B2 Force Main Replacement Project
Initial Study

Prepared for
Leucadia Wastewater District
1960 La Costa Avenue
Carlsbad, CA 92009
Contact: Mr. Robin Morishita, Technical Services Manager

Prepared by

Infrastructure
ENGINEERING CORPORATION

14271 Danielson Street • Poway, CA 92064
Contact: Anna Buising, PhD, PG

May 2014

Contents

Tables and Figures

Initial Study Checklist

PROJECT INFORMATION:

1. **Project title:** B2 Force Main Replacement Project

2. **Lead agency name and address:** Leucadia Wastewater District, 1960 La Costa Avenue, Carlsbad, CA 92009

3. **Contact person and phone number:** See Item (5) below.

4. **Project location:** Figure 1 shows the extent and location of the Project.

   The Project alignment extends in a generally north-south direction along the Carlsbad coast near Carlsbad State Beach, beginning just north of Batiquitos Lagoon and terminating near 6500 Ponto Drive, at a point west of the south cul-de-sac on Surfside Lane. Three route Options are under consideration:

   - **Option A –** As shown in Figure 1a, the Option A alignment follows northbound Carlsbad Boulevard to a point approximately 400 feet north of Avenida Encinas, then crosses via the former Ponto Drive offramp alignment to Ponto Drive, continuing north to the end of Ponto Drive. From here, it shifts west into the northbound lanes of Carlsbad Boulevard, and at the Ponto Road intersection continues north on the eastern edge of Carlsbad Boulevard to Breakwater Road. Option A then continues north in the frontage road between Carlsbad Boulevard and the Lanikai Mobile Home Park (Lanikai) and ends at the northwest corner of Lanikai. This Option would largely follow the existing B2 force main alignment (replace-in-place installation)

   - **Option B –** As shown in Figure 1b, this Option would realign a portion of the B2 force main into the eastern edge of the southbound lanes of Carlsbad Boulevard from Avenida Encinas to the intersection of Carlsbad Boulevard and Ponto Road. Option B follows the same route as Option A from Ponto Road northwards, resuming northbound in Carlsbad Boulevard before returning to Ponto Drive at Breakwater Road

   - **Option C –** As shown in Figure 1c, Option would realign a portion of the B2 force main into the disused former southbound lanes of Carlsbad Boulevard (along the eastern edge of the South Carlsbad State Beach campground) from Avenida Encinas as far north as Breakwater Road, where it crosses back east into Ponto Drive

5. **Project Applicant/Sponsor's name and address:**

   Leucadia Wastewater District
   1960 La Costa Avenue, Carlsbad, CA 92009
   Contact: Mr. Robin Morishita, Technical Services Manager
   (760) 753-0155 • rmorishita@lwwd.org

6. **General Plan designation:** The Project would replace sewer force mains within public right-of-way for road and/or utility purposes. The majority of the Project would be adjacent to areas designated for Residential and Travel/Recreation use, with a portion in Unplanned Areas/Combination District areas, which represent parcels where planning for future land uses has not been formalized, and that are considered suitable for more than one land use classification.

7. **Zoning:** The Project is located within existing public rights-of-way for road and/or utility purposes, adjacent to residential-, commercial-, planned development, and open space–zoned areas. The table below itemizes zoning for areas adjacent to the Project alignment, broken out by roadway and cross street. Zoning is graphically depicted in Figure 2 (presented immediately following Figures 1a – 1c).

Table 1 – Zoning Designations for Project Alignment

Street/Roadway	Location	Zoning	
		Zone	Description
Southern Portion of Alignment			
Carlsbad Boulevard (northbound)	South of Avenida Encinas	P-C	Planned Community
Central Portion of Alignment, Option A			
Carlsbad Boulevard public right-of-way, former Ponto Drive offramp alignment	Carlsbad Boulevard to Ponto Drive	P-C	Planned Community
Ponto Drive	7200–7300 block	RD-M	Residential Density – Multiple Designations
Ponto Drive	Adjacent to Carlsbad Boulevard, ending at cul-de-sac at north end	C-T	Tourist Commercial
Carlsbad Boulevard (northbound)	Ponto Drive cul-de-sac to Ponto Road	C-T	Tourist Commercial
Central Portion of Alignment, Option B			
Carlsbad Boulevard (southbound)	Ponto Road to Avenida Encinas	OS	Open Space (bordering)
Central/Northern Portion of Alignment, Option C			
Former Carlsbad Boulevard (southbound)	Breakwater Road to Avenida Encinas	OS	Open Space
Northern Portion of Alignment			
Carlsbad Boulevard (northbound)	Breakwater Road to Ponto Road	RD-M	Residential Density – Multiple
Ponto Drive	Frontage road between Carlsbad Boulevard and Lanikai Mobile Home Park, extending north from intersection of Carlsbad Boulevard and Breakwater Road	RMHP	Residential Mobile Home Park


OCEANSIDE
VISTA
78
5
SAN MARCOS
CARLSBAD
ESCONDIDO
Project Location
SAN DIEGO
ENCINITAS
Pacific Ocean
SOLANA BEACH
DEL MAR
SAN DIEGO
56
LANAKAI LN
LANAKAI LN
EMBARCADERO LN
SEAWARD AV
SHORELINE DR
BREAKWATER RD
CATAMARAN DR
CARLSBAD BL
South Carlsbad State Beach
POINSETTIA LN
WINDVANE LN
LEEWARD ST
SAN LUIS
SAN BARTOLO
LOGANBERRY DR
SANTA ROSA
SAN LUCAS
SAN BENITO
PONTO RD
Footprint of Recently Constructed Hilton Carlsbad
PONTO DR
ANCHORAGE AV
CARLSBAD BL
ESCALLONIA CT
PORTAGE WY
PONTO DR
HALSING CT
AVNDA ENCINAS
MAGELLAN ST
Batiquitos Lagoon
N
0
500
1,000
Feet
Legend
Project Alignment Option A
Note: This figure is a schematic and does not represent the actual width of the alignment.
Infrastructure
ENGINEERING CORPORATION
Leucadia Wastewater District
B2 Force Main Replacement Project
Figure 1a: Option A Location
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community


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PORTAGE WY
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MAGELLAN ST
AVNDA ENCINAS
Batiquitos Lagoon
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1,000
Feet
Legend
Project Alignment Option B
Note: This figure is a schematic and does not represent the actual width of the alignment.
Infrastructure
ENGINEERING CORPORATION
Leucadia Wastewater District
B2 Force Main Replacement Project
Figure 1b: Option B Location
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community


OCEANSIDE
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78
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MAGELLAN ST
AVNDA ENCINAS
Batiquitos Lagoon
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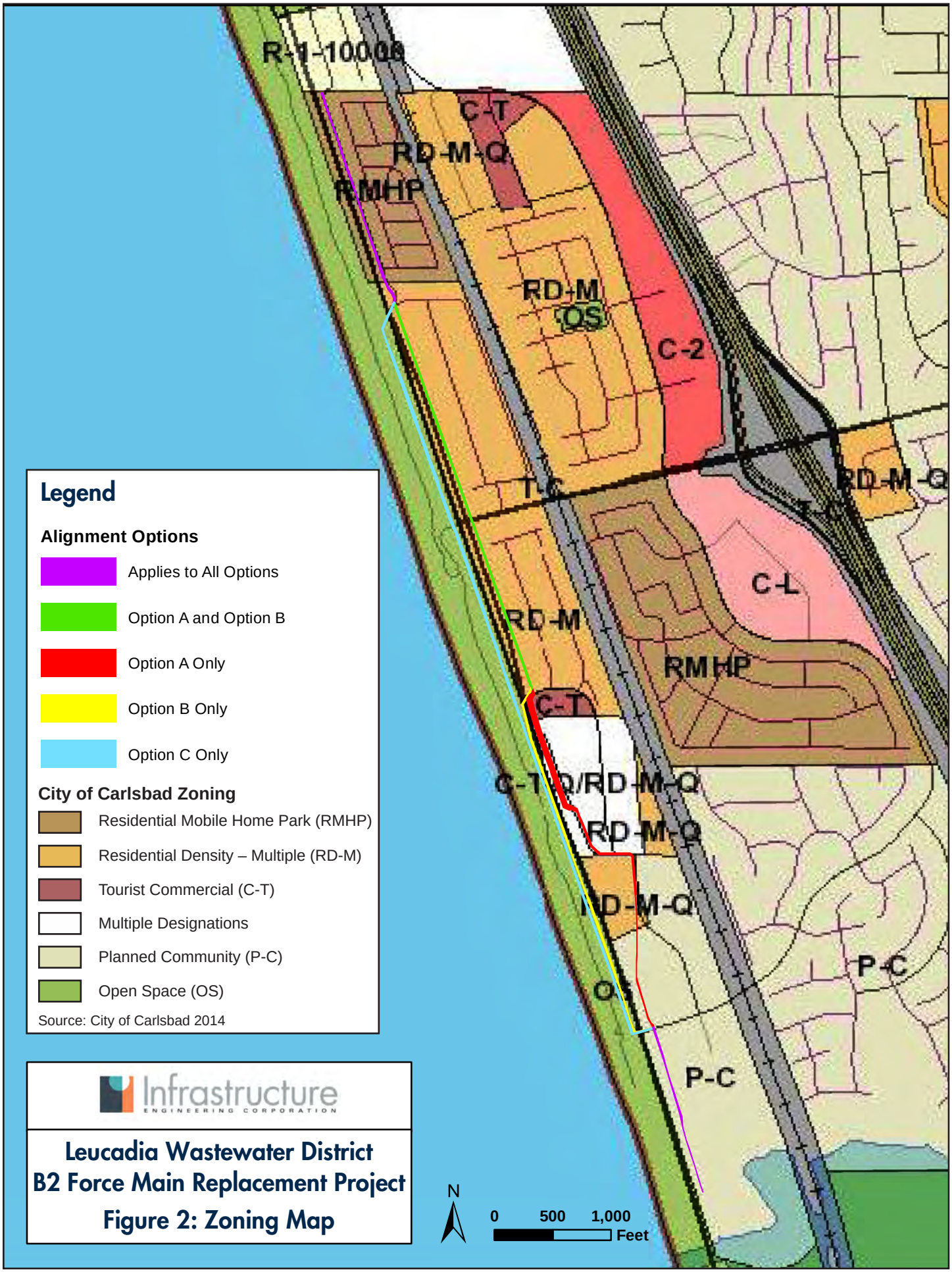
Feet
Legend
Project Alignment Option C
Note: This figure is a schematic and does not represent the actual width of the alignment.
Infrastructure
ENGINEERING CORPORATION
Leucadia Wastewater District
B2 Force Main Replacement Project
Figure 1c: Option C Location
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community


R-1-10000
C-T
RD-M-Q
RMHP
RD-M
OS
C-2
T-C
RD-M-Q
C-L
RD-M
RMHP
C-T
C-T
Q/RD-M-Q
RD-M-Q
RD-M-Q
P-C
OS
P-C
Legend
Alignment Options
Applies to All Options
Option A and Option B
Option A Only
Option B Only
Option C Only
City of Carlsbad Zoning
Residential Mobile Home Park (RMHP)
Residential Density – Multiple (RD-M)
Tourist Commercial (C-T)
Multiple Designations
Planned Community (P-C)
Open Space (OS)
Source: City of Carlsbad 2014
Infrastructure
ENGINEERING CORPORATION
Leucadia Wastewater District
B2 Force Main Replacement Project
Figure 2: Zoning Map
N
0
500
1,000
Feet

8. Description of project:

Overview

The Leucadia Wastewater District (District) B2 Force Main Replacement Project (Project) is being proposed to replace aging pipelines and improve the reliability of wastewater conveyance in the District's sanitary sewer system while maintaining the existing capacity of the system. The Project would involve replacement and realignment of portions of the B1 (14-inch-diameter), B2 (24-inch-diameter), and B3 (24-inch-diameter) force mains. The approximately 8,000-foot-long alignment is located in coastal Carlsbad, to the north of the Batiquitos Lagoon (Figures 1a, 1b, and 1c).

Background

The District's wastewater collection system covers a total service area of 16 square miles, encompassing the community of Leucadia together with the southern portion of the City of Carlsbad and the northern portion of the City of Encinitas, and serves a population of approximately 60,000. It is comprised of approximately 200 miles of gravity sewer pipeline; 5,000 manholes; 10 pump stations; 12 miles of force mains; and a water recycling facility that produces water for irrigation. The existing conveyance system has sufficient capacity to convey the flows anticipated at buildout under the various applicable land use planning documents. The District's service area is currently at approximately 92.5% of the anticipated buildout condition.

The 24-inch-diameter **B2 and B3 force mains** are essential elements of the District's sewer system. The District shares ownership of both force mains with the City of Encinitas. The original ductile iron B2 force main was installed in 1979, and the ductile iron B3 force main, which has the same diameter and conveyance capacity as B2, was added in 1988 to provide redundancy and improve the reliability of the system, as well as increasing the maximum flow volume that can be conveyed. In the past, the District alternated flows between the B2 and redundant B3 force mains every 2 – 4 months under normal operations.

The **B2 and B3 force mains convey the District's wastewater north to meet the North Lanikai gravity interceptor**, which is jointly owned with the City of Encinitas. From the confluence, the 21-inch vitrified clay pipe Lanikai Gravity Trunk Sewer runs east to the City of Carlsbad's Occidental gravity sewer to convey the wastewater for eventual treatment at the Encina Water Pollution Control Facility (WPCF). The District is one of six owners of the Encina WPCF, operated on the owners' behalf by the Encina Wastewater Authority.

The District pumps secondary treated wastewater from the Encina WPCF to its Gafner Water Reclamation Plant for tertiary treatment through the **B1 secondary effluent force main**. Installed in 1974, the B1 secondary effluent force main is composed mainly of 14-inch ductile iron pipe, although 1,500 feet of B1 was replaced with polyvinyl chloride (PVC) as part of the District's 2010 Batiquitos Force Main Repair Project.

Project Need

The B2 force main experienced a failure on May 3, 2010 due to external corrosion initiated by a puncture in the protective polyethylene encasement and exacerbated by the tidal influence of the Batiquitos Lagoon (RFYeager Engineering 2010). In response to this failure, the District replaced approximately 1,500 feet of the B1, B2, and B3 force mains subject to the tidal influence of the lagoon.

In February of 2013 another break occurred in the B2 force main on the 6500 block of Ponto Drive north of Breakwater Road in Carlsbad. District crews responded quickly to isolate the leak by switching flows to the redundant B3 sewer force main, while simultaneously containing and cleaning up the spill. The

District then repaired the B2 force main in the immediate vicinity of the break and has kept the B2 force main on standby status since that time.

The District is now proposing to replace the remainder of the original B2 force main. This would complete the replacement of the original ductile iron force main and maintain redundancy in this critical facility. Like many other sewer service providers, the District is in the process of converting its sewer force mains to PVC, which is preferred over ductile iron because of its improved resistance to corrosion and longer lifespan.

This project also provides an opportunity to realign portions of the B1, B2, and B3 sewer force mains outside of a recently developed/landscaped portion of the Carlsbad Boulevard right-of-way and into the travel lanes of Carlsbad Boulevard to minimize impact of new pipeline construction to the recently developed hardscape within Carlsbad Boulevard and the adjacent property occupied by the Carlsbad Hilton. Under Option A, the B1, B2, and B3 force mains would all be realigned into northbound Carlsbad Boulevard where they pass the Carlsbad Hilton frontage. Under Options B and C, the B2 force main would be realigned into southbound Carlsbad Boulevard or the former southbound Carlsbad Boulevard, respectively, and B1 and B3 would be shifted into northbound Carlsbad Boulevard.

In addition, under Options B and C, the District is considering a more comprehensive realignment of the B1 force main, described in more detail in *Goals and Objectives* below. This is appealing since realigning the B1 line would better accommodate current and future development in the area; in addition, incorporating the realignment into the current Project would be more economical over the long term because if B1 is relocated now, it could be placed in the same trench as B2, avoiding the need for a second project at a later date.

Goals and Objectives

The goals of the Project are to replace a critical wastewater conveyance facility that has experienced past failures, maintaining the redundancy of the District's wastewater conveyance to the Encina WPCF; bring older facilities up to current design standards; reduce the potential for future failure, major pipeline repairs, and service shut-downs; and improve coordination with City of Carlsbad land use planning.. By reducing the risk of failure, the Project would protect the surrounding natural and human habitat.

Specific **Project objectives** with regard to the B2 force main are as follows.

- Replacement of the existing B2 24-inch-diameter ductile iron sewer force main with a new 24-inch diameter PVC force main, enabling restoration to full active service
- Replacement of the discharge elbows and spool into the receiving manhole
- Replacement of the receiving manhole with a new PVC-lined sewer manhole

An additional Project objective is to relocate portions of the B1, B2, and B3 sewer force mains to better coordinate with current and future development in the Project area. As identified above, the project would not increase system capacity.

In the central segment, **Option A** would cross the vacant area from Carlsbad Boulevard to Ponto Drive within the Carlsbad Boulevard public right-of-way. This portion of the right-of-way was previously occupied by the onramp/offramp to Ponto Drive from Carlsbad Boulevard, and also contains a 12-inch gas line, the B1 and B3 force mains, and an 84-inch City of Carlsbad storm drain. Within this right-of-way, the B2 force main would be realigned slightly and installed in a new trench to reduce impacts on revegetation plantings of native coastal sage scrub installed when the Ponto Drive offramp was removed.

Under Option A, as discussed above, the B1, B2, and B3 force mains would be replaced at the existing diameters with PVC and realigned along an approximately 800-foot long section where they cross in front of the new Carlsbad Hilton, to avoid the recently constructed hardscape, and reduce current and future disruption to the Hilton's business operations (Figure 1).

Under Option B, the existing B2 force main would be abandoned in place from Avenida Encinas to the intersection of Ponto Road and Carlsbad Boulevard, including the portion that currently crosses from Carlsbad Boulevard to Ponto Drive via the former Ponto Drive offramp alignment. A new, realigned 24-inch-diameter PVC force main would be installed in a new trench along the eastern edge of the southbound travel lanes of Carlsbad Boulevard. Like Option A, Option B would also replace and realign the B1 and B3 force mains along an approximately 800-foot-long section near the frontage of the Carlsbad Hilton.

Under Option C, the existing B2 force main would be abandoned in place from Avenida Encinas to the intersection of Breakwater Road and Carlsbad Boulevard. As with Option B, this would include abandoning the portion that currently crosses from Carlsbad Boulevard to Ponto Drive via the former Ponto Drive offramp alignment. A new, realigned 24-inch-diameter PVC force main would be installed in a new trench in the former southbound Carlsbad Boulevard lanes (no longer in use), adjacent to the South Carlsbad State Beach campground. Like the other Options, C would also replace and realign the B1 and B3 force mains along an approximately 800-foot-long section near the frontage of the Carlsbad Hilton.

Additionally, if Option B or C is selected, the District may elect to implement a more comprehensive realignment of the B1 force main, involving not only the portion immediately in front of the Hilton, but also the remainder of the line between Avenida Encinas and the northern end of the B2 force main at 6500 Ponto Drive, including the segment that is currently located in the former Ponto Drive offramp between Carlsbad Boulevard and Ponto Drive. Relocating the Carlsbad Boulevard – Ponto Drive segment in particular is desirable, since it would avoid conflicts if the vacant Planned Community–zoned area between Carlsbad Boulevard and Ponto Drive is developed, as it likely will be, in the future. Realigning all or part of the B1 line between Avenida Encinas and the northern end of the B2 force main at 6500 Ponto Drive under the present Project would save costs over the long term, since the B1 force main could be placed in the same trench as B2, substantially reducing the work required.

Note that if the District moves ahead with a more comprehensive realignment of the B1 force main, as seems likely, the portion of B1 in front of the Carlsbad Hilton would be placed in the new B2 trench in southbound or former southbound Carlsbad Boulevard, with only the B3 force main relocated into northbound Carlsbad Boulevard along the Hilton frontage.

Project Construction

Methods and Activities

All work would be conducted in accordance with the District's Standard Specifications and other applicable industry standards for sewer system construction.

Pipeline installation would be primarily accomplished using conventional open trench ("cut and cover") methods. In this method, pavement is removed from the roadway, and heavy equipment such as an excavator is used to open a trench to accommodate the new sewer main. The new pipeline is placed on a bed of appropriate stone aggregate material, then the trench is backfilled with compacted soil, and roadway paving and (where applicable) striping are restored.

Trenches for replacement and realignment of the 24-inch-diameter sewer force mains are expected to be approximately 4 feet wide. In front of the Carlsbad Hilton, the smaller B1 force main would likely be installed in a joint trench with one of the 24-inch-diameter force mains to reduce construction duration and cost. This joint trench is expected to be approximately 6 feet wide to allow the two force mains to sit side by side with adequate separation. Similarly, if additional segments of B1 are abandoned and realigned, this would also require a joint trench approximately 6 feet wide. The new installations are expected to be between 8 and 13 feet deep.

To reduce traffic disruption and other disturbance, trenching and pipeline installation is anticipated to proceed in sections about 100 feet long, with each section backfilled at the end of the day. If trenches must remain open overnight, they will be covered with non-skid trench plates and temporary construction fencing and/or traffic cones will be used to define a no-access area for public safety.

Under Options B and C, the central portion of B2 between Carlsbad Boulevard and Ponto Road would be capped with 2-foot-thick concrete plugs and abandoned in place. The same method would be used if the corresponding segment of B1 is also abandoned. Work for the abandonment(s) would occur within the existing paved roadway right-of-way.

Traffic Control and Safety

The Project would entail activities within existing roadways along a stretch of Carlsbad Boulevard that supports both commuter and tourist traffic and is heavily used by pedestrians, runners, and bicyclists. If Option C is selected, work in proximity to an active campground would also be required. To provide for worker and community safety, some short-term, partial roadway closures would be required around active work areas. In addition, to manage traffic as safely and efficiently as possible, the Contractor will be required to prepare a Traffic Control Plan, which will include the following requirements, in addition to other specifics.

- Wherever feasible and consistent with public and worker safety, at least one traffic lane will be maintained in operation during construction
- Access will be provided to area businesses during normal business hours
- If trenching occurs across driveways, access will be maintained to the extent feasible, using drivable non-skid trench plates
- Flaggers will be provided as needed to provide for the safety of motorists, pedestrians, and bicyclists
- Pedestrian and bicyclist detours will be used if needed to provide for safe passage around the construction area; the detour route will be clearly marked, and, if appropriate, may also use temporary safety barriers such as K-rail
- Contractors will be required to comply with Part 6 of the California Manual on Uniform Traffic Control Devices (Caltrans 2012a) regarding proper placement and usage of traffic controls.

Prior to commencing Project construction, the Contractor will be required to obtain an approved traffic control permit from the City of Carlsbad, which is expected to include pertinent requirements from the City of Carlsbad Police and Fire Departments. The District and Contractor will also coordinate construction timing/phasing to reduce the potential for conflict with scheduled “runs” or other recreational events in the Project area. If Option C is selected, coordination will include the South Carlsbad State Beach campground

Habitat Protection

As discussed above, most of the Project would entail installations within existing roadways.

Under Option A, where the central segment of the alignment follows the Carlsbad Boulevard right-of-way across the previously disturbed vegetated area between Carlsbad Boulevard and Ponto Drive, existing vegetation would need to be removed in the narrow corridor immediately along the trench. In this area, the District has committed to the following measures to reduce effects on coastal sage scrub vegetation.

- The alignment width in areas passing through or adjacent to sensitive/protected vegetation will be narrowed to a maximum of 10 feet (the minimum needed for safe and efficient contractor access) and the limits of the work area will be defined in the field using pin flags, temporary construction fencing, or another appropriate, low-impact medium by a qualified biologist prior to contractor mobilization
- Coastal sage scrub vegetation removed will be revegetated in kind, representing 1:1 compensation for removal, and the District will make a one-time fee payment into the City's habitat mitigation fund in an amount reflecting an additional 1:1 compensation for the removed vegetation. This approach was developed based on requirements of the City's adopted Habitat Management Plan (HMP), which stipulates 2:1 compensation for impacts on coastal sage scrub within the coastal zone

Under all Options, construction in the southern segment of the alignment would also occur in close proximity to native vegetation south of Avenida Encinas. In this area, to prevent incursions that could damage sensitive and protected habitat, the alignment will also narrow to 10 feet maximum width, and will be flagged in the field by a qualified biologist or ecologist prior to contractor mobilization.

Water Quality

Like any undertaking that involves ground disturbance, the Project has the potential to add silt and other pollutants to stormwater runoff. As a requirement for obtaining a right-of-way permit, the construction contractor will be required to comply with City of Carlsbad requirements to prepare and implement a Water Pollution Control Program (WPCP) prior to commencing Project construction.

Construction Schedule and Hours

The Contractor would be contractually required to complete Project construction under a tight schedule, with penalties for working past set deadlines. Construction is expected to begin no later than November 30, 2014 with Project completion anticipated in February/March 2015. Work along the frontage of the Carlsbad Hilton is planned to take place prior to January 2015, avoiding the peak tourism season.

Although the overall Project duration is anticipated at approximately 4 months, work in any given area would be of much shorter duration. For safety reasons, the goal is to minimize the time an excavation stays open; thus, pipeline installation work would progress along the alignment, with trenches opened in short (approximately 100-foot-long) segments, and typically backfilled and closed within 1 day. Once the trench is closed, the roadway would be temporarily repaved/resurfaced or plated to restore it to a drivable condition followed by final pavement restoration upon conclusion of pipeline construction operations.

The District anticipates that a majority of the work would occur on weekdays between 8 a.m. and 5 p.m. No night work or work on weekends is anticipated. Through the encroachment permit process, the City of Carlsbad may further limit working hours along Carlsbad Boulevard to avoid disrupting commute traffic.

Community Awareness/Construction Noticing

The District's standard practice is to post notification of upcoming project activities on its website. During construction, a "construction hotline" contact would be available to provide an avenue for any concerns about Project construction. The contractor will be required to post signage with Project information and the hotline contact at the active worksite.

Project Operations and Maintenance

Operations and maintenance activities would be limited and would not differ greatly from the existing condition except for a reduced risk of repair due to failures. The primary operational activity would continue to be weekly inspections to check the function of air valves along the force mains. The air valves are maintained bi-annually, in June and December of every year. These activities involve a crew of 1 or 2 operations personnel in 1 pickup truck.

9. Surrounding land uses and setting:

The majority of the Project alignment is located in the Carlsbad Boulevard and Ponto Drive roadways, in areas supporting residential, commercial, and open-space land uses. The alignment for all Options begins adjacent to the north edge of the Batiquitos Lagoon open space and conservation lands. Land uses in the central portion of the alignment include residential, tourist commercial (including the Carlsbad Hilton), and "multiple designations." The northern portion of the alignment is adjacent to residences and mobile homes to the east, and the South Carlsbad State Beach to the west (Figure 1).

Under Option A, the central portion of the Project alignment would include a segment following the City of Carlsbad public right-of-way across the undeveloped area between Carlsbad Boulevard and Ponto Drive; the former offramp alignment also contains the District's B1 and B3 force mains, a SDG&E natural gas line, and a large-diameter City storm drain. The central portion of Option A, at the former Ponto Drive offramp, would also be located adjacent to currently undeveloped planned-community parcels.

Under Options B and C, the southern and central portions of the Project alignment would run adjacent to the South Carlsbad State Beach recreational area.

10. Other public agencies whose approval is required:

Under all Options, the Project would require an encroachment permit from the City of Carlsbad for work within the Carlsbad Boulevard and Ponto Drive right-of-ways.

Under Option A, the Project may also require a Coastal Development Permit (CDP), issued by the City of Carlsbad under its adopted Local Coastal Program (LCP). However, the Project may be exempt from CDP requirements because it would involve the maintenance and repair of existing sewer facilities, would not result in an expansion of capacity, would be located within previously disturbed public rights-of-way, and would not involve major vegetation removal (Public Resources Code 30610[d]).

Option A would entail vegetation removal in a previously disturbed right-of-way that supports coastal sage scrub vegetation, including revegetation plantings. Although the Project has been conditioned to avoid impacts on the federally listed Coastal California Gnatcatcher (*Polioptila californica californica*), coastal sage scrub may offer habitat for the species.

Accordingly, the Project has been designed to reflect the requirements of the City's adopted HMP with regard to coastal sage scrub removals; as identified above in *Habitat Protection*, regardless of whether a

CDP is required, coastal sage scrub would be revegetated and additional compensatory mitigation consistent with the City of Carlsbad's adopted LCP and HMP would be implemented.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would potentially be affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

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

DETERMINATION:

On the basis of this initial evaluation:

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

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

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

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

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

Signature _____ Date _____

Title _____

EVALUATION OF ENVIRONMENTAL IMPACTS:

The checklist sections on the next few pages analyze the Project's impacts on the following resources.

- Aesthetics
- Agricultural and forestry resources
- Air quality, including greenhouse gas emissions
- Biological resources, including sensitive habitats and protected species
- Cultural (archaeological and architectural) resources, paleontological resources
- Geology and soils
- Hazards and hazardous materials
- Hydrologic function and water quality
- Land use and planning
- Mineral resources
- Noise
- Population and housing
- Public services
- Recreation
- Transportation and traffic
- Utilities and public services

Consistent with the state's *CEQA Guidelines* (§15064; see also *Guidelines* Appendix G), analysis considered the Project's reasonably foreseeable direct impacts (i.e., effects that are immediately related to the Project and typically occur close in space and time to Project implementation) as well as its indirect impacts (effects that are not immediately related to the Project itself, but are secondary outcomes of Project effects, and may occur at a greater remove in time and/or space). Analysis also considered the Project's contribution to cumulative impacts – i.e., effects that result from repeated activities over a period of time, and effects representing the reasonably foreseeable combined outcome of more than one past, present, and/or future project.

Levels of effect were identified using the following terminology.

- **No Impact –** The Project would not materially change conditions from the existing, pre-Project baseline
- **Less than Significant Impact –** It is reasonably foreseeable (i.e., substantial evidence suggests) that the Project would alter conditions from the pre-Project baseline, but the change would be small enough to fall below an adopted threshold of significance representing the level of concern
- **Potentially Significant Impact –** It is reasonably foreseeable that the Project would alter conditions from the pre-Project baseline, and the change would be substantial or important enough to exceed an adopted threshold of significance
- **Less than Significant with Mitigation Incorporated –** the Project's impact would be significant, but mitigation measures can be adopted to lessen the effect, reducing it below the adopted threshold of significance, and therefore below the level of concern. Where this finding is made, the specific mitigation measures are identified, including implementation timing and responsibility as well as applicable performance standards

Information used in analyzing Project impacts is cited to its sources using parenthetical format, and a complete list of references is provided in *References Cited* at the end of this checklist.

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

I. AESTHETICS

Would the project:

a. Have a substantial adverse effect on a scenic vista? ☐ ☐ ☒ (Construction) ☒ (Long Term)

The Project alignment primarily follows Ponto Drive and Carlsbad Boulevard in residential and tourist-commercial areas located just east of Carlsbad State Beach. The southern portion of the alignment route may be visible from portions of the South Carlsbad State Beach campground. In the central segment of the alignment (between the Ponto Drive/Avenida Encinas intersection and Ponto Road) the routes for all Options would be shielded from the campground by a row of trees and shrubs, but visible from the west-facing front of the Carlsbad Hilton, as well as some adjacent businesses and residences. Similarly, in the northern portion of the alignment (north of the Ponto Road spur), the Project route continues to be shielded from campsite views by landscaping, but is visible from coastal-facing balconies and the rear of residences east of Carlsbad Boulevard. It is also visible from the bike/pedestrian pathway on the west side of Carlsbad Boulevard.

During construction, there would be some visual disruption associated with materials staging, the presence and activity of construction equipment, and the excavation required to open the pipeline trench. However, construction in any given area would be short-term and visible to a comparatively small number of viewers, limited for the most part to adjacent businesses, residences, and people passing through the area. Following the installation of the new pipeline segments, all equipment and materials would be removed from both of these areas and any disturbance – in particular to the paved roadways, sidewalks, curbs, and vegetated areas – would be restored. Because of the short duration and limited visibility of construction-related visual disturbance, **construction-period impacts are considered less than significant**.

Following construction, all affected streets, parking lots, sidewalks, curbs, and vegetated areas would be restored and/or improved. The Project would result in only minor and visually unobtrusive aboveground features, such as air vent valves. Consequently, **the project would have no long-term impact on visual character**.

b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? ☐ ☐ ☒ (Construction) ☒ (Long Term)

The Project alignment is not within or in proximity to any state scenic highway corridor. Interstate 5, about 2,500 feet east of the alignment, is not recognized as a State Scenic Highway in San Diego County (Caltrans 2012b). Moreover, the Project would not result in long-term aesthetic changes in the appearance of the alignment. The Project would thus have **no impact on resources associated with any state-designated scenic highway.**

Continued on next page.

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

San Diego County's Scenic Highway System Priority List lists Interstate 5 as a third priority scenic route beginning at a point 4,500 feet southeast of the southern tip of the alignment, but it is not so listed in the vicinity of the Project (County of San Diego 1986). Carlsbad Boulevard is a northward continuation of Historic Highway 101, but this stretch of the historic highway is not on the County's Scenic Highway System Priority List (County of San Diego 1986). There would be **no impact on County-designated scenic routes.**

The City of Carlsbad considers Carlsbad Boulevard a Community Theme Corridor, which presents Carlsbad to persons entering from adjacent communities (City of Carlsbad 2013b). As Item (a) identifies, construction would create localized visual disruption, but construction activity would be short-term and visible to a comparatively small number of viewers, and following the installation of the new pipeline segments, all equipment and materials would be removed from the work site, and pavement and any affected vegetation would be restored. Because of the short duration and limited visibility of construction-related visual disturbance, **construction-period impacts to the Carlsbad Boulevard Community Theme Corridor are considered less than significant**.

As Item (a) also discusses, the Project would install only very limited and visually unobtrusive aboveground components (such as air vents), which would not differ materially from those associated with the existing force main. In addition, as identified above, pavement and vegetation removed for Project installation would be restored after construction. Consequently, there would be **no long-term impact on visual resources associated with the Carlsbad Boulevard Community Theme Corridor.**

c.	Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒ (Construction)	☒ (Long Term)

As identified in Item (a), construction would result in limited visual disruption in the immediate work area due to the removal of pavement and presence of equipment, materials, etc. The associated impact is considered **less than significant** because it would be temporary and of short duration and – since construction would move progressively along the alignment – would affect only a small area at a time.

As identified in Item (a), the Project would replace/realign existing sanitary sewer facilities and manholes; the only new permanent above ground features (such as air vent valves) would be minor and visually unobtrusive, and would not differ materially from those associated with the existing force main. Following construction, all affected roadways – and, if any, vegetation – would be restored. In particular, under Option A, where the alignment crosses the undeveloped parcel between Carlsbad Boulevard and Ponto Drive, the narrow corridor affected by construction would be revegetated consistent with the City's adopted HMP once construction is complete. There would be **no long-term impact on visual character.**

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d. Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☐	☐	☒ (Construction)	☒ (Long Term)

During construction, there would be some potential for new/increased glare, primarily associated with reflections from the glass and painted metal surfaces of construction equipment. However, construction in any given area would be short-term and visible to a comparatively small number of viewers, limited for the most part to adjacent businesses, residences, recreationists, and people passing through the area. Night work (and associated lighting) is not expected. Because of the short duration and limited visibility of potential construction-related glare and light spill, **construction-period impacts are considered less than significant**.

The Project would restore pavement, would only install minor and visually unobtrusive aboveground facilities very similar to those associated with the existing force main, and would not create additional areas of hardscape. It therefore would not result in new permanent sources of light or glare. There would be **no long-term light- or glare-related impact on day or nighttime views.**

II. AGRICULTURAL AND FOREST RESOURCES

Would the project:

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

The Project alignment (all Options) is located entirely within a developed portion of the City of Carlsbad, and would be restricted to existing roadway rights-of-way. There is no Farmland within or in the immediate vicinity of the alignment Options. Moreover, the Project is proposed to support existing approved development, and it would not modify existing zoning or land uses. The Project thus has **no direct or indirect potential to result in conversion of Farmland to non-agricultural uses.**

b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒

As identified in Item (a), the Project is located in a developed area. The Project vicinity does not currently support agricultural zoning, and there are no Williamson Act contracts in place in the Project vicinity. There would be **no impact related to conflict with agricultural zoning or Williamson Act contracts.**

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 1220[g]), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104[g])?	☐	☐	☐	☒

There is no forest or timberland meeting these definitions in proximity to the Project alignment Options, and the Project would not modify existing zoning or land uses. There would be **no impact related to conflicts with forest or timberland zoning.**

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

Project facilities would be located entirely within public roadways and rights-of-way within a largely developed area that does not support forest lands. The Project would not use forest lands, nor would it modify existing zoning or land uses; it therefore has **no direct or indirect potential to result in conversion of forest land to non-forest uses.**

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

As discussed in Items (a) through (d), the Project is not located in proximity to Farmland or forest lands and would not modify existing zoning or land uses. It therefore has **no direct or indirect potential to result in Farm- or forest land conversion.**

III. AIR QUALITY

Would the project:

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

The Project, and the District as a whole, are located in the San Diego Air Basin (SDAB), under the jurisdiction of the San Diego County Air Pollution Control District (SDAPCD). Several SDAPCD air quality plans are applicable in the Project area, including the Regional Air Quality Strategy Revision (2009) and Measures to Reduce Particulate Matter (2005).

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

SDAPCD's Redesignation Request and Maintenance Plan for the 1997 National Ozone Standard for San Diego County (2012) addresses attainment of federal air quality standards. The SDAPCD has also prepared and implemented several studies and programs that form part of the State Implementation Plan (SIP) addressing particulate matter and corresponding federal standards. However, none of these plans applies to construction activities. Consequently, **there would be no short-term construction-related impact related to a conflict with an adopted air quality plan.**

As discussed in more detail in Section XIII of this checklist, the Project is proposed to support existing levels of development and would not result in population or employment growth with the potential to exceed the forecasts used in an air quality plan to lead to conflict or obstructed implementation of the plan. **There would be no long-term impact related to a conflict with an adopted air quality plan.**

b.	Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☐	☒

Air quality standards are established at federal and state levels to regulate levels of six "criteria pollutants" that are generated by a wide variety of sources and have the potential to endanger the public health or welfare: ozone, carbon monoxide, lead, nitrogen dioxide, particulate matter, and sulfur dioxide. Although there has been steady progress in reducing San Diego County ozone levels in recent years, the SDAB remains in non-attainment of state and federal standards for ozone levels, and is also in nonattainment for particulate matter (SDAPCD 2010, 2014).

Project construction would use diesel- and gasoline internal combustion–powered equipment that emits several criteria pollutants as exhaust gases (tailpipe emissions). It would also generate dust as a result of pavement removal and trench excavation activities. Additional tailpipe emissions and dust would be generated by the haul traffic required to deliver materials to the construction staging areas, and by the vehicles of workers commuting to the site. However, haul traffic and worker commute trips would be comparatively limited, as discussed in Section XVI of this checklist. Equipment use would be very localized and would involve only a small number of pieces operating at the same time. In addition, dust control measures will be included in the Project's technical specifications and thus will be contractually binding on the Contractor. **There would be no construction-period impact related to violation of air quality standards.**

Following the completion of construction, the Project would not generate criteria pollutants or dust and therefore would have no potential to result in ongoing violation of air quality standards or ongoing exacerbation of existing violations. **There would be no operations-related impact related to violation of air quality standards.**

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☐	☒

As discussed in the previous item, Project construction would use diesel- and gasoline internal combustion–powered equipment and vehicles, and would also generate dust as a result of excavation and demolition activities. However, equipment use, haul traffic, and worker commute trips would all be very limited; as discussed in the preceding item, Project construction would not independently result in a violation of any applicable state or federal standard and would not substantially exacerbate the SDAB's existing non-attainment status for ozone and particulate matter; it would therefore neither result in nor contribute to cumulative air quality impacts. Once construction is complete, the Project would require minor, intermittent, and short-term inspection and maintenance, but this activity would not differ materially from the maintenance required for the existing force main; the Project would not add new sources or increase the generation of criteria pollutants or dust and therefore would have no potential to result in or contribute to cumulative air quality impacts. It therefore would not independently result in a cumulatively considerable net increase in emissions of any criteria pollutant, nor would it make a cumulatively considerable contribution to any existing non-attainment status. **There would be no impact relative to cumulative impacts to air quality.**

d. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒ (Construction)	☒ (Long Term)

For purposes of air quality analysis, sensitive receptors are considered to include persons who are more susceptible than the population at large to adverse health effects of air pollutant exposure, such as children, seniors, persons engaged in athletic activities, and the chronically ill. The types of land uses and facilities where sensitive receptors are expected to be present, particularly in groups, are considered sensitive for air quality; examples include schools, day care centers, playgrounds and other athletic facilities, hospitals, convalescent care facilities, rehabilitation centers, and retirement homes. Residential areas are also considered air quality–sensitive.

The Project would require construction work in some areas generally considered sensitive for air quality, in proximity to known sensitive receptors, including several residential areas. It is also near recreational areas – the South Carlsbad State Beach and Batiquitos Lagoon – where persons could be engaged in hiking or other athletic activities. The Project alignment Options are located approximately 0.20 mile west of the Parkhurst Preschool/Daycare on Waters End Drive in Carlsbad. The preschool is separated from the Project alignment by several intervening blocks of residential development, and the next nearest school, Pacific Rim Elementary School, is located more than 0.75 mile from the alignment. However, as discussed in Item (c), Project-related generation of dust and tailpipe emissions would be limited because of the Project's nature and scale – more specifically, the small area under excavation and the limited number of pieces of equipment operating at any given time, as well as the

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

limited number of haul trips and worker commute trips required to support construction activity. In addition, dust and tailpipe emissions disperse with distance. Moreover, exposure would be very short-term because of the short duration of work, and would be further reduced by good construction site housekeeping practices. Health effects of pollutant exposure, particularly at low levels, are typically associated with long-term chronic exposure. As a result, potential construction-period impacts related **to exposure of sensitive receptors to pollutants are evaluated as less than significant.**

Over the long term, Project facilities would require limited, intermittent operations- and maintenance visits, but these activities would not change materially from what is now occurring. **There would be no long- term impact related to exposure of sensitive receptors to pollutants.**

e. Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

Project construction would require the use of asphalt paving, which generates odors most people find objectionable. Depending on atmospheric conditions, diesel exhaust odors may also be intermittently perceptible. However, the duration of work in any given location is expected to be no more than a week total, and in most cases no more than 1 – 3 days, and potentially odor-generating activities would occur during only a portion of that total duration. Exposure to objectionable odors would therefore be of very short-term and temporary duration. **Construction-period impacts are therefore considered less than significant.**

Once construction is complete, as with any sewer facility, there would be some potential for odors but the Project would replace and realign existing sewer mains; it thus would not add new facilities that could represent new sources of odor. The potential for **long-term impact related to exposure to objectionable odors, if any, is therefore evaluated as less than significant.**

IV. BIOLOGICAL RESOURCES

Would the project:

a. Have substantial adverse effects, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒ (Option A – Coastal California Gnatcatcher)	☒ (Options B, C)

The following special-status species have some potential to occur in the immediate Project vicinity.

- **Nuttall's lotus (*Acmispon nuttallianus*)** (California Native Plant Society rare plant Rank 1B.1 – rare, threatened, or endangered in California and elsewhere) is an annual herb found on sandy soils in coastal sand dune and coastal sage scrub communities in coastal San Diego

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

County. The species may have some potential to occur in the coastal sage scrub habitat located along the southern portion of the Project alignment and in the vegetated right-of-way between Carlsbad Boulevard and Ponto Drive. However, it is considered very unlikely to be present within the Project (Option A) footprint, due to the area's disturbed condition. Moreover, the species was not observed during multiple site visits conducted for biological reconnaissance, vegetation mapping, and Project siting in March 2014, overlapping with the species' blooming period, which begins in March. No other special-status plants have the potential to occur within the Option A footprint

- **Coastal California Gnatcatcher (*Polioptila californica californica*)** (federally listed as threatened) – This small, non-migratory songbird is closely associated with coastal sage scrub habitat along the Southern California and Baja California coast, and is known to occur in the Project area, although it may have limited potential to nest within the Project (Option A) footprint, again due to the area's history of disturbance

In addition, **a number of migratory bird species** (protected under federal Migratory Bird Treaty Act) may nest in vegetation along the Project alignment and within the Option A footprint.

To minimize the potential for impacts, the construction corridor has been narrowed from approximately 20 feet to a permissible maximum of 10 feet where the Project alignment is adjacent to – or, under Option A – actually within areas of native vegetation. However, impacts would still differ slightly among the 3 Options, since Option A includes a footprint within native vegetation, while Option B would be entirely within paved roadway right-of-way areas, and Option C would be partially within areas of disused pavement and partially within areas of disturbed and/or landscaped vegetation.

Nuttall's Lotus

Although the Option A alignment includes a limited area of marginally suitable habitat for Nuttall's lotus, the species is considered very unlikely to be present. The Option B and C footprints are entirely outside areas of native vegetation. **None of the Options would impact this species.**

Coastal California Gnatcatcher

Under Option A, vegetation, including coastal sage scrub, would be removed in the 10-foot wide corridor for construction of the overland segment from Carlsbad Boulevard to Ponto Drive. Construction would occur outside the Gnatcatcher nesting window (February 15 – August 30), so the Project would not have the potential to affect occupied nests and is not expected to result in direct injury or mortality of individual Gnatcatchers or their young. Construction outside the Gnatcatcher nesting period would also avoid the potential for significant adverse impacts related to noise disturbance of nesting Gnatcatchers. However, the removal of habitat has the potential for an indirect adverse impact on the species. As a result, the District has committed to compensate for the removed habitat at a ratio of 2:1, consistent with the requirements of the Carlsbad HMP and LCP; this would entail onsite revegetation plus an additional payment into a habitat mitigation fund maintained by the City of Carlsbad. With this commitment in place, **impacts on the Coastal California Gnatcatcher under Option A would be less than significant.**

Under Options B and C, no native vegetation would be removed, and construction outside the Gnatcatcher nesting period would avoid the potential for significant adverse impacts related to noise

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

disturbance of nesting Gnatcatchers. There would be **no impact on Coastal California Gnatcatcher under Options B and C.**

Migratory Birds

Vegetation and large trees along the Project alignment, including landscape species, may support nesting by a number of bird species protected under the federal Migratory Bird Treaty Act. Vegetation removal between Carlsbad Boulevard and Ponto Drive could adversely affect nests, nesting birds, or their young and thus has the potential to interfere with nesting success. Construction activity and noise here and elsewhere along the alignment would also have the potential to create disturbance sufficient to discourage or interfere with nesting success. Either of these would constitute a significant impact. However, construction is planned to occur entirely outside the nesting season (February 1 – September 15). With construction outside the nesting season, **there would be no impact on migratory bird nesting under any of the Options.**

b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒ (Option A)	☒ (Options B, C)

The Project would primarily be constructed within the developed Carlsbad Boulevard and Ponto Drive roadways – or under Option C, within the developed but now disused former Carlsbad Boulevard southbound lanes. However, **under all Options,** construction along the southern portion of the alignment would occur along the roadway shoulder in proximity to areas of coastal sage scrub habitat associated with the Batiquitos Lagoon corridor. Coastal sage scrub is recognized as under threat throughout California and is considered a sensitive habitat in local conservation planning documents, including the City of Carlsbad's HMP (City of Carlsbad 2004). However, as discussed in the *Project Description* section of this initial study, for the portions of the Project adjacent to or within native vegetation – including coastal sage scrub and revegetated coastal sage scrub in the former Ponto Drive offramp area, as well as native vegetation along Carlsbad Boulevard south of Avenida Encinas (see maps in Appendix A) – the construction corridor would be narrowed to 10 feet wide, which is the minimum needed to provide for safe contractor access. In addition, for these portions of the alignments, the limits of work will be defined in the field by a qualified biologist using pin flags, temporary construction fencing, or another appropriate, low-impact measure to prevent accidental incursions by contractor staff. The exclusion measures will be in place prior to contractor mobilization.

Under Option A, the central segment of the Project would cross an undeveloped portion of the City of Carlsbad's Carlsbad Boulevard right-of-way between northbound Carlsbad Boulevard and Ponto Drive. This portion of the right-of-way was previously occupied by the offramp serving Ponto Drive and was revegetated with coastal sage scrub when the offramp was removed. This successful revegetation project now offers moderate to high-quality habitat. Additional, lower-quality coastal sage scrub is present adjacent to the revegetation footprint.

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

The Option A alignment for the central segment of the Project was developed based on detailed vegetation mapping conducted for the Project (see Appendix A), and was configured to minimize impacts on high-quality revegetated coastal sage scrub. Based on the vegetation mapping conducted for the Project, and assuming the 10-foot-wide construction corridor adopted by the District for Project work in proximity to sensitive coastal habitats, installation of the new B2 force main between Carlsbad Boulevard and Ponto Drive **under Option A** would impact a maximum of 2,204 square feet of coastal sage scrub (including 1,364 square feet of higher-quality coastal sage scrub revegetation plantings and 840 square feet of disturbed coastal sage scrub habitat). Consistent with the requirements of the City of Carlsbad's adopted LCP and HMP, which stipulate 2:1 mitigation for impacts on coastal sage scrub within the Coastal Zone,

- all coastal sage scrub removed for the Project will be revegetated in kind, representing onsite revegetation at a 1:1 ratio
- the District will make a payment to the City's habitat mitigation fund for additional compensation acreage to meet the required 2:1 compensation ratio

The onsite revegetation and additional bank payment combine to create a 2:1 compensatory commitment for impacts on coastal sage scrub habitat. With this commitment in place**, impacts to sensitive natural communities are considered less than significant under Option A.**

Under Option B, all installations would occur within existing roadways or shoulder areas; there would be no work within native vegetation. In particular, realigning the central segment of B2 into southbound Carlsbad Boulevard would avoid the need to cross the vegetated right of way between Carlsbad Boulevard and Ponto Drive. **Similarly, Option C** would entail work within areas of disused pavement, disturbed areas, and landscape vegetation, and would avoid the vegetated right-of-way between Carlsbad Boulevard and Ponto Drive. There would be **no impact to sensitive natural communities under Options B and C.**

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

Under all of the Options, the project alignment largely follows existing or former roadways, and would not coincide with any federally protected wetlands. There are no wetlands within construction limits, and a Water Pollution Control Plan (WPCP) would provide procedures to avoid offsite discharge of sediment and pollutants during storm events, preventing impacts on wetlands outside the immediate construction area. With these measures in place there would be **no impacts on federal or state jurisdictional wetlands or other jurisdictional habitat.**

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒

The Project focuses on belowground wastewater infrastructure, and would only construct minor aboveground features, such as air vent valves. **Under Option A**, the central segment of the Project between Carlsbad Boulevard and Ponto Drive would require vegetation removal for pipeline installation. However, the affected area is isolated by roadways on all sides, and does not offer the connectivity required to support wildlife movement. In addition, as indicated above, vegetation and large trees along the Project alignment, including landscape species, may support nesting by a number of bird species protected under the federal Migratory Bird Treaty Act but construction is planned to occur entirely outside the nesting season (February 1 – September 15). No wildlife nurseries are recognized on this parcel or elsewhere in the Option A footprint, of which the remainder is located within existing roadways. **Under Option B**, the entire alignment would be located within the existing Carlsbad Boulevard and Ponto Drive roadways. **The Option C alignment** would be within areas of disused pavement, disturbed areas, and landscape vegetation. **There would no impacts to wildlife movement or migratory species under any of the Options**.

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

The northern portion of the Project alignment (north of Ponto Road spur) follows Carlsbad Boulevard and Ponto Drive adjacent to a residential area. Section 11.12 of the City of Carlsbad's Municipal Code contains local tree preservation policies applicable to the ornamental trees and shrubbery that adorn this stretch (City of Carlsbad 2000, 2013). Although not mandated, the District would act in the interest of these policies, and has designed the Project alignment to avoid the need for tree removal. Work within the driplines of existing trees would also be avoided. **There would be no impact related to conflict with local policies or ordinances for the protection of biological resources, including tree preservation ordinances, under any of the Options.**

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

The City of Carlsbad's approved HMP (City of Carlsbad 2004) covers the Project area, with its Core 8 Focus Planning Area (which includes Batiquitos Lagoon and surrounding area) immediately south and east of the southern segment of the Project. Although the District is an independent special district and is not a signatory to the HMP, the proposed Project is nonetheless entirely consistent with the

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

HMP; with the Project located almost entirely within existing roadways, and no new aboveground features constructed, there would be no severance of landscape-level linkages that connect Core 8 with other habitat resources. In addition, the Project's commitment regarding compensation for coastal sage scrub impacts under Option A was specifically designed for consistency with the HMP. The Project would have **no impact related to a conflict with an adopted conservation plan**.

V. CULTURAL RESOURCES

Would the project:

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

The cultural resources records search and literature review conducted for the Project in March 2014 identified 21 known cultural resources within a 1-mile radius of the Project, including all alignment Options (see the Project *Cultural Resources Assessment* presented in Appendix B, referenced below as Laguna Mountain 2014). These include two historic resources, a 1928 farm complex (P-37-029964) and a trash scatter (CA-SDI-13739/H) (Laguna Mountain 2014). Neither of these resources is on or immediately adjacent to any alignment Option, so the Project has no potential to affect them in any way that might modify any qualities contributing to significance.

Review of historic maps and aerial photographs indicated that the southern portion of the proposed Project alignment was part of the original railroad alignment through the area from the 1880s through 1945. This alignment was abandoned and replaced by the current railroad alignment (approximately 700 feet to the east) around 1946. In maps dating between 1931 and 1947, two historic structures appear to have once stood to the east of the Project north of Avenida Encinas, where Ponto Drive is currently located. However, a pedestrian survey of the Project alignment did not encounter surface evidence of these or other historic resources, and the National Register of Historic Places, California Inventory of Historic Resources, and California Historical Landmarks show no recorded historic resources in the Project vicinity (Laguna Mountain 2014).

N**o impact is anticipated with regard to changes in the significance of a historical resource, including historic architectural resources.**

Please note that additional information relative to archaeological resources is presented separately in Item (b) below.

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

The cultural resources record search and literature review performed for the Project (Appendix B) identified 20 archaeological resources within a 1-mile radius of the Project. These resources primarily include shell and lithic scatter, in addition to temporary camps, habitation sites, hearths, and milling

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

tools. The nearest of these resources, a large shell midden site (CA-SDI-11026), is located approximately 80 feet east of the Project alignment. Two other sites (which no longer exist due to development) were previously located 160 feet to the east and 330 feet to the north, respectively (Laguna Mountain 2014). As these recorded resources are not within or immediately adjacent to the Project footprint, the Project has **no potential to affect known archeological resources in any way that might modify any qualities contributing to significance.**

During the pedestrian survey of the Project an isolated bidirectional core was found on the surface of the Ponto Drive roadside cut, in a highly disturbed context. This "isolate" find does not qualify as a significant resource. Additionally, imported fill along Avenida Encinas and Ponto Drive were observed to contain moderate amounts of marine shell; it is unclear if this material represents secondary archaeological site material or natural shell incorporated into the fill, and in either case it does not represent a significant resource (Laguna Mountain 2014).

The Project would therefore have **no impact with regard to changes in the significance of known archaeological resources.**

Based on the numerous sites in the vicinity of the Project, the area is considered sensitive for unknown, buried resources, particularly to the south, near Batiquitos Lagoon (Appendix B). Much of the pipeline work would be replace-in-place using the same trench occupied by the existing pipelines. Disturbance for replace-in-place work would be confined entirely within materials already disturbed for installation of the existing pipeline and is therefore very unlikely to encounter or damage significant buried resources, including human remains. However, there would be some need for new trenches, including realignments in front of the Carlsbad Hilton, under all Options. Additionally, **under Option A,** the central segment of the Project would be slightly realigned to avoid the best-quality coastal sage scrub habitat between Carlsbad Boulevard and Ponto Drive; under Option B, a new trench would be required along southbound Carlsbad Boulevard from Avenida Encinas to Ponto Road; and under Option C, a new trench would be required in the former southbound Carlsbad Boulevard from Avenida Encinas to Breakwater Road. Trench excavation that is extensive or deep enough to involve previously undisturbed native soil materials would have the potential to encounter unknown buried resources and thus may have some potential to result in disturbance, damage, or loss to archaeological resources, potentially rising to the level of a substantial adverse change in significance and therefore constituting a significant impact under CEQA. **Implementation of the following mitigation measure would avoid significant impacts on unknown buried archaeological resources under all Options.**

Mitigation Measure CUL-1: Provide Qualified Archaeologist Monitoring during Selected Ground-Disturbing Activities

The District will retain an archaeologist meeting the Secretary of the Interior's professional qualification standards for archaeology to monitor initial shallow ground-disturbing activities in previously undisturbed native soils (realignments and areas, if any, where existing trenches must be widened beyond their original extent). In the event of a find of known or potential cultural material(s), deposit(s), or feature(s), the archaeologist will have the authority to temporarily suspend or divert work in the immediate area of the find; will evaluate the find; and will make recommendations for further investigation and/or treatment, as appropriate. The District will be responsible for following up to implement the archaeologist's

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
recommendations.				
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

The Project alignment is situated in areas underlain by beach, estuarine, and colluvial deposits of middle to late Pleistocene age ("old paralic deposits Units 6 and 7") (Kennedy and Tan 2002), correlative with the upper portion of the Bay Point Formation of prior workers. The Bay Point Formation is considered to have a moderate to high sensitivity for fossil resources based on its past history of yielding scientifically important fossil finds (e.g., County of San Diego 2009a). As discussed in the previous item, depending on the Option selected, much of the ground disturbance required for Project construction could occur within the volume already disturbed for construction of the existing pipeline. These disturbed materials are not expected to contain significant fossil materials. However, as the previous item discusses in more detail, all Options would entail some installation within new trenches. To the extent that the Project may disturb Pleistocene sediments, there is some potential for significant impacts on paleontological resources under all Options. **Implementation of the following mitigation measure would avoid significant impacts on paleontological resources under all Options.**

Mitigation Measure CUL-2: Provide Paleontological Monitoring for New Ground Disturbance in Pleistocene Substrate Materials

The District will retain a qualified paleontologist – an individual meeting the qualifications for "Principal Paleontologist" as defined in California Department of Transportation *Standard Environmental Reference*, Chapter 8 (Caltrans 2012c) or equivalent qualifications – to monitor ground-disturbing activities in previously undisturbed native substrate materials (realignments and areas, if any, where existing trenches must be deepened or widened beyond their original extent). If fossil material is discovered, work in the immediate vicinity of the discovery will cease until the find can be evaluated and any appropriate treatment implemented. Work may continue on other parts of the alignment while evaluation (and, if needed, treatment) takes place, as long as the find can be adequately protected. The District will be responsible for ensuring that the paleontologist's recommendations regarding treatment and reporting are implemented.

d. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

Because of the Project area's long history of occupation and overall sensitivity for buried archaeological resources, there may be some potential to encounter human remains during excavation. As identified above, under all Options, a portion of the pipeline work would be replace-in-place using the same trench occupied by the existing pipelines and thus would involve work within materials already disturbed for installation of the existing pipeline; replace-in-place is therefore very unlikely to encounter or damage significant buried resources, including human remains. By contrast, new trenching and any excavation that is deep enough to involve native undisturbed native substrate material, could have some potential to encounter unknown/previously unrecorded resources, potentially including human remains. Disturbance or loss of remains would constitute a significant

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

impact. However, implementation of the following mitigation, based on requirements of the California Health and Safety Code (§7050.5) and California Public Resources Code (§5097), **would ensure that impacts related to discovery of human remains are less than significant under all Options.** To ensure efficient implementation, the contractor's responsibilities under this measure will be stipulated in the Project Contract Documents.

Mitigation Measure CUL-3: Comply with State Requirements in the Event Human Remains are Discovered

If human remains are discovered, work in the vicinity of the find will cease immediately and the contractor or designated representative will notify the San Diego County Coroner. If the remains are determined to be of Native American origin, the Coroner will then notify the Native American Heritage Commission (NAHC) for identification of the mostly likely descendant. Work in the vicinity of the find will not resume until the most likely descendant has made a recommendation regarding the treatment, or appropriate and dignified disposition, of the remains and any associated grave goods, and that recommendation has been implemented. If NAHC is unable to identify a descendant, or the descendant fails to make a recommendation within 48 hours of receiving notification from NAHC, work may resume. The District or a delegated consultant representative will be responsible for following up with the County Coroner and NAHC to ensure that their responsibilities have been discharged.

VI. GEOLOGY AND SOILS

Would the project:

a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒

The Project is outside the state-delineated Earthquake Fault Zone for the Rose Canyon fault, the closest portion of which is located approximately 3–4 miles offshore from Carlsbad. There are no known active or potentially active faults within Carlsbad city limits (California DOC 2007, City of Carlsbad n.d.). In addition, as identified in previous items, the Project focuses exclusively on replacement and realignment of sanitary sewer infrastructure that serves existing development; it would not construct, nor would it indirectly foster the construction of, structures for human habitation. There would be **no impact with regard to increased exposure of persons or structures to**

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
surface fault rupture hazards.				
ii. Strong seismic groundshaking?	☐	☐	☒	☐

Although the greater San Diego area is seismically active, as discussed in Item (a) the Project is proposed to serve existing levels of development; it would not construct, nor would it indirectly foster the construction of, structures for human habitation. It therefore **would not increase the exposure of persons to seismic groundshaking hazards.** The Project would therefore likely improve the seismic performance of the replaced/upgraded Project elements by comparison with the current older facilities, and the risks to new features would be consistent with the current standard of care. **Impacts related to strong seismic groundshaking are therefore considered less than significant overall.**

iii. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐

The State of California has not yet issued seismic hazards mapping for the Carlsbad area (California DOC 2007). The City of Carlsbad is generally not prone to liquefaction (County of San Diego 2009b, Carlsbad n.d.), and the majority of the Project alignment is located in an area of low liquefaction risk (County of San Diego 2013). The southernmost 120 feet of the alignment (near the Batiquitos Lagoon), however, is located in an area with high potential for liquefaction (County of San Diego 2013). Nonetheless, as mentioned in the preceding items, the Project would not directly construct or foster the construction of structures of human habitation and thus **would not increase the exposure of persons to seismic-related ground failure**. Also, all Project facilities would be designed and constructed in accordance with recommendations of a site-specific geotechnical investigation performed for the Project. **Impacts related to exposure of persons and structures to seismic-related ground failure are therefore considered less than significant overall.**

iv. Landslides?	☐	☐	☐	☒

As identified above, the Project would not construct, nor would it indirectly foster the construction of, structures for human habitation; it therefore **would not increase the exposure of persons to landslide hazards.** Moreover, the Project alignment traverses nearly flat coastal terrain, and is replacing an existing facility but not adding new or extended infrastructure in this area. **No impact is anticipated with regard to exposure of persons or structures to landslide hazards**.

b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒ (Erosion)	☒ (Topsoil Loss)

The Project would require trench excavation to install replacement and realigned wastewater pipelines. All of this activity would take place in developed areas where topsoil has already been removed or substantially disturbed for the construction of existing roadways and other features. Consequently, there would be **no impact related to loss of topsoil.**

During construction, the Project would employ erosion and sediment control measures, along with other site management practices. Following construction, all excavations would be closed; roadway paving would be restored, and unpaved areas, if any, would be stabilized and revegetated. As a result,

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

impacts related to soil erosion would be effectively minimized and are considered less than significant.

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

Issues related to liquefaction and slope stability are discussed above in Items (a)(iii) and (a)(iv) respectively. As described in these items, the southernmost portion of the Project alignment is in an area identified as subject to liquefaction hazard; the Project as a whole is not considered subject to landslide hazard. In addition, as discussed above, the Project would be designed and constructed in accordance with current applicable building and seismic safety codes. Project design would be supported by information and recommendations from a project-specific geotechnical investigation. With these recommendations implemented, **potential impacts associated with substrate instability hazards are considered less than significant.**

d. Be located on expansive soil, as defined in the current California Building Standards Code, creating substantial risks to life or property?	☐	☐	☐	☒

The Project alignment options are located primarily on soils assigned to the Marina loamy coarse sand, 2 – 9% slopes, with possible minor incursion (under Option C) onto terrace escarpments (Web Soil Survey 2014). The Marina series, formed on old beach ridges, consists of somewhat excessively drained, very deep loamy coarse sands derived from weakly consolidated to noncoherent ferruginous eolian sand. Soil cover on terrace escarpments ranges from 4 – 10 inches of loamy or gravelly material (U.S. Department of Agriculture 1973). The expansion potential, or shrink-swell behavior, of Marina soils is low (U.S. Department of Agriculture 1973), and that of terrace escarpment soils is variable (U.S. Department of Agriculture 1973), depending on local composition. As identified in the previous item, the Project would be designed with input from a site-specific geotechnical investigation, as applicable; one of the primary purposes of this type of study is to provide recommendations for a design that is appropriate to local soil/substrate conditions. **Consequently, no impact related to expansive soils is anticipated.**

e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

The Project would not involve septic tanks or alternative wastewater disposal systems. There would be **no impact related to the effect of local soil conditions on septic tanks or wastewater disposal.**

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

VII. GREENHOUSE GAS EMISSIONS

Would the project:

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

Tailpipe emissions from construction equipment and vehicles would include greenhouse gases such as water vapor and carbon dioxide. However, as discussed in Section III (*Air Quality*) above, equipment use would be very localized and would involve only a small number of pieces operating at the same time. Haul traffic and worker commute trips would also be limited (see Section XVI, *Traffic and Transportation*). Overall emissions of greenhouse gases would be limited and short-term, **and construction-period impacts are considered less than significant.**

Once construction is complete, the Project would require minimal operations/maintenance related activity, and would not materially increase the generation of greenhouse gases above the current baseline. **Operations-related impacts related to greenhouse gas emissions are also considered less than significant.**

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

The SDAPCD has no adopted greenhouse gas emissions reduction plan in place at this time. The City of Carlsbad is developing a Climate Action Plan, but this new plan has not yet been finalized and formally adopted, and in any case would not apply to the activities of independent special districts even when they occur within City limits. Moreover, the Project is being proposed to support existing levels of development, and would replace existing facilities without upsizing them; it therefore would not directly or indirectly contribute to growth beyond the level of development taken into account in planning documents currently in place, and – as the previous item discusses – has only a very limited and short-term potential to independently result in greenhouse gas emissions. The Project thus would not conflict with adopted or foreseeable plans, policies, or regulations adopted to reduce greenhouse gas emissions. **There would be no impact related to conflicts with policies, plans or regulations adopted for reducing emissions of greenhouse gases.**

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

VIII. HAZARDS AND HAZARDOUS MATERIALS

Would the project:

a. Create a significant hazard to the public or the environment through routine transport, use, or disposal of hazardous materials? ☐ ☐ ☒ (Construction) ☒ (Long Term)

Construction of the Project would require limited amounts of some substances that qualify as hazardous materials as defined by the State of California (e.g., Health and Safety Code §25117); these include vehicle and equipment fuels and lubricants as well as the paving and striping media required to restore the roadway surface once installation is complete. All such substances would be used, handled, and disposed in strict accordance with good construction practices and applicable state regulations. With these precautions in place, **impacts, if any, associated with construction-related use, transport, or disposal of hazardous materials are considered less than significant.**

Once the Project is constructed, there would be no further use of substances qualifying as hazardous materials, and there would be **no long-term impact associated with the use, transport, or disposal of such substances.**

b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment? ☐ ☐ ☒ (Construction) ☒ (Long Term)

As discussed in Item (a), Project construction would require the use of some hazardous substances (e.g., fuels, lubricants, and paving media) but all such substances would be handled according to good construction practices and applicable state regulations. With these precautions in place, **impacts, if any, during the construction period would be less than significant.**

Once the Project is constructed, there would be no further use of substances qualifying as hazardous materials, and there would be **no long-term impact associated with potential spills or releases of such substances.**

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

The Project alignment Options are located approximately 0.20 mile west of the Parkhurst Preschool/Daycare on Waters End Drive in Carlsbad. The preschool is separated from the Project alignment by several intervening blocks of residential development, and the next nearest school,

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Pacific Rim Elementary School, is located more than 0.75 mile from the alignment Options. As discussed in Item (a), Project construction would require the use of some substances that qualify as hazardous under applicable California laws (e.g., fuels, lubricants, and paving media) but all such substances would be handled according to good construction practices and applicable state regulations. **Impacts, if any, related to handling of hazardous substances near schools are therefore considered less than significant.**

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

There are no known active hazardous materials sites in proximity to the Project alignment Options, although there are several closed (fully remediated) sites in the Project vicinity. **There would be no impact related to location on a listed hazardous materials site.**

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

The Project alignment (all Options) is located approximately 2.5 miles from the McClellan-Palomar Airport, well outside the airport's Influence Area. Moreover, the Project would not construct new aboveground facilities or structures. There would thus be **no impact related to locating a project within an airport land use area, and no impact related to airport safety hazards.**

f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒

The Project is not located in proximity to any private airport or airstrip. **There would be no impact related to safety hazards for persons residing or working in the vicinity of a private airport/airstrip.**

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒

As discussed in the *Project Description* section of this checklist, the Project will incorporate a Traffic Control Plan that includes provisions to maintain emergency access to all businesses, residences, and other facilities along the Project alignment during construction. Thus, although Project construction could require short-term, localized lane closures and/or detours, the **Project would not result in interference with adopted emergency response or evacuation plans. There would be no impact to emergency response or evacuation plans.**

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

The Project alignment Options are located in a largely developed/developing suburban coastal area. Although the Project is located in close proximity to coastal open space and open space associated with Batiquitos Lagoon, it is not situated at the urban/wildland interface, nor would it create or foster residential development in wildland interface areas. **There would be no impacts related to wildland fire hazards.**

IX. HYDROLOGY AND WATER QUALITY

Would the project:

a. Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐

Any project that entails ground disturbance may have some potential to degrade water quality through accelerated erosion and delivery of sediment to storm drains and watercourses and as a result of accidental release or discharge of various pollutants such as vehicle and equipment fuels and lubricants, paints, solvents, and paving and striping media. Associated impacts can be significant. To address this concern, the construction contractor would be required to develop a Water Pollution Control Plan (WPCP) and implement good construction site management/housekeeping practices, to control potential sources of water pollution. With these measures in place, **construction-period impacts on water quality would be materially reduced or avoided, and the associated potential for violation of water quality standards and/or waste discharge requirements, is expected to be less than significant.**

Following construction, paved areas would be restored to their pre-Project condition, and areas where vegetation was removed would be stabilized and revegetated (see *Project Description*). Furthermore,

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

the Project would not construct any permanent above-ground features. With this commitment in place, **long-term impacts on water quality, if any, would be less than significant.**

b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒

The Project focuses exclusively on needed upgrades to the District's sanitary sewer system; it would not include wells or other facilities for groundwater use, nor would it affect water usage or sources of supply in any way. It also would not directly or indirectly contribute to added development in the Project area. The Project therefore has **no direct or indirect potential to result in or contribute to groundwater overdraft, and there would be no impact related to groundwater depletion.**

Paved areas disturbed for Project construction would be re-paved when construction is completed, but the Project would not materially increase the extent of impervious surfaces, and therefore would not interfere with groundwater recharge. There would be **no impact related to reduction in groundwater recharge.**

c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner, which would result in substantial erosion or siltation on- or off-site?	☐	☐	☐	☒

The Project would not entail mass grading or recontouring, nor would it in any way modify the channel or course of any stream or river. There would be **no impact related to changes in drainage patterns.**

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site?	☐	☐	☐	☒

As discussed in Item (c), the Project would not entail mass grading or recontouring, nor would it in any way modify any stream or river course, or materially increase the extent of impervious surface in the downtown area. Unpaved areas would be stabilized and/or revegetated following the completion of construction. There would be **no impact related to increased run-off and associated flooding risks.**

e. Create or contribute runoff water, which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒

As discussed in the preceding items, paved areas disturbed for Project construction would be re-paved when construction is completed, but the Project would not materially increase the extent of impervious surfaces. Unpaved areas would be stabilized and/or appropriately revegetated. The Project would therefore not increase the generation of runoff, and would not create or contribute to any exceedance of storm drain capacity or to increases in potentially polluted urban runoff. There would be **no impact related to increased stormwater runoff or the potential to exceed the capacity of stormwater drainage systems.**

f. Otherwise substantially degrade water quality?	☐	☐	☒	☐

As discussed in Item (a) above, Project construction would have some potential to degrade water quality through accelerated erosion in disturbed areas and increased delivery of sediment to storm drains and watercourses, and through potential accidental release or discharge of various pollutants such as vehicle and equipment fuels and lubricants, paints, solvents, paving and striping media. To control any potential sources of water pollution, the construction contractor would be required to develop and implement a Water Pollution Control Plan (WPCP), as well as good construction site management practices, including erosion and sediment control measures. With these precautions in place, **impacts, if any, would be limited, controlled, and short-term, and are considered less than significant.**

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒

The Project is located just north of the 100-year flood hazard area surrounding the Batiquitos Lagoon. Moreover, the Project would not construct housing, and because it is proposed to serve existing development, it would not indirectly contribute to or foster the construction of additional housing. It therefore would have **no direct or indirect impact related to construction of housing within a 100-year flood hazard area.**

h. Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☐	☒

As mentioned in Item (g) the Project alignment is located just outside the 100-year flood hazard area would not construct aboveground structures. **There would be no impact related to impedance of floodflows.**

i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒

The Project would not involve levee or dam structures in any way, and, as identified in Items (g) and (h) above, the Project would not construct housing, indirectly contribute to or foster the construction of housing, or result in the construction of aboveground structures. It therefore would not result in increased exposure of people or structures to flood risks, including risks associated with dam or levee failure. There would be **no impact related to increased exposure to flood risks.**

j. Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

As identified above, the Project focuses on replacing/realigning underground infrastructure; it would not construct housing or indirectly contribute to or foster the construction of housing, and it would not result in the construction of aboveground structures. It therefore would not result in increased exposure of people or structures to flood risks associated with seiches, tsunami, or mudflows. There would be **no impacts related to increased exposure to seiches, tsunami, or mudflows.**

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

X. LAND USE AND PLANNING

Would the project:

a. Physically divide an established community? ☐ ☐ ☐ ☒

The Project involves upgrades and realignment of existing underground force mains in the District's sanitary sewer system; it would not create above ground features. Therefore, the Project would not result in physical division of any established community. There would be **no impact related to dividing a community**.

b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? ☐ ☐ ☐ ☒

The Project is proposed to serve development patterns already approved in the adopted General Plan Land Use Elements for the cities of Carlsbad (City of Carlsbad 2013a) and Encinitas (City of Encinitas 2013). Furthermore, as discussed in the previous item, the Project concerns existing wastewater infrastructure, and would not create aboveground features. As the Project is solely proposed to support existing local jurisdiction land use planning, there would be **no impact related to conflict with applicable land use plans, policies, or regulations.**

c. Conflict with any applicable habitat conservation plan or natural community conservation plan? ☐ ☐ ☐ ☒

The Project alignment is located within the area covered by City of Carlsbad's adopted HMP (City of Carlsbad 2004). The District is not a signatory to the HMP, and as an independent special district, is not typically subject to City jurisdiction. However, because of the possibility that the Project may require authorization under the City's HMP if Option A is selected, the HMP's requirements and process were used as the basis for the Project's plan to restore and compensate for disturbance of coastal sage scrub vegetation between Carlsbad Boulevard and Ponto Drive. **Option A** would be consistent with the HCP and therefore **would have no impact relative to conflict with an applicable conservation plan.**

Under Options B and C, the Project would not impact native vegetation or special-status species, and would therefore be consistent with the HMP's intent and goals. **Options B and C would have no impact related to conflict with an applicable conservation plan.**

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

XI. MINERAL RESOURCES

Would the project?

a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

The Project would be constructed on a developed alignment in an area that combines developed suburban and recreational uses with preserved open space, and does not offer mineral resource recovery opportunities. As a result, the Project would have **no impact on the availability of mineral resources of local, regional, or state importance.**

XII. NOISE

Would the project result in:

a. Exposure of persons to, or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☐	☒

As an independent special district, the District is not subject to noise limits under local codes, but makes every effort to comply with local noise ordinance limits as a good neighbor, and the contractor will be required to minimize construction-related noise as much as possible. The adopted standards relevant to this project are those in the City of Carlsbad Noise Ordinance (Municipal Code 8.48), which does not establish a specific limit on construction noise, but does restrict construction activities to the hours between 7:00 a.m. and 6:00 p.m. Monday through Friday and 8:00 a.m. and 6:00 p.m. on Saturdays to reduce the potential for noise disturbance. **There would be no construction-related impact related to exceedance of applicable standards.**

Over the longer term, the Project may require minor operations- and maintenance-related activity, similar to what currently occurs, but it would not create new sources of substantial permanent or ongoing noise. There would be **no long-term impact related to exceedance of any applicable noise standard.**

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b. Exposure of persons to, or generation of, excessive ground borne vibration or ground borne noise levels?	☐	☐	☒ (Construction)	☒ (Long Term)

Under all Options, construction of the northern segment of the Project would occur in close proximity to residences (particularly the Lanikai Mobile Home Park). Construction of Option B (along southbound Carlsbad Boulevard) would occur within 100 feet of the South Carlsbad State Beach campground and Option C (along the former southbound Carlsbad Boulevard) would be adjacent to the campground. Both the neighboring residences and the campground are considered noise- and vibration-sensitive uses.

However, most of the construction activities required for the Project would generate very low levels of vibration; most construction-related vibration would also be short-term and infrequent/intermittent, and is therefore unlikely to cause substantial disturbance. The use of some types of paving equipment generates more sustained vibration at a level that may be considered obtrusive, disturbing, or annoying. This type of work would be confined to daytime hours. In addition, paving work would also be of very short duration, occurring intermittently for a period of 1 to several hours in any given location. **Construction-related vibration impacts are therefore considered less than significant.**

The Project would not create new sources of permanent or ongoing groundborne vibration. There would be **no long-term impact related to vibration.**

c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒

The Project would not create new sources of permanent or ongoing noise, and would not materially alter the level or type of noise associated with operations and maintenance by comparison with the existing facility. There would be **no impact related to permanent increases in ambient noise levels.**

d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above existing without the project?	☐	☒	☐	☐

As Item (b) identifies, Project construction would occur in proximity to are considered noise- and vibration-sensitive uses, including residences along the northern portion of the alignment (affected by all Options), as well as campgrounds at South Carlsbad State Beach (primarily affected by Options B and C).

Project construction would temporarily increase noise levels in the vicinity of active work sites. As anyone who has lived or worked in proximity to active construction can attest, even with only one or two pieces of equipment operating, noise levels associated with heavy equipment use can be substantially higher than the typical ambient noise levels in residential and recreational areas; construction noise would be distinctly audible from neighboring properties, and has the potential to

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

create disturbance. However, at any given location, noise disturbance would be temporary and short-term since work would move progressively along the Project alignment. To further control noise and reduce disturbance for Project neighbors, the following mitigation measure would be implemented. **With this measure in place, and in consideration of the short-term duration of disturbance, impacts due to temporary construction-related noise increases are considered less than significant.**

Mitigation Measure Noise-1: Require Augmented Construction Noise Control

The Project Contract Documents will include Special Provisions for noise control, which will stipulate the following requirements.

- All construction equipment will be equipped with the manufacturer's standard noise control equipment, or with an equally effective replacement that meets manufacturer specifications.
- Construction equipment and vehicles that require back-up alarms will be equipped with ambient-sensitive backup alarms.
- Use of jake brakes will be prohibited.

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

The Project alignment (all Options) is located approximately 2.5 miles from the McClellan Palomar Airport, and is outside the airport's Influence Area. **There would be no short-term impact related to exposing people working or residing in the area, including project construction workers, to excessive airport noise levels.**

In addition, the Project is proposed to serve existing levels of development and would not directly or indirectly lead to the construction of added housing, commercial, or industrial uses in the vicinity of the airport. It therefore has no potential to result in long-term increased exposure of residents or workers to airport noise. **There would be no long-term impact related to exposure to excessive airport noise levels.**

f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

The Project alignment is not located in proximity to any private airstrip or airport. **There would be no impact related to exposure to noise from a private airstrip.**

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

XIII. POPULATION AND HOUSING

Would the project:

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

The Project is proposed to improve the reliability of service to existing area residents and businesses by modernizing existing force mains and enabling the District to bring its B2 force main back online. The Project would replace existing force mains at their current diameters; it would not increase daily operational capability by comparison with existing infrastructure nor would it increase system capability beyond that required to support the level of development already envisioned in the District under the adopted General Plan Housing Elements of the City of Carlsbad (City of Carlsbad 2009) and City of Encinitas (City of Encinitas 2007). **The Project would have no direct or indirect growth-inducing impact.**

b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

The Project would not construct aboveground facilities and would not displace housing or other existing area facilities. **There would be no impacts related to displacement of housing.**

c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

As identified in the previous item, the Project would not construct aboveground facilities and would displace housing; it therefore would not result in the displacement of existing residents and would not create a need for replacement housing. **There would be no impacts related to displacement of people.**

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

XIV. PUBLIC SERVICES

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

i. Fire Protection?	☐	☐	☐	☒
ii. Police Protection?	☐	☐	☐	☒
iii. Schools?	☐	☐	☐	☒
iv. Parks?	☐	☐	☐	☒
v. Other public facilities?	☐	☐	☐	☒

As discussed in the previous section, the Project is being designed to serve the level of development already envisioned in the District under the General Plans for the cities of Carlsbad and Encinitas. The Project would not directly or indirectly foster additional population increases that would lead to a further need for increased fire protection, police protection services, additional or expanded schools, new parks, or other public services or facilities. **There would be no impacts on the provision of public services and no impacts related to the need for new public service facilities.**

XV. RECREATION

a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒

As discussed in Section XIII of this checklist, the Project would not directly or indirectly increase population nor would it relocate populations leading to increased use of parks and recreational facilities. **There would be no impacts related to increased demand for existing parks or other recreational facilities and no impact related to physical deterioration of such facilities.**

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

The Project would not include recreational facilities, and, as mentioned in Section XIII of this checklist, it would not lead to population growth or relocation potentially requiring the construction or

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

expansion of existing recreational facilities. **There would be no impact related to the construction or expansion of recreational facilities.**

XVI. TRANSPORTATION/TRAFFIC

Would the project:

a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒ (Construction)	☒ (Long Term)

Roadway and intersection function are commonly described in terms of *level of service* or LOS, which is a qualitative parameter reflecting drivers' experiences of roadway and intersection flow. LOS is identified with the letters A through F, with A representing ideal "free-flow" operating conditions, and F representing substantial traffic flow impairments with long queues and wait times at intersections. The City of Carlsbad considers LOS C as the minimum acceptable level of function for mid-block operations during the AM and PM peak hours, and mid-block locations surveyed in the Project area in 2013 have peak hour operations of LOS A, B, or C (City of Carlsbad 2013c).

During Project construction, there would be some added traffic from vehicles hauling equipment and materials and from construction workers traveling to work on the Project. However, this would be a small number of vehicles and the Traffic Control Plan for the Project would provide for the safe and efficient movement of vehicles while construction takes place.

Construction-related changes in traffic operations would include the partial closure of Ponto Road on the north side of the Carlsbad Hilton, and, under Option B, the temporary closure of the inner lane of southbound Carlsbad Boulevard. Lane closures would likely result in a temporary disruption to traffic flow, but the Traffic Control Plan would maintain traffic safety and minimize the effect of these closures and no long-term degradation of LOS would result.

The City's General Plan Circulation Element (2013b) contains provisions for pedestrian and bicyclist access, circulation, and safety – with implementing policies including employment of traffic control devices, improved bicycle beach access, and sidewalk/trail installation and connectivity. The portion of the alignment along northbound Carlsbad Boulevard, from Ponto Road to Breakwater Road, is immediately adjacent to a landscaped, off-street sidewalk for the associated residential subdivision. In addition, southbound and northbound Carlsbad Boulevard is a popular route for bicyclists and joggers,

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

and beach visitors and campers walk and bicycle in the South Carlsbad State Beach area. To address pedestrian and bicyclist safety, the Traffic Control Plan would include requirements for flaggers and safety barriers, as discussed in the *Project Description* section of this initial study, and would also include coordination requirements with the City of Carlsbad to avoid conflict with any scheduled runs or other recreational events taking place on Carlsbad Boulevard. If Option C is selected, the construction contractor will also be required to coordinate with State Beach management.

In summary, Project construction would incorporate provisions to avoid conflict with plans, ordinances, or policies establishing performance standards for the circulation system in the Project area, to the extent feasible. Impacts, if any, would also be temporary and of very short duration. **As a result, construction-period impacts, if any, are considered less than significant.**

The Project is proposed to serve existing area residents and businesses; it would not increase daily sewer operation capability beyond that required to support the level of development already envisioned in the current approved General Plans for the cities of Carlsbad and Encinitas. The Project also would not entail long-term modification of the circulation system, nor would it directly or indirectly lead to construction of housing or commercial or industrial facilities, potentially increasing traffic generation. A limited number of vehicle trips would intermittently be required for operations and maintenance of the replaced and realigned sewer mains, but this is not expected to change materially from the traffic generated in association with the existing facilities, and would continue to represent a very small number of vehicles for a limited duration. **There would therefore be no long-term conflict with plans, ordinances, or policies establishing performance standards for the circulation system in the Project area.**

b. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒

As discussed in the previous item, there would be some minor added traffic from the Project during construction. However, this would be a small number of vehicles, consistent with the type of background traffic generation taken into account in congestion management planning; moreover, the Traffic Control Plan for the Project would provide for the efficient movement of vehicles while construction takes place. **There would be no construction-period impacts related to a conflict with any applicable congestion management program.**

As discussed in the previous item, the Project is proposed to serve existing area residents and businesses and with the exception of a limited number of trips for operations and maintenance (similar to what now occurs), it would not directly or indirectly generate traffic once construction is completed. As such it would not conflict with any applicable congestion management program, level of service standard, or other similar/related measure. **There would be no long-term impacts related to a conflict with any applicable congestion management program.**

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location, that results in substantial safety risks?	☐	☐	☐	☒

The Project would not modify airport facilities or affect air traffic in any way. **There would be no impact related to air traffic patterns or levels of air traffic.**

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

The Project would not construct new roadway facilities or entail long-term modification of existing roadways. **There would be no impact related to increases in hazardous roadway or intersection conditions.**

e. Result in inadequate emergency access?	☐	☐	☐	☒

During construction, short-term lane closures could be required to maintain efficient safe and traffic circulation around work areas while providing for public and worker safety. However, as discussed in the *Project Description* section of this initial study, the Project would incorporate a Traffic Control Plan that, among other key provisions, would ensure adequate emergency access is maintained throughout the construction period for all businesses, residents, and facilities along the Project alignment, including South Carlsbad State Beach. **There would be no construction-period impact related to inadequate emergency access.**

The Project would not result in long-term modifications to any emergency access**. There would be no long-term impact related to inadequate emergency access.**

f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	☒

The Project Traffic Control Plan, described in the *Project Description* section of this initial study, would include provisions to prevent conflict with transit vehicles (San Diego Metropolitan Transit Systems Route 101 line) and protect the safety of the numerous bicyclists, pedestrians, runners, and recreators who frequent the Project vicinity. As discussed in the *Project Description*, this would include the use of flaggers and possibly also safety barriers where work occurs near popular recreational paths along Carlsbad Boulevard. In addition, under all Options the Contractor would be required to coordinate with the City of Carlsbad to avoid conflict with any scheduled "runs" or other recreational events

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

taking place on Carlsbad Boulevard, and if Option C is selected, coordination with South Carlsbad State Beach would also be required. **There would be no construction-period impact related to conflict with policies, plans, or programs promoting public transit, bicycle use, or walking access.**

The Project would not result in long-term modifications to any roadway. **There would be no long-term impact related to conflict with policies, plans, or programs promoting public transit, bicycle use, or walking access.**

XVII. UTILITIES AND SERVICE SYSTEMS

Would the project:

a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒

As discussed in previous sections, the Project focuses exclusively on repairing and replacing sanitary sewer infrastructure to serve existing residents and businesses; it would not construct housing or otherwise directly or indirectly increase populations, and would not increase system capacity. The Project therefore would not directly or indirectly result in an increased need for wastewater treatment. In addition, work areas would be repaved and restored to their pre-Project condition and the Project would not increase the extent of hardscape. Unpaved areas would be revegetated. Thus, the Project would not lead to elevated levels of non-point source urban runoff. There would be **no impact with regard to exceedance of any applicable wastewater treatment requirements.**

b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒

The Project focuses exclusively on repairing and replacing existing sanitary sewer infrastructure to serve existing residents and businesses and would not increase system capacity. As the previous item identifies, it would not directly or indirectly foster population growth and therefore would not increase wastewater generation. As discussed in Section XIII above, the Project would not require the construction or expansion of water or wastewater treatment facilities. **There would be no impact related to the need for new wastewater treatment facilities of expansion of existing facilities.**

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒

Because the Project would not increase or relocate area populations, it would not require construction or modification of existing storm water drainage facilities. There would be **no impact related to construction or expansion of stormwater drainage facilities.**

d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒

Because the Project would not increase or relocate area populations, it would not result in the need for additional water supplies. There would be **no impact related to water supplies or entitlements.**

e. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒

As discussed in Item (b), the Project not alter the existing level of sewage generated, and as discussed in Section XIII above, it would not lead to population increases necessitating the construction or expansion of water or wastewater treatment facilities. There would be **no effect on wastewater treatment demand or capacity.**

f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒

Open-trench construction would generate comparatively small volumes of debris, primarily pavement materials removed to open the trench. Excavated soils (trench spoils) would be reused onsite to backfill the pipeline trenches, and some if not all of the asphalt and/or concrete pavement debris would likely be recyclable. Any materials not reused onsite or delivered offsite for processing and recycling would be disposed of appropriately. The most probable site for disposal is the Otay Landfill, which currently receives waste from the Carlsbad area. The landfill is located at 1700 Maxell Road in Chula Vista, about 40 miles south of Carlsbad. This landfill has a remaining capacity of 24.5 million cubic yards, and is expected to reach capacity in or about 2028 at the current yearly disposal rate

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

(CalRecycle 2014). It has ample capacity to support the small volumes of demolition waste potentially generated by the Project. **Construction would have no adverse impact related to inadequate landfill capacity.**

Over the long term, routine use/operation of the Project would generate no solid waste. There would be **no long-term adverse impact related to solid waste disposal.**

g. Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

All demolition and construction waste would be handled and disposed in accordance with applicable local, state, and federal regulations and guidance. As an independent special district, the District is not required to follow local recycling requirements for construction projects generating more than 5 tons of waste, but the Contractor will be required to recycle materials as practicable. There would therefore be **no impact with regard to conflict with or violation of solid waste regulations**.

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

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

The Project would not degrade the quality of the environment. Rather, completion of the Project would substantially improve the reliability of the District's wastewater collection system, better protecting sensitive coastal environments by reducing the potential for wastewater spills and overflows.

As discussed in Section IV of this checklist, the Project has limited potential to result in significant impacts on **special-status plant and wildlife species**; impacts would be avoided and/or reduced to a less than significant level by Project commitments:

- Under Options B and C, the Project alignment would be entirely outside areas of sensitive habitat

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

- Under all Options, construction would occur outside the nesting period for protected bird species
- Under all Options, where the Project alignment is adjacent to or (under Option A only) within sensitive vegetation, the construction corridor will be narrowed to a permissible maximum of 10 feet and the construction limits will be flagged in the field by a qualified biologist prior to contractor mobilization
- If Option A is selected, necessitating the disturbance/removal of up to about 2,200 square feet of coastal sage scrub habitat, the site will be revegetated in kind following the completion of construction, and an additional acreage-based payment will be made to the habitat mitigation fund maintained by the City of Carlsbad, consistent with requirements of the City's HMP

These commitments, developed for consistency with the City of Carlsbad's adopted HMP, are discussed in more detail in the *Project Description* section and Section IV of this initial study. With these commitments in place, the Project's potential to result in direct impacts on special-status species and their habitat would be avoided and/or compensated for such that the Project would not substantially reduce the availability of habitat, cause a species to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare plant or animal. Overall, **impacts to special-status species and their habitat are evaluated as less than significant.**

As discussed in Section V of this checklist, the Project also has limited potential to result in significant impacts on cultural and paleontological resources. Impacts would be reduced to a less than significant level by implementation of the following mitigation measures, described in detail in Section V:

- Mitigation Measure CUL-1: Provide Qualified Archaeologist Monitoring during Selected Ground-Disturbing Activities
- Mitigation Measure CUL-2: Provide Paleontological Monitoring for New Ground Disturbance in Pleistocene Substrate Materials
- Mitigation Measure CUL-3: Comply with State Requirements in the Event Human Remains are Discovered

With these measures in place, the Project would not eliminate any important examples of California history or prehistory; **potential impacts to historical resources, if any, would be less than significant.**

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☐	☒

Per §15355 of the State's *CEQA Guidelines*, ***cumulative impacts*** refers to two categories of effects:

- impacts that reflect the combined outcome of repeated similar activities over a period of time
- impacts that reflect the combined outcome of more than one project

As the preceding sections identify, the Project would not require ongoing activity once construction is complete, as it would replace, realign, and restore to full service an existing force main pipeline; although some ongoing operations- and maintenance-related activity would be required, this would not differ materially from what is now occurring, and because the Project would improve system reliability, it would likely decrease the level of maintenance activity required to operate the District's sewage distribution system as a whole. Consequently, Project operation would not increase the level of impact on any resource above the current baseline, and could actually decrease corollary impacts of system operations/maintenance; **the Project therefore would not independently create a cumulative impact on any resource due to repeated activities over a period of time.**

Cumulative impacts resulting from the combined effect of several projects are understood as the environmental change that results from the incremental impact of the project under analysis, added to the impacts of other past, present, and reasonably foreseeable future projects (*CEQA Guidelines* §15355). Per Guidelines §15130, this type of cumulative impact must be analyzed and disclosed when

(1) the overall impact is significant, *and*

(2) the proposed project would make a contribution that is "considerable" in the context of the larger impact

If no significant cumulative impact exists for a given resource topic, that resource does not need to be discussed in detail in the analysis of the project's contribution to cumulative impacts. **Resources for which no discussion of cumulative impacts is required include the following.**

- **Aesthetics –** The coastal portion of Carlsbad continues to evolve aesthetically as a result of development (infill and redevelopment), but aesthetic values are controlled and preserved through the City of Carlsbad's General Plan, Growth Management Plan, and development review process
- **Hazards and Hazardous Materials –** There is no identified problem related to extensive groundwater or soil contamination in the coastal Carlsbad area. A few sites with known

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

contamination are currently in the process of assessment and/or remediation, but these reflect individual, areally restricted instances related to localized leaks or spills from gas stations or small-scale industrial uses (California State Water Resources Control Board 2014)

- **Land Use and Planning –** Land use has evolved substantially in the Project region; like much of the San Diego area, Carlsbad was originally based around an agricultural/pastoral economy, including extensive avocado plantings (Carlsbad Historical Society 2014) and has transitioned to increasingly developed uses in recent decades. However, land use planning, and changes in the mosaic of developed, open space, and other uses are closely managed under the City of Carlsbad's General Plan (which is in the update process), Growth Management Plan, Local Coastal Program, and Habitat Management Plan, and the stringent development review process required by these documents. Changes in land use are therefore not considered to represent a significant adverse cumulative impact
- **Noise –** Noise within the City of Carlsbad is managed and controlled through City ordinances and the City's General Plan
- **Transportation/Traffic –** All of the major roadways and intersections in the Project vicinity are currently operating at an acceptable LOS during peak hours (City of Carlsbad 2013)

Moreover, no other construction projects with the potential to create a significant, combined short-term effect on any of the above-listed resources in conjunction with this Project are planned for the immediate vicinity during the proposed Project construction window.

Similarly, even if there is an identified cumulative impact on a resource, if a proposed project would have no impact on that resource, there is no potential that it would contribute to the cumulative impact, and no further analysis is needed. Resources in this category include *Agricultural and Forest Resources* (discussed in more detail in Section II of this checklist), *Mineral Resources* (checklist Section XI), *Population and Housing* (checklist Section XIII), *Public Services* (checklist Section XIV), *Recreation* (checklist Section XV), and *Utilities and Service Systems* (checklist Section XVII).

Table 2, beginning on the following page, identifies the resource topics for which the Project's potential contribution to multi-project cumulative impacts must be analyzed (i.e., those for which a significant cumulative impact exists, to which the Project has some potential to contribute), and discusses the Project's potential contribution to those impacts. In summary**, significant existing cumulative impacts have been identified for 6 resources in the Project area: *Air Quality* (Section III), *Biological Resources* (Section IV), *Cultural Resources* (Section V), *Geology/Soils* (Section VI), *Greenhouse Gas Emissions* (Section VII), and *Hydrology/Water Quality* (Section IX).** As Table 2 discusses, **the Project would not make a cumulatively considerable contribution to any of those impacts.**

Table 2 – B2 Force Main Replacement Project: Summary of Existing Cumulative Impacts in Project Area, and Project Contribution

Resource	Existing Cumulative Impact	Potential Project Contribution
Air Quality	The San Diego Air Basin (SDAB), which includes the District's service area and the Project alignment, is in non-attainment of state and federal standards for ozone/ozone precursors. This represents a significant cumulative impact on air quality. The SDAB is also in non-attainment of the state standard for particulate matter. This represents an additional significant cumulative impact on air quality	As discussed in checklist Section III, construction would use diesel- and gasoline internal combustion–powered equipment and vehicles and therefore would result in ozone precursor exhaust emissions. However, only a small number of vehicles/pieces of equipment would be in use at any given time, the number of worker commute vehicles would be small, and the overall duration of Project construction would be comparatively short. As a result, Project-related emissions of criteria pollutants, including ozone precursors, would be limited and less than significant on the Project-specific level, and are not expected to represent a considerable contribution to the existing cumulative impact with regard to non-attainment of ozone/ozone precursor standards Project construction would generate dust as a result of excavation and demolition activities, but the contractor would be required to implement construction site housekeeping measures. With these precautions in place, the Project's incremental impact related to dust generation would be less than significant, as discussed in Section III, and the Project would not make a considerable contribution to the existing cumulative impact with regard to non-attainment of particulate matter standards No further analysis is required
Biological Resources	Coastal San Diego County has experienced substantial loss and degradation of natural habitats over the past two centuries. This represents a significant cumulative impact at the landscape or habitat level. At the species level, additional significant cumulative impacts are considered to exist where individual plant and wildlife species have been identified as qualifying for federal or state special status	The Project would replace and realign existing underground sewer infrastructure, entirely within and former roadways and rights-of-way, except under Option A, which would entail limited activity within coastal sage scrub between Carlsbad Boulevard and Ponto Drive. As discussed in checklist Section IV, the Project has very limited potential to result in significant impacts on special-status plant and wildlife species under all Options; impacts would be avoided and/or reduced to a less than significant level by several commitments incorporated into the Project commitments: (1) Under Options B and C, the Project alignment would be entirely outside

Table 2
B2 Force Main Replacement Project: Summary of Existing Cumulative Impacts in Project Area, and Potential Project Contribution – continued

Resource	Existing Cumulative Impact	Potential Project Contribution
		areas of sensitive habitat (2) Under all Options, construction would occur outside the nesting period for protected bird species (3) Under all Options, where the Project alignment is adjacent to or (under Option A only) within sensitive vegetation, the construction corridor will be narrowed to a permissible maximum of 10 feet and the construction limits will be flagged in the field by a qualified biologist prior to contractor mobilization (4) If Option A is selected, necessitating the disturbance/removal of up to about 2,200 square feet of coastal sage scrub habitat, the site will be revegetated in kind following the completion of construction, and an additional acreage-based payment will be made to the habitat mitigation fund maintained by the City of Carlsbad, consistent with requirements of the City's HMP With these commitments in place, the Project's potential to impact sensitive habitats and special-status species is evaluated as less than significant at the incremental level, and the Project would not make a considerable contribution to the existing cumulative impact on special-status species. No further analysis is required
Cultural Resources	Over the past 200 years, agricultural growth and urban expansion have substantially modified the Native American cultural legacy in San Diego County and throughout California, including culturally important sites, culturally important plant and wildlife resources, and traditional cultural practices. This is considered to represent a significant cumulative impact with regard to loss of cultural resources	As discussed in checklist Section V, the Project alignment is in an area known to be sensitive for buried archaeological resources. As a result, the District has committed to provide archaeological monitoring for all ground-disturbing activities with the potential to encounter previously undisturbed native substrate materials. In the event of a find, the monitors will have the authority to temporarily halt or redirect activity away from the vicinity of the find, allowing evaluation and any appropriate follow-up treatment. The discovery of human burials is not anticipated, but in the event human remains are encountered, the District is also committed to full compliance with all applicable regulations to ensure that the

Table 2
B2 Force Main Replacement Project: Summary of Existing Cumulative Impacts in Project Area, and Potential Project Contribution – continued

Resource	Existing Cumulative Impact	Potential Project Contribution
		Most Likely Descendant is identified if possible, followed by appropriate and respectful disposition of the remains and any associated grave goods. With these measures in place, the Project's impacts would be less than significant at the incremental level, and the Project would not make a considerable contribution to the existing cumulative impact. No further analysis is required
Geology/Soils	(1) Urbanization in coastal San Diego County has resulted in progressive loss and unavailability of topsoil resources. This represents a significant cumulative impact (2) As in much of California, development in the seismically active San Diego region has placed numerous structures and a large population at risk from earthquake effects. This also represents a significant cumulative impact	(1) The Project would be constructed within existing roadways and public rights-of-way that have already been substantially disturbed for roadway grading and paving and therefore do not preserve an intact topsoil layer. Although there is an existing cumulative impact in the San Diego region, the Project would not further contribute to topsoil loss and unavailability (2) As discussed in the **Project Description** and checklist Section VI, the Project focuses exclusively on replacing and improving existing wastewater infrastructure. The Project would not involve aboveground structures, and particularly would not construct structures for human occupation. Because the Project is proposed to serve existing levels of development, it would not indirectly foster or contribute to additional construction of structures for human occupation. As such, the Project would not make any direct or indirect contribution to the existing cumulative impact with regard to seismic risk exposure No further analysis of either topic is required
Greenhouse Gas Emissions	Yes. Greenhouse gas emissions are generated from a variety of natural and anthropogenic sources, including industry, transportation, electricity production, commercial and residential uses, and agriculture. A growing scientific and regulatory consensus recognizes greenhouse gas emissions as a cumulative, long-term concern at the local, national, and worldwide scales.	Tailpipe emissions from Project construction equipment and vehicles would include greenhouse gases such as water vapor and carbon dioxide. However, as discussed for Air Quality above, equipment use would be very limited, as would Project-related haul traffic and worker commute trips. The Project's construction-period impacts with regard to greenhouse gas emissions are therefore considered less than significant at the incremental level, and would be too limited to represent a considerable contribution to

Table 2
B2 Force Main Replacement Project: Summary of Existing Cumulative Impacts in Project Area, and Potential Project Contribution – continued

Resource	Existing Cumulative Impact	Potential Project Contribution
		the existing cumulative impact Once construction is complete, the Project would not generate greenhouse gases. The Project would not make any long-term contribution to the existing cumulative impact No further analysis is required
Hydrology/Water Quality	A number of streams, lakes, reservoirs, and ocean/bay waters in the San Diego area are included on the State Water Resources Control Board's current list of water-quality impaired water bodies (California State Water Quality Control Board 2010). Regionwide, this represents a significant cumulative impact on water quality	As discussed in checklist Section IX, the Project would implement and adhere to good construction site management practices to control any potential sources of water pollution from construction activities. This would include preparation and implementation of a Water Pollution Control Plan (WPCP). With these precautions in place, the Project's impacts on water quality would be less than significant at the incremental level, and the Project would not make a considerable contribution to the existing cumulative impact. No further analysis is required

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
c. Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒ (Construction)	☐	☒ (Long-Term)

The project would not result in substantial adverse effects on humans. Project construction would entail extensive activities within existing area roadways, potentially necessitating short-term, temporary, and localized roadway detours and/or lane closures to provide for worker and community safety. The activities required to replace and realign pipeline segments would result in temporary, short-term increases in noise levels affecting neighboring residential and recreational areas. Construction would also generate dust and would require the use of diesel and gasoline internal combustion equipment that emits various pollutants.

As discussed in the Project Description and Section XVI above, to **manage traffic in the safest and most efficient manner possible,** the District will require the Project Contract Documents to include a Traffic Control Plan with detailed delineation of work zones, work hours, lane closures, signage locations, and provisions to maintain safe and uninterrupted residential, business, recreational, and institutional access. Development of the Traffic Control Plan would be coordinated with City of Carlsbad, and, if Option C is selected, the South Carlsbad State Beach.

Construction noise would be controlled by implementation of the following mitigation measure, which is described in detail in Section XII above.

- Mitigation Measure Noise-1: Require Augmented Construction Noise Control

The Project would have **limited potential to impact air quality because of the short duration of construction activity and the small number of pieces of equipment in use at any given time.**

In addition, as outlined in the *Project Description* section of this initial study, the District maintains a 24/7 emergency response line that Project neighbors may use for any inquiries, concerns, or complaints.

With the Traffic Control Plan in place, Mitigation Measure Noise-1 implemented, and the District's emergency response line providing an avenue for resolution in the event additional concerns arise, **the direct and indirect impacts of Project construction on human beings would be less than significant.**

Over the longer term, the Project would have no adverse impact on human beings. On the contrary, it would provide substantial benefits to the community by modernizing and improving the reliability of the District's wastewater infrastructure; reducing overall maintenance needs and costs; substantially reducing the potential for failures that can result in major repairs and/or service shut-downs; and protecting the surrounding environment.

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Appendix A – Biological Resources Technical Report

ROCKS
BIOLOGICAL CONSULTING

MEMORANDUM

To: Anna Buising, Infrastructure Engineering Corp.

From: Rocks Biological Consulting

Date: April 8, 2014; updated May 21, 2014

Subject: Key Biological Constraints of the Leucadia Water District Force Main B2 Project

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Based on a preliminary constraints analysis conducted during field visits on March 6, March 24, May 5, and May 9 2014, the following are the primary biological constraints for the Leucadia Water District Force Main B2 Project.

- The site supports small areas of Diegan Coastal Sage Scrub, a sensitive habitat under local and state regulations. Impacts on this habitat generally require mitigation at a minimum 1:1 ratio.
- The site has the potential to support the federally-listed threatened Coastal California Gnatcatcher (*Polioptila californica californica*). Surveys may be required for the species and, if present, consultation with the US Fish and Wildlife Service would be required.
- Compliance with the California Fish and Wildlife Code (§3503) under which it is unlawful to "take, possess, or needlessly destroy" avian nests or eggs will be required. If project construction is proposed in or adjacent to native habitat during the typical bird breeding season (i.e., February 1 – September 15), or an active nest is noted, a pre-construction nest survey would be required. If active nests are present, construction would be delayed in the nest area plus an

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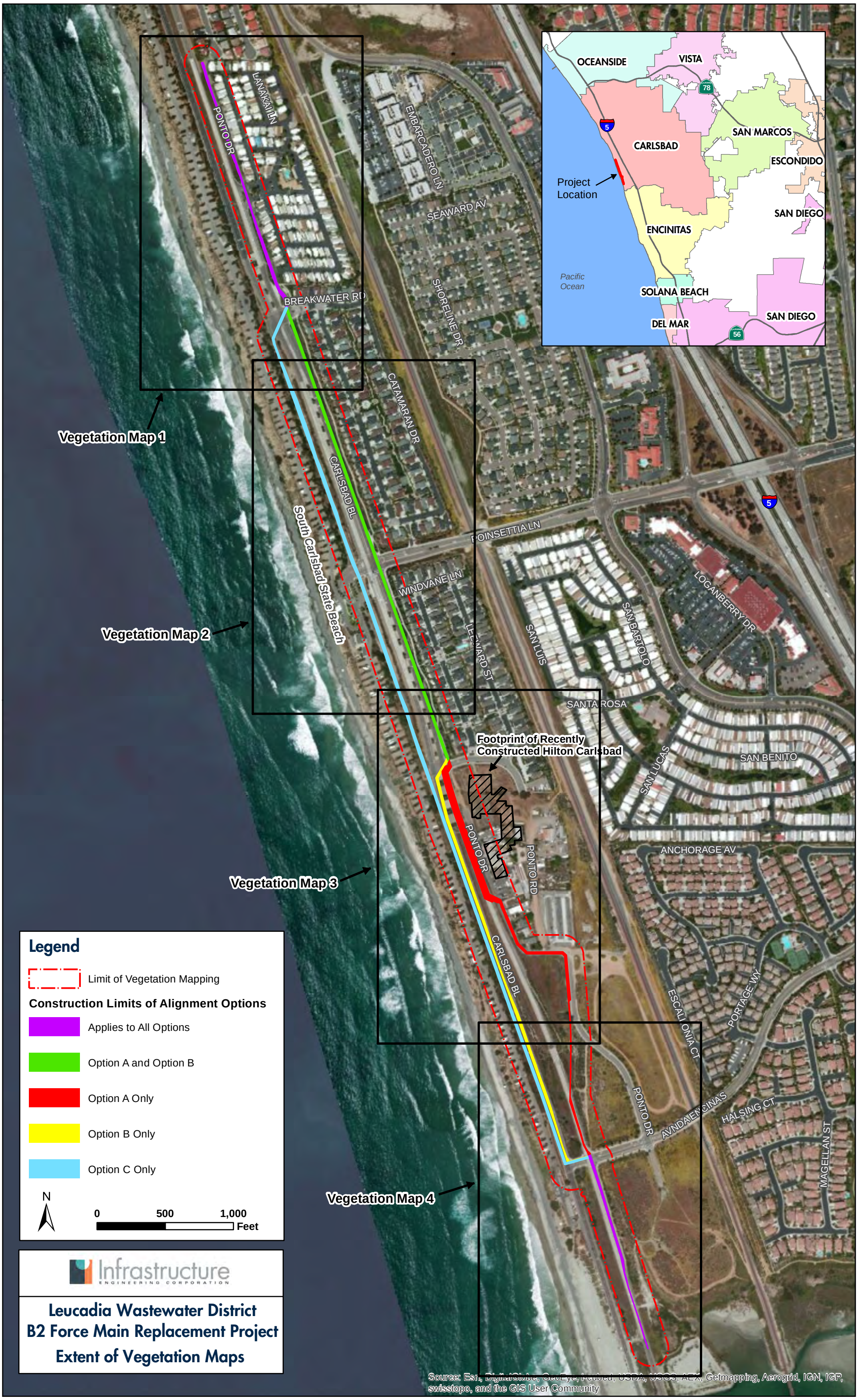
appropriate buffer (determined case by case) until the end of the breeding season or until the nest is no longer active.

- No jurisdictional wetlands or waters of the U.S. were observed within the proposed project area. With the exception of the Coastal California Gnatcatcher, no sensitive or listed species are anticipated within the immediate project area based on the disturbed, urban nature of the site. No rare species have been observed historically in this area based on a California Natural Diversity Database records search The nearest record, Beldings Savannah Sparrow (*Passerculus sandwichensis beldingi*), was reported approximately 500' from the site; however the project site does not support coastal salt marsh habitat suitable for the species. Note that Nuttall's Lotus (*Acmispon nuttallianus*) is known from the regional area but was not observed during site visits, both of which occurred during times the species can generally be observed.


OCEANSIDE
VISTA
CARLSBAD
SAN MARCOS
ESCONDIDO
Project Location
SAN DIEGO
ENCINITAS
Pacific Ocean
SOLANA BEACH
DEL MAR
SAN DIEGO
78
5
56
Vegetation Map 1
Vegetation Map 2
Vegetation Map 3
Vegetation Map 4
LANAKAI LN
PONTO DR
BREAKWATER RD
EMBARCADERO LN
SEAWARD AV
SHORELINE DR
CATAMARAN DR
CARLSBAD BL
South Carlsbad State Beach
POINSETTIA LN
WINDVANE LN
LEEWARD ST
SAN LUIS
SAN BARTOLO
LOGANBERRY DR
SANTA ROSA
SAN LUCAS
SAN BENITO
Footprint of Recently Constructed Hilton Carlsbad
ANCHORAGE AV
ESCALONIA CT
PORTAGE WY
HALSING CT
MAGELLAN ST
AVENIDA ENCINAS
Legend
Limit of Vegetation Mapping
Construction Limits of Alignment Options
Applies to All Options
Option A and Option B
Option A Only
Option B Only
Option C Only
N
0
500
1,000
Feet
Infrastructure
ENGINEERING CORPORATION
Leucadia Wastewater District
B2 Force Main Replacement Project
Extent of Vegetation Maps
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

SURFSIDE LN
AVNDA ENCINAS
ORN
DH
PONTO DR
LANAKAI LN
PRIVATE RD
IP
ORN
IP
CARLSBAD BL
PRIVATE RD
ORN
ORN
DEV
ORN
ORN
ORN
ORN
ORN
ORN
ORN
ORN
CBS
BREAKWATER RD
DEV
ORN
IP
DEV/ORN
CBS
DH
ORN
TRADEWINDS DR

N

0 100 200 Feet

Legend

Limit of Vegetation Mapping

Construction Limits of Alignment Options

Applies to All Options

Option A and Option B

Option C Only

Vegetation Mapping (IEC/Rocks Spring 2014)

CBS	Coyote Brush Scrub
DEV	Developed
DEV/ORN	Developed/Ornamental
DH	Disturbed Habitat
IP	Ice Plant – Non-Native *(Carpobrotus edulis)*
ORN	Ornamental

ROCKS BIOLOGICAL CONSULTING

Infrastructure ENGINEERING CORPORATION

Leucadia Wastewater District
B2 Force Main Replacement Project
Vegetation Map 1


IP
CBS
ORN
ORN
ORN
ORN
ORN
ORN
DEV
DH
ORN
ORN
DEV/ORN
ORN
ORN
DEV
DEV/ORN
ORN
ORN
DEV
ORN
DH
ORN
IP
ORN
ORN
PRIVATE RD
CARLSBAD BL
TRADEWINDS DR
CATAMARAN DR
SHORELINE DR
CHANNEL RD
ISTHMUS DR
POINSETTIA LN
WINDVANE LN
LEEWARD ST
WHITEWATER ST
N
0
100
200
Feet
Legend
Limit of Vegetation Mapping
Construction Limits of Alignment Options
Option A and Option B
Option C Only
Vegetation Mapping (IEC/Rocks Spring 2014)
CBS Coyote Brush Scrub
DEV Developed
DEV/ORN Developed/Ornamental
DH Disturbed Habitat
IP Ice Plant – Non-Native (Carpobrotus edulis)
ORN Ornamental
ROCKS BIOLOGICAL CONSULTING
Infrastructure ENGINEERING CORPORATION
Leucadia Wastewater District
B2 Force Main Replacement Project
Vegetation Map 2
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Legend

Limit of Vegetation Mapping

Construction Limits of Alignment Options

- Option A and Option B
- Option A Only
- Option B Only
- Option C Only

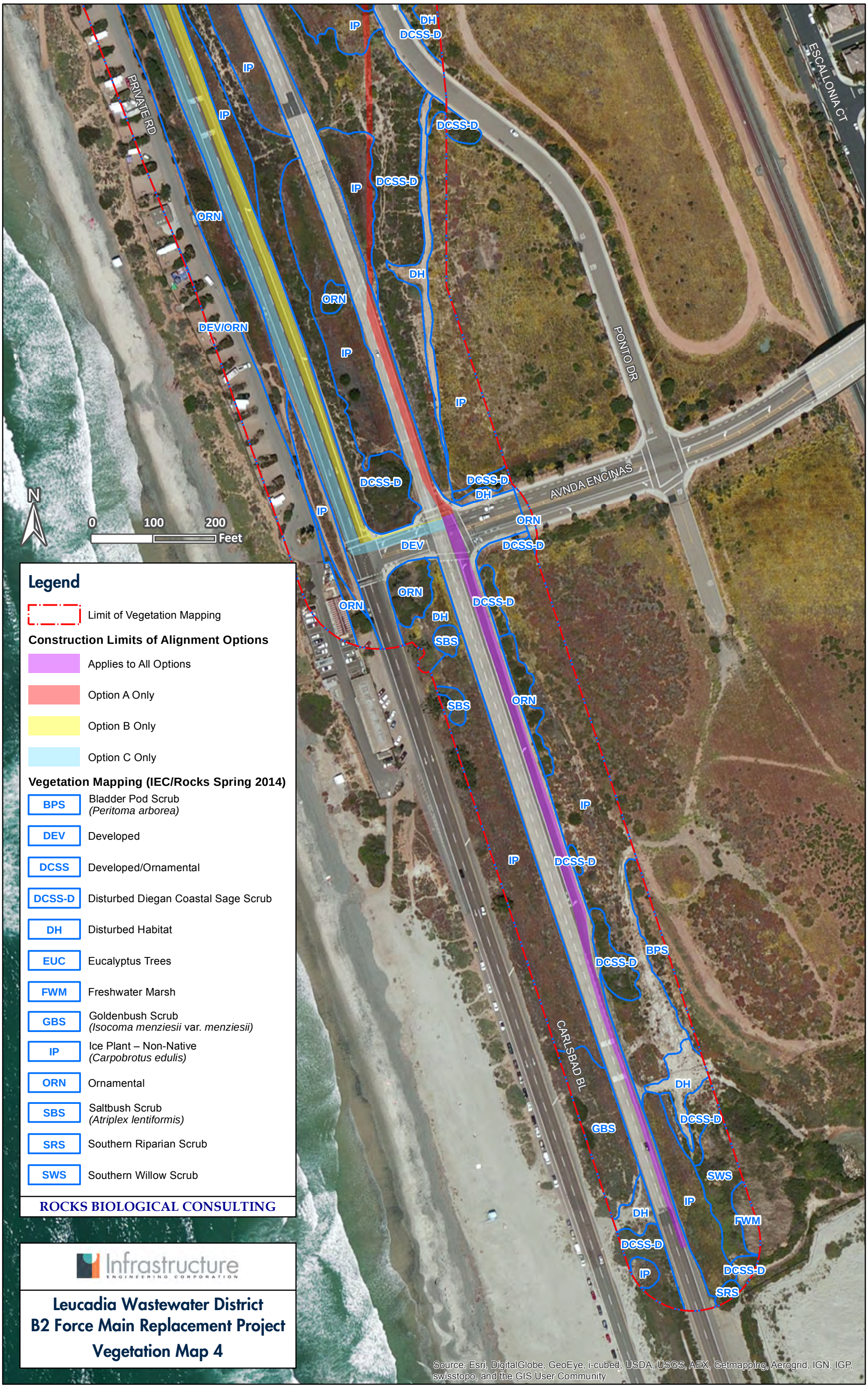
Vegetation Mapping (IEC/Rocks Spring 2014)

DEV	Developed
DEV/ORN	Developed/Ornamental
DCCS-D	Disturbed Diegan Coastal Sage Scrub
DH	Disturbed Habitat
EUC	Eucalyptus Trees
GBS	Goldenbush Scrub (*Isocoma menziesii* var. *menziesii)*
IP	Ice Plant – Non-Native (*Carpobrotus edulis)*
ORN	Ornamental
SBS	Saltbush Scrub (*Atriplex lentiformis)*
SR	Spiny Rush – Planted (*Juncus acutus* ssp. *leopoldi)*

ROCKS BIOLOGICAL CONSULTING

Infrastructure ENGINEERING CORPORATION

Leucadia Wastewater District
B2 Force Main Replacement Project
Vegetation Map 3



Legend

Limit of Vegetation Mapping

Construction Limits of Alignment Options

- Applies to All Options
- Option A Only
- Option B Only
- Option C Only

Vegetation Mapping (IEC/Rocks Spring 2014)

BPS	Bladder Pod Scrub *(Peritoma arborea)*
DEV	Developed
DCSS	Developed/Ornamental
DCSS-D	Disturbed Diegan Coastal Sage Scrub
DH	Disturbed Habitat
EUC	Eucalyptus Trees
FWM	Freshwater Marsh
GBS	Goldenbush Scrub *(Isocoma menziesii* var. *menziesii)*
IP	Ice Plant – Non-Native *(Carpobrotus edulis)*
ORN	Ornamental
SBS	Saltbush Scrub *(Atriplex lentiformis)*
SRS	Southern Riparian Scrub
SWS	Southern Willow Scrub

ROCKS BIOLOGICAL CONSULTING

Infrastructure ENGINEERING CORPORATION

Leucadia Wastewater District
B2 Force Main Replacement Project
Vegetation Map 4

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Appendix B – Cultural Resources Studies

CULTURAL RESOURCES SURVEY REPORT FOR THE LEUCADIA WASTEWATER DISTRICT B2 FORCE MAIN REPLACEMENT PROJECT, CITY OF CARLSBAD, CALIFORNIA

Prepared for:

Ms. Emmeline Kiyan
Infrastructure Engineering Corporation
39221 Paseo Parkway, Suite K
Fremont, CA 94538

Prepared by:

Laguna Mountain Environmental, Inc.
7969 Engineer Road, Suite 208
San Diego, CA 92111

Andrew R. Pigniolo, MA

March 2014

CULTURAL RESOURCES SURVEY REPORT FOR THE LEUCADIA WASTEWATER DISTRICT B2 FORCE MAIN REPLACEMENT PROJECT, CITY OF CARLSBAD, CALIFORNIA

Prepared for:

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Infrastructure Engineering Corporation
39221 Paseo Parkway, Suite K
Fremont, CA 94538

Prepared by:

Laguna Mountain Environmental, Inc.
7969 Engineer Road, Suite 208
San Diego, CA 92111

Andrew R. Pigniolo, MA

March 2014

National Archaeological Data Base Information
Type of Study: Cultural Resource Survey
Sites: P-37-033595 (LWD-I-1)
USGS Quadrangle: Encinitas 7.5'
Area: 13,500 Linear Feet
Key Words: Leucadia Wastewater District, B2 Force Main, City of Carlsbad, Archaeological Survey, Redeposited Shell, P-37-033595 (isolate core)

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ABSTRACT

Laguna Mountain Environmental, Inc. (Laguna Mountain) conducted a cultural resource survey for the proposed B2 Force Main Replacement Project in the Carlsbad Beach area of the City of Carlsbad. The survey included the entire proposed alignment along with proposed alternative alignments. The cultural resource project included a records search, literature review, examination of historic maps, and the cultural resource survey of the project area.

The current survey program was conducted in accordance with the California Environmental Quality Act (CEQA) and guidelines. The Leucadia Wastewater District (LWWD) will serve as lead agency for the project and CEQA compliance.

The records search was conducted at the South Coastal Information Center at San Diego State University. The record search indicated that at least 68 cultural resource investigations have been conducted within a one-mile radius of the project alignment. Twenty-one cultural resources have been identified through previous research within a one-mile radius of the project. The far western border of a large shell midden site (CA-SDI-11026) exists near the eastern edge of the very southern end of the main project alignment. Only two other resources have been recorded near the alignment, both east of the project area. No cultural resources have been previously identified within the project area.

A survey of the proposed project alignment and alternatives was conducted on March 13, 2014 by Mr. Andrew R. Pigniolo. Mr. Banning Taylor, Jr., from Saving Sacred Sites, served as Native American monitor. The survey included a surface walk-over of the entire alignment and alternatives in 10-m transect intervals. The survey was constrained by the presence of fill in some areas while other areas were heavily landscaped and developed. Overall surface visibility averaged 30 percent with much of the northern portion of the alignment under existing lawn and hardscape. Grading associated with past construction of road and railroad alignments was evident in many areas.

The survey resulted in the identification of an isolate core (P-37-033595 [LWD-I-1]) on the surface of a roadside cut in a highly disturbed context. Moderate to small amounts of marine shell were also noted in imported fill along portions of several roadways. No associated artifacts were observed with this shell, and it is unclear if this material represents secondary archaeological site material or natural shell incorporated into the fill. Other contexts included shell in apparent dredge spoils and very sparse shell in highly disturbed landscaped contexts suggesting the material is not cultural. The potential of past historic-era resources along the alignment route was identified from historic mapping, but no surface evidence of these resources was encountered.

Isolate P-37-033595 does not qualify as significant under the California Register of Historical Resources (California Register) Guidelines used for CEQA review because of its lack of integrity and because isolated artifacts do not meet criterion used for evaluating eligibility to the California Register. Significant impacts to cultural resources are unlikely to result from this project or any of its alternatives.

Because the survey was limited by existing landscape and hardscape constraints, and the potential for buried prehistoric and historic cultural resources exists (particularly at the far southern end of the project), monitoring of construction excavation is recommended to ensure impacts to previously unidentified cultural resources are addressed.

I. INTRODUCTION

A. Project Description

The project alignment is located in the west-central portion San Diego County west of Interstate 5 along the Carlsbad Beach area in the City of Carlsbad (Figure 1). The project alignment is located along and just east of Carlsbad Boulevard (S-21), south of Island Way, and north of the mouth of Batiquitos Lagoon. The project consists of a linear alignment (Alternate 1) and two alternative segments (Alternative 2 and Alternative 3). The project is located in Sections 20, 29, and 32 in Township 12 South, Range 4 West. The project area is shown on the Encinitas USGS 7.5' Quadrangle (Figure 2)

The Leucadia Wastewater District (District) B2 Force Main Replacement Project is being proposed to improve wastewater conveyance in the District's sanitary sewer system. The Project would involve replacement and realignment of portions of the B1, B2, and B3 force mains, which are essential elements of the District's sewer system.

The District is now proposing to replace the B2 sewer force main so that it can be brought back online. The Project would entail the following activities:

1. Replacement of the existing B2 24-inch-diameter ductile iron sewer force main with a new 24-inch diameter PVC force main, using conventional open cut methods
2. Replacement of the discharge elbows and spool into the receiving manhole
3. Replacement of the receiving manhole with a new PVC-lined sewer manhole
4. Replacement and realignment of the B1, B2, and B3 force mains along an approximate 800 foot section of Ponto Dr. near the frontage of the Carlsbad Hilton Hotel

As part of the project, an approximately 25-foot-wide area of potential effects (APE) was identified along the proposed alignment and two alternatives (Figure 3).

The current monitoring program was conducted in accordance with the California Environmental Quality Act (CEQA) and guidelines. The Leucadia Wastewater District (LWWD) will serve as lead agency for the project and CEQA compliance. The archaeological and Native American monitoring survey was conducted to determine if any cultural resources eligible for inclusion in the California Register of Historic Resources (California Register) or significant under CEQA would be affected by this project.

B. Project Personnel

The cultural resource monitoring program was conducted by Laguna Mountain Environmental, Inc. (Laguna Mountain), whose cultural resources staff meets state and local requirements. Mr. Andrew R. Pigniolo served as Principal Investigator for the project. He also conducted the survey and prepared this technical report. Mr. Pigniolo meets the Secretary of the Interior's standards for qualified archaeologists. Mr. Pigniolo has an MA degree in Anthropology from San Diego State University and has more than 35 years experience in the San Diego region. His resume is included in Appendix A.

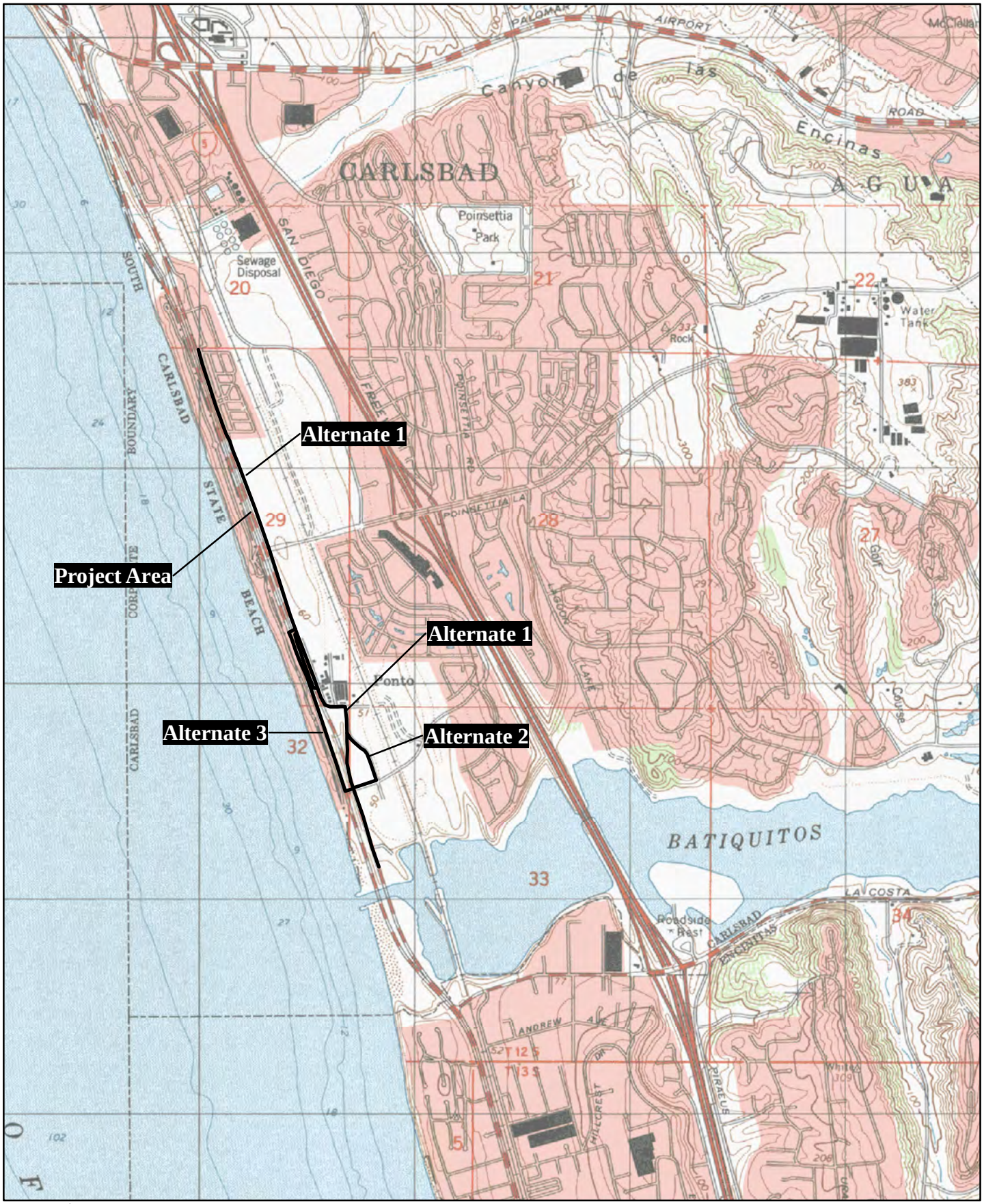
N

0 5 10

M I L E S

Figure 1
Regional Location Map

Laguna Mountain Environmental, Inc.



Source: USGS 7.5' Encinitas Quadrangle

0 1,000 2,000 Feet

Figure 2
Project Location

Laguna Mountain Environmental, Inc.

Figure 3
Survey Area

Mr. Banning Taylor, Jr. served as Native American monitor. He was representing Saving Sacred Sites and is a member of the Los Coyotes Band of Cahuilla and Cupeno Indians. Mr. Taylor has more than three years experience conducting Native American monitoring.

C. Structure of the Report

This report follows the State Historic Preservation Office's guidelines for Archaeological Resource Management Reports (ARMR). The report introduction provides a description of the project and associated personnel. Section II provides background on the project area and previous research. Section III describes the research design and survey methods while Section IV describes the survey results. Section V provides a summary and recommendations.

II. NATURAL AND CULTURAL SETTING

The following environmental and cultural background provides a context for the cultural resource inventory.

A. Natural Setting

The project area is located in the western portion of San Diego County, on the coastal mesa above South Carlsbad State Beach. Based on historic mapping and aerial photography, most, if not all, of this area has been previously disturbed. Much of the project alignment has been cut, filled, or graded in association with previous road and railroad projects. Most of the northern portion of the alignment is currently landscaped with related hardscape pathways, planters, and roads. Much of the southern portion of the project alignment is comprised of road margins and costal sage scrub regrowth and revegetation. The alignment is along a very gentle west-facing slope of a coastal terrace, immediately west of the Pacific Ocean. Elevations range from 20 to 60 feet above mean sea level.

The geomorphology of the project area is largely a product of the region's recent geologic history. During the Jurassic and late Cretaceous (>100 million years ago) a series of volcanic islands paralleled the current coastline in the San Diego region (Abbott 1999). The remnants of these islands stand as Double Peak and Black Mountain to the east and southeast of the project area among others. This island arc of volcanoes spewed out vast layers of tuff (volcanic ash) and breccia that have since been metamorphosed into hard rock of the Santiago Peak Volcanic formation. These fine-grained rocks provided a regionally important resource for Native American flaked stone tools.

At about the same time, a granitic and gabbroic batholith was being formed under and east of these volcanoes. This batholith was uplifted and forms the granitic rocks and outcrops of the Peninsular Range and the foothills to the east of the project (Abbott 1999). In San Diego County the large and varied crystals of these granitic rocks provided particularly good abrasive surfaces for Native American seed processing. These outcrops were frequently used for bedrock milling of seeds. The batholith contains numerous pegmatite dikes. This was a good source of quartz, a material used by Native Americans for flaked stone tools and ceremonial purposes.

Within the project area specifically, the entire alignment is mapped as situated on Old Paralic Deposits Units 6 and 7 of late to middle Pleistocene age (Kennedy and Tan 2005). This was previously named the Pleistocene Bay Point Formation, but has since been subdivided. Unit 7 deposits consist mostly of poorly sorted, moderately permeable, reddish-brown, interfingered strandline, beach, estuarine and colluvial deposits composed of siltstone, sandstone and conglomerate (Kennedy and Tan 2005). Unit 6 deposits are similar, but rest on a higher wave cut terrace (Kennedy and Tan 2005).

Soils within the project area include Marina loamy coarse sands (Bowman 1973). The Marina Series consists of somewhat excessively drained, very deep loamy coarse sands derived from weakly consolidated to noncoherent ferruginous eolian sand. These soils are on old beach ridges and have slopes of 2 to 30 percent. A representative profile shows the surface layer is brown and

dark yellowish-brown, medium acid and slightly acid loamy coarse sand about 10 inches thick. The subsoil is brown and strong-brown, neutral and mildly alkaline loamy coarse sand about 47 inches thick. The substratum is yellow, moderately alkaline coarse sand (Bowman 1973).

Small seasonal drainages and seeps located along the Pacific Ocean cliffs could have provided Native Americans with a seasonal water source, as would the head of the estuary at Batiquitos Lagoon.

The climate of the region can generally be described as Mediterranean, with cool wet winters and hot dry summers. Rainfall limits vegetation growth. The dominant vegetation community within the project area is coastal sage scrub components of this community provided important resources to Native Americans in the region. Sage seed, yucca, buckwheat, acorns, and native grasses formed important food resources to Late Prehistoric Native Americans based on ethnographic information (Hedges 1986).

Animal resources in the region included deer, fox, raccoon, skunk, bobcats, coyotes, rabbits, and various rodent, reptile, and bird species. Small game, dominated by rabbits and birds, is still relatively abundant in undisturbed coastal areas (Pryde 2004).

B. Cultural Setting

Paleoindian Period

The earliest well documented prehistoric sites in southern California are identified as belonging to the Paleoindian period, which has locally been termed the San Dieguito complex/tradition. The Paleoindian period is thought to have occurred between 9,000 years ago, or earlier, and 8,000 years ago in this region. Although varying from the well-defined fluted point complexes such as Clovis, the San Dieguito complex is still seen as a hunting-focused economy with limited use of seed grinding technology. The economy is generally seen to focus on highly ranked resources such as large mammals and relatively high mobility, which may be related to following large game. Archaeological evidence associated with this period has been found around inland dry lakes, on old terrace deposits of the California desert, and also near the coast where it was first documented at the Harris Site, in the Rancho Santa Fe area of San Diego County.

Early Archaic Period

Native Americans during the Archaic period had a generalized economy that focused on hunting and gathering. In many parts of North America, Native Americans chose to replace this economy with types based on horticulture and agriculture. Coastal southern California economies remained largely based on wild resource use until European contact (Willey and Phillips 1958). Changes in hunting technology and other important elements of material culture have created two distinct subdivisions within the Archaic period in southern California.

The Early Archaic period is differentiated from the earlier Paleoindian period by a shift to a more generalized economy and an increased focus on the use of grinding and seed processing technology. At sites dated between approximately 8,000 and 1,500 years before present (B.P.), the increased use of groundstone artifacts and atlatl dart points, along with a mixed core-based tool assemblage, identify a range of adaptations to a more diversified set of plant and animal resources. Variations of the Pinto and Elko series projectile points, large bifaces, manos and portable metates, core tools, and heavy use of marine invertebrates in coastal areas are characteristic of this period, but many coastal sites show limited use of diagnostic atlatl points. Major changes in technology within this relatively long chronological unit appear limited. Several scientists have considered changes in projectile point styles and artifact frequencies within the Early Archaic period to be indicative of population movements or units of cultural change (Moratto 1984), but these units are poorly defined locally due to poor site preservation.

Late Archaic or Late Prehistoric Period

Around 2,000 B.P., Yuman-speaking people from the eastern Colorado River region began migrating into southern California, representing what is called the Late Prehistoric Period. The Late Prehistoric Period in San Diego County is recognized archaeologically by smaller projectile points, the replacement of flexed inhumations with cremation, the introduction of ceramics, and an emphasis on inland plant food collection and processing, especially acorns (True 1966). Inland semi-sedentary villages were established along major watercourses, and montane areas were seasonally occupied to exploit acorns and piñon nuts, resulting in permanent milling features on bedrock outcrops. Mortars for acorn processing increased in frequency relative to seed grinding basins. This period is known archaeologically in southern San Diego County as the Yuman (Rogers 1945) or the Cuyamaca Complex (True 1970).

The Kumeyaay (formerly referred to as Diegueño) who inhabited the southern region of San Diego County, western and central Imperial County, and northern Baja California (Almstedt 1982; Gifford 1931; Hedges 1975; Luomala 1976; Shipek 1982; Spier 1923) are the direct descendants of the early Yuman hunter-gatherers. Kumeyaay territory encompassed a large and diverse environment, which included marine, foothill, mountain, and desert resource zones. Their language is a dialect of the Yuman language, which is related to the large Hokan super family.

There seems to have been considerable variability in the level of social organization and settlement variance. The Kumeyaay were organized by patrilineal, patrilocal lineages that claimed prescribed territories, but did not own the resources except for some minor plants and eagle aeries (Luomala 1976; Spier 1923). Some lineages occupied procurement ranges that required considerable residential mobility, such as those in the deserts (Hicks 1963). In the mountains, some of the larger groups occupied a few large residential bases that would be occupied biannually, such as those occupied in Cuyamaca in the summer and fall and in Guatay or Descanso during the rest of the year (Almstedt 1982; Rensch 1975). According to Spier (1923), many Eastern Kumeyaay spent the period of time from spring through autumn in larger residential bases in the upland procurement ranges, and wintered in mixed groups in residential bases along the eastern foothills on the edge of the desert (i.e., Jacumba and Mountain Springs). This variability in settlement mobility and organization reflects the great range of environments in the territory.

Acorns were the single most important food source used by the Kumeyaay. Their villages were usually located near water, which was necessary for leaching acorn meal. Other storable resources such as mesquite or agave were equally valuable to groups inhabiting desert areas, at least during certain seasons (Hicks 1963; Shackley 1984). Seeds from grasses, manzanita, sage, sunflowers, lemonade berry, chia, and other plants were also used along with various wild greens and fruits. Deer, small game, and birds were hunted and fish and marine foods were eaten.

Houses were arranged in the village without apparent pattern. The houses in primary villages were conical structures covered with tule bundles, having excavated floors and central hearths. Houses constructed at the mountain camps generally lacked any excavation, probably due to the summer occupation. Other structures included sweathouses, ceremonial enclosures, armadas, and acorn granaries. The material culture included ceramic cooking and storage vessels, baskets, flaked lithic and ground stone tools, arrow shaft straighteners, stone, bone, and shell ornaments.

Hunting implements included the bow and arrow, curved throwing sticks, nets and snares. Shell and bone fishhooks, as well as nets, were used for fishing. Lithic materials including quartz and metavolcanics were commonly available throughout much of the Kumeyaay territory. Other lithic resources, such as obsidian, chert, chalcedony, and steatite, occur in more localized areas and were acquired through direct procurement or exchange. Projectile points including the Cottonwood Series points and Desert Side-notched points were commonly produced.

Ethnohistoric Period

The Ethnohistoric period refers to a brief period when Native American culture was initially being affected by Euroamerican culture and historical records on Native American activities were limited. When the Spanish colonists began to settle California, the project area was within the territory of a loosely integrated cultural group historically known as the Kumeyaay or Northern and Southern Diegueño because of their association with the San Diego Mission. The Kumeyaay as a whole speak a Yuman language, which differentiates them from the Luiseño, located to the north, who speak a Takic language (Kroeber 1976). Both of these groups were hunter-gatherers with highly developed social systems. Kumeyaay culture and society remained stable until the advent of missionization and displacement by Hispanic populations during the eighteenth century. The effects of missionization, along with the introduction of European diseases, greatly reduced the native population of southern California and helped to break down cultural institutions. The transition to a largely Euroamerican lifestyle occurred relatively rapidly in the nineteenth century. By the early 1820s, California was under Mexico's rule. The establishment of ranchos under the Mexican land grant program further disrupted the way of life of the native inhabitants.

Historic Period

Cultural activities within San Diego County between the late 1700s and the present provide a record of Native American, Spanish, Mexican, and American control, occupation, and land use. An abbreviated history of San Diego County is presented for the purpose of providing a background on the presence, chronological significance, and historical relationship of cultural resources within the county.

Native American control of the southern California region ended in the political views of western nations with Spanish colonization of the area beginning in 1769. De facto Native American control of the majority of the population of California did not end until several decades later. In southern California, Euroamerican control was firmly established by the end of the Garra uprising in the early 1850s (Phillips 1975).

The Spanish Period (1769-1821) represents a period of Euroamerican exploration and settlement. Dual military and religious contingents established the San Diego Presidio and the San Diego and San Luis Rey Missions. The Mission system used Native Americans to build a footing for greater European settlement. The Mission system also introduced horses, cattle, other agricultural goods and implements; and provided construction methods and new architectural styles. The cultural and institutional systems established by the Spanish continued beyond the year 1821, when California came under Mexican rule.

The Mexican Period (1821-1848) includes the retention of many Spanish institutions and laws. The mission system was secularized in 1834, which dispossessed many Native Americans and increased Mexican settlement. After secularization, large tracts of land were granted to individuals and families and the rancho system was established. Cattle ranching dominated other agricultural activities and the development of the hide and tallow trade with the United States increased during the early part of this period. The Pueblo of San Diego was established during this period and Native American influence and control greatly declined. The Mexican Period ended when Mexico ceded California to the United States after the Mexican-American War of 1846-48.

Soon after American control was established (1848-present), gold was discovered in California. The tremendous influx of Americans and Europeans that resulted quickly drowned out much of the Spanish and Mexican cultural influences and eliminated the last vestiges of de facto Native American control. Few Mexican ranchos remained intact because of land claim disputes. The homestead system increased American settlement well beyond the coastal plain.

C. Prior Research

As the first step in performing the current investigation, archival research and background studies were conducted including a literature and record search at the local archaeological repository, in addition to examining historic maps and historic site inventories. This information was used to identify previously recorded resources and determine the types of resources that might occur in the survey area.

The records and literature search for the project was conducted at the South Coastal Information Center (SCIC) at San Diego State University (Appendix B). In-house data of the San Diego Museum of Man were examined as well. The records search included a one-mile radius around the project area to provide background on the types of sites that would be expected in the region. Copies of historic maps were also obtained from the SCIC.

The record search indicated that at least 68 cultural resource investigations have been conducted within a one-mile radius. Most of these are surveys for infrastructure projects, residential development, or utility implementation associated with the growth and development of this area over the last 40 years. The studies indicate there was an abundance of prehistoric activity in the area, especially associated with the lagoon. Table 1 summarizes the investigations within the one mile radius.

Table 1. Archaeological Investigations within a One-Mile Radius of the Project Area

Author	Report Title	Year
Aislin-Kay	Cultural Resource Record Search and Site Visit Results for Cingular Communications Facility Candidate (Cabo Grill), North Coast Highway, Encinitas, San Diego County	2004
Bonner and Keasling	Cultural Resource Records Search and Site Visit Results for T-Mobile Facility Candidate SD06916 (Poinsettia & Aviara), Beacon Bay Drive, Carlsbad, San Diego County	2007
Bonner and Williams	Cultural Resource Records Search and Site Visit Results for T-Mobile USA Candidate SD07108A (Cabo Grill R.O.W.) at 1967-1/2 North Highway 101, Encinitas, San Diego County	2008
Brian F. Mooney Associates	Cultural Resource Survey and Assessment of the Carlsbad Zone 20 Specific Plan Area, Carlsbad	1991
Buysse and Smith	Salvage Excavations at Site SDM-W-95 (CA-SDI-211) for the Poinsettia Shores Santalina Development Project, Carlsbad, California	2000
Byrd and O'Neill	Archaeological Survey Report for the Phase I Archaeological Survey along Interstate 5, San Diego County	2002
Carrico	Archaeological Survey of the Batiquitos Lagoon Property	1983
Chace	An Archaeological and Paleontological Survey of Occidental Land, Inc. Properties in the City of Carlsbad, California	1981
Cheever	Cultural and Paleontological Survey and Testing for Pacific Rim, Carlsbad	1986
Cheever	Cultural Resource Significance of Savagae-1	1989
Cheever	Cultural Resource Significance Testing at SDi-6753, SDi-6754, SDi-6819, and SDi-2046: Four Prehistoric Sites within the Aviara Development, Carlsbad, California	1989
Cheever	Data Recovery Project for Nine Cultural Resource Sites: Aviara Development	1991
Cheever	Results of the Pregrade Mechanical Excavation and Mitigation at SDI-691, Aviara Development, Carlsbad	1992
Cheever and Gallegos	Archaeological Survey for a Road Detour and Storm Drain on a Portion of Palomar Airport Road	1987
Cupples	A Cultural Resources Survey Report for a Proposed San Marcos County Water District Sewage Interceptor Pipeline	1978
Davis and Cheever	A Cultural Resources Survey of the Southern Pacific Hotel Property, Encinitas, California	1990
Decosta	An Archaeological Survey of the Batiquitos Material Site, 11-SD-5, 44.7-45.2, 11520-910075-5957005	1983
Dolan et al.	Result of a Data Recovery Program at Sites SDI-6132, SDI-10,671, and SDI-12,814, Carlsbad Ranch Project, Carlsbad, California	1996
Dominici	Historic Property Survey Report, I-5 North Coast Widening Project	2007
Dominici	Historic Property Survey Report for the Interstate 5 North Coast Corridor Project	2010
Duke	Cultural Resources Assessment Cingular Wireless Facility No. SD 747-02, San Diego County	2002
Eighmey	Archaeological Evaluation of a Portion of SDI-6829 (SDM-W-1889), Costa De Sol, Carlsbad	1992
Fink	Archaeological Survey of the Proposed Sea Bluff Beach Access	1973

Table 1. Archaeological Investigations within a One-Mile Radius of the Project Area
(Continued)

Author	Report Title	Year
Fink	Archaeological and Historical Overview Encina Water Pollution Control Facility Service Area, Carlsbad, California (112 Square Miles) Project No. UR0087	1976
Gallegos and Kyle	Cultural Resources Survey for the Costa Brava Resort Hotel, City of Encinitas, California	1988
Gallegos and Kyle	Historical/Archaeological Survey and Test for Carlsbad Ranch	1992
Gallegos et al.	A Cultural Resource Overview for the Encinitas Planning Area, Encinitas, California	1986
Gallegos, Scroth and Perry	Historical/Archaeological Survey and Test for Carlsbad Ranch Specific Plan Amendment, Carlsbad, California	1995
Guerrero and Gallegos	Cultural Resource Inventory for the Carlsbad Boulevard Slope and Drainage Improvements Project, Carlsbad, California	2007
Hector	Archaeological Test Excavation on the Hillebrect Property	1985
Hector	An Archaeological Survey of the Eaton Hills Property, Carlsbad, California	1988
Hector	An Archaeological Survey of the Garrett Property, Carlsbad, California	1988
Hector	Cultural Resources Survey of the San Diego Commuter Rail Project	1989
Heritage Architecture & Planning	The Dolman House, 1657 Volcan Avenue, Encinitas, California; Historic American Buildings Survey Level III Documentation	2006
Hope	First Addendum Historic Resource Evaluation Report for the I-5 Widening Project in San Diego County, PM 27.3/54.4	2006
Kyle	Cultural Resource Monitoring for Consultation Grading of the Santalina Community Project, City of Carlsbad, California	2000
Kyle	Cultural Resources Assessment Cingular Wireless Facility No. SD 747-01, San Diego County	2002
Kyle and Gallegos	Cultural Resource Survey for the Carlsbad Boulevard Realignment Project, City of Carlsbad, California	1998
Laylander	Archaeological Testing at Nine Prehistoric Sites (SDI-4553, -6831, -7296, -12121, -12110, -13484, -16639, -17672, -17673 and -17928) on the Central San Diego Coast, San Diego County, California	2006
Laylander and Becker	Archaeological Testing at Twelve Prehistoric Sites (SDI-603, -628, -4553, -6821, -6882, -10965, -12110, -12670, -13484, -15678, -15679, and -15680) on the Central San Diego Coast, San Diego County, California	2003
Laylander and Pallette	Supplemental Archaeological Survey Report for the Interstate 5 Widening Project, San Diego County	2006
Laylander et al.	Archaeological Survey for the Caltrans I-5 North Coast Corridor Project Biological Mitigation Parcels South of Batiquitos Lagoon, San Diego County, California	2009
Mooney-Lettieri Associates	Archaeological Survey Report for the Pacific View PRD	1982
Mooney-Lettieri Associates	Draft Environmental Impact Report for Pacific View PRD TM 4359, P82-48, LOG# 82-7-32	1983
Norwood	An Archaeological Survey of the Greer Property	1977
Pallette	Cultural Resources Study for the Proposed NCTD FAO Facility Project	2003
Phillips	Archaeological Survey of the Batiquitos Pointe Property	1982
RECON	Draft EIR for Prezone and Annexation	1975
RECON	Draft Environmental Impact Report for the Batiquitos Lagoon Educational Park Master Plan EIR 84-3	1985
Robbins-Wade	Archaeological Survey Report, Encinitas Grade-Separated Pedestrian Crossings, Encinitas, San Diego County	2006
Rosen	Historic Property Survey Report, Oceanside to San Diego Rail to Trail	1999
Rosenberg and Smith	An Archaeological Survey for the Ponto Beachfront Village Vision Plan Project, City of Carlsbad, California (GPA 05-04/LCPA 05-01/DI05-01)	2006

Table 1. Archaeological Investigations within a One-Mile Radius of the Project Area
(Continued)

Author	Report Title	Year
Scientific Resource Surveys	Cultural Resources Report of Site II, Located in an Unincorporated Area of Carlsbad, San Diego County	1982
Scientific Resource Surveys	Cultural Resource Report on Rancho La Costa Properties Located in the County of San Diego	1982
Scientific Resource Surveys	Cultural Resource Report on Tentative Tract No. 82-84, "Seagate," Located in the City of Carlsbad, County of San Diego	1983
Seeman	Draft Environmental Impact Report Revised Parks and Recreation Element, Carlsbad, California	1982
Smith	Results of an Archaeological Evaluation of Cultural Resources within the Proposed Corridor for the San Elijo Water Reclamation System (Project No. C-06-4155-110)	1995
Smith	Results of Archaeological Monitoring of the Poinsettia Shores Project, City of Carlsbad, San Diego County	1996
Smith and Moriarty	The Archaeological Excavations of Cultural Resources at the Batiquitos Pointe and Batiquitos Bluffs Projects, Sites W-84, W-88, W-95, W-97, and W-2551	1985
Strudwick and Gallegos	Historical/Archaeological Survey and Test Report for Alta Mira Park, Carlsbad, California	1992
Strudwick and Gallegos	Historical/Archaeological Survey and Test Report for the Poinsettia Lane Project, Carlsbad, California	1994
Tang et al.	Identification and Evaluation of Historic Properties, San Diego Water Authority Seawater Desalination Project in the Cities of Carlsbad, Vista, and San Marcos, San Diego County	2004
Thesken and Carrico	Archaeological Investigations of the Seabluff Property	1981
Van Bueren	Archaeological Assessment for the Batiquitos Lagoon Enhancement Project, San Diego County	1988
WESTEC Services	Regional Historic Preservation Study	1980
WESTEC Services	Archaeological Survey of a Portion of Palomar Airport Road	1987
Woodward and Stammerjohan	Resource Inventory Cultural Resources San Diego Coast State Beaches	1985
York and Hildebrand	Cultural Resources Investigation in Support of Consultation for the Regional Beach Sand II Project, San Diego County	2011

Italicized authors are reports not at SCIC but noted in site forms

Twenty-one cultural resources have been identified through previous research within a one-mile radius of the project (Table 2). These sites provide an idea of the types of cultural resources that might be expected within the project area itself. The variety of site types in the project area includes primarily prehistoric shell and lithic scatters, along with a few more substantial habitation sites. One historic farm complex and a trash scatter are also recorded within the one-mile search radius.

The far western border of a large shell midden site (CA-SDI-11026) is mapped at the USGS scale along the eastern edge of the very southern end of the main project APE. This site was recorded to include shell, cobble and groundstone tools, along with debitage. Site CA-SDI-13739 was a small lithic scatter and historic trash scatter that was recorded on a small knoll approximately 50 m east of the project APE. The site has been destroyed by development. CA-SDI-760 was mapped approximately 100 m north of the project and was recorded as scatted shell and fire-affected rock. The area is now developed and no update to the site form has been made.

Table 2. Recorded Cultural Resources within a One-Mile Radius of the Project Area

Resource No.	Resource Type	Recorder (Year)
CA-SDI-603	Habitation Site	Warren (1959); Laylander (2003)
CA-SDI-760	Temporary Camp (shell and FAR)	Crabtree and King (1961)
CA-SDI-6067	Shell Scatter & Milling Tools	Franklin (1978); Roeder (1982)
CA-SDI-6750	Shell Scatter	Franklin (1978)
CA-SDI-6829	Shell & Lithic Scatter	Franklin (1978); Hector (1985)
CA-SDI-9589	Shell & Lithic Scatter*	Woodward & Mueller (1982); Bell (1987)
CA-SDI-9607	Shell & Lithic Scatter	Rogers (nd); Desautels (1982)
CA-SDI-10439	Shell & Lithic Scatter	Cheever (1985)
CA-SDI-10670	Shell & Lithic Scatter	Rogers (nd); Gross et al. (1987); Huey et al. (1992)
CA-SDI-11026	Shell & Lithic Scatter & Hearths	Rogers (nd); May (1972); Smith & Moriarty (1985); Van Bueren (1988)
CA-SDI-12130	Shell & Lithic Scatter	Warren (1959); Norwood & Hatley (1977); Van Bueren (1988); Laylander (2009)
CA-SDI-12670	Shell & Lithic Scatter & Hearths	Rogers (nd); Crabtree et al. (1963); Smith & Moriarty (1985); Van Bueren (1988); Laylander (2003)
CA-SDI-12807	Habitation Site	Rogers (nd); Kowta (1959); Ezell & Moriarty (1964); Van Bueren (1988)
CA-SDI-13739/H	Lithic Scatter; Historic Trash Scatter	Strudwick & Caldwell (1994)
CA-SDI-15678	Shell Scatter	O'Neill (2000); Laylander (2003)
CA-SDI-15679	Shell Scatter	O'Neill (2000); Laylander (2003)
CA-SDI-17404	Temporary Camp	Rogers (nd)
CA-SDI-17408	Temporary Camp	Rogers (nd)
CA-SDI-17928	Shell Midden	Dominici (2006); Laylander (2006)
P-37-018809	Isolate Shells	O'Neill (2000)
P-37-029964	Historic Farm Complex (1928)	Hope (2006)

* Determined by 1987 testing to be modern debris

Historic research included an examination of a variety of resources. The current listings of the National Register of Historic Places were checked through the National Register of Historic Places website. The California Inventory of Historic Resources (State of California 1976) and the California Historical Landmarks (State of California 1992) were also checked for historic resources. No such resources have been recorded in the vicinity of the project area.

Historic maps indicated that much of the southern portion of Alternative 1 was part of the original railroad alignment through the area from the 1880s through 1945. This alignment was abandoned and replaced by the current alignment in about 1946 (1947 Aerial Photograph Series). Two structures appear to have been located near the project alignment on historic maps between 1931 and 1947. The 1947 aerial photograph indicates that there may have been three structures on the eastern side of the original railroad alignment that eventually became the original alignment of Ponto Drive (now the direct north/south segment of Alternative 1) (1947 Aerial Photograph Series). These structures are no longer present on recent aerial photographs of the area. Other nearby historic-age features include a northbound bridge of Carlsbad Boulevard.

III. RESEARCH DESIGN AND METHODS

A. Research Design

The goal of this study was to identify any cultural resources within the proposed project alignment and alternatives, so that the potential effects of the project on these resources could be assessed and minimized. To accomplish this goal, background information was examined and assessed. Based on the records search and historic map check, the cultural resources that might occur within the project may include prehistoric and historic resources. Historic structures appear along the eastern side of Alternative 1 and western side of Alternative 2 on early maps and aerials of the area. Prehistoric cultural resources could include midden soils, shell and lithic scatters, and hearth features associated with marine and estuary utilization in the area.

B. Survey Methods

The records and literature search for the project was conducted at the South Coastal Information Center (SCIC) at San Diego State University. This records search included examination of previously recorded sites and studies within the project area and a one-mile radius of the project.

The survey was constrained by the presence of fill in some areas while other areas were heavily landscaped and developed. Overall surface visibility averaged 30 percent with much of the northern portion of the alignment under existing lawn and hardscape. Approximately one-quarter of the parcel was covered by an existing residence and associated hardscape. Grading associated with past construction of road and railroad alignments was evident in many areas, based on topographic differences, the absence of native A-horizon top soils and sparsely scattered gravel and concrete and asphalt debris. Photographs taken to document the survey conditions and site extent are provided as Appendix C.

The cultural resource identified during the survey was recorded on a State of California, Department of Parks and Recreation form (Appendix D). This record was submitted to the SCIC for official resource numbering designation.

IV. SURVEY RESULTS

The survey resulted in the identification of a single prehistoric core on the surface of a roadside cut in a highly disturbed context (P-37-033595 [LWD-I-1]). In other portions of the APE, moderate to small amounts of marine shell were noted in imported fill along several roadways in the southern end of the alignment (Figure 4). No associated artifacts were observed with the shell and it is unclear if this material represents secondary site material or natural shell incorporated into the soil through mixing and redeposition. Other contexts included shell in apparent dredge spoils and very sparse shell in highly disturbed landscaped contexts suggesting they are not cultural and again may be natural shell.

The potential of past historic resources along the route was identified from historic maps in terms of the four historic-age structures shown on historic aerials along the eastern side of the route, but no surface evidence of these resources was encountered during the survey.

Within the southern quarter of the alignment, along the western side of Ponto Drive an isolated bidirectional core (P-37-033595) was observed during the survey (Figure 4). This core is made from a well-rounded green porphyritic Santiago Peak volcanic cobble. It shows multiple metallic scrapes on the cortical surface and on other surfaces, suggesting that at a minimum it was situated in an extensively plowed/disked field. There is sufficient metal scarring to raise the possibility of mechanical manufacture, but the alternate patterning of the bidirectional flake removals and its large size relative to any standard gravel, suggest that the core is most likely of prehistoric origin. The artifact was exposed on the surface in a low-angle cut bank approximately 1 meter west of the edge of the sidewalk in the area. The surface of the area shows small imported gravel and landscape irrigation pipe indicating past disturbance. No shell or other associated cultural material was observed.

The southern portion of Ponto Drive and the segment of Avenida Encinas included in Alternative 2 were found to contain weathered shell in fill context (see Figure 4). These road margins were elevated above surrounding more natural topography and clearly represent imported fill. The moderate scatter of shell in this area was directly associated with sparse imported gravel derived from non-local Bedford metasedimentary rock. The shell was also associated with locally derived soils suggesting the possibility that it could have been relocated from nearby grading with the shell and gravel mixed into the fill. No associated artifacts or cultural material were observed. The shell was more abundant on the north side of Avenida Encinas, but it was present on both sides.

The southern segment of the alignment, located near the western margin of site CA-SDI-11206, showed that the project alignment is at the base of a cut bank well below the grade of the previously recorded site area. The slope setback in this area also puts the project alignment more than 25 m west of the site margin. Both factors indicate that no impacts to site CA-SDI-11206 will result from the proposed project.

At the very southern end of the project alignment, an area of dense shell associated with sandy soil was exposed in an area of iceplant ground cover (see Figure 4). The soils, low elevation of this area in relation to an apparently native roadcut exposure to the northwest, and the density of shell, suggest this material may be the result of dredging or fill associated with the construction of the northbound lane of Highway 101 (now Carlsbad Boulevard).

a. Landscaped Segment of Project Alignment, Looking South near Poinsettia Drive Intersection (PR-04578-012)

b. Project Alignment, Looking South from Avenida Encinas (PR-04578-017)

Figure 4
Survey Conditions

Figure 5

Project Location and Associated Cultural Resource

(Confidential figure, located in Appendix E)

The northern portion of the alignment was highly impacted by development, and a pathway and landscaping project on the eastern side of Carlsbad Boulevard. Past surveys of segments of this area prior to development did not identify any cultural resources within the current project alignment. Three areas of very sparse marine shell (less than 3 fragments each) were observed in planters along this area. No cultural material was associated with the shell and this material is most likely relatively modern shell that was incorporated into the landscaping soil.

V. SUMMARY AND RECOMMENDATIONS

The goal of the project was to identify resources that may be impacted by the proposed force main replacement project. The cultural resource survey identified a single isolated prehistoric resource within the project area (P-37-033595). Isolate P-37-033595 does not qualify as significant under the California Register of Historical Resources (California Register) Guidelines used for CEQA review because of its lack of integrity and because isolated artifacts do not meet criterion used for evaluating eligibility to the California Register. Significant impacts to cultural resources are unlikely to result from this project or any of its alternatives.

Because the survey was limited by existing landscape and hardscape constraints and the potential for buried prehistoric and historic cultural resources exists (particularly at the far southern end of the project) construction excavation monitoring is recommended to ensure impacts to unidentified cultural resources are addressed.

VI. REFERENCES

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APPENDICES

A. Resume of Principal Investigator
B. Record Search Confirmation
C. Photos and Photo Logs
D. Isolate Form (Confidential - Bound Separately)
E. Confidential Figure (Bound Separately)

APPENDIX A

RESUME OF PRINCIPAL INVESTIGATOR

ANDREW R. PIGNIOLO, M.A., RPA
Principal Archaeologist
Laguna Mountain Environmental, Inc.

Education
San Diego State University, Master of Arts, Anthropology, 1992
San Diego State University, Bachelor of Arts, Anthropology, 1985

Professional Experience

2002-Present	Principal Archaeologist/President, Laguna Mountain Environmental, Inc., San Diego
1997-2002	Senior Archaeologist, Tierra Environmental Services, San Diego
1994-1997	Senior Archaeologist, KEA Environmental, Inc., San Diego
1985-1994	Project Archaeologist/Senior Archaeologist, Ogden Environmental and Energy Services, San Diego
1982-1985	Reports Archivist, Cultural Resource Management Center (now the South Coastal Information Center), San Diego State University
1980-1985	Archaeological Consultant, San Diego, California

Professional Affiliations
Register of Professional Archaeologists (RPA; formerly called SOPA), 1992-present
Qualified Archaeology Consultant, San Diego County
Qualified Archaeology Consultant, City of San Diego
Qualified Archaeology Consultant, City of Chula Vista
Qualified Archaeology Consultant, Riverside County
Society for American Archaeology
Society for California Archaeology

Qualifications
Mr. Andrew Pigniolo is a certified archaeology consultant for the County and City of San Diego. He has received 40 hour HAZWOPPER training and holds an active card for hazardous material work. Mr. Pigniolo has more than 30 years of experience as an archaeologist, and has conducted more than 700 projects throughout southern California and western Arizona. His archaeological investigations have been conducted for a wide variety of development and resource management projects including military installations, geothermal power projects, water resource facilities, transportation projects, commercial and residential developments, and projects involving Indian Reservation lands. Mr. Pigniolo has conducted the complete range of technical studies including archaeological overviews and management plans, ethnographic studies, archaeological surveys, test excavations, historical research, evaluations of significance for National Register eligibility, data recovery programs, and monitoring projects.

REPRESENTATIVE PROJECTS

Centinela Solar Project, Imperial County, California *(KP Environmental, Inc.)* Mr. Pigniolo served as the Principal Investigator for a cultural resource survey of more than 240 acres of agricultural land near Mt. Signal, California. The survey was conducted in multiple phases based on crop conditions and surface visibility within various parcels. The project included surveys of highly impacted agricultural lands. Historic-age agricultural features were identified within several parcels. Cultural resources within the proposed project area were recorded during the survey and recommendations for impact avoidance were made. This project was conducted under both Federal and State environmental requirements.

Princess Street Monitoring and Data Recovery Project at the Spindrift Site *(City of San Diego)*. Mr. Pigniolo served as a Principal Investigator of an archaeological monitoring and data recovery program at the Spindrift Site in the community of La Jolla in the City of San Diego. The effort was initially to provide archaeological monitoring of a utility undergrounding project. The presence of the major prehistoric village site within the project alignment quickly became evident prior to construction monitoring and a data recovery plan was prepared prior to the start of work. Monitoring was conducted until the site was encountered. The data recovery plan was immediately implemented, so that data recovery could progress while construction excavation continued on other portions of the project. Data recovery included the excavation of 25 controlled units and the water screening of 100 percent of the archaeological site material impacted during trenching. More than 40 fragmented human burials were encountered. Working with Native American monitors and representatives, the remains were repatriated.

Hill Street Undergrounding Project, Point Loma, California *(City of San Diego).* Mr. Pigniolo served as Principal Investigator of an archaeological monitoring project of utility undergrounding in the community of Point Loma. The project was located in an urban environment under city streets. Archaeological monitoring identified two prehistoric sites with high levels of integrity. Testing included the excavation of four units to evaluate the significance of these resources and mitigate project effects. A hearth feature, shell and a variety of prehistoric artifacts were recovered and additional impacts to the sites were avoided by reducing trench depth.

Center City Development Corporation Area 1 Utility Undergrounding Project, San Diego, California (*City of San Diego*). Mr. Pigniolo served as Principal Investigator of an archaeological monitoring project including the undergrounding of residential and commercial utilities in the community of Logan Heights in San Diego. The project was conducted under CEQA and City of San Diego guidelines. Historic streetcar lines were encountered along with sparse historic trash deposit, but adverse impacts did not occur and no further work was recommended.

Mission Hills Sever Group 664 Project *(Lamprides Environmental Organization)* Mr. Pigniolo was the Principal Investigator for an archaeological monitoring project for a sewer line replacement in the community of Mission Hills in the City of San Diego. The project included archaeological construction monitoring in an urban environment. The project was located near the Old Town area of San Diego, but steep slopes and previous pipelines in the area resulted in an absence of cultural materials encountered.

City of San Diego Sever Group 783 Project, San Diego, California *(Orion Construction Company)* Mr. Pigniolo was the Principal Investigator for an archaeological monitoring project for a sewer line replacement in the eastern portion of the City of San Diego. The project included archaeological construction monitoring in an urban environment. Shallow soils and previous pipeline disturbance in the area resulted in an absence of cultural materials encountered (2006-2007)

All American 105 Race Project, West Mesa, Imperial County, California *(Legacy 106, Inc.)* Mr. Pigniolo served as Principal Investigator, report author, and crew chief for an archaeological survey for a proposed off-road vehicle race course in the West Mesa area of Imperial County. The survey covered Bureau of Land Management (BLM) lands and included close coordination with BLM staff. The survey included a proposed 7.5 mile course with a very short time-frame. The goal was project alignment adjustment and realignment to avoid resource impacts where possible. A variety of prehistoric cultural resources including 10 sites and 7 isolates were encountered. Human remains were identified and avoided. The race route was realigned to avoid significant resource impacts allowing the race to proceed on schedule.

Victoria Loop Road Survey, Alpine, San Diego County, California (*Alpine Fire Safe Council*) Mr. Pigniolo served as Principal Investigator of an 85-acre cultural resource survey in the Alpine area of San Diego County. The survey identified six cultural resources within the project area including prehistoric lithic scatters, an historic well, and historic artifact scatters. All resources were flagged and marked for avoidance during the vegetation treatment program. The Bureau of Land Management served as Federal Lead Agency for the project.

Spirit of Joy Church Project Testing Program, Ramona, San Diego County, California (*Spirit of Joy Lutheran Church*) Mr. Pigniolo served as Principal Investigator and Project Manager a cultural resource testing program at site CA-SDI-17299. The site was a sparse temporary camp. The project included surface collection and subsurface testing. Subsurface deposits were not identified within the project area and the site material was recovered during testing. Construction monitoring was recommended to address alluvial soils within other portions of the project area.

Alpine Fire Safe Council Brush Management Monitoring Project, Alpine Region, San Diego County, California (*Alpine Fire Safe Council*) Mr. Pigniolo served as Principal Investigator for a cultural resources monitoring and protection program on four project areas surrounding Alpine, California. Cultural resources identified during previous surveys within the vegetation treatment areas were flagged for avoidance. The project included hand clearing and chaparral mastication near residential structures to create a fire buffer zone. Vegetation removal was monitored to ensure cultural resources obscured by heavy vegetation were not impacted by the project and that all recorded cultural resources were avoided. The Bureau of Land Management served as Lead Agency for the project.

APPENDIX B

RECORD SEARCH CONFIRMATION

South Coastal Information Center
4283 El Cajon Blvd., Suite 250
San Diego, CA 92105
Office: (619) 594-5682
Fax: (619) 594-4483
scic@mail.sdsu.edu
scic_gis@mail.sdsu.edu

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM
CLIENT IN-HOUSE RECORDS SEARCH

Company: Laguna Mtn Environmental

Company Representative: Carol Serr

Date: 3/12/2014

Project Identification: Leucadia Wastewater District Project #1409

Search Radius: within designated boundaries

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: 206

Hours: 3

This is not an invoice. Please pay from the monthly billing statement

APPENDIX C

PHOTOS AND PHOTO LOGS

State of California ç The Resources Agency **Primary #**
DEPARTMENT OF PARKS AND RECREATION **HRI#**
PHOTOGRAPH RECORD **Trinomial**

Page 1 **of** 1 **Project Name (No.):** Leucadia Wastewater District B2 Pipeline Survey (1409) **Year 2014**

Camera Format: Fuji # 4
Film Type and Speed: Digital Images Kept at: Laguna Mountain Environmental, Inc.

Mo.	Day	Time	Exp./Frame	Subject/Description	View Toward	Accession #
3	13	0800	01	Overview of Survey Conditions Along Ponto Drive	S	PR-04578-001
3	13	0800	02	LWD-I-1 Isolate Core Closeup Showing Iron Staining	-	PR-04578-002
3	13	0800	03	LWD-I-1 Closeup - Blurry	-	PR-04578-003
3	13	0800	04	LWD-I-1 Closeup	-	PR-04578-004
3	13	0800	05	LWD-I-1 Closeup	-	PR-04578-005
3	13	0800	06	LWD-I-1 Closeup	-	PR-04578-006
3	13	0800	07	LWD-I-1 Closeup Showing Iron Staining	-	PR-04578-007
3	13	0800	08	LWD-I-1 Closeup	-	PR-04578-008
3	13	0800	09	LWD-I-1 Closeup	-	PR-04578-009
3	13	0800	10	Overview LWD-I-1 Location	SW	PR-04578-010
3	13	0930	11	Overview of Survey Conditions	N	PR-04578-011
3	13	0930	12	Overview of Landscaped Survey Conditions	S	PR-04578-012
3	13	1000	13	Overview of Highway 101 Bridge	SW	PR-04578-013
3	13	1000	14	Overview of Highway 101 Bridge	SW	PR-04578-014
3	13	1000	15	Overview of Highway 101 Bridge	NW	PR-04578-015
3	13	1000	16	Overview of Survey Conditions Near Site CA-SDI-11026	S	PR-04578-016
3	13	1000	17	Overview of Survey Conditions Near Site CA-SDI-11026	S	PR-04578-017
3	13	1015	18	Site CA-SDI-11026 From Project Alignment Showing Cut	SE	PR-04578-018
3	13	1015	19	Site CA-SDI-11026 From Project Alignment Showing Cut	SE	PR-04578-019
3	13	1030	20	Area with Dredge Shell and Site CA-SDI-11026 Relationship to Alignment	N	PR-04578-020
3	13	1030	21	Area with Dredge Shell and Site CA-SDI-11026 Relationship to Alignment	N	PR-04578-021
3	13	1030	22	Area with Dredge Shell	ESE	PR-04578-022
3	13	1030	23	Area with Dredge Shell	E	PR-04578-023
3	13	1030	24	Area with Dredge Shell	SE	PR-04578-024
3	13	1030	25	Area with Dredge Shell and Site CA-SDI-11026 Relationship to Alignment	NE	PR-04578-025
3	13	1030	26	Area with Dredge Shell and Site CA-SDI-11026 Relationship to Alignment	NE	PR-04578-026
3	13	1030	27	Cut Bank Below Site CA-SDI-11026	E	PR-04578-027
3	13	1030	28	Cut Bank Below Site CA-SDI-11026	NNE	PR-04578-028
3	13	1045	29	Overview of Highway 101 Bridge	NE	PR-04578-029
3	13	1045	30	Overview of Highway 101 Bridge	E	PR-04578-030
3	13	1045	31	Overview of Alternative Alignment Along Highway	N	PR-04578-031
3	13	1100	32	Overview of Survey Conditions	S	PR-04578-032
3	13	1115	33	Shell in Fill Along North Side of Avenida Encinas	-	PR-04578-033
3	13	1115	34	Shell in Fill Along North Side of Avenida Encinas Closeup	-	PR-04578-034


PR-04578-001


PR-04578-002


PR-04578-003


PR-04578-004


PR-04578-005


PR-04578-006


PR-04578-007


PR-04578-008


PR-04578-009


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PR-04578-034

APPENDIX D

ISOLATE FORM

(Confidential - Bound Separately)

APPENDIX E

CONFIDENTIAL FIGURE

(Bound Separately)

Laguna Mountain Environmental, Inc.

May 21, 2014

Ms. Anna Buising
Infrastructure Engineering Corporation
39221 Paseo Padre Parkway, Suite K
Fremont, CA 94538

Re: Addendum for Leucadia Wastewater District B2 Force Main Replacement Project Cultural Resource Survey, Carlsbad, California

Dear Ms. Buising:

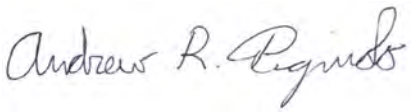
Laguna Mountain Environmental, Inc. (Laguna Mountain) conducted a cultural resources survey of an additional alignment - Option C - for the proposed B2 Force Main Replacement Project in the Carlsbad Beach area of the City of Carlsbad on May 20, 2014. The survey was performed by Mr. Robert P. Case and Mr. Banning Taylor, Jr., the Native American monitor from Saving Sacred Sites. The survey included a surface walk-over of the entire alignment in 10-m transect intervals. The survey was constrained by the presence of extensive landscaping and hardscape. Overall surface visibility averaged 20-30 percent.

The northern portion of the alignment, from Ponto Road to Breakwater Road exists primarily under road pavement and associated features (curbs, drainage ditches, etc.). Vegetation covered virtually the entire strip between the old pavement and the Carlsbad Beach Park fence with only occasional clear patches to examine. Visibility along this portion was less than 20 percent. The southern portion of the alignment, between Avenida Encinas and Ponto Road, was characterized by extensive vegetation including pickleweed, dried grasses, shrubs, cypress, and pines that reduced visibility to approximately 25-30 percent.

7969 Engineer Road, Suite 208 ✦ San Diego, CA 92111
Phone: (858) 505-8164 ✦ Fax: (858) 505-9658
E-Mail: LagunaEnv@aol.com

No evidence of cultural resources were encountered and the survey was negative. However, because the survey was limited by existing landscape and hardscape constraints, and the potential for buried prehistoric and historic cultural resources exists (particularly at the far southern end of the project), monitoring of construction excavation is recommended to ensure impacts to previously unidentified cultural resources are addressed.

Sincerely,



Andrew R. Pigniolo, RPA
Principal Archaeologist