potentially adverse geotechnical conditions are encountered in the slope which were not anticipated in the preliminary evaluation report, the geotechnical consultant shall evaluate the conditions and provide appropriate recommendations.

6.2. Fill Slopes

- 6.2.1. When placing fill on slopes steeper than 5:1 (horizontal:vertical), topsoil, slope wash, colluvium, and other materials deemed unsuitable shall be removed. Near-horizontal keys and near-vertical benches shall be excavated into sound bedrock or fine fill material, in accordance with the recommendation of the geotechnical consultant. Keying and benching shall be accomplished. Compacted fill shall not be placed in an area subsequent to keying and benching until the area has been observed by the geotechnical consultant. Where the natural gradient of a slope is less than 5:1, benching is generally not recommended. However, fill shall not be placed on compressible or otherwise unsuitable materials left on the slope face.
- 6.2.2. Within a single fill area where grading procedures dictate two or more separate fills, temporary slopes (false slopes) may be created. When placing fill adjacent to a temporary slope, benching shall be conducted in the manner described in Section 6.2.1. A 3-foot or higher near-vertical bench shall be excavated into the documented fill prior to placement of additional fill.
- 6.2.3. Unless otherwise recommended by the geotechnical consultant and accepted by the Building Official, permanent fill slopes shall not be steeper than 2:1 (horizontal:vertical). The height of a fill slope shall be evaluated by the geotechnical consultant.

- 6.2.4. Unless specifically recommended otherwise, compacted fill slopes shall be overbuilt and cut back to grade, exposing firm compacted fill. The actual amount of overbuilding may vary as field conditions dictate. If the desired results are not achieved, the existing slopes shall be overexcavated and reconstructed in accordance with the recommendations of the geotechnical consultant. The degree of overbuilding may be increased until the desired compacted slope face condition is achieved. Care shall be taken by the contractor to provide mechanical compaction as close to the outer edge of the overbuilt slope surface as practical.
- 6.2.5. If access restrictions, property line location, or other constraints limit overbuilding and cutting back of the slope face, an alternative method for compaction of the slope face may be attempted by conventional construction procedures including backrolling at intervals of 4 feet or less in vertical slope height, or as dictated by the capability of the available equipment, whichever is less. Fill slopes shall be backrolled utilizing a conventional sheepsfoot-type roller. Care shall be taken to maintain the specified moisture conditions and/or reestablish the same, as needed, prior to backrolling.
- 6.2.6. The placement, moisture conditioning and compaction of fill slope materials shall be done in accordance with the recommendations presented in Section 5 of these guidelines.
- 6.2.7. The contractor shall be ultimately responsible for placing and compacting the soil out to the slope face to obtain a relative compaction of 90 percent as evaluated by ASTM D1557 and a moisture content in accordance with Section 4. The geotechnical consultant shall perform field moisture and density tests at intervals of one test for approximately every 10,000 square feet of slope.
- 6.2.8. Backdrains shall be provided in fill as recommended by the geotechnical consultant.
- 6.3. Top-of-Slope Drainage
 - 6.3.1. For pad areas above slopes, positive drainage shall be established away from the top of slope. This may be accomplished utilizing a berm and pad gradient of 2 percent or steeper at the top-of-slope areas. Site runoff shall not be permitted to flow over the tops of slopes.
 - 6.3.2. Gunite-lined brow ditches shall be placed at the top of cut slopes to redirect surface runoff away from the slope face where drainage devices are not otherwise provided.

6.4. Slope Maintenance

- 6.4.1. In order to enhance surficial slope stability, slope planting shall be accomplished at the completion of grading. Slope plants shall consist of deep-rooting, variable root depth, drought-tolerant vegetation. Native vegetation is generally desirable. Plants native to semiarid and mid areas may also be appropriate. Large-leafed ice plant should not be used on slopes. A landscape architect shall be consulted regarding the actual types of plants and planting configuration to be used.
- 6.4.2. Irrigation pipes shall be anchored to slope faces and not placed in trenches excavated into slope faces. Slope irrigation shall be maintained at a level just sufficient to support plant growth. Property owners shall be made aware that over watering of slopes is detrimental to slope stability. Slopes shall be monitored regularly and broken sprinkler heads and/or pipes shall be repaired immediately.
- 6.4.3. Periodic observation of landscaped slope areas shall be planned and appropriate measures taken to enhance growth of landscape plants.
- 6.4.4. Graded swales at the top of slopes and terrace drains shall be installed and the property owners notified that the drains shall be periodically checked so that they may be kept clear. Damage to drainage improvements shall be repaired immediately. To reduce siltation, terrace drains shall be constructed at a gradient of 3 percent or steeper, in accordance with the recommendations of the project civil engineer.
- 6.4.5. If slope failures occur, the geotechnical consultant shall be contacted immediately for field review of site conditions and development of recommendations for evaluation and repair.

7. TRENCH BACKFILL

The following sections provide recommendations for backfilling of trenches.

- 7.1. Trench backfill shall consist of granular soils (bedding) extending from the trench bottom to 1 foot or more above the pipe. On-site or imported fill which has been evaluated by the geotechnical consultant may be used above the granular backfill. The cover soils directly in contact with the pipe shall be classified as having a very low expansion potential, in accordance with UBC Standard 18-2, and shall contain no rocks or chunks of hard soil larger than 3/4-inch in diameter.
- 7.2. Trench backfill shall, unless otherwise recommended, be compacted by mechanical means to 90 percent relative compaction as evaluated by ASTM D1557. Backfill soils shall be placed in loose lifts 8-inches thick or thinner, moisture conditioned, and compacted in accordance with the recommendations of Section 4 of these guidelines. The backfill shall be tested by the geotechnical consultant at vertical intervals of approximately 2 feet of backfill placed and at spacings along the trench of approximately 100 feet in the same lift.

- 7.3. Jetting of trench backfill materials is generally not a recommended method of densification, unless the on-site soils are sufficiently free-draining and provisions have been made for adequate dissipation of the water utilized in the jetting process.
- 7.4. If it is decided that jetting may be utilized, granular material with a sand equivalent greater than 30 shall be used for backfilling in the areas to be jetted. Jetting shall generally be considered for trenches 2 feet or narrower in width and 4 feet or shallower in depth. Following jetting operations, trench backfill shall be mechanically compacted to the specified compaction to finish grade.
- 7.5. Trench backfill which underlies the zone of influence of foundations shall be mechanically compacted to 90 percent or greater relative compaction, as evaluated by ASTM D1557-02. The zone of influence of the foundations is generally defined as the roughly triangular area within the limits of a 1:1 (horizontal:vertical) projection from the inner and outer edges of the foundation, projected down and out from both edges.
- 7.6. Trench backfill within slab areas shall be compacted by mechanical means to a relative compaction of 90 percent, as evaluated by ASTM D1557. For minor interior trenches, density testing may be omitted or spot testing may be performed, as deemed appropriate by the geotechnical consultant.
- 7.7. When compacting soil in close proximity to utilities, care shall be taken by the grading contractor so that mechanical methods used to compact the soils do not damage the utilities. If the utility contractors indicate that it is undesirable to use compaction equipment in close proximity to a buried conduit, then the grading contractor may elect to use light mechanical compaction equipment or, with the approval of the geotechnical consultant, cover the conduit with clean granular material. These granular materials shall be jetted in place to the top of the conduit in accordance with the recommendations of Section 7.4 prior to initiating mechanical compaction procedures. Other methods of utility trench compaction may also be appropriate, upon review by the geotechnical consultant and the utility contractor, at the time of construction.
- 7.8. Clean granular backfill and/or bedding materials are not recommended for use in slope areas unless provisions are made for a drainage system to mitigate the potential for buildup of seepage forces or piping of backfill materials.
- 7.9. The contractor shall exercise the specified safety precautions, in accordance with OSHA Trench Safety Regulations, while conducting trenching operations. Such precautions include shoring or laying back trench excavations at 1:1 or flatter, depending on material type, for trenches in excess of 5 feet in depth. The geotechnical consultant is not responsible for the safety of trench operations or stability of the trenches.

8. DRAINAGE

The following sections provide recommendations pertaining to site drainage.

- 8.1. Roof, pad, and slope drainage shall be such that it is away from slopes and structures to suitable discharge areas by nonerodible devices (e.g., gutters, downspouts, concrete swales, etc.).
- 8.2. Positive drainage adjacent to structures shall be established and maintained. Positive drainage may be accomplished by providing drainage away from the foundations of the structure at a gradient of 2 percent or steeper for a distance of 5 feet or more outside the building perimeter, further maintained by a graded swale leading to an appropriate outlet, in accordance with the recommendations of the project civil engineer and/or landscape architect.
- 8.3. Surface drainage on the site shall be provided so that water is not permitted to pond. A gradient of 2 percent or steeper shall be maintained over the pad area and drainage patterns shall be established to remove water from the site to an appropriate outlet.
- 8.4. Care shall be taken by the contractor during grading to preserve any berms, drainage terraces, interceptor swales or other drainage devices of a permanent nature on or adjacent to the property. Drainage patterns established at the time of finish grading shall be maintained for the life of the project. Property owners shall be made very clearly aware that altering drainage patterns may be detrimental to slope stability and foundation performance.

9. SITE PROTECTION

The site shall be protected as outlined in the following sections.

- 9.1. Protection of the site during the period of grading shall be the responsibility of the contractor unless other provisions are made in writing and agreed upon among the concerned parties. Completion of a portion of the project shall not be considered to preclude that portion or adjacent areas from the need for site protection, until such time as the project is finished as agreed upon by the geotechnical consultant, the client, and the regulatory agency.
- 9.2. The contractor is responsible for the stability of temporary excavations. Recommendations by the geotechnical consultant pertaining to temporary excavations are made in consideration of stability of the finished project and, therefore, shall not be considered to preclude the responsibilities of the contractor. Recommendations by the geotechnical consultant shall also not be considered to preclude more restrictive requirements by the applicable regulatory agencies.
- 9.3. Precautions shall be taken during the performance of site clearing, excavation, and grading to protect the site from flooding, ponding, or inundation by surface runoff. Temporary provisions shall be made during the rainy season so that surface runoff is away from and off the working site. Where low areas cannot be avoided, pumps shall be provided to remove water as needed during periods of rainfall.

- 9.4. During periods of rainfall, plastic sheeting shall be used as needed to reduce the potential for unprotected slopes to become saturated. Where needed, the contractor shall install check dams, desilting basins, riprap, sandbags or other appropriate devices or methods to reduce erosion and provide recommended conditions during inclement weather.
- 9.5. During periods of rainfall, the geotechnical consultant shall be kept informed by the contractor of the nature of remedial or precautionary work being performed on site (e.g., pumping, placement of sandbags or plastic sheeting, other labor, dozing, etc.).
- 9.6. Following periods of rainfall, the contractor shall contact the geotechnical consultant and arrange a walk-over of the site in order to visually assess rain-related damage. The geotechnical consultant may also recommend excavation and testing in order to aid in the evaluation. At the request of the geotechnical consultant, the contractor shall make excavations in order to aid in evaluation of the extent of rain-related damage.
- 9.7. Rain or irrigation related damage shall be considered to include, but may not be limited to, erosion, silting, saturation, swelling, structural distress, and other adverse conditions noted by the geotechnical consultant. Soil adversely affected shall be classified as "Unsuitable Material" and shall be subject to overexcavation and replacement with compacted fill or to other remedial grading as recommended by the geotechnical consultant.
- 9.8. Relatively level areas where saturated soils and/or erosion gullies exist to depths greater than 1 foot shall be overexcavated to competent materials as evaluated by the geotechnical consultant. Where adverse conditions extend to less than 1 foot in depth, saturated and/or eroded materials may be processed in-place. Overexcavated or in-place processed materials shall be moisture conditioned and compacted in accordance with the recommendations provided in Section 4. If the desired results are not achieved, the affected materials shall be overexcavated, moisture conditioned, and compacted until the specifications are met.
- 9.9. Slope areas where saturated soil and/or erosion gullies exist to depths greater than 1 foot shall be overexcavated and replaced as compacted fill in accordance with the applicable specifications. Where adversely affected materials exist to depths of 1 foot or less below proposed finished grade, remedial grading by moisture conditioning in-place and compaction in accordance with the appropriate specifications may be attempted. If the desired results are not achieved, the affected materials shall be overexcavated, moisture conditioned, and compacted until the specifications are met. As conditions dictate, other slope repair procedures may also be recommended by the geotechnical consultant.
- 9.10. During construction, the contractor shall grade the site to provide positive drainage away from structures and to keep water from ponding adjacent to structures. Water shall not be allowed to damage adjacent properties. Positive drainage shall be maintained by the contractor until permanent drainage and erosion reducing devices are installed in accordance with project plans.

APPENDIX D

GBA - Important Information About This Geotechnical Report

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, clients can benefit from a lowered exposure to the subsurface problems that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed below, contact your GBA-member geotechnical engineer. Active involvement in the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Geotechnical-Engineering Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. *Those who rely on a geotechnical-engineering report prepared for a different client can be seriously misled.* No one except authorized client representatives should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one – not even you – should apply this report for any purpose or project except the one originally contemplated.*

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read it *in its entirety*. Do not rely on an executive summary. Do not read selected elements only. *Read this report in full.*

You Need to Inform Your Geotechnical Engineer about Change

Your geotechnical engineer considered unique, project-specific factors when designing the study behind this report and developing the confirmation-dependent recommendations the report conveys. A few typical factors include:

- the client's goals, objectives, budget, schedule, and risk-management preferences;
- the general nature of the structure involved, its size, configuration, and performance criteria;
- the structure's location and orientation on the site; and
- other planned or existing site improvements, such as retaining walls, access roads, parking lots, and underground utilities.

Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.*

This Report May Not Be Reliable

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, that it could be unwise to rely on a geotechnical-engineering report whose reliability may have been affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If your geotechnical engineer has not indicated an "apply-by" date on the report, ask what it should be, and, in general, if you are the least bit uncertain about the continued reliability of this report, contact your geotechnical engineer before applying it.* A minor amount of additional testing or analysis – if any is required at all – could prevent major problems.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface through various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing were performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgment to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team from project start to project finish, so the individual can provide informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, *they are not final*, because the geotechnical engineer who developed them relied heavily on judgment and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* revealed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a full-time member of the design team, to:

- confer with other design-team members,
- help develop specifications,
- review pertinent elements of other design professionals' plans and specifications, and
- be on hand quickly whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction observation.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for informational purposes only*. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report, but they may rely on the factual data relative to the specific times, locations, and depths/elevations referenced. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may

perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely*. Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures*. If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. As a general rule, *do not rely on an environmental report prepared for a different client, site, or project, or that is more than six months old*.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, none of the engineer's services were designed, conducted, or intended to prevent uncontrolled migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, *proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration*. Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. *Geotechnical engineers are not building-envelope or mold specialists*.



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