Vista-Carlsbad Interceptor (Reach 1) Access Road Project

Project-Level Environmental Checklist

City of Vista, California

August 2019

Prepared for:

City of Vista

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Section 1. Project Description

Background

In November 2017, the City of Vista (City) certified the Supplemental Program Environmental Impact Report (SPEIR) for the 2017 Comprehensive Sewer Master Plan (2017 CSMP) (State Clearinghouse No. 2007091072). The 2017 CSMP identifies a set of recommended projects for inclusion in the City's Capital Improvement Program (CIP) and operations and maintenance (O&M) program. The SPEIR analyzed the potential environmental impacts of these improvements, as contemplated in the CSMP and is incorporated by reference, including the adopted mitigation monitoring and reporting program (MMRP).

The O&M Program component of the 2017 CSMP provides a continuation of the City's existing condition assessment program consistent with the City's adopted Sanitary Sewer Management Plan (SSMP). The O&M Program also includes the replacement/rehabilitation of the City's existing pumping stations and the repair, upgrade, and rehabilitation of existing access roads.

The City maintains multiple easements to facilitate access to the conveyance and pumping facilities within and outside its service area. These easements range from 10 to 20 feet in width to accommodate maintenance equipment. The SPEIR for the 2017 CSMP analyzed the potential environmental impacts associated with the proposed repair, upgrade, and/or rehabilitation of two existing unpaved access roads as part of the O&M Program. One of the two access roads for future maintenance described in the SPEIR is located along the existing Vista-Carlsbad (VC) Interceptor Reach 1 (VC1 or Project) and traverses the cities of Oceanside and Carlsbad (Figure 3-20 of the SPEIR).

The VC1 pipeline is 36-inches in diameter and conveys approximately eight million gallons per day (MGD) on average. The VC1 pipeline is co-owned by the Cities of Vista and Carlsbad and is the major pipeline that conveys each cities' untreated, wastewater to the Encina Wastewater Authority for treatment and disposal.

When VC1 was constructed in 1985, an earthen access road was also constructed to provide maintenance access to sewer manholes, some requiring culverts to convey run-off across the roads. This earthen access road has degraded over time primarily due to erosion from stormwater discharged south from State Route (SR) 78 and contributing drainages to the north. Due to the placement of the existing access road, sedimentation and debris have clogged the culverts, diverting drainages along the access road and resulting in additional erosion. Direct access by way of an improved road is also not provided to a number of manholes within the Project area.

Project Goals and Objectives

The City's goal for implementing the proposed Project is to provide all weather access to the manholes for VC1, including during the 50-year storm event. The Project would improve sewer maintenance access by providing the City's O&M staff with reliable access to the VC1 pipeline. Improved and reliable access during large rainfall events is required for the City to clean and maintain the pipeline consistent with its adopted SSMP. Consistent with the City's SSMP, the Project would minimize the potential for sanitary sewer overflows (SSOs) into local surface waters, including Buena Vista Creek, in accordance with the State Water Resources Control Board (SWRCB) Order

No. 2006-003-DWQ Statewide General Waste Discharge Requirements (WDRs) for Sanitary Sewer Systems.

Proposed Project

As part of the proposed Project, the City is proposing to upgrade, realign, and rehabilitate the VC1 access road. This section presents a detailed description of the Project location and associated components. Once constructed, the proposed Project would be subject to long-term maintenance activities to maintain the roadway crown and drainage structures.

Project Location

The proposed Project is located on the northwestern edge of the City of Carlsbad in San Diego County, California (Figure 1). As shown on Figure 2, the proposed Project is generally located south of SR 78, north of Buena Vista Creek, and between the eastern terminus of Haymar Drive (west of College Boulevard) and the western terminus of Haymar Drive (east of El Camino Real). The City of Oceanside is located immediately north with its southern limits roughly corresponding to the southern edge of SR 78. As shown on Figure 2, a majority of the Project site is located within the Buena Vista Creek Ecological Reserve, which is a 148-acre property owned by the California Department of Fish and Wildlife (CDFW). The Project site is located on Assessor Parcel No. 167-040-31-00, 167-040-38-00, and 167-040-39-00.

Description of the Proposed Project

The proposed Project involves the upgrading, realigning, and rehabilitation of the existing VC1 access road to provide more reliable access to the VC1 pipeline and manholes for maintenance, including during up to the 50-year rainfall event[1]. The proposed alignment of the access road is approximately 4,000 feet in length and is shown on Figure 3 and Figure 4. As shown, the proposed Project would maintain Vista and Carlsbad's existing roadway alignment along its western end with slight variations. At the eastern end, the roadway alignment would be realigned to the north and disconnected from Oceanside's sewer access easement, which was acquired in conjunction with a previous spill event. As shown on Figure 3, the proposed alignment roughly corresponds with the alignment contemplated in the SPEIR; albeit slight variations.

The proposed access road would be constructed with an aggregate or crushed rock to provide a permeable roadway surface, approximately 15 feet in width. The roadway surface would be approximately six inches thick and selected materials will be determined during the final design of the roadway in coordination with CDFW. The City expects that a larger crushed rock will be used for the roadway subgrade to improve the roadway's stability. As proposed, the alignment for the proposed roadway would adhere to the following standards:

- a maximum longitudinal slope of 15-percent
- a minimum vertical curve length of 100 feet
- a maximum horizontal curve radius of 30 feet
- a maximum access road cross fall of 4-percent

[1] Up stream drainage facilities in SR 78 are approximately sized for the 50-year rainfall event. Extreme western portions of the access road are subject to inundation during the 100-year flood event for Buena Vista Creek.

Figure 1. Regional Map

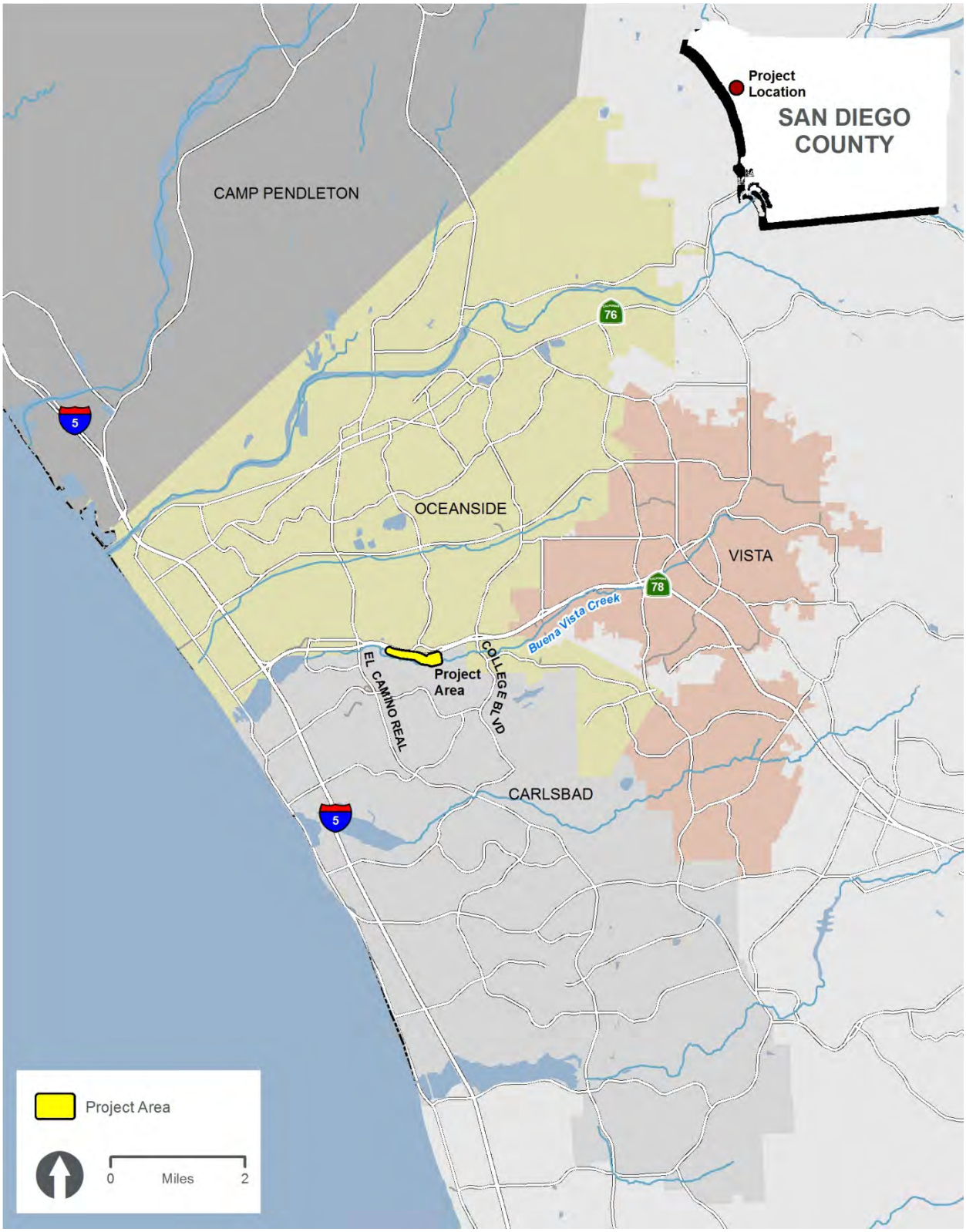
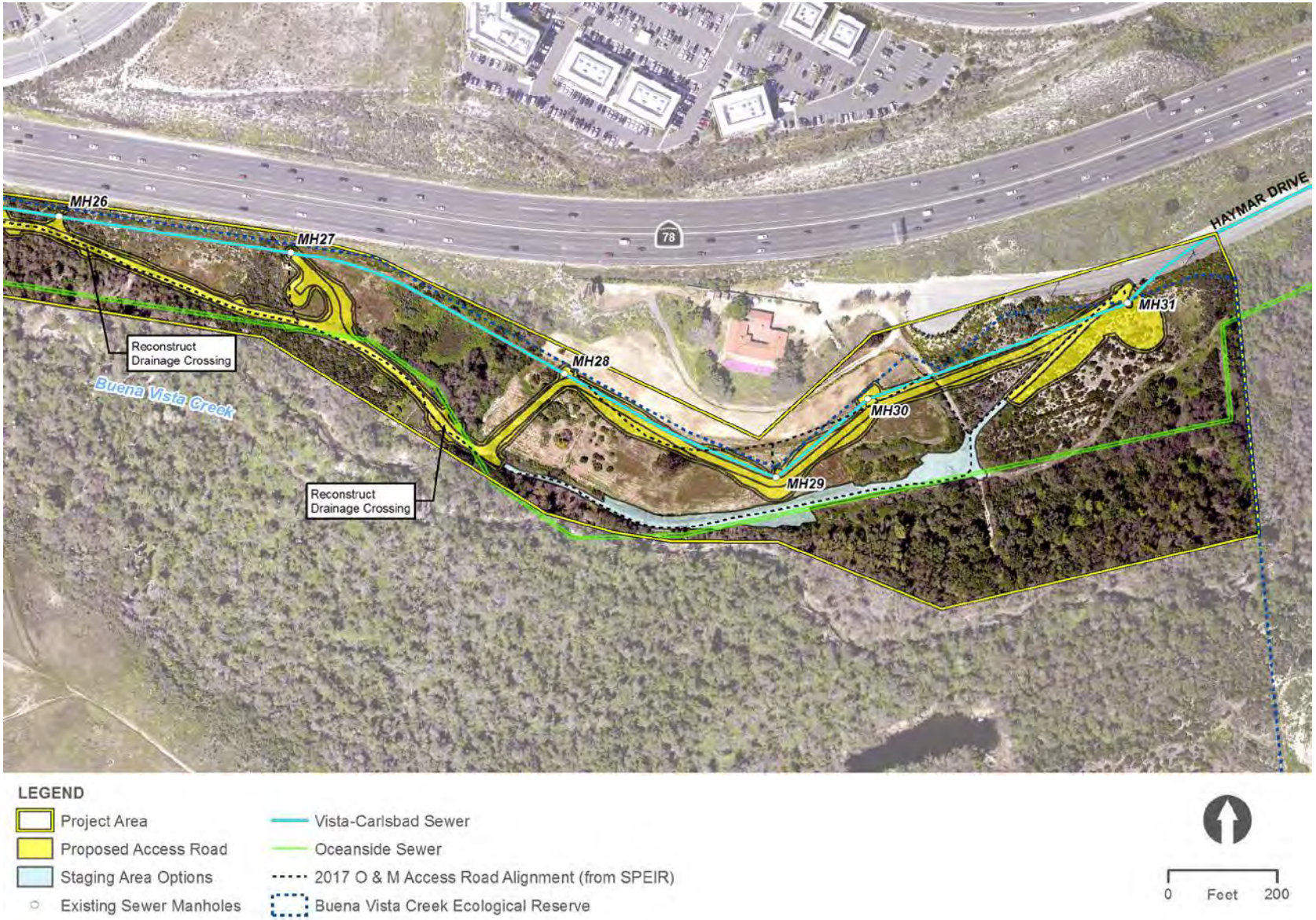


Figure 2. Project Area

Figure 3. Proposed Access Road (West)

Figure 4. Proposed Access Road (East)



A 10-foot radius of crushed rock base would be provided around each manhole (or MH), where feasible. This 10-foot radius is measured from the center of manhole cover to the edge of the crushed rock base and would be reduced as necessary to avoid sensitive resources. Where the manhole is located within the proposed road, the proposed concrete collar and cover would be flush with the crushed rock base surface for drivability. When a manhole is adjacent to the sewer access road or within an area at risk of flooding due to its proximity to an existing creek, a raised concrete manhole collar is proposed per City Standard Drawing SWR-30A at MH27.

The proposed Project would include improvements at five drainage crossings to minimize degradation of the access road surface and roadway crown (Figure 3 and Figure 4). No crossing of Buena Vista Creek is proposed. At each drainage crossing, the City is considering a combination of low-flow (e.g. Arizona crossings) or culvert crossings to convey stormwater across the access road and away from the roadway crown. The final selection will be based on the quantity of flow during the 50-year event in coordination with CDFW and the City of Carlsbad. Drainage ditches along the roadway may also be required to safely convey flows downstream to Buena Vista Creek.

Table 1 provides the drainage flows for the upstream culverts in SR 78 based on the rational method in accordance with the 2003 San Diego County Hydrology Manual (SDCHM) procedures and guidelines. Figure 5 illustrates the corresponding contributing drainage areas and the locations of the Caltrans stationing.

Table 1. Contributing Drainage Flows

Crossing ID	Caltrans Station	Culvert Size/Type	Drainage Area (acre)	50-year Intensity (inch/hour)	100-year Intensity (inch/hour)	50-year Q (cfs)	100-year Q (cfs)
A	143+00	24" CMP	15.5	5.18	5.80	51	57
B-1	148+70	42" RCP	49.9	5.40	6.05	170	190
B-2	151+70	48" RCP	147.1	2.94	3.29	260	291
C	156+70	24”CSP	3.4	4.89	5.48	11	12
D	162+00	40" CSP	51.6	3.48	3.89	113	127

Notes:

* See Figure 3 and Figure 4 for drainage crossing locations. Figure 5 depicts the contributing drainage areas.

Caltrans=California Department of Transportation; cfs=cubic foot per second; CMP=corrugated metal pipe; CSP=corrugated steel pipe; ID=identification; RCP=reinforced concrete pipe

Construction Details

Project construction would follow the construction methods as described in Chapter 3 of the SPEIR and outlined for access improvements and structural facilities. These activities would include vegetation removal or trimming, grading, limited excavation, soil stockpiling, and roadway compaction. Project-related trip generation during construction would be consistent with that described in the SPEIR with less than 30 daily construction trips.

Temporary construction easements of up to 50 feet in width may be required during construction, which would extend beyond the limits of the access road or drainage improvements to provide adequate space for construction and associated grading activities. In sensitive environmental areas,

this easement would be restricted to 20 to 30 feet, where feasible. Parcels with proposed temporary construction easements are identified in Table 2. Construction would avoid the SR 78 right-of-way.

Table 2. Proposed Temporary Construction Easements

APN	Easement Purpose	Property Owner	Approximate Easement Requirements (square feet)
167-040-31-00	Construction	Shelly Hayes Caron	160
167-040-38-00	Construction	CDFW	154,760
167-040-39-00	Construction	CDFW	3,262

Source: HDR 2019
Notes:
APN=assessor parcel number; CDFW=California Department of Fish and Wildlife

Project construction is expected to last up to three months and would be scheduled to avoid coinciding with the bird breeding season, which extends from February 15 through August 15. Based on the anticipated construction disturbance area, the Project will require the preparation and implementation of a stormwater pollution prevention plan (SWPPP) per the requirements of Construction General Permit (CGP). The City will also require the contractor to prepare a waste management plan to manage construction related debris, including hazardous materials, to facilitate proper interim storage and offsite transport and disposal consistent with the Mitigation Monitoring and Reporting Program (MMRP) adopted for the CSMP (see Appendix A). The City would also comply with the City of Carlsbad's Habitat Management Plan (HMP).

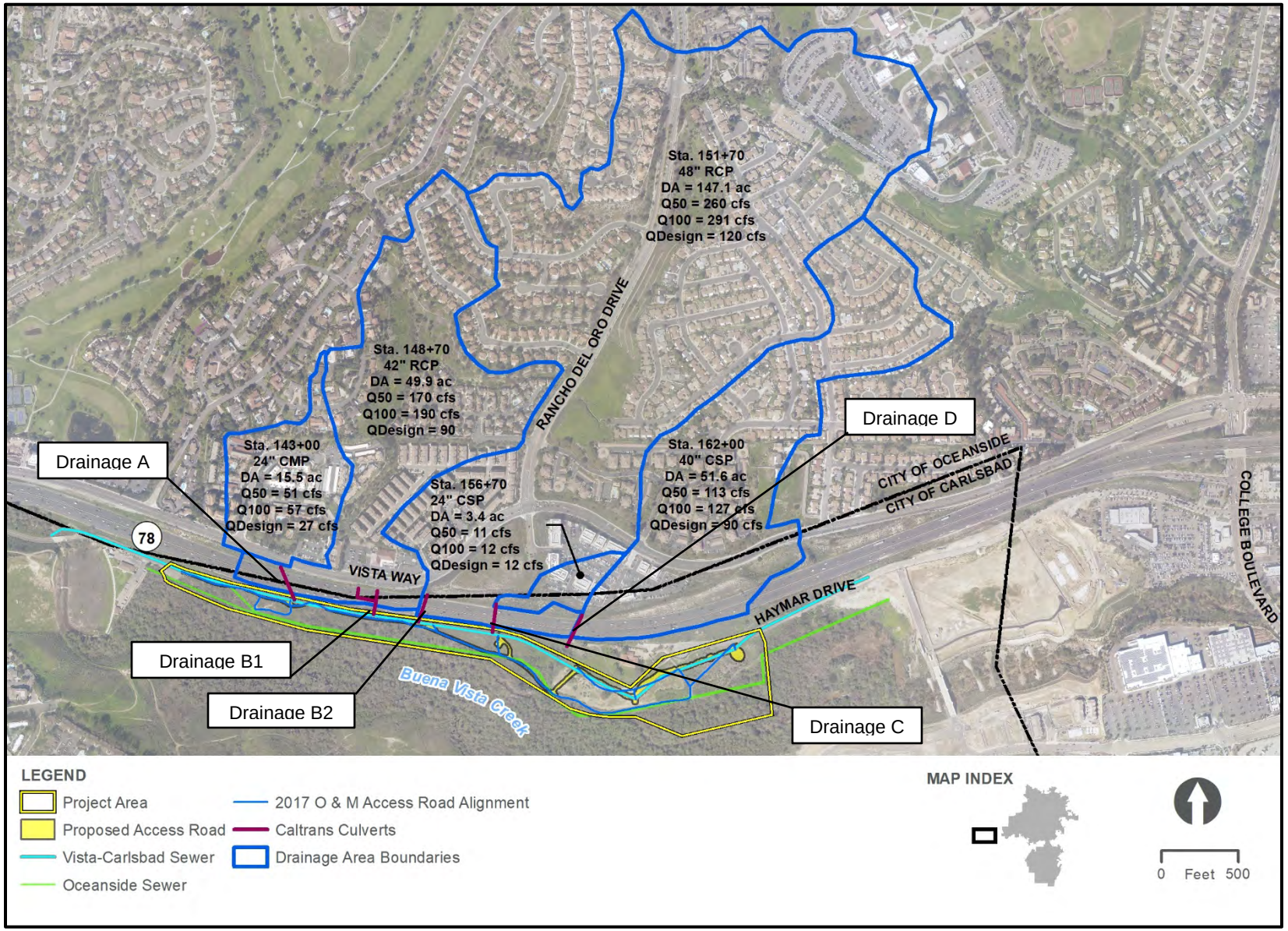
Permanent linear easements following the alignment of the proposed access road will also be required to facilitate long-term maintenance of the Project. Parcels with proposed permanent easements along with approximate easement requirements are identified in Table 3.

Table 3. Proposed Permanent Easements

APN	Easement Purpose	Property Owner	Approximate Easement Requirements (square feet)
167-040-38-00	Access road	CDFW	63,371
167-040-39-00	Access road	CDFW	2,634

Source: HDR 2019
Notes:
APN=assessor parcel number; CDFW=California Department of Fish and Wildlife

Figure 5. Contributing Drainages



Discretionary Actions and Approvals

The following is a list of potential discretionary actions and agency approvals that may be required to implement the proposed Project:

- U.S Army Corps of Engineers (USACE), Los Angeles District
  - Section 404 Individual Permit or Nationwide Permit
- San Diego Regional Water Quality Control Board (RWQCB), Region 9
  - Clean Water Act, Section 401, Water Quality Certification
  - National Pollution Discharge Elimination System (NPDES), General Construction Permit
- California Department of Fish and Wildlife (CDFW), Region 5, South Coast
  - Section 1602 Streambed Alteration Agreement
  - Right of Entry Permit for Construction
  - Permanent and Temporary Construction Easement(s)
- City of Carlsbad
  - Encroachment Permit
  - Special Use Permit
  - Grading Permit
  - Habitat Modification Permit

Section 2. Project-Level Environmental Checklist

This Environmental Checklist (Checklist) provides a mechanism for reviewing and assessing individual sanitary sewer improvement projects identified in the City's 2017 CSMP. The City prepared a Supplemental Program Environmental Impact Report (SPEIR) that considered the potential environmental impacts of these improvements, as contemplated in the CSMP, and proposed mitigation measures as contained in the MMRP. The Checklist follows the procedures provided in Section 15168(c) of the CEQA Guidelines. The MMRP is incorporated by reference and should be reviewed in conjunction with the completion of this Checklist.

Comprehensive Sewer Master Plan Project Information

1. **Project title:** Vista-Carlsbad Interceptor Reach 1 (VC1) Access Road
2. **Contact person and phone number:** Elmer Alex, (760) 643-5416
3. **Project location:** The proposed Project is located in the City of Carlsbad in San Diego County, California. The proposed Project is generally located south of State Route 78, north of Buena Vista Creek, and between the eastern terminus of Haymar Drive (west of College Boulevard) and the western terminus of Haymar Drive (east of El Camino Real). A majority of the Project site is located within the Buena Vista Creek Ecological Reserve, which is a 148-acre property owned and managed by CDFW.
4. **Description of project (Describe the whole action involved, including but not limited to, later phases of the project, and any secondary, support, or off- site features necessary for its implementation. Attach additional sheets if necessary.):** The proposed Project involves the realignment and improvement of the Cities of Vista and Carlsbad's existing access road for the Vista-Carlsbad (VC) Interceptor (or Sewer Trunk), Reach 1 (VC1) to provide more reliable access to facilitate long-term maintenance, including during up to the 50-year rainfall event. The proposed Project was contemplated in the City's CSMP and evaluated in the SPEIR. Refer to Section 1 of this document for a complete description of the proposed Project.
5. **Surrounding land uses and setting:** The Project site is designated as Open Space and Community Facilities by the Carlsbad General Plan. A majority of the Project site is located within the Buena Vista Creek Ecological Reserve, which is managed by CDFW. SR 78 borders the north of the Project area with existing development located to the east and west.
6. **Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement.):**
    - U.S Army Corps of Engineers
        - Section 404 Nationwide Permit
    - San Diego Regional Water Quality Control Board
        - Clean Water Act, Section 401, Water Quality Certification
        - NPDES, General Construction Permit
    - California Department of Fish and Wildlife
        - Section 1602 Streambed Alteration Agreement

- Right of Entry Permit for Construction
- Permanent and Temporary Construction Easement(s)

o City of Carlsbad

- Encroachment Permit
- Special Use Permit
- Grading Permit
- Habitat Modification Permit

Supplemental Program Environmental Impact Report Tiering Evaluation

1. **Is project identified in one of the four CSMP project categories identified in the SPEIR?**

☐ Category 1 - Conveyance (Capacity/Condition) Project (Hardscape Environs) – See Attachment A - SPEIR Tables 3-3 and 3-4 (Hardscape), Appendix B (Hardscape) and Figures 3-7 through 3-17)

☐ Category 2 - Conveyance (Capacity/Condition) Project (Cross County Environs) – See Attachment B - SPEIR, Tables 3-3 and 3-4 (Cross Country), Appendix B (Cross Country) and Figures 3-7 through 3-17)

☐ Category 3 - O&M Program – Attachment C - SPEIR Table 3-5 and Figure 3-18

☒ Category 4 - O&M Access (Buena and V/C Interceptor Access) - See Attachment D - SPEIR Figures 3-19 and 3-20

Note: If the project is not identified as a Category 1, 2, 3, or 4 project, this checklist does not apply. For non-applicable projects, determine if project qualifies for a Class 1, 2, or 3 Categorical Exemption (CE) or addendum to the SPEIR. A new CEQA document may be required if none of these conditions are met

2. Is the project similar in scope to that described in the SPEIR (CEQA Guidelines Section 15162(a))?

☒ Yes – Proceed to #3

☐ No – Assess project change and determine if changes result in new or more significant impacts than described in the SPEIR:

☐ Changes are within the scope of the SPEIR?

☐ Yes – Proceed to #3

☐ No – Checklist not applicable

3. Complete Project Review Checklist:

Note: This checklist is intended to assist the City of Vista (and Buena Sanitation District [District]) in assessing projects included under the 2017 CSMP according to the procedures provided in Section 15168(c) of the CEQA guidelines (amended December 28, 2018).

Environmental Factors Potentially Affected

The project could potentially result in one or more of the following environmental effects.

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

Determination

On the basis of this initial evaluation:

☒ I find that the proposed project WOULD NOT have any significant effects on the environment that either have not already been analyzed in the prior SPEIR or that are more significant than previously analyzed. Pursuant to CEQA Guidelines Section 15168(c), CEQA does not apply to such effects. A Notice of Determination (Section 15094) will be filed.

☐ I find that the proposed project will have effects that either have not been analyzed in the prior SPEIR, or are more significant than described in the prior SPEIR. With respect to those effects that are subject to CEQA, I find that such effects WOULD NOT be significant and a NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project will have effects that either have not been analyzed in a prior EIR, or are more significant than described in the prior SPEIR. I find that although those effects could be significant, 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 would have effects that either have not been analyzed in a prior SPEIR, or are more significant than described in the prior SPEIR. I find that those effects WOULD be significant, and an ENVIRONMENTAL IMPACT REPORT is required to analyze those effects that are subject to CEQA.

John Conley
Signature

10/11/19
Date

Evaluation of Environmental Impacts

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. For the purposes of this checklist, “prior SPEIR” means the environmental impact report certified for the 2017 CSMP.
4. Once the lead agency has determined that a particular physical impact may occur as a result of an improvement contemplated under the CSMP, then the checklist answers must indicate whether that impact has already been analyzed in the prior SPEIR. If the effect of the project is not more significant than what has already been analyzed, that effect of the project is not subject to CEQA. The brief explanation accompanying this determination should include page and section references to the portions of the prior SPEIR containing the analysis of that effect. The brief explanation shall also indicate whether the prior SPEIR included any mitigation measures to substantially lessen that effect and whether those measures have been incorporated into the project.
5. If all effects of an improvement contemplated under CSMP were analyzed in the prior SPEIR, CEQA does not apply to the project, and the lead agency shall file a Notice of Determination.
6. Effects of an improvement contemplated under CSMP that either has not been analyzed in a prior EIR are subject to CEQA. With respect to those effects of individual improvements contemplated under CSMP that are subject to CEQA, the checklist shall indicate whether those effects are significant, less than significant with mitigation, or less than significant. If there are one or more "Significant Impact" entries when the determination is made, an EIR is required. The EIR should be limited to analysis of those effects determined to be significant. (Section 15128).
7. "Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures will reduce an effect of a project that is subject to CEQA from "Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how those measures reduce the effect to a less than significant level. If the effects of a project that are subject to CEQA are less than significant with mitigation incorporated, the lead agency may prepare a Mitigated Negative Declaration or Addendum to the EIR. If all of the effects of the project that are subject to CEQA are less than significant, the lead agency may prepare a Negative Declaration or Addendum to the EIR

8. The explanation of each issue should identify:
   a. the significance criteria or threshold, if any, used to evaluate each question; and
   b. the mitigation measure identified, if any, to reduce the impact to less than significance.

I. Aesthetics

Environmental Issue Area	Impact Analyzed in the PEIR or SPEIR	New Significant Impact due to Unusual Circumstances or Substantial New Information	No Impact or Less than Significant Impact	Less Than Significant with Mitigation - SPEIR Mitigation Measure(s) Applicable	Less Than Significant with Mitigation - New Mitigation Measure(s) Required
Would the project:					
a) Have a substantial adverse effect on a scenic vista?	☒	☐	☒	☐	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☒	☐	☒	☐	☐
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☒	☐	☒	☐	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☒	☐	☒	☐	☐

Would the project:

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

Less than Significant Impact. The potential impacts on scenic vistas were analyzed in the SPEIR (Section 5, Effects Determined Not to be Significant, page 5-1). The SPEIR determined that the CSMP, including the project improvements, would result in a less than significant impact on scenic vistas. The proposed Project involves the realignment and improvement of the existing VC1 access road to provide more reliable access to the VC1 pipeline and manholes for maintenance. The proposed above-ground work would include minor cut and fill to achieve the desired road profile. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. No new significant impacts were identified as part of the project-level evaluation. For these reasons, the conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

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

No Impact. The potential impacts on scenic resources within a state scenic highway were analyzed in the SPEIR (Section 5, Effects Determined Not to be Significant, page 5-1). There are no designated state scenic highways located in the vicinity of the Project site. The SPEIR

determined that the CSMP and Project would have no impact on scenic resources within a state scenic highway. The physical conditions in the Project area as they relate to designated scenic highways have not changed since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

c) *Substantially degrade the existing visual character or quality of the site and its surroundings?*

Less than Significant Impact. The potential impacts on existing visual character or quality were analyzed in the SPEIR (Section 5, Effects Determined Not to be Significant, page 5-1). The SPEIR determined that the VC1 access road improvement would result in a less than significant impact associated with the degradation of the existing visual character or quality of the site and its surroundings. Construction of the Project would generally be restricted from viewers traveling along SR 78 due to the abrupt changes in grade between SR 78 and existing access road.

The physical conditions in the Project area have not substantially changed since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

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

No Impact. The potential impacts associated with the creation of a new source of light or glare were analyzed in the SPEIR (Section 5, Effects Determined Not to be Significant, pages 5-1 through 5-2). The SPEIR determined that the CSMP, including the Project, would not result in a significant impact associated with light and glare. No new permanent lighting fixtures would be installed as part of the Project. Nighttime construction activities are not proposed.

Based on these circumstances, the operational characteristics of the proposed access road have not changed since the certification of the SPEIR. No substantial new information has been presented that shows more significant impacts than those originally analyzed in the SPEIR and there would be no new impacts. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

II. Agricultural Resources

Environmental Issue Area	Impact Analyzed in the PEIR or SPEIR	New Significant Impact due to Unusual Circumstances or Substantial New Information	No Impact or Less than Significant Impact	Less Than Significant with Mitigation - SPEIR Mitigation Measure(s) Applicable	Less Than Significant with Mitigation - New Mitigation Measure(s) Required
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.					
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?	☒	☐	☒	☐	☐
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☒	☐	☒	☐	☐
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☒	☐	☒	☐	☐
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☒	☐	☒	☐	☐

II. Agricultural Resources

Environmental Issue Area	Impact Analyzed in the PEIR or SPEIR	New Significant Impact due to Unusual Circumstances or Substantial New Information	No Impact or Less than Significant Impact	Less Than Significant with Mitigation - SPEIR Mitigation Measure(s) Applicable	Less Than Significant with Mitigation - New Mitigation Measure(s) Required
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?	☐	☐	☒	☐	☐

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

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?

No Impact. According to the State of California Department of Conservation (DOC), Division of Land Resource Protection's Farmland Mapping and Monitoring Program, the Project site is designated as "Farmland of Local Importance" (California DOC 2018). According to the Department of Conservation, Farmland of Local Importance is either currently producing, or has the capability of production, but does not meet the criteria of Prime Farmland, Farmland of Statewide Importance, or Unique Farmland (California DOC 2017). Based on local site observations, no active, agricultural cultivation is occurring on the Project site. In addition, the Farmland of Local Importance designation is not covered under the definition of "agricultural land" per CEQA Statute Section 21060.1(a). Based on this context, the conversion of Farmland of Local Importance is not considered significant under CEQA. No impact is identified for this issue area.

b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. According to the City of Carlsbad's Zoning Map, the Project site is not zoned for agricultural use (City of Carlsbad 2017). According to the State of California DOC, Division of

Land Resource Protection, the Project site is not located on Williamson Act contracted land (California DOC 2013). Therefore, the proposed Project would not conflict with existing zoning for agricultural use or a Williamson Act contract, and no impact would occur.

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

No Impact. The Project site is not zoned for forest land as defined in PRC Section 12220(g), timberland (as defined by PRC Section 4526), or timberland production (as defined by CGC Section 51104(g). There are no existing forest lands, timberlands, or timberland production zones either within the Project site or in the immediate vicinity. Therefore, no impact would occur.

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

No Impact. There are no existing forest lands either within the Project site or in the immediate vicinity. Therefore, the proposed Project would not result in the loss of forest land or conversion of forest land to non-forest use and no impact would occur.

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

No Impact. The Project site is not adjacent to any existing and active agricultural lands. As such, the proposed Project would not result in other changes in the existing environment that could result in the conversion of farmland to non-agricultural use. Therefore, no impact would occur.

III. Air Quality

Environmental Issue Area	Impact Analyzed in the PEIR or SPEIR	New Significant Impact due to Unusual Circumstances or Substantial New Information	No Impact or Less than Significant Impact	Less Than Significant with Mitigation - SPEIR Mitigation Measure(s) Applicable	Less Than Significant with Mitigation - New Mitigation Measure(s) Required
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.					
Would the project:					
a) Conflict with or obstruct implementation of the applicable air quality plan?	☒	☐	☒	☐	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☒	☐	☒	☐	☐
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)?	☒	☐	☒	☐	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☒	☐	☒	☐	☐
e) Create objectionable odors affecting a substantial number of people?	☒	☐	☒	☐	☐

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.

Would the project:

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

Less than Significant Impact. The potential impacts associated with conflicts with an applicable air quality plan were analyzed in the SPEIR (Section 4.1, Air Quality, page 4.1-9). The SPEIR determined that the VC1 access road improvement would not conflict with or obstruct implementation of the Regional Air Quality Strategy or State Implementation Plan (SIP) and a less than significant impact would occur.

The existing regulatory framework governing air quality planning in the Project area has not changed since the certification of the SPEIR. Furthermore, the construction and operational characteristics as described for the proposed access road have not changed since the certification of the SPEIR. No substantial new information has been presented that shows more significant impacts than those originally analyzed in the SPEIR and there would be no new significant impacts. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

b) *Violate any air quality standard or contribute substantially to an existing or projected air quality violation?*

Less than Significant Impact. The potential impacts associated with violation of air quality standards were analyzed in the SPEIR (Section 4.1, Air Quality, pages 4.1-9 through 4.1-12). The SPEIR determined that the VC1 access road improvement along with other improvements covered under the CSMP would result in a less than significant impact associated with violation of air quality standards.

The SPEIR estimated the construction emissions for the overall CSMP using worst-case assumptions, which considered simultaneous construction of multiple projects covered under the CSMP. The construction parameters as described for the project would be contained within the worst-case scenario as described in Section 3.5.4, Construction Methods, of the SPEIR. Based on the fact that programmatic emissions for the CSMP were determined less than significant, it is reasonable conclude that the proposed Project, as a sub-component of the CSMP, would not exceed SDPACD's significance thresholds and therefore less than significant. For this reason, no substantial new information has been presented that shows more significant impacts than those originally analyzed in the SPEIR and there would be no new significant impacts. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

The SPEIR concluded that access road improvements would result in no net increase in operational emissions once constructed. The operational characteristics of the proposed access road have not changed since the certification of the SPEIR. The operational emissions associated with the access road were captured in the SPEIR and were determined to be a less than significant impact. Therefore, no substantial new information has been presented that shows more significant impacts than those originally analyzed in the SPEIR and there would be no new impacts. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

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)?*

Less than Significant Impact. The potential impacts associated with a cumulatively considerable net increase of criteria pollutants were analyzed in the SPEIR (Section 4.1, Air Quality, pages 4.1-14 through 4.1-15). The SPEIR determined that the VC1 access road improvement as a sub-component of the CSMP would result in a less than significant impact.

The existing air quality conditions, including the local air basins attainment status, have not changed since the certification of the SPEIR. Furthermore, the construction and operational characteristics of the proposed access road have not changed since the certification of the SPEIR. No substantial new information has been presented that shows more significant impacts than those originally analyzed in the SPEIR and there would be no new significant impacts. The conclusion identified in the SPEIR remains accurate and applicable to the proposed project.

d) *Expose sensitive receptors to substantial pollutant concentrations?*

Less than Significant Impact. The potential impacts associated with exposure of sensitive receptors to pollutant concentrations were analyzed in the SPEIR (Section 4.1, Air Quality, page 4.1-13). The SPEIR determined that the VC1 access road improvement, as a sub-component of the CSMP, would not expose sensitive receptors to substantial pollutant concentrations and a less than significant impact would occur.

The physical conditions, as they relate to the location of sensitive receptors and proximity from construction, have not changed since the certification of the SPEIR. The proposed alignment of the access road roughly corresponds with the alignment contemplated in the SPEIR; albeit slight variations. Furthermore, the construction and operational characteristics of the proposed access road have not changed since the certification of the SPEIR. No substantial new information has been presented that shows more significant impacts than those originally analyzed in the SPEIR and there would be no new significant impacts. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

e) *Create objectionable odors affecting a substantial number of people?*

Less than Significant Impact. The potential impacts associated with odors were analyzed in the SPEIR (Section 4.1, Air Quality, pages 4.1-13 through 4.1-14). The SPEIR determined that the VC1 access road improvement would not create objectionable odors and a less than significant impact would occur.

The construction and operational characteristics of the proposed access road have not changed since the certification of the SPEIR. The Project would improve access to the City's existing sewer infrastructure, which would provide desirable benefits in terms of minimizing and avoiding SSOs and any related odor complaints. No substantial new information has been presented that shows more significant impacts than those originally analyzed in the SPEIR and there would be no new impacts. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

IV. Biological Resources

Environmental Issue Area	Impact Analyzed in the PEIR or SPEIR	New Significant Impact due to Unusual Circumstances or Substantial New Information	No Impact or Less than Significant Impact	Less Than Significant with Mitigation - SPEIR Mitigation Measure(s) Applicable	Less Than Significant with Mitigation - New Mitigation Measure(s) Required
Would the project:					
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☒	☒	☐	☒	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☒	☐	☒	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☒	☐	☐	☒	☐

IV. Biological Resources

Environmental Issue Area	Impact Analyzed in the PEIR or SPEIR	New Significant Impact due to Unusual Circumstances or Substantial New Information	No Impact or Less than Significant Impact	Less Than Significant with Mitigation - SPEIR Mitigation Measure(s) Applicable	Less Than Significant with Mitigation - New Mitigation Measure(s) Required
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 wildlife nursery sites?	☒	☐	☒	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☒	☐	☒	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☒	☐	☒	☐	☐

Would the project:

a) *Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?*

Less than Significant with Mitigation. The Project would result in the following impacts, either directly or through habitat modifications, on 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 Wildlife (CDFW) or U.S. Fish and Wildlife Service (USFWS).

Direct Impacts (Special-status Plant Species). No federally and/or state-listed plant species have been observed in the Project area; however, focused plant surveys will be completed at the end of June 2019. The need for project-specific mitigation measures pertaining to federally and/or state-listed species, if found, will be assessed after the focused surveys have concluded.

Based on the preliminary Project design, neither of the two non-listed special-status plant species observed on the Project site would be directly impacted by the Project, the Project would not have a substantial adverse effect, either directly or through habitat modifications, on these non-listed special-status plant species (Appendix B).

Direct Impacts (Special-status Wildlife Species). Two federally and/or state-listed wildlife species have been observed in the Project area: coastal California gnatcatcher and least Bell's vireo. Based on the preliminary Project design, temporary direct impacts would occur to approximately 0.99 acre of suitable coastal sage scrub habitat for coastal California gnatcatcher, 0.32 acre of suitable willow riparian habitat for least Bell's vireo and southwestern willow flycatcher, and 0.009 acre of potentially suitable habitat for San Diego fairy shrimp. Permanent direct impacts would occur to approximately 0.34 acre of suitable coastal sage scrub habitat for coastal California gnatcatcher, 0.13 acre of suitable willow riparian habitat for least Bell's vireo and southwestern willow flycatcher, and 0.01 acre of potentially suitable habitat for San Diego fairy shrimp (Appendix B). Removal of coastal sage scrub could result in direct impacts to coastal California gnatcatcher. If willow riparian habitat removal were to occur during the breeding season for least Bell's vireo or southwestern willow flycatcher (March 15 through September 15 and May 1 through September 15, respectively), there would be potential for direct take of these species. Grading and fill of Road Ruts A, B and C within the existing access road and Depressional Wetland adjacent to the roadway would result in direct impacts to San Diego fairy shrimp if present. Direct impacts to coastal California gnatcatcher, least Bell's vireo, southwestern willow flycatcher and San Diego fairy shrimp would be considered significant prior to implementation of mitigation. Compliance with the MHCP and Mitigation Measures BIO-2, BIO-3, BIO-4, and BIO-5 will reduce impacts to less than significant.

Also as identified in the SPEIR, direct impacts to nesting birds, including yellow breasted chat, northern harrier, white-tailed kite, long-eared owl or yellow warbler, would be considered significant prior to implementation of mitigation. Compliance with MMRP Mitigation Measure BIO-1 will reduce impacts to less than significant.

The Project is not expected to directly impact arroyo chub habitat, which is limited to the Buena Vista Creek active channel, or roosting habitat for Townsend's big-eared bat, pocketed free-tailed bat or pallid bat roosting habitat (Appendix B). Therefore, no direct impacts are expected to these species.

Direct impacts to California glossy snake, orange-throated whiptail, southern California legless lizard, coastal whiptail, red-diamond rattlesnake, coast patch-nosed snake, coast horned lizard, two-striped garter snake, south coast gartersnake, western red bat, Dulzura pocket mouse, northwestern San Diego pocket mouse, western yellow bat, San Diego black-tailed jackrabbit and San Diego desert woodrat could result from grading operations. None of these species is covered by the MHCP, however, based on the small quantities of suitable habitat being impacted (less than one acre distributed over almost a mile), only a very small number of individuals would be impacted, if any. Given the wide range of habitat these species utilize, their wide geographic range and the existing MCP framework, loss of a small number of individuals would not significantly alter these species' future survival.

Both western spadefoot toad and southern western pond turtle, however, are dependent upon more limited aquatic habitat. Neither is covered by the MHCP. Direct impacts could occur

result from grading and could be significant prior to implementation of mitigation. Mitigation measures recommended in addition to MMRP BIO-1 to reduce impacts to less than significant.

Indirect Impacts (Special-Status Plant Species). Implementation of the Project would result in indirect impacts on special-status plant species, which may include temporary, construction-related dust effects on flowering of these species. However, standard dust control best management practices would minimize dust during construction and dust is not expected to substantially affect the small number of special-status plants observed at the Project site. These impacts are consistent with impacts identified in the SPEIR and would not be considered significant.

Indirect Impacts (Special-status Wildlife Species). As indicated in the SPEIR, implementation of the Project could result in indirect impacts on special-status wildlife species through habitat loss and temporary, construction-related dust, noise and water quality effects (e.g., hazardous materials leaks, such as fuel, hydraulic fluid, and/or lubricants) from equipment working in or around occupied habitat.

In particular, indirect impacts to coastal California gnatcatcher, least Bell's vireo, southwestern willow flycatcher and San Diego fairy shrimp, if present, would be considered significant. . These impacts are consistent with impacts identified in the SPEIR. Compliance with the MHCP and MMRP Mitigation Measures BIO-2, BIO-3, BIO-4, and BIO-5 will reduce impacts to less than significant.

Indirect noise, dust and water quality impacts on other special-status species would be temporary and of relatively brief duration. Wildlife could temporarily move out of the area in response to these temporary construction disturbances. Also, as discussed above, the loss of less than one acre of habitat distributed over a length of almost one mile, is not anticipated to significantly alter the local population dynamics of these species, if present. Therefore, indirect impacts to other special-status species would be less than significant.

Operations and Maintenance Impacts (Special-Status Plant Species). Once constructed, ongoing operations and maintenance activities associated with the Project would be conducted within the confines of the access road. Therefore, impacts on special-status plant species are unlikely and this impact would be considered less than significant.

Operations and Maintenance Impacts (Special-status Wildlife Species). Once constructed, ongoing operations and maintenance activities associated with the Project would be conducted within the confines of the access road. Impacts on special-status wildlife species would be limited to indirect effects such as minor dust production and noise and would be considered less than significant.

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

Less than Significant. Based on the preliminary Project design, construction of the Project would result in direct impacts on vegetation communities and other land cover types (Table 4). Impacts on riparian and other sensitive natural communities would be considered significant. Because a discretionary permit from the City of Carlsbad is required for Project implementation, the Project will need to comply with the Carlsbad HMP and impacts to vegetation communities and habitat for special-status species identified in the Carlsbad HMP will be mitigated per the ratios noted in Table 11 of the HMP (Appendix B). Compliance with

the Carlsbad's HMP would avoid conflicts with species conservation goals and a less than significant impact would result.

Table 4. Vegetation Community Impacts

Vegetation Community or Other Land Cover Type	Alliance level Vegetation Community Type	Permanent Impacts (acres)	Temporary Impacts (acres)	Total Impact (acres)	Riparian or Other Sensitive Natural Community?
Tree-dominated habitats					
Willow riparian forest	Mixed willow riparian	0.132	0.323	0.456	Yes
Non-native woodland[1]	Eucalyptus woodland	0.001	0.013	0.013	No
Shrub-dominated habitats					
Coastal sage scrub[2]	California sagebrush scrub	0.005	0.057	0.062	Yes
	California sagebrush-black sage scrub	0.000	0.264	0.264	Yes
	Coyote brush scrub	0.280	0.527	0.807	Yes
	California brittle bush scrub	0.040	0.124	0.164	Yes
	Menzies's golden bush scrub	0.013	0.23	0.036	Yes
Non-native shrubland	Butterfly bush patch	0.002	0.050	0.052	No
Herbaceous-dominated habitats					
Freshwater marsh	Cattail marsh	0.000	0.0005	0.0005	Yes
Non-native grassland[1]	Annual brome grassland	0.286	0.764	1.050	No
	Red brome grassland	0.205	0.991	1.196	No
Non-native herbaceous stand	Upland mustard stand	0.008	0.047	0.056	No
	Poison hemlock patch[3]	0.007	0.013	0.020	No
	Bristly ox-tongue patch[3]	0.015	0.037	0.051	No
Other land cover types					

Vegetation Community or Other Land Cover Type	Alliance level Vegetation Community Type	Permanent Impacts (acres)	Temporary Impacts (acres)	Total Impact (acres)	Riparian or Other Sensitive Natural Community?
Open water	Open water	0.000	0.003	0.003	Yes
Disturbed habitat	Disturbed habitat	0.554	0.520	1.074	No
Urban/developed	Urban/developed	0.001	0.005	0.006	No
	Total	**1.550**	**3.760**	**5.310**	

Notes:
[1] Although non-native grassland and eucalyptus woodland are not considered sensitive natural communities, impacts to these communities require mitigation per the Carlsbad HMP.
[2] All types of coastal sage scrub are considered sensitive because they provide potential breeding, foraging, or dispersal habitat for coastal California gnatcatcher.
[3] Although these vegetation types are not typically considered a sensitive natural community for CEQA analysis, they are dominated by wetland plants and will be included in the jurisdictional impact assessment.

Implementation of the Project would result in indirect impacts on riparian habitats and other sensitive natural communities that are consistent with the impacts identified in the SPEIR. These impacts could be significant. Mitigation Measures HWQ-1 and HWQ-2 in the SPEIR are proposed to mitigate this impact. No other project-specific mitigation measures are recommended.

Operations and maintenance activities associated with the Project would be conducted within the confines of the access road and, therefore, would be consistent with the assumptions for these activities as identified and analyzed in the SPEIR. These activities would be conducted in accordance with issued permits. Therefore, impacts would be considered less than significant.

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?*

Less than Significant with Mitigation. Implementation of the Project would result in direct impacts on state or federally protected wetlands and other waters of the U.S. and state (Table 5). Per the MHCP and regulatory requirements, the Project has been designed to minimize impacts to wetland and riparian habitat to the maximum extent feasible by utilizing the existing access road alignment where crossing aquatic features and implementing alternative technologies, such a cellular concrete block where feasible. Based on the 50 percent design, unavoidable impacts to these resources would include up to 0.099 acre of USACE waters of the U.S./RWQCB waters of the State, including 0.045 acre of wetland waters of the U.S./RWQCB Waters of the State, and up to 0.116 acre of CDFW riparian and unvegetated streambed, which are less than with the impacts identified in the SPEIR. These impacts would be considered significant and require mitigation. Compliance with the MHCP, Mitigation Measures BIO-3 and BIO-5 and SWRCB and USACE wetland mitigation policies, impacts to wetlands will be mitigated to ensure no let loss of aquatic value and function.

Table 5. Jurisdictional Resource Impacts

Jurisdictional Type	Permanent Impacts (acres)	Temporary Impact (acres)	Total Impact (acres)
USACE			
USACE Wetland Waters of the U.S.	0.045	0.076	0.121
USACE Non-wetland Waters of the U.S.	0.054	0.069	0.123
Total USACE	**0.099**	**0.145**	**0.244**
CDFW			
CDFW Unvegetated Streambed	0.048	0.052	0.100
CDFW Riparian	0.069	0.298	0.367
Total CDFW	**0.116**	**0.350**	**0.466**

Notes:
CDFW=California Department of Fish and Wildlife; USACE=United States Corps of Engineers

Implementation of the Project would result in indirect impacts on state or federally protected wetlands that are consistent with the impacts identified in the SPEIR. These impacts could be significant. Mitigation Measures HWQ-1 and HWQ-2 in the SPEIR are proposed to mitigate this impact. No other project-specific mitigation measures are recommended.

Operations and maintenance activities would be conducted in accordance with issued permits. Therefore, impacts on state or federally protected wetlands would be considered less than significant.

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 wildlife nursery sites?*

Less than Significant Impact. Construction of the access road may have a temporary impact to the movements of some terrestrial wildlife during construction, as noted in the SPEIR. However, construction of the project would not result in any permanent barriers to the movement of terrestrial species. Additionally, based on the history of disturbance in the Project area and fragmentation by existing development impacts to migratory corridors are considered less than significant.

Implementation of the project would not result in new growth or secondary projects that could otherwise result in indirect impacts to wildlife corridors. For this reason, this impact would be less than significant.

Operations and maintenance activities associated with the project would be conducted within the confines of the access road and, therefore, would be consistent with what was identified in the SPEIR. These activities would not interfere with the movement of any native wildlife species or wildlife corridors or nursery sites. In this context, the Project would result in a less than significant impact to existing wildlife corridors.

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

Less than Significant Impact. Access road improvements associated with the Project would be required to maintain conformance with applicable Carlsbad HMP standards, including implementation of minimum buffer widths. Compliance with these requirements would be a condition of approval prior to the pruning or removal of protected trees within the City of Carlsbad. Based on these preexisting regulations, this impact is less than significant.

Implementation of the Project would not result in secondary activities, not otherwise considered in the SPEIR that could conflict with local plans and polices adopted for the purpose of protecting biological resources. For this reason, this impact would be less than significant.

Ongoing operations and maintenance activities would be conducted within the confines of the access road. Compliance with the Carlsbad HMP requirements would be a condition of approval prior to the pruning or removal of protected trees, if required as part of ongoing operations and maintenance, within the City of Carlsbad.

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?

Less than Significant Impact. The Project is a covered activity under the Carlsbad HMP. Therefore, all impacts to biological resources will be mitigated in compliance with the requirements identified in the HMP, as noted in the SPEIR.

Although the subarea plan of the MHCP for the Project region has not been adopted, the Project would be consistent with draft sub area plan of MHCP. Implementation of the Project would not result in land use changes or secondary effects that could otherwise result in conflicts with an adopted HCP or NCCP. For this reason, this impact would be less than significant.

Ongoing operations and maintenance activities are included as a covered activity under the Carlsbad HMP. Ongoing operations and maintenance activities would be conducted within the confines of the access road and consistent with the requirements of the HMP. Therefore, this impact would be less than significant.

V. Cultural Resources

Environmental Issue Area	Impact Analyzed in the PEIR or SPEIR	New Significant Impact due to Unusual Circumstances or Substantial New Information	No Impact or Less than Significant Impact	Less Than Significant with Mitigation - SPEIR Mitigation Measure(s) Applicable	Less Than Significant with Mitigation - New Mitigation Measure(s) Required
Would the project:					
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☒	☐	☐	☒	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☒	☐	☐	☒	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☒	☐	☐	☒	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☒	☐	☐	☒	☐

Would the project:

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

Less than Significant with Mitigation. As provided in Section 4.3 of the SPEIR, Project construction activities could include the use of equipment that could generate high levels of vibration. The highest vibration levels for construction identified in the SPEIR was that associated with the operation of a vibratory roller (0.210 peak particle velocity [PPV] at 25 feet). This assumption would remain accurate for the Project in that no blasting is proposed to facilitate realignment of the roadway as proposed.

Based on criteria presented in the Federal Transit Administration's (FTA) Noise and Vibration Manual (2006), "fragile buildings" are subject to damage when vibration exceeds 0.20 PPV. As provided in the SPEIR, historic structures are often considered in this category due to their age of construction and the building codes enacted at the time of construction. As a result, construction activities within 25 feet of fragile structures could result in damaging vibration levels for historic structures, where present and eligible for the NRHP or CRHR. As provided in the SPEIR, the CRHR eligible Rancho Buena Vista adobe ranch house is located in close proximity to the Project with actual work proposed at approximately 100 feet of the onsite

structure. However, it is possible that one or more contributing elements could be located in closer proximity and therefore be subject to potentially significant vibration-related impacts. Mitigation Measure CULT-1 is proposed to minimize construction-related vibration impacts to historic structures to a level of less than significant.

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

Less than Significant with Mitigation. As described in Section 4.3 of the SPEIR, the City applied probable work limits for construction for the Category 4 improvements, including the Project. This included approximating the area of direct impact for construction, adjacent staging areas, and/or other temporary work areas and averages 50 feet in width. These areas are now defined in Figure 4 and Figure 5 for VC1 at the project level.

Based on the Project APE, four previously recorded sites were identified within the area of direct impact (Appendix C). CA-SDI-5652 is a multi-component site consisting of the Marrón-Hayes Adobes Historic District, historic and prehistoric artifact scatter, and prehistoric shell midden deposit. A subsurface testing program implemented by Gallegos and Associates in 1998 confirmed the presence of buried shell midden deposit within the study area. The Marrón-Hayes Adobes Historic District was nominated by ASM Affiliates to the NRHP in 2015. The Marrón-Hayes Adobe is a contributing historic resource to the historic district and is itself eligible for the CRHR and NRHP under Criteria B and C. The structure is within 500 feet of the APE. Additionally, the prehistoric component of the site should be treated as eligible for the CRHR and the NRHP under Criterion D (Appendix C). Construction of the access road will have a direct adverse effect on the site. Any ground disturbing activity within the vicinity of the site may encounter additional buried archaeological deposits. Prior to any ground disturbing activities a protection plan should be implemented to mitigate adverse effects on buried cultural resources. HDR also recommends that Mitigation Measure CULT-3, Archaeological Monitoring, be implemented for all activities within the historic district. In addition, compliance with Carlsbad's Tribal, Cultural, and Paleontological Resources Procedures (2017) would also be required.

CA-SDI-9472, CA-SDI-9473, and CA-SDI-9474 contain prehistoric surface scatters consisting of lithic artifacts and shell debris (Appendix C). CA-SDI-9474 additionally contains a historic artifact scatter and structural debris. The significance of these sites has not been fully evaluated. Subsurface testing would be necessary to determine the significance and eligibility of the sites under Criterion D. Unless demonstrated to be otherwise, these sites should be treated as potentially eligible. HDR therefore recommends subsurface testing and evaluation of the portions of the site directly impacted by construction of the access road. HDR also recommends that Mitigation Measure CULT-3, Archaeological Monitoring, be implemented for all ground disturbing activities within the vicinity of these sites.

To remain consistent with the prior SPEIR analysis and based on the results of the archaeological survey, the Project has potential to cause significant impacts to cultural resources eligible for listing on the CRHR and NRHP. Excavation within the archaeological resources may cause the destruction, relocation, or alteration of buried archaeological deposits that may be likely to yield information important to prehistory or history. Thus, construction related to improvements to the VC1 access road has the potential to cause substantial adverse change in the significance of archaeological resources CA-SDI-5652, CA-

SDI-9472, CA-SDI-9473, and CA-SDI-9474. This is considered a potentially significant impact and Mitigation Measure CULT-3 is required.

c) *Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?*

Less than Significant with Mitigation. According to Section 4.3 of the SPEIR, substantial grading at depths greater than 10 feet in areas characterized with a moderate to high sensitivity for paleontological resources could result in a significant impact on paleontological resources. The Project would be constructed in an areas with moderate sensitivity for paleontological resources and therefore, has the potential to directly destroy paleontological resources during excavation activities. This potential impact could be significant. Mitigation Measure CULT-4 is proposed to reduce these potential impacts to paleontological resources to a less than significant level.

d) *Disturb any human remains, including those interred outside of formal cemeteries?*

Less than Significant with Mitigation. As provided in Section 4.3 of the SPEIR, construction of the improvements proposed under the 2017 CSMP, including the Project, would occur at the vicinity of existing facility locations. However, during the construction of these facilities, the potential for the unexpected discovery of interred human remains, either prehistoric or historic, is a possibility. The potential then increases in areas that have supported prehistoric and historic settlements, including the Project area. These direct impacts could be significant. Mitigation Measure CULT-5 is proposed to reduce these potential impacts to the unexpected discovery of interred human remains.

VI. Geology and Soils

Environmental Issue Area	Impact Analyzed in the PEIR or SPEIR	New Significant Impact due to Unusual Circumstances or Substantial New Information	No Impact or Less than Significant Impact	Less Than Significant with Mitigation - SPEIR Mitigation Measure(s) Applicable	Less Than Significant with Mitigation - New Mitigation Measure(s) Required
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.	☒	☐	☒	☐	☐
ii. Strong seismic ground shaking?	☒	☐	☒	☐	☐
iii. Seismic-related ground failure, including liquefaction?	☒	☐	☒	☐	☐
iv. Landslides?	☒	☐	☒	☐	☐
b) Result in substantial soil erosion or the loss of topsoil?	☒	☐	☒	☐	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☒	☐	☒	☐	☐

VI. Geology and Soils

Environmental Issue Area	Impact Analyzed in the PEIR or SPEIR	New Significant Impact due to Unusual Circumstances or Substantial New Information	No Impact or Less than Significant Impact	Less Than Significant with Mitigation - SPEIR Mitigation Measure(s) Applicable	Less Than Significant with Mitigation - New Mitigation Measure(s) Required
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☒	☐	☒	☐	☐

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.*

No Impact. The potential impacts associated with exposure of people or structures to potential substantial adverse effects involving rupture of an earthquake fault were analyzed in the SPEIR (Section 5.0, Effects Determined Not to be Significant, page 5-2). The SPEIR determined that surface rupture as a result of seismic activity is unlikely and no impact would occur.

The physical geologic conditions, as they relate to existing seismicity and earthquake faulting, have not changed in the Project area since the certification of the SPEIR. No substantial new information has been presented that shows more significant impacts than those originally analyzed in the SPEIR and there would be no new impacts. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

ii. *Strong seismic ground shaking?*

Less than Significant Impact. The potential impacts associated with exposure of people or structures to potential substantial adverse effects involving strong seismic shaking were analyzed in the SPEIR (Section 5.0, Effects Determined Not to be Significant, page 5-2). The SPEIR determined that the VC1 access road improvement would not exacerbate existing hazards related to strong seismic shaking. The Project would be required to comply with the

City's engineering standards and standard engineering practices, which will include the preparation of a project-specific geotechnical report. As a result, this impact would be less than significant.

The physical geologic conditions in the Project area, including related faulting, have not changed since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. No new significant impacts were identified as part of the project level analysis. For these reason, the conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

iii. Seismic-related ground failure, including liquefaction?

Less than Significant Impact. The potential impacts associated with exposure of people or structures to potential substantial adverse effects involving seismic-related ground failure were analyzed in the SPEIR (Section 5.0, Effects Determined Not to be Significant, page 5-2). The SPEIR determined that the VC1 access road improvement would result in a less than significant impact and would not exacerbate existing hazards related to seismic-related ground failure. The Project would be required to comply with the City's standards and standard engineering practices, including the preparation of a project-specific geotechnical investigation.

The physical geologic conditions, as they relate to exposure of people to seismic-related ground failure, have not substantially changed in the Project area since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. No new significant impacts were identified as part of the project level analysis. For these reasons, the conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

iv. Landslides?

Less than Significant Impact. The potential impacts associated with exposure of people or structures to potential substantial adverse effects involving landslides were analyzed in the SPEIR (Section 5.0, Effects Determined Not to be Significant, page 5-2). The SPEIR determined that the CSMP would result in a less than significant impact associated with landslides. The Project would be required to comply with the City's engineering standards along with Carlsbad's grading requirements, which would minimize any hazards related to cut and fill slopes and related landslide hazards. These requirements combined with the completion of a project specific geotechnical investigation and incorporation of any project-specific recommendations would minimize any impacts to less than significant.

The physical geologic and soil conditions in the Project area have not substantially changed since the certification of the SPEIR. No substantial new information has been presented that shows more significant impacts would occur than those originally analyzed in the SPEIR. No new significant impacts were identified as part of the project level analysis. For these reasons, the conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

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

Less than Significant Impact. The potential impacts associated with soil erosion were analyzed in the SPEIR (Section 5.0, Effects Determined Not to be Significant, page 5-2). The

SPEIR determined that the VC1 access road improvement would result in a less than significant impact associated with soil erosion.

Project construction activities would be regulated under the NPDES General Permit for Discharges of Storm Water Runoff Associated with Construction Activity (General Construction Permit, NPDES Order No. 2012-0006-DWQ). In addition, the City would comply with applicable grading ordinance(s) and/or erosion control requirements of the local jurisdiction. Compliance with existing regulations would minimize the potential for erosion during construction such that the impact is considered less than significant.

The physical soil conditions in the Project area have not substantially changed in the Project area since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. No new significant impacts were identified as part of this analysis. For these reason, the conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

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

Less than Significant Impact. The potential impacts associated with unstable geologic units or soils were analyzed in the SPEIR (Section 5.0, Effects Determined Not to be Significant, page 5-2). The SPEIR determined that the VC1 access road improvement would result in a less than significant impact associated with unstable geologic units or soils. The Project would be required to comply with City standards and standard engineering practices, which will include the preparation of a project-specific geotechnical investigation. Compliance with existing state and local regulations combined with the incorporation of any recommendations from the geotechnical investigation would minimize potential impact to less than significant.

The physical geologic and soil conditions in the Project area have not substantially changed since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. No new significant impacts were identified as part of the project level analysis. For these reasons, the conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

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

Less than Significant Impact. The potential impacts associated with expansive soils were analyzed in the SPEIR (Section 5.0, Effects Determined Not to be Significant, page 5-2). The SPEIR determined that the VC1 access road improvement would result in a less than significant impact associated with expansive soils. The Project would be required to comply with the City's standards and standard engineering practices, which would include a project-specific geotechnical investigation. In addition to complying with existing state and local regulations, the City would incorporate any project-specific recommendations from the geotechnical investigation.

The physical soil conditions in the Project area have not substantially changed since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR.

No new significant impacts were identified as part of the project level analysis. As a result, the conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

e) *Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?*

No Impact. The potential impacts associated with septic tanks or alternative wastewater disposal systems were analyzed in the SPEIR (Section 5.0, Effects Determined Not to be Significant, page 5-2). Similar to the CSMP, alternative wastewater disposal systems and septic tanks are not a component of the Project and, therefore, no impact would result.

VII. Greenhouse Gas Emissions

Environmental Issue Area	Impact Analyzed in the PEIR or SPEIR	New Significant Impact due to Unusual Circumstances or Substantial New Information	No Impact or Less than Significant Impact	Less Than Significant with Mitigation - SPEIR Mitigation Measure(s) Applicable	Less Than Significant with Mitigation - New Mitigation Measure(s) Required
Would the project:					
a) Generate greenhouse gas emissions, either directly or indirectly, that may have an adverse effect on the environment?	☒	☐	☒	☐	☐
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☒	☐	☒	☐	☐

Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have an adverse effect on the environment?

Less than Significant Impact. The potential impacts associated with the generation of greenhouse gas (GHG) emissions were analyzed in the SPEIR for the City's CSMP (Section 4.4, GHG and Energy, pages 4.4-11 through 4.4-12). The SPEIR determined that the VC1 access road improvement, a sub-component of the CSMP, would result in a less than significant impact associated with the generation of GHG emissions.

The SPEIR estimated the approved Project's combined GHG emissions from construction and operations using worst-case assumptions (consistent with the assumptions described in Section 4.1, Air Quality, of the SPEIR). Based on the worst-case maximum annual GHG emissions, the CSMP would not exceed the "Bright Line" threshold of 1,185 $MTCO_2e$. The GHG emissions associated with the construction and operation of the Project were captured in the SPEIR for the overall CSMP and the impact was determined to be less than significant. Therefore, no substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. No new, significant impacts were identified as part of the project level analysis. As a result, the conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

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

Less than Significant Impact. The SPEIR included consideration of the CSMP and its potential to conflict with applicable GHG reduction plans, policies, and regulations (Section 4.4, GHG and Energy, pages 4.4-12 through 4.4-13). The SPEIR determined that the CSMP, including the VC1 access road improvement, would not conflict with an applicable plan, policy, or regulation designed to reduce the emissions of GHGs.

Existing conditions, as they relate to plans and policies adopted for the purposes of reducing GHG emissions, have not substantially changed in the Project area since the certification of the SPEIR. Furthermore, the proposed Project would be constructed and operated in a manner consistent with the assumptions contained in the SPEIR for the overall CSMP. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. No new significant impacts were identified as part of the project level analysis. For these reasons, the conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

VIII. Hazards and Hazardous Materials

Environmental Issue Area	Impact Analyzed in the PEIR or SPEIR	New Significant Impact due to Unusual Circumstances or Substantial New Information	No Impact or Less than Significant Impact	Less Than Significant with Mitigation - SPEIR Mitigation Measure(s) Applicable	Less Than Significant with Mitigation - New Mitigation Measure(s) Required
Would the project:					
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☒	☐	☒	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment?	☒	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?	☒	☐	☒	☐	☐
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☒	☐	☒	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 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?	☒	☐	☒	☐	☐

VIII. Hazards and Hazardous Materials

Environmental Issue Area	Impact Analyzed in the PEIR or SPEIR	New Significant Impact due to Unusual Circumstances or Substantial New Information	No Impact or Less than Significant Impact	Less Than Significant with Mitigation - SPEIR Mitigation Measure(s) Applicable	Less Than Significant with Mitigation - New Mitigation Measure(s) Required
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?	☒	☐	☒	☐	☐
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☒	☐	☐	☒	☐
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?	☒	☐	☐	☒	☐

Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less than Significant Impact. The potential impacts associated with the routine transport, use, or disposal of hazardous materials were analyzed in the SPEIR (Section 4.5, Hazards and Hazardous Materials, page 4.5-8). The SPEIR determined that the CSMP, including the project as a sub-component, would result in a less than significant impact associated with the routine transport, use, or disposal of hazardous materials. The Project would be subject to federal, state, and local regulations and requirements regarding the transport, use, and disposal of hazardous materials.

The existing regulatory requirements governing the transport and use of hazardous materials have not substantially changed since the certification of the SPEIR. Furthermore, the construction and operational characteristics of the proposed access road have not changed since the certification of the SPEIR. Similar to the CSMP, the Project would also be subject to federal, state, and local regulations regarding the transport and disposal of hazardous materials. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. No new significant impacts were identified as part of the project level analysis. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

b) *Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment?*

Less than Significant Impact with Mitigation. The potential impacts associated with the unforeseeable release of hazardous materials were analyzed in the SPEIR (Section 4.5, Hazards and Hazardous Materials, page 4.5-9 through 4.5-10). Access road reconstruction would involve excavation and grading activities, which could encounter documented and unreported contaminated soils and/or groundwater during excavation activities. The SPEIR determined that the CSMP, including the VC1 access road improvement, could result in potentially significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment. Implementation of the following mitigation measures were determined to reduce impacts to a level less than significant:

- Mitigation Measure HWQ-1: Assess Project Risk, Receiving Water Vulnerability, and Implement a Water Quality Protection Strategy
- Mitigation Measure HAZ-1: Halt Construction Work if Potentially Hazardous Materials are Encountered

Based on a review of the California Department of Toxic Substances Control's (DTSC) public database(s), the physical conditions within the Project area have not changed since the certification of the SPEIR and no documented sources of contamination are identified in the immediate Project area (DTSC 2019). Notwithstanding this circumstances, the construction of the proposed Project has the potential to encounter unreported contaminated soils, hazardous waste (e.g. dumping), and/or groundwater during excavation activities. Mitigation Measure HWQ-1 and HAZ-1 remain applicable to the proposed Project.

No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. No new significant impacts were identified as part of the project level analysis. The conclusion identified in the SPEIR remains accurate and applicable to the proposed project.

c) *Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?*

No Impact. The potential impacts associated with emitting hazardous emissions or handling hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school were analyzed in the SPEIR (Section 4.5, Hazards and Hazardous Materials, pages 4.5-10 through 4.5-11). There are no schools located within 0.25 miles of the Project. The SPEIR determined that the CSMP would have no impact associated with the generation of hazardous emissions within 0.25 mile of a school. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

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?*

Less than Significant Impact. The potential impacts associated with the disturbance of listed hazardous materials sites were analyzed in the SPEIR (Section 4.5 Hazards and Hazardous

Materials, page 4.5-11). There are no listed hazardous materials sites within the Project area (DTSC 2019). Therefore, construction of the access road would not encounter listed hazardous materials sites.

The Project alignment roughly corresponds with the alignment contemplated in the SPEIR. The existing conditions in the Project area have not changed in the Project area since the certification of the SPEIR. No substantial new information has been presented that shows more significant impacts than those originally analyzed in the SPEIR. No new significant impacts were identified as part of the project level analysis. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

e) *For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?*

No Impact. The potential impacts associated with airport safety hazards were analyzed in the SPEIR (Section 4.5, Hazards and Hazardous Materials, pages 4.5-12 through 4.5-13). There are no public airports within two miles of the Project. The SPEIR determined that no impact would occur. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

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?*

No impact. The potential impacts associated with safety hazards in the vicinity of a private airstrip were analyzed in the SPEIR (Section 4.5, Hazards and Hazardous Materials, pages 4.5-12 through 4.5-13). There are no private airstrips within two miles of the Project. The SPEIR determined that no impact would occur. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

g) *Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*

Less than Significant Impact with Mitigation. The potential impacts associated with an adopted emergency response plan or emergency evacuation plan were analyzed in the SPEIR (Section 4.5 Hazards and Hazardous Materials, page 4.5-13). The SPEIR determined that the CSMP would result in potentially significant impacts associated with an adopted emergency response plan or emergency evacuation plan. Mitigation Measure TR-1 (Prepare and Implement a Traffic Control Plan) was proposed to reduce these impacts to a level less than significant.

The Project alignment is generally located off the public roadway, thereby avoiding direct impacts to emergency response and access. However, a residence is located near the eastern end of the Project alignment. To prevent access disruptions to this residence, including by emergency vehicles, Mitigation Measure TR-1 remains applicable to the proposed Project. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

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?

Less than Significant Impact with Mitigation. The potential impacts associated with exposure of people or structures to significant risk of loss, injury, or death involving wildland fires were analyzed in the SPEIR (Section 4.5 Hazards and Hazardous Materials, pages 4.5-13 through 4.5-14). The Project is located on undeveloped land containing potentially flammable materials such as brush, grass, or trees that could pose a risk to wildland fires during construction. The SPEIR determined that the risk of wildfire was a potentially significant impact and proposed Mitigation Measures HAZ-3 (Keep Construction Area Clear of Combustible Materials) and HAZ-4 (Provide Accessible Fire Suppression Equipment) to reduce this impact to a level less than significant.

The physical conditions, as they relate to wildland fires, have not changed in the Project area since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. Mitigation Measures HAZ-3 and HAZ-4 remain applicable to the proposed Project The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

IX. Hydrology and Water Quality

Environmental Issue Area	Impact Analyzed in the PEIR or SPEIR	New Significant Impact due to Unusual Circumstances or Substantial New Information	No Impact or Less than Significant Impact	Less Than Significant with Mitigation - SPEIR Mitigation Measure(s) Applicable	Less Than Significant with Mitigation - New Mitigation Measure(s) Required
Would the project:					
a) Violate any water quality standards or waste discharge requirements?	☒	☐	☐	☒	☐
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?	☒	☐	☒	☐	☐
c) Substantially alter the existing drainage pattern of 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?	☒	☐	☐	☒	☐
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?	☒	☐	☐	☒	☐
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?	☒	☐	☐	☒	☐

IX. Hydrology and Water Quality

Environmental Issue Area	Impact Analyzed in the PEIR or SPEIR	New Significant Impact due to Unusual Circumstances or Substantial New Information	No Impact or Less than Significant Impact	Less Than Significant with Mitigation - SPEIR Mitigation Measure(s) Applicable	Less Than Significant with Mitigation - New Mitigation Measure(s) Required
f) Otherwise substantially degrade water quality?	☒	☐	☐	☒	☒
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?	☒	☐	☒	☐	☐
h) Place within a 100-year flood hazard area structures, which would impede or redirect flood flows?	☒	☐	☐	☒	☐
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?	☒	☐	☒	☐	☐
j) Inundation by seiche, tsunami, or mudflow?	☒	☐	☒	☐	☐

Would the project:

a) Violate any water quality standards or waste discharge requirements?

Less than Significant Impact with Mitigation. The potential impacts associated with the CSMP improvements to result in a violation of water quality standards or waste discharge requirements were analyzed in the SPEIR (Section 4.6, Hydrology and Water Quality, pages 4.6-7 through 4.6-9). The Project is located adjacent to and parallels Buena Vista Creek on the north. During construction, there is potential for sediment and other construction-related contaminants to enter Buena Vista Creek. The SPEIR determined that the CSMP would result in potentially significant water quality impacts and Mitigation Measure HWQ-1 was proposed to reduce these impacts to a level less than significant.

The physical watershed conditions in the Project area and regulations governing water quality have not changed since the certification of the SPEIR. The construction and operational characteristics of the proposed access road have not substantially changed since the certification of the SPEIR. No substantial new information has been presented that shows more significant impacts than those originally analyzed in the SPEIR and there would be no new impacts. Mitigation Measure HWQ-1 remains applicable to the proposed Project. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

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?*

Less than Significant Impact. The potential impacts associated with the CSMP improvements to result in depletion of groundwater supplies were analyzed in the SPEIR (Section 4.6, Hydrology and Water Quality, page 4.6-9). Construction activities associated with the CSMP, including the Project, may require temporary dewatering; however, no long-term groundwater pumping is proposed. The SPEIR determined that the CSMP would result in a less than significant impact associated with depletion of groundwater supplies. The construction and operational characteristics of the Project have not substantially changed since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

c) *Substantially alter the existing drainage pattern of 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?*

Less than Significant Impact with Mitigation. The potential impacts associated with the CSMP improvements potential to result in alteration of existing drainage patterns and flood hazards were analyzed in the SPEIR (Section 4.6, Hydrology and Water Quality, pages 4.6-10 through 4.6-11). Access road and drainage improvements would involve grading, re-surfacing, and/or vegetation trimming or removal activities, and could result in temporary changes to existing drainage patterns during construction. As shown on Figure 6, the Project improvements intersects the limits of the Buena Vista Creek 100-year flood area. The SPEIR determined that the CSMP, including the Project, would result in potentially significant impacts associated with the alteration of existing drainage patterns and could be subjected to flood hazards. Mitigation Measures HWQ-1 and HWQ-2 were proposed to reduce impacts to a level less than significant.

The existing drainage patterns and flood hazards in the Project area have not changed since the certification of the SPEIR. The construction and operational characteristics of the Project have not substantially changed since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. Mitigation Measures HWQ-1 and HWQ-2 remain applicable to the proposed Project and, therefore, the conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

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?*

Less than Significant Impact with Mitigation. The potential impacts associated with CSMP improvements potential to result in alteration of existing drainage patterns and flood hazards were analyzed in the SPEIR (Section 4.6, Hydrology and Water Quality, pages 4.6-10 through 4.6-11). Access road and drainage improvements would involve grading, re-surfacing, and/or vegetation trimming or removal activities, and could result in temporary changes to existing

drainage patterns during construction. As shown on Figure 6, the Project improvements intersects the limits of the Buena Vista Creek 100-year flood area. The SPEIR determined that the CSMP, including the Project, would result in potentially significant impacts associated with the alteration of existing drainage patterns and could be subjected to flood hazards. Mitigation Measures HWQ-1 and HWQ-2 were proposed to reduce impacts to a level less than significant.

The existing drainage patterns and flood hazards in the Project area have not changed since the certification of the SPEIR. The construction and operational characteristics of the Project have not substantially changed since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. Mitigation Measures HWQ-1 and HWQ-2 remain applicable to the proposed Project and, therefore, the conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

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?*

Less than Significant Impact with Mitigation. The potential impacts associated with water quality and storm water drainage system capacities were analyzed in the SPEIR (Section 4.6, Hydrology and Water Quality, page 4.6-12). During construction, the Project has the potential to use and transport contaminants that could be entrained in surface runoff and discharged to Buena Vista Creek. The SPEIR determined that the CSMP, including the Project, would result in potentially significant water quality impacts and proposed Mitigation Measure HWQ-1 to reduce impacts to a level less than significant.

The existing watershed conditions, as they relate to water quality and storm water drainage system capacities, have not substantially changed in the Project area since the certification of the SPEIR. The construction and operational characteristics of the Project have not substantially changed since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. Mitigation Measure HWQ-1 remains applicable to the proposed Project and the conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

f) *Otherwise substantially degrade water quality?*

Less than Significant Impact with Mitigation. The potential impacts associated with water quality and storm water drainage system capacities were analyzed in the SPEIR (Section 4.6, Hydrology and Water Quality, page 4.6-12). During construction, the Project has the potential to use and transport contaminants that could be entrained in surface runoff and discharged to Buena Vista Creek. The SPEIR determined that the CSMP, including the Project, would result in potentially significant water quality impacts and proposed Mitigation Measure HWQ-1 to reduce impacts to a level less than significant.

The existing watershed conditions, as they relate to water quality and storm water drainage system capacities, have not substantially changed in the Project area since the certification of the SPEIR. The construction and operational characteristics of the Project have not substantially changed since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. Mitigation Measure HWQ-1 remains applicable to the

proposed Project and the conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

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?*

No Impact. The potential impact associated with placement of housing within a 100-year flood hazard area was analyzed in the SPEIR (Section 4.6, Hydrology and Water Quality, page 4.6-7). The CSMP, including the Project, does not include new structures for human occupation. Therefore, the SPEIR determined no impact would occur. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

h) *Place within a 100-year flood hazard area structures, which would impede or redirect flood flows?*

Less than Significant Impact with Mitigation. The potential impacts associated with alteration of existing drainage patterns and flood hazards were analyzed in the SPEIR (Section 4.6, Hydrology and Water Quality, pages 4.6-10 through 4.6-11). Access road and drainage improvements would involve grading, re-surfacing, and/or vegetation trimming or removal activities, and could result in temporary changes to existing drainage patterns during construction. As shown on Figure 6, the Project improvements intersects the limits of the Buena Vista Creek 100-year flood area. The SPEIR determined that the CSMP, including the Project, would result in potentially significant impacts associated with the alteration of existing drainage patterns and could be subjected to flood hazards. Mitigation Measures HWQ-1 and HWQ-2 were proposed to reduce impacts to a level less than significant.

The existing drainage patterns and flood hazards in the Project area have not changed since the certification of the SPEIR. The construction and operational characteristics of the Project have not substantially changed since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. Mitigation Measures HWQ-1 and HWQ-2 remain applicable to the proposed Project and, therefore, the conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

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?*

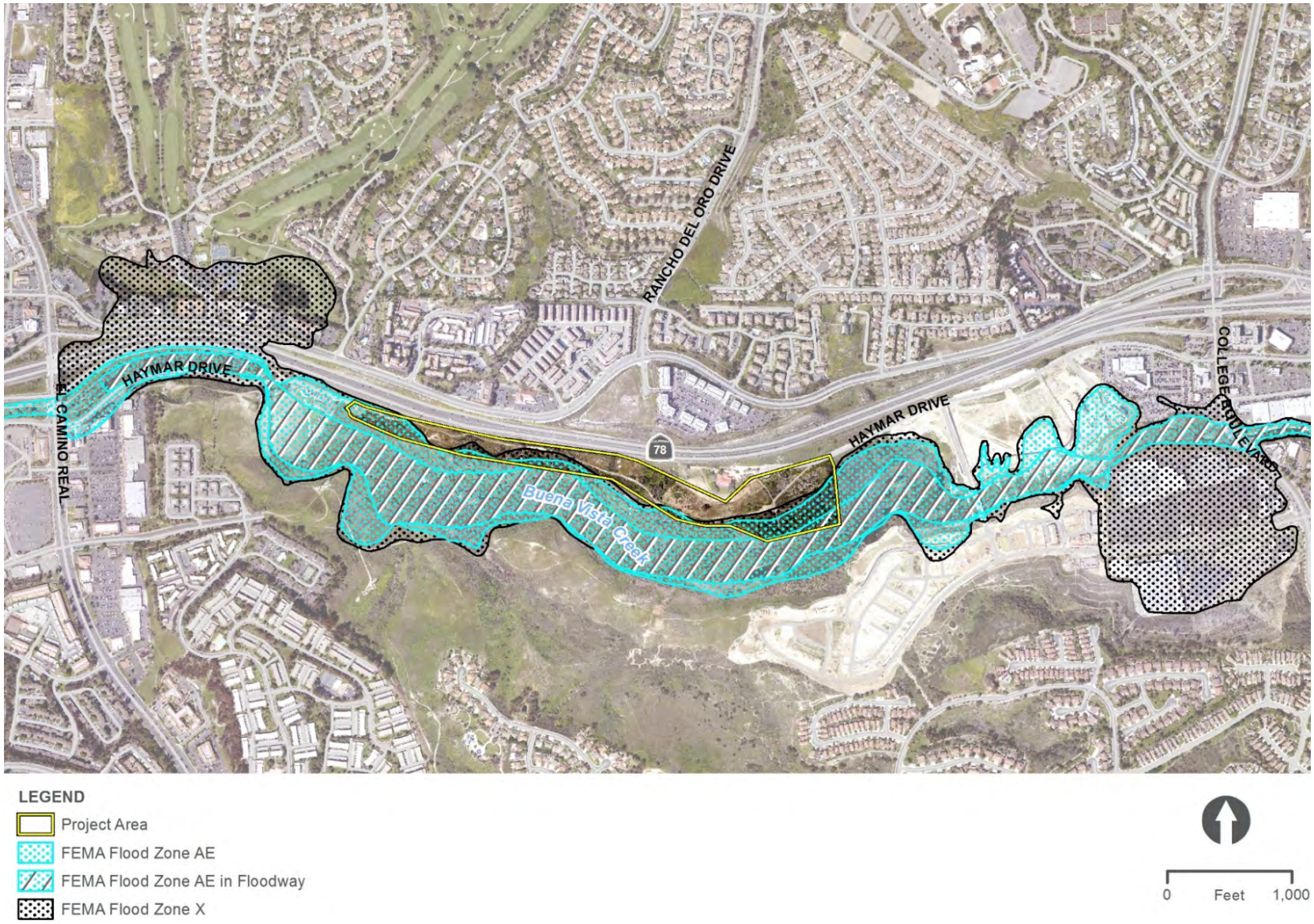
Less than Significant Impact. The potential impacts associated with exposure of people or structures to significant risk of loss, injury or death involving flooding were analyzed in the SPEIR (Section 4.6, Hydrology and Water Quality, page 4.6-12). The SPEIR determined that the CSMP, including the Project, would result in a less than significant impact associated with exposure of people or structures to significant risk of loss, injury or death involving flooding.

The physical watershed and geologic conditions have not changed in the Project area since the certification of the SPEIR. The Project features do not include large areas of impervious surfaces that could otherwise the timing and duration of peak flows to large rainfall events. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR and there would be no new impacts. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

j) Inundation by seiche, tsunami, or mudflow?

No Impact. The potential impacts associated with inundation by seiche, tsunami, or mudflow were analyzed in the SPEIR (Section 4.6, Hydrology and Water Quality, page 4.6-7). The Project is in an elevated and distant from the Pacific Ocean and associated lagoons to avoid tsunami or seiche inundation. No impact would result and the conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

Figure 6. Federal Emergency Management Agency Floodplain Map



X. Land Use and Planning

Environmental Issue Area	Impact Analyzed in the PEIR or SPEIR	New Significant Impact due to Unusual Circumstances or Substantial New Information	No Impact or Less than Significant Impact	Less Than Significant with Mitigation - SPEIR Mitigation Measure(s) Applicable	Less Than Significant with Mitigation - New Mitigation Measure(s) Required
Would the project:					
a) Physically divide an established 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?	☒	☐	☒	☐	☐
c) Conflict with any applicable habitat conservation plan or natural communities' conservation plan?	☒	☐	☒	☐	☐

Would the project:

a) *Physically divide an established community?*

No Impact. The potential impacts associated with division of an established community were analyzed in the SPEIR (Section 4.7, Land Use and Planning, pages 4.7-14 through 4.7-15). The SPEIR determined that the CSMP, including the Project, would not divide an established community. The Project would be constructed on lands managed by the State and within the City of Carlsbad and parallel to existing sanitary sewer infrastructure. These land use conditions remain unchanged with the Project. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

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?*

No Impact. The potential conflicts with applicable land use plans, policies, and regulations adopted for the purpose of avoiding or mitigating adverse environmental impacts were analyzed in the SPEIR (Section 4.7, Land Use and Planning, pages 4.7-15 through 4.7-17). The SPEIR determined that the CSMP would not conflict with an applicable land use plan, policy or regulation. The Project would be constructed within the City of Carlsbad and adhere

to Carlsbad's local requirements and is required to maintain consistency with the City's SSMP. In addition, the Project would follow CDFW's regulations governing the Buena Vista Reserve. These regulatory requirements were contemplated in the SPEIR and have not substantially changed since its certification. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

c) *Conflict with any applicable habitat conservation plan or natural communities' conservation plan?*

Less than Significant Impact. The potential impacts associated with conflict with an applicable habitat conservation plan or natural communities conservation plan were analyzed in the SPEIR (Section 4.7, Land Use and Planning, pages 4.7-17 through 4.7-18). The SPEIR determined that the CSMP would not conflict with an applicable habitat conservation plan or natural communities conservation plan. The Project would be constructed on lands administered by CDFW as contemplated in the SPEIR. The regulatory framework governing Buena Vista Reserve have not substantially changed since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

XI. Mineral Resources

Environmental Issue Area	Impact Analyzed in the PEIR or SPEIR	New Significant Impact due to Unusual Circumstances or Substantial New Information	No Impact or Less than Significant Impact	Less Than Significant with Mitigation - SPEIR Mitigation Measure(s) Applicable	Less Than Significant with Mitigation - New Mitigation Measure(s) Required
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?	☒	☐	☒	☐	☐

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?

No Impact. The potential impacts associated with mineral resources were analyzed in the SPEIR (Section 5.0 Effects Determined Not to be Significant, pages 5-2 through 5-3). The SPEIR determined that the CSMP, including the Project, would not result in the loss of availability of known mineral resources and no impact would occur. The physical geological conditions and landownership context in the Project area have not changed since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

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

No Impact. The potential impacts associated with mineral resources were analyzed in the SPEIR (Section 5.0 Effects Determined Not to be Significant, pages 5-2 through 5-3). The SPEIR determined that the CSMP, including the Project, would not result in the loss of availability of known mineral resources and no impact would occur. The physical geological conditions and landownership context in the Project area have not changed since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

XII. Noise

Environmental Issue Area	Impact Analyzed in the PEIR or SPEIR	New Significant Impact due to Unusual Circumstances or Substantial New Information	No Impact or Less than Significant Impact	Less Than Significant with Mitigation - SPEIR Mitigation Measure(s) Applicable	Less Than Significant with Mitigation - New Mitigation Measure(s) Required
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?	☒	☐	☐	☒	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☒	☐	☒	☐	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☒	☐	☒	☐	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☒	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☒	☐	☒	☐	☐
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?	☒	☐	☒	☐	☐

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?*

Less than Significant Impact with Mitigation. The potential impacts associated with exposure of persons to or generation of noise levels in excess of established standards were analyzed in the SPEIR (Section 4.8, Noise and Vibration, pages 4.8-9 through 4.8-10). The SPEIR determined that construction activities associated with the CSMP, including the Project, may result in temporary increases in ambient noise levels above existing conditions. Mitigation Measure NV-1 (Construction Noise Reduction Measures) was proposed to reduce these impacts to a level less than significant.

No new sensitive receptors are located in the Project area since the certification of the SPEIR. The construction characteristics for the Project would be the same as those described for the CSMP and the local noise standards within the Project area have not changed since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. Mitigation Measure NV-1 would remain effective in minimize noise-related impacts during construction. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

b) *Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?*

Less than Significant Impact. The potential impacts associated with excessive ground borne vibration were analyzed in the SPEIR (Section 4.8, Noise and Vibration, page 4.8-11). Although the SPEIR determined that the CSMP could result in vibration-related impacts during construction, the SPEIR concluded that the O&M Program including the Project improvements would result in a less than significant impact. Based on the absence of structures and buildings adjacent to the Project alignment, the physical conditions in the Project area have not substantially changed since the certification of the SPEIR. Furthermore, construction would be setback a minimum of 120 feet from the nearby residential structure, which remains unchanged since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

c) *A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?*

Less than Significant Impact. The potential impacts associated with a permanent increase in ambient noise levels in the Project vicinity were analyzed in the SPEIR (Section 4.8, Noise and Vibration, pages 4.8-9 through 4.8-10). The SPEIR determined that following construction, ongoing maintenance activities along the access road would be similar to existing activities and would generate similar noise levels. For this reason, long-term operational noise impacts for the O&M Program, including the Project, were determined less than significant.

The physical conditions within the Project area and operational characteristics for the Project have not substantially changed since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts

than those originally analyzed in the SPEIR. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

d) *A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?*

Less than Significant Impact with Mitigation. The potential impacts associated with exposure of persons to or generation of noise levels in excess of established standards were analyzed in the SPEIR (Section 4.8, Noise and Vibration, pages 4.8-9 through 4.8-10). The SPEIR determined that construction activities associated with the CSMP, including the project, may result in temporary increases in ambient noise levels above existing conditions. Mitigation Measure NV-1 (Construction Noise Reduction Measures) was proposed to reduce these impacts to a level less than significant.

No new sensitive receptors relocated to the Project area since the certification of the SPEIR. The construction characteristics for the Project would be the same as those described for the CSMP and the local noise standards within the Project area have not changed since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. Mitigation Measure NV-1 would remain effective in minimizing noise-related impacts during construction. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

e) *For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?*

No Impact. The potential impacts associated with exposure of people to excessive noise levels near public or private aircraft were analyzed in the SPEIR (Section 4.8, Noise and Vibration, pages 4.8-11 through 4.8-12). Based on the actions described in the CSMP, the SPEIR determined the CSMP would result in no significant impact associated with exposure of people to excessive noise levels near public or private aircraft. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

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?*

No Impact. The potential impacts associated with exposure of people to excessive noise levels near public or private aircraft were analyzed in the SPEIR (Section 4.8, Noise and Vibration, pages 4.8-11 through 4.8-12). Based on the actions described in the CSMP, the SPEIR determined the CSMP would result in no significant impact associated with exposure of people to excessive noise levels near public or private aircraft. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

XIII. Population and Housing

Environmental Issue Area	Impact Analyzed in the PEIR or SPEIR	New Significant Impact due to Unusual Circumstances or Substantial New Information	No Impact or Less than Significant Impact	Less Than Significant with Mitigation - SPEIR Mitigation Measure(s) Applicable	Less Than Significant with Mitigation - New Mitigation Measure(s) Required
Would the project:					
a) Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☒	☐	☒	☐	☐
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☒	☐	☒	☐	☐
c) Displace substantial numbers of people necessitating the construction of replacement housing elsewhere?	☒	☐	☒	☐	☐

Would the project:

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

No Impact. The proposed Project involves the realignment and improvement of the existing VC1 access road to provide more reliable access to the VC1 pipeline and manholes for maintenance. The proposed Project would not directly or indirectly induce growth, but rather minimize risk of SSOs while accommodating the demands of the population, consistent with the City of Vista's SSMP and adjacent jurisdictions General Plans and zoning requirements. Based on these considerations, no impact would result.

b) *Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?*

No Impact. The proposed Project involves the rehabilitation and improvement of the existing VC1 access road to provide more reliable access to the VC1 pipeline and manholes for maintenance. The proposed Project would not displace existing housing or people necessitating the construction of replacement housing elsewhere. No impact would occur.

c) Displace substantial numbers of people necessitating the construction of replacement housing elsewhere?

No Impact. The proposed Project involves the rehabilitation and improvement of the existing VC1 access road to provide more reliable access to the VC1 pipeline and manholes for maintenance. The proposed project would not displace existing housing or people necessitating the construction of replacement housing elsewhere. No impact would occur.

XIV. Public Services

Environmental Issue Area	Impact Analyzed in the PEIR or SPEIR	New Significant Impact due to Unusual Circumstances or Substantial New Information	No Impact or Less than Significant Impact	Less Than Significant with Mitigation - SPEIR Mitigation Measure(s) Applicable	Less Than Significant with Mitigation - New Mitigation Measure(s) Required
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:					
a) Fire Protection?	☒	☐	☒	☐	☐
b) Police Protection?	☒	☐	☒	☐	☐
c) Schools?	☒	☐	☒	☐	☐
d) Parks?	☒	☐	☒	☐	☐
e) Other public facilities?	☒	☐	☒	☐	☐

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

a) Fire Protection?

Less than Significant Impact. The potential impacts to fire protection services as a result of implementing the CSMP were analyzed in the SPEIR (Section 5.0, Effects Determined Not to be Significant, page 5-3). The SPEIR determined that the CSMP, including the Project, would not require new services for fire protection. The physical conditions within the Project area and actions proposed in conjunction with the Project have not substantially changed since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

b) Police Protection?

Less than Significant Impact. See response (a). Implementation of the Project would result in a less than significant impact to police protection services.

c) Schools?

Less than Significant Impact. See response (a). Implementation of the Project would result in a less than significant impact to schools and education services.

d) Parks?

Less than Significant Impact. See response (a). Implementation of the Project would result in a less than significant impact to parks and recreational facilities.

e) Other public facilities?

Less than Significant Impact. The potential impacts associated with public services were analyzed in the SPEIR (Section 5.0, Effects Determined Not to be Significant, page 5-3). The SPEIR determined that the CSMP, including the Project, would not require new services for fire protection, police protection, schools and parks. The physical conditions within the Project area and actions proposed in conjunction with the Project have not substantially changed since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

XV. Recreation

Environmental Issue Area	Impact Analyzed in the PEIR or SPEIR	New Significant Impact due to Unusual Circumstances or Substantial New Information	No Impact or Less than Significant Impact	Less Than Significant with Mitigation - SPEIR Mitigation Measure(s) Applicable	Less Than Significant with Mitigation - New Mitigation Measure(s) Required
Would the project:					
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☒	☐	☒	☐	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☒	☐	☒	☐	☐

Would the project:

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

No Impact. The potential impacts associated with an increase use of existing recreational facilities were analyzed in the SPEIR (Section 5.0, Effects Determined Not to be Significant, page 5-3). As provided, the CSMP would not result in new residential or commercial growth that could otherwise lead to substantial physical deterioration of local parks and recreational facilities. This circumstance would remain unchanged under the Project and no impact would result.

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

No Impact. The potential impacts associated with recreational facilities were analyzed in the SPEIR (Section 5.0, Effects Determined Not to be Significant, page 5-3). The Project does not propose the construction of new or expanded recreational facilities, which could result in adverse physical effects to the environment. The Buena Vista Ecological Service remains closed to public access and, therefore, the physical conditions within the Project area have not substantially changed since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those

originally analyzed in the SPEIR. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

XVI. Transportation/Traffic

Environmental Issue Area	Impact Analyzed in the PEIR or SPEIR	New Significant Impact due to Unusual Circumstances or Substantial New Information	No Impact or Less than Significant Impact	Less Than Significant with Mitigation - SPEIR Mitigation Measure(s) Applicable	Less Than Significant with Mitigation - New Mitigation Measure(s) Required
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?	☒	☐	☒	☐	☐
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?	☒	☐	☒	☐	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or change in location that result in substantial safety risks?	☒	☐	☒	☐	☐
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☒	☐	☐	☒	☐
e) Result in inadequate emergency access?	☒	☐	☒	☐	☐

XVI. Transportation/Traffic

Environmental Issue Area	Impact Analyzed in the PEIR or SPEIR	New Significant Impact due to Unusual Circumstances or Substantial New Information	No Impact or Less than Significant Impact	Less Than Significant with Mitigation - SPEIR Mitigation Measure(s) Applicable	Less Than Significant with Mitigation - New Mitigation Measure(s) Required
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?	☒	☐	☒	☐	☐

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?*

Less than Significant. The potential impacts associated with the performance of the circulation system were analyzed in the SPEIR (Section 4.9, Transportation and Circulation, page 4.9-7). The SPEIR determined that the O&M Program component of the CSMP, including the Project, would not result in significant impacts to roadway operations or capacity. This conclusion is based on the Project's location, which is off the public roadway right-of-way. This basis remains unchanged since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

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?*

No Impact. The potential impacts associated with conflict with an applicable congestion management plan were analyzed in the SPEIR (Section 4.9, Transportation and Circulation, page 4.9-6). The SPEIR determined that the CSMP, including the Project, would not conflict with an applicable congestion management plan and no impact would occur. The basis for this conclusion remain unchanged since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

c) Result in a change in air traffic patterns, including either an increase in traffic levels or change in location that result in substantial safety risks?

No Impact. The potential impacts associated with air traffic patterns were analyzed in the SPEIR (Section 4.9, Transportation and Circulation, pages 4.9-7). The SPEIR determined that the CSMP would have no effect or changes in local air traffic patterns and no impact would occur. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

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

Less than Significant Impact with Mitigation. The potential impacts associated with hazards due to a design feature were analyzed in the SPEIR (Section 4.9, Transportation and Circulation, pages 4.9-8 through 4.9-9). The SPEIR determined that impacts associated with the CSMP would be locally significant in certain circumstances. Mitigation Measure TR-1 (Prepare and Implement a Traffic Control Plan) was proposed to reduce impacts related to temporary traffic related hazards and local driveway access to a level less than significant. The Project and conditions in the Project area have not substantially changed since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. Mitigation Measure TR-1 remains applicable to the proposed Project to maintain access for the existing residence and businesses on Haymar Drive. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

e) Result in inadequate emergency access?

Less than Significant Impact. The potential impacts associated with emergency access were analyzed in the SPEIR (Section 4.9, Transportation and Circulation, pages 4.9-9 through 4.9-10). The Project would be located within an undeveloped area and outside the public roadway right-of-way. In this context, impacts to emergency access would be considered less than significant. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

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?

Less than Significant Impact. The potential impacts associated with conflict with adopted policies, plans, or programs regarding alternative transportation were analyzed in the SPEIR (Section 4.9, Transportation and Circulation, page 4.9-10). The Project would be located outside the public roadway right-of-way. Due to the nature of the Project, construction activities would be short-term and would not disrupt access for non-motorized form of transportation. This impact would be less than significant and the conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

XVII. Utilities and Service Systems

Environmental Issue Area	Impact Analyzed in the PEIR or SPEIR	New Significant Impact due to Unusual Circumstances or Substantial New Information	No Impact or Less than Significant Impact	Less Than Significant with Mitigation - SPEIR Mitigation Measure(s) Applicable	Less Than Significant with Mitigation - New Mitigation Measure(s) Required
Would the project:					
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☒	☐	☒	☐	☐
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?	☒	☐	☒	☐	☐
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?	☒	☐	☒	☐	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☒	☐	☒	☐	☐
e) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☒	☐	☒	☐	☐
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☒	☐	☒	☐	☐

XVII. Utilities and Service Systems

Environmental Issue Area	Impact Analyzed in the PEIR or SPEIR	New Significant Impact due to Unusual Circumstances or Substantial New Information	No Impact or Less than Significant Impact	Less Than Significant with Mitigation - SPEIR Mitigation Measure(s) Applicable	Less Than Significant with Mitigation - New Mitigation Measure(s) Required
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☒	☐	☒	☐	☐

Would the project:

a) *Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?*

No Impact. The potential impacts associated with wastewater treatment requirements were analyzed in the SPEIR (Section 5.0, Effects Determined Not to be Significant, pages 5-3 through 5-4). The SPEIR determined that the CSMP would not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board and no impact would occur. The Project features and conditions in which they were considered have not substantially changed since the certification of the SPEIR. No substantial new information has been presented that shows the project would result in more significant impacts than those originally analyzed in the SPEIR. The conclusion identified in the SPEIR remains accurate and applicable to the proposed project.

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?*

No Impact. The potential impacts associated with water or wastewater facilities were analyzed in the SPEIR (Section 5.0, Effects Determined Not to be Significant, page 5-4). The SPEIR determined that the CSMP would not require the expansion or construction of new water treatment facilities which could otherwise cause significant environmental effects. This circumstance has not changed since the certification of the SPEIR and, therefore, no impact would occur. The conclusion identified in the SPEIR remains accurate and applicable to the proposed project.

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?*

Less than Significant Impact. The potential impacts associated with storm water facilities were analyzed in the SPEIR (Section 5.0, Effects Determined Not to be Significant, page 5-4). The SPEIR determined that the CSMP would not require the expansion or construction of stormwater drainage facilities which could otherwise cause significant environmental effects. Drainage along western sections of the existing VC1 access road is currently impacted by upstream drainage facilities associated with SR 78, which flow into Buena Vista Creek. The Project would not alter these existing facilities or significantly change the timing of runoff to

and from these facilities or to Buena Vista Creek. In this content, this impact is less than significant.

The drainage conditions in the Project area and anticipated Project features have not substantially changed since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

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

Less than Significant Impact. The proposed Project involves the realignment and improvement of the existing VC1 access road. Minimal water would be required to support project-related construction for dust control. Once constructed, the proposed Project would not increase existing water demands within the ecological reserve. This impact is considered less than significant.

e) *Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?*

No Impact. The potential impacts associated with wastewater treatment capacity were analyzed in the SPEIR (Section 5.0, Effects Determined Not to be Significant, pages 5-3 through 5-4). The SPEIR determined that the wastewater treatment provider, Encina Wastewater Authority, has adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments. This circumstance has not changed since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

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

Less than Significant Impact. The potential impacts associated with solid waste were analyzed in the SPEIR (Section 5.0, Effects Determined Not to be Significant, page 5-4). The SPEIR determined that the CSMP, including the Project, would be served by a landfill with sufficient permitted capacity and would comply with solid waste regulations. The Project is not expected to generate substantial amounts of solid waste and construction debris would be recycled per City ordinance. Solid waste disposal capacity within the Project area has not changed since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

g) *Comply with federal, state, and local statutes and regulations related to solid waste?*

Less than Significant Impact. The potential impacts associated with solid waste were analyzed in the SPEIR (Section 5.0, Effects Determined Not to be Significant, page 5-4). The SPEIR determined that the CSMP, including the Project, would be served by a landfill with sufficient permitted capacity and would comply with solid waste regulations. The Project is not expected to generate substantial amounts of solid waste and construction debris would be

recycled per City ordinance. Solid waste disposal capacity within the Project area has not changed since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

XVIII. Energy

Environmental Issue Area	Impact Analyzed in the PEIR or SPEIR	New Significant Impact due to Unusual Circumstances or Substantial New Information	No Impact or Less than Significant Impact	Less Than Significant with Mitigation - SPEIR Mitigation Measure(s) Applicable	Less Than Significant with Mitigation - New Mitigation Measure(s) Required
Would the project:					
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☒	☐	☒	☐	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☒	☐	☒	☐	☐

Would the project:

a) *Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation?*

Less than Significant Impact. The potential impacts associated with energy consumption and efficiency were analyzed in the SPEIR (Section 4.4, Greenhouse Gases and Energy, pages 4.4-13 through 4.4-14). The SPEIR determined that the CSMP would not result in the wasteful, inefficient, or unnecessary consumption of energy and concluded a less than significant impact. The construction and operational characteristics of the Project have not substantially changed since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

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

Less than Significant Impact. The potential impacts associated with energy consumption and efficiency were analyzed in the SPEIR (Section 4.4, Greenhouse Gases and Energy, pages 4.4-13 through 4.4-14). The SPEIR determined that the CSMP would not result in the wasteful, inefficient, or unnecessary consumption of energy and concluded a less than significant impact. The construction and operational characteristics of the Project have not substantially changed since the certification of the SPEIR. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

XIX. Tribal Cultural Resources

Environmental Issue Area	Impact Analyzed in the PEIR or SPEIR	New Significant Impact due to Unusual Circumstances or Substantial New Information	No Impact or Less than Significant Impact	Less Than Significant with Mitigation - SPEIR Mitigation Measure(s) Applicable	Less Than Significant with Mitigation - New Mitigation Measure(s) Required
Would the project cause a substantial adverse change in the significance of a tribal cultural resource defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:					
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?	☒	☐	☐	☒	☐
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	☒	☐	☐	☒	☐

Would the project cause a substantial adverse change in the significance of a tribal cultural resource defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

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

Less than Significant Impact with Mitigation. California Native American tribes traditionally and culturally affiliated with the area containing the site of the proposed Project requested consultation pursuant to PRC Section 21080.3.1, and consultation was initiated by the City. As provided in IV(b), the Project would result in direct impacts to CA-SDI-5652, which is a multi-component site consisting of the Marrón-Hayes Adobes Historic District, and includes historic and prehistoric artifact scatter. This impact could include a substantial adverse change in the significance of a Tribal Cultural Resource pending further consultation with interested

tribes. Implementation of Mitigation Measure CULT-2 and compliance with Carlsbad's Tribal, Cultural, and Paleontological Resources Procedures (2017) is required.

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

Less than Significant Impact with Mitigation. See response to (a).

XX. Wildfire

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

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

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

No Impact. According to the California Department of Forestry and Fire Protection and as depicted in Figure 4.5-1 of the SPEIR, the Project site is not located within a state responsibility area or in an area classified as a very high fire hazard severity zone (California Department of Forestry and Fire Protection 2007). Therefore, the proposed Project would not result in a significant impact associated with wildfire.

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

No Impact. According to the California Department of Forestry and Fire Protection and as depicted in Figure 4.5-1 of the SPEIR, the Project site is not located within a state responsibility area or in an area classified as a very high fire hazard severity zone (California Department of Forestry and Fire Protection 2007). Therefore, the proposed Project would not result in a significant impact associated with wildfire.

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

No Impact. According to the California Department of Forestry and Fire Protection and as depicted in Figure 4.5-1 of the SPEIR, the Project site is not located within a state responsibility area or in an area classified as a very high fire hazard severity zone (California Department of Forestry and Fire Protection 2007). Therefore, the proposed Project would not result in a significant impact associated with wildfire.

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

No Impact. According to the California Department of Forestry and Fire Protection and as depicted in Figure 4.5-1 of the SPEIR, the Project site is not located within a state responsibility area or in an area classified as a very high fire hazard severity zone (California Department of Forestry and Fire Protection 2007). Therefore, the proposed Project would not result in a significant impact associated with wildfire.

XXI. Mandatory Findings of Significance

Environmental Issue Area	Impact Analyzed in the SPEIR	New Significant Impact due to Unusual Circumstances or Substantial New Information	No Impact or Less than Significant Impact	Less Than Significant with Mitigation - SPEIR Mitigation Measure(s) Applicable	Less Than Significant with Mitigation - New Mitigation Measure(s) Required
Would the project:					
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?	☒	☐	☐	☒	☐
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.)	☒	☐	☐	☒	☐
c) Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☒	☐	☐

Authority: Public Resources Code 21083

Would the project:

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?*

Less than Significant with Mitigation. Sections 4.2 and 4.3 of the SPEIR included consideration of potential cumulative impacts to biological and cultural resources.

The physical improvements proposed in conjunction with VC1 have not substantially changed since the certification of the SPEIR. The City would comply with Carlsbad's HMP. No substantial new information has been presented that shows the Project would result in more significant impacts than those originally analyzed in the SPEIR. No new significant impacts were identified as part of the project level analysis. As a result, the conclusion identified in the SPEIR remains accurate and applicable to the Project.

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.)*

Less than Significant with Mitigation. The Project's potential cumulative impacts were analyzed in the SPEIR (Section 4.1 through Section 4.9). The SPEIR determined that no unavoidable significant environmental impacts would occur with implementation of the proposed Project in conjunction with other cumulative projects. Since the preparation of the SPEIR, the City has evaluated the potential for any additional projects, which could otherwise result in cumulative impacts to the Buena Vista Reserve. Following the City's review, two potential cumulative projects were identified in the immediate vicinity of the Project: (1) SR 78 Express Lanes from Interstate (I) 5 to I-15, and (2) the Buena Vista Creek (Type 1) Nature Trail. However, the timing and location of impact for these projects remains unknown.

Given that these projects would be constructed at some point in the future following completion of the Project, no overlapping construction is contemplated. Additionally, these cumulative projects would be subject to the same regulatory permitting requirements, including adherence to Carlsbad's HMP, and incorporation of compensatory mitigation. For this reason, all cumulative impacts would be mitigated to a level less than significant. Compliance with the proposed mitigation measures for the proposed Project would minimize the potential for direct or indirect impacts to be residentially significant. In the absence of residually significant impacts, the incremental accumulation of effects would not be cumulatively considerable.

No substantial new information has been presented that shows more significant impacts than those originally analyzed in the SPEIR and there would be no new significant impacts. The conclusion identified in the SPEIR remains accurate and applicable to the proposed Project.

c) *Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?*

Less than Significant Impact. The Project would be constructed within the Buena Vista Reserve, which is managed by CDFW. No substantial adverse impacts would result to human beings by the Project. By implementing the Project, the City would be able to continue to comply with its adopted SSMP and protect public health and safety.

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Appendix A1. Mitigation Monitoring and Reporting Program (2017)

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Mitigation, Monitoring, and Reporting Program

1. Introduction

The California Environmental Quality Act (CEQA) requires a lead or responsible agency to adopt a mitigation monitoring and reporting program (MMRP) when approving or carrying out a project (Section 21081.6 of the California Public Resources Code). The purpose of this program is to ensure that the mitigation measures identified in an Environmental Impact Report (EIR) or a mitigated negative declaration are implemented as detailed in the environmental document. As lead agency for the Comprehensive Sewer Master Plan (CSMP) Update, the City of Vista (City) is responsible for implementation of this MMRP per the requirements of the (CEQA).

In this context, this MMRP was prepared to provide a monitoring guide to facilitate the implementation of the adopted mitigation measures and related compliance reporting. Once the City adopts the MMRP, the mitigation monitoring/reporting requirements will be incorporated into the appropriate permits and construction documents (i.e., engineering specifications, engineering and construction plans, etc.). In accordance with the aforementioned requirements, this MMRP lists each mitigation measure, describes the methods for implementation and verification, and identifies the responsible party or parties as detailed below in Section 3.

2. Monitoring and Reporting Procedures

This MMRP was developed for each of the improvement categories identified for the City's CSMP (State Clearinghouse Number 2007091072). The MMRP will be in place through all phases of the CSMP, including design, construction, and operation of individual improvements, and will facilitate the implementation of mitigation measures proposed to avoid, minimize, or reduce significant environmental effects.

The City will be responsible for administering the MMRP and ensuring that all parties, including its contractors, comply with its provisions. The City may delegate implementation and monitoring activities to staff, consultants, or contractors. The City will require that its construction contractors submit an environmental compliance plan for approval by the City and construction manager prior to the beginning construction activities.

This plan shall document how the contractor intends to comply with all measures applicable to the contract, including the application of best management practices (BMPs) in accordance with instructions listed in the construction specifications. The City also will ensure that monitoring is documented through systematic compliance verification and reporting and that deficiencies are promptly corrected.

3. Mitigation Monitoring and Reporting Program Implementation

This MMRP was prepared to verify compliance with individual mitigation measures proposed in the Final SPEIR for the 2017 CSMP. Table 1 of this MMRP identifies each mitigation measure by discipline, the entity responsible for its implementation, and the improvement category in which the measure applies. Certain inspections and reports may require preparation by qualified individuals

and these are specified as needed. The timing and method of verification for each measure are also specified.

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
BIOLOGICAL RESOURCES					
BIO-1 - MBTA Nest Avoidance. If construction activities occur between January 15 and September 15, a preconstruction survey (within seven days prior to construction activities) shall be conducted by a qualified biologist to determine if active nests are present within or adjacent to the area proposed for development in order to avoid the nesting activities of breeding birds/raptors. The results of the surveys shall be submitted to the City (and made available to the Wildlife Agencies, upon request) prior to initiation of any construction activities. If nesting activities within 200 feet of the proposed work area are not detected, construction activities may proceed. If nesting activities are confirmed, construction activities shall be delayed within an appropriate buffer (e.g., 300-feet to 500 feet contingent on the species observed) from the active nest until the young birds have fledged and left the nest or until the nest is no longer active as determined by a qualified biologist. The size of the appropriate buffer shall be determined by a qualified biologist based on field conditions. The results of all biological monitoring shall be submitted to the City (and made available to the Wildlife Agencies, upon request).	Prior to and during construction	1, 2, 3, 4	City of Vista Engineering Department	California Deportment of Fish and Wildlife (CDFW), U. S. Fish and Wildlife Service (USFWS)	
BIO-2 - Habitat Assessment and Focused Surveys for Special-Status Species and Sensitive Habitats. Prior to the issuance of project-specific construction documents for CIP Capacity and Condition Projects (Cross-County) and Out-of-Service Access Roads, a habitat assessment shall be conducted by a qualified biologist to determine the potential for special-status species to occur within the anticipated construction area. If the habitat assessment identifies potentially suitable habitat for threatened and endangered species, focused surveys shall be conducted by a qualified biologist to determine their presence or absence. Sensitive vegetation communities shall be documented as part of the habitat assessment. If threatened and endangered species are observed/detected, project specific mitigation measures shall be developed to	Prior to and during construction; post-construction if compensatory mitigation is proposed	2, 4	City of Vista Engineering Department	CDFW, USFWS; City of Carlsbad	

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
mitigate impacts on threatened and endangered species to below a level of significance. Specific measures shall include, but are not limited to: • Early consultation with the wildlife agencies (i.e., USFWS, CDFW) for ESA- and CESA-listed species to ensure avoidance to the greatest extent feasible and appropriate "take" authorization. • Provision of a qualified biological monitor on site during all earth disturbing activities to ensure avoidance of impacts on listed species. • The use of fencing or flagging to identify sensitive areas that support the listed species and to ensure that the areas are protected from direct and indirect impacts. • Implementation of noise reduction measures (e.g., noise attenuation structures) within habitats occupied by listed avian species, and noise monitoring during the breeding season. • Identification and transplantation of listed plant species populations in accordance with best practices. • Impacts to federally listed species covered by the City of Carlsbad's HMP will be required to be consistent with those authorized under the HMP and coordinated with the City of Carlsbad and USFWS. • Avoidance of the breeding seasons for listed species such as: o Arroyo toad—March 1 to September 30 o Least Bell's vireo—March 1 to September 30 o Willow flycatcher (all subspecies)—March 1 to September 30 o Coastal California gnatcatcher—March 1 to September 30					

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
If no threatened or endangered species are observed or detected during focused surveys, but potentially suitable habitat for non-threatened and non-endangered plant or wildlife species is present, a site-specific determination shall be made as to whether the potential impacts are significant based on the degree of threat and the size of the population/occupied habitat to be impacted.					
BIO-3 - Formal Wetland Delineation and Permit Acquisition. If the habitat assessment identifies potential federal and/or state jurisdictional wetlands, a formal jurisdictional delineation shall be prepared. This document shall map the jurisdictional wetlands present and overlay it on the grading footprint of the project, thereby allowing a calculation of the total impacts. If jurisdictional wetlands would be impacted, mitigation shall be required at a minimum 1:1 ratio; however, coordination with USACE (through the 404 process) and CDFW (through the Section 1602 Streambed Alteration Agreement process) may determine a higher ratio is required. Mitigation shall be achieved through a combination of in-kind creation, restoration, and/or enhancement as determined to be appropriate for each site through consultation with the Resource Agencies. Mitigation shall first be considered on-site, then with an approved mitigation bank, and thirdly through offsite mitigation. The appropriate permit applications shall be submitted to state and federal regulatory agencies. The permits issued by these agencies would finalize the mitigation requirements.	Prior to and during construction; post-construction if compensatory mitigation is proposed	2, 4	City of Vista Engineering Department	CDFW, USFWS	
BIO-4 – Avoid and Minimize Direct and Indirect Impacts to Least Bell's Vireo and Southwestern Willow Flycatcher. Consistent with the HMP, the City shall adhere to the following measures to avoid or reduce impacts: a) The removal of native vegetation and habitat shall be avoided and minimized to the maximum extent practicable. Determination of adequate avoidance and minimization of impacts shall be consistent with Sections 0-6 of the HMP. Deviations from these guidelines shall require written concurrence of USFWS and CDFW. For temporary impacts,	Prior to and during construction; post-construction if compensatory mitigation is proposed	4 (VC1)	City of Vista Engineering Department	CDFW, USFWS	

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
the work site shall be returned to pre-existing contours and revegetation with appropriate native species. All revegetation for temporary and permanent impacts shall occur at the ratios specified in applicable permits (e.g., 404 or 1603). Revegetation specifications shall ensure creation and restoration of riparian woodland vegetation to vireo quality. All revegetation plans shall be prepared and implemented consistent with Section F-2 (Habitat Restoration and Revegetation) of the HMP and shall require written concurrence of USFWS and CDFW. If written objections are not provided by the wildlife agencies within 30 days of receipt of written request for concurrence by the local jurisdiction, then the deviation may proceed as approved by the local agency. The wildlife agencies shall provide written comments specifying wildlife agency concerns. b) Contractor shall to the maximum extent practicable avoid impacts during the breeding season of least Bell's vireo (generally March 15 - September 15). Projects that cannot be conducted without placing equipment or personnel in or adjacent to sensitive habitats shall be timed to ensure that habitat is removed prior to the initiation of the breeding season (generally before March 15). c) Construction noise levels at the riparian canopy edge shall be kept below 60 dBA Leq (Measured as Equivalent Sound Level) from 5 a.m. to 11 a.m. during the peak nesting period of March 15 to July 15. For the balance of the day/season, the noise levels shall not exceed 60 decibels, averaged over a one-hour period on an A-weighted decibel (dBA) (i.e., 1 hour Leq/dBA). Noise levels shall be monitored and monitoring reports shall be provided to the jurisdictional city, USFWS, and CDFW. Noise levels in excess of this threshold shall require written concurrence from USFWS and CDFW and may require additional minimization/mitigation measures. d) Brown-headed cowbirds and other exotic species which prey upon least Bell's vireo shall be removed from the site. For new developments adjacent to preserve areas that create conditions attractive to brown-headed cowbirds, jurisdictions					

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
shall require monitoring and control of cowbirds. e) Biological buffers of at least 100 feet shall be maintained adjacent to occupied least Bell's vireo habitat, measured from the outer edge of riparian vegetation. Within this 100-foot buffer, no new development shall be allowed, and the area shall be managed for natural biological values as part of the preserve system. Buffers less than 100 feet shall require written concurrence of the USFWS and CDFW within 30 days of receipt of written request for concurrence by the local jurisdiction.					
BIO-5 – Implement Biological Resource Protection Measures During Construction. The City will implement the following best management practices (BMPs), which are consistent with BMPs in the HMP, during construction to minimize direct and indirect impacts on special-status species. a) Prior to the commencement of construction, the City shall designate a Project Biologist (a person with, at minimum, a bachelor's degree in biology, ecology, or environmental studies with familiarity with federally and/or state listed plant and wildlife species and other, non-listed special-status plant and wildlife species with the potential to be impacted by the project) who shall be responsible for overseeing compliance with protective measures for biological resources during vegetation clearing and work activities within and adjacent to areas of native habitat. The Project Biologist shall be familiar with the local habitats, plants, and wildlife, and shall maintain communications with the contractor to ensure that issues relating to biological resources are appropriately and lawfully managed. The Project Biologist may designate qualified biologists or biological monitors to help oversee project compliance or conduct pre-construction surveys for special-status species. These biologists shall have familiarity with the species for which they would be conducting pre-construction surveys or monitoring construction activities. b) The Project Biologist or designated qualified biologist shall	Prior to and during construction; post-construction if compensatory mitigation is proposed	4 (VC1)	City of Vista Engineering Department	CDFW, USFWS	

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
review final plans, designate areas that need temporary fencing (e.g., environmentally sensitive area [ESA] fencing), and monitor construction activities within and adjacent to areas with native vegetation communities or special-status plant and wildlife species. The qualified biologist shall monitor activities within designated areas during critical times such as vegetation removal, initial ground-disturbing activities, and the installation of BMPs and fencing to protect native species, and shall ensure that all wildlife and regulatory agency permit requirements, conservation measures, and general avoidance and minimization measures are properly implemented and followed. The qualified biologist shall check construction barriers or exclusion fencing and shall provide corrective measures to the contractor to ensure that the barriers or fencing are maintained throughout construction. The qualified biologist shall have the authority to stop work if a special-status wildlife species is encountered within the project area during construction. Construction activities shall cease until the Project Biologist or qualified biologist determine(s) that the animal will not be harmed or that it has left the construction area on its own. The appropriate regulatory agency(ies) shall be notified within 24 hours of sighting of a special-status wildlife species.					
c) Prior to the start of construction, all project personnel and contractors who will be on site during construction shall complete mandatory training conducted by the Project Biologist or a designated qualified biologist. Any new project personnel or contractors that come on board after the initiation of construction shall also be required to complete the mandatory WEAP training before they commence with work. The training shall advise workers of potential impacts to sensitive habitat and federally and/or state-listed and other special-status species, and the potential penalties for impacts to such habitat and species. At a minimum, the training shall include the following topics: (1) occurrences of the special-status species and sensitive vegetation communities in the project area (including vegetation communities subject to USACE, CDFW, and RWQCB jurisdiction), (2) the purpose					

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
for resource protection; (3) a physical description, life history, and habitat requirements of least Bell's vireo, southwestern willow flycatcher, and coastal California gnatcatcher; (4) sensitivity of the species to human activities; (5) protective measures to be implemented in the field, including strictly limiting activities, vehicles, equipment, and construction materials to the fenced to avoid sensitive resource areas in the field (i.e., avoided areas delineated on maps or on the project site by fencing); (6) environmentally responsible construction practices; (7) the protocol to resolve conflicts that may arise at any time during the construction process; and (8) the general provisions of the federal or state ESA, the need to adhere to the provisions of federal and state laws, and the penalties associated with violating federal or state laws; (9) reporting requirements and procedures to follow should a federally and/or state-listed species be encountered during construction; and, (10) avoidance and minimization measures designed to reduce the impacts to federally and/or state-listed and other special-status species. d) The training program shall include color photos of federally and/or state-listed species and sensitive vegetation communities. Following the education program, the photos shall be posted in the contractor and resident engineer's office, where the photos shall remain throughout the duration of project construction. Photos of the habitat in which sensitive species are found shall be posted onsite. The contractor shall be required to provide the City with evidence of the employee training (e.g., a sign-in sheet) on request. Project personnel and contractors shall be instructed to immediately notify the Project Biologist or designated biologist of any incidents that could affect sensitive vegetation communities or special-status species. Incidents could include fuel leaks or injury to any wildlife. The Project Biologist shall notify the City of any incident and the City shall notify the USFWS within 24 hours of being noticed. e) The Project Biologist shall request that the resident engineer halt work, if necessary, and confer with the City prior to					

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
contacting the Carlsbad Fish and Wildlife Office (CFWO) and CDFW to ensure the proper implementation of species and habitat protection measures. The Project Biologist shall report any non-compliance issue to the City and the City will notify the CFWO and CDFW within 24 hours of its occurrence. f) The Project Biologist shall monitor the Project site immediately prior to and during construction to identify the presence of invasive weeds and shall recommend measures to avoid their inadvertent spread in association with the project. Such measures may include inspection and cleaning of construction equipment and use of eradication strategies. All heavy equipment shall be washed and cleaned of debris prior to entering sensitive habitat areas to minimize the spread of invasive weeds. g) ESA fencing shall be placed along the perimeter of the identified work area. Work areas shall be clearly marked in the field and shall be confirmed by the Project Biologist or designated biologist prior to any clearing, and the marked boundaries shall be maintained throughout the duration of the work. Staging areas, including lay down areas and equipment storage areas, shall be flagged and fenced with ESA fencing. h) All native or sensitive habitat areas outside of and adjacent to the designated project limits of disturbance shall be designated as Environmentally Sensitive Areas (ESAs) on project maps. Prior to construction, the Contractor shall delineate the project limits, including construction, staging, lay-down, and equipment storage areas, and erect the construction boundary, with fencing or flagging, along the perimeter of the identified construction area to protect adjacent sensitive habitats and sensitive plant populations. ESAs shall be clearly delineated with fencing or flagging or other BMPs prior to construction to inform construction personnel where the ESAs are located. ESAs fencing may include orange plastic snow fence, orange silt fencing, or stakes and flagging in areas of flowing water. No personnel,					

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
equipment, or debris shall be allowed within the ESAs. Fences and flagging shall be installed by Contractor in a manner that does not impact habitats to be avoided and such that it is clearly visible to personnel on foot and operating heavy equipment. Ten days prior to initiating construction, the Contractor shall submit to the City final plans for initial clearing and grubbing of habitat and project construction. At least five days prior to initiating construction (except for impacts resulting from clearing to install temporary fencing), The City shall submit to the CFWO and CDFW for approval, , the final plans for initial clearing and grubbing of habitat and project construction. These final plans shall include photographs that show the fenced and flagged ESA limits and all areas to be impacted or avoided. If work occurs beyond the fenced or demarcated limits of impact, all work shall cease until the problem has been remedied to the satisfaction of the City, the CFWO, and CDFW. Temporary construction fences and markers shall be maintained in good repair by the Contractor and shall be removed upon completion of project construction. i) No work activities, materials or equipment storage or access shall be permitted outside the project limits without permission from the City. All parking and equipment storage by the contractor related to the Project shall be confined to the project limits. Undisturbed areas and sensitive habitat outside and adjacent to the project limits shall not be used for parking or equipment storage. Project-related vehicle traffic shall be restricted to the project limits and established roads and construction access points. j) Construction activities shall be limited to daylight hours to the extent feasible. If nighttime activities are unavoidable, then workers shall direct all lights for nighttime lighting into the work area and shall minimize the lighting of natural habitat areas adjacent to the work area. The contractor shall use light glare shields to reduce the extent of illumination into sensitive habitats. If the work area is located near surface waters, the lighting shall be shielded such that it does not					

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
shine directly into the water. k) Clearing shall be confined to the minimal area necessary to facilitate construction activities. Cleared vegetation and spoils shall be disposed of daily at a permanent offsite spoils location or at a temporary onsite location that will not create habitat for special-status wildlife species. Spoils and dredged material shall be disposed of at an approved site or facility in accordance with all applicable federal, state, and local regulations. l) Food-related and other garbage shall be disposed of in wildlife-proof containers and shall be removed from the project area daily during the construction period. Vehicles carrying trash shall be required to have loads covered and secured to prevent trash and debris from falling onto roads and adjacent properties. m) All construction equipment used for the Project shall be maintained in accordance with manufacturer's recommendations and requirements and shall be maintained to comply with noise standards (e.g., exhaust mufflers, acoustically attenuating shields, shrouds, or enclosures). n) The Contractor shall implement noise reduction measures (e.g., noise attenuation structures) within habitats occupied by federally and/or state-listed bird species, and shall conduct noise monitoring during the bird breeding season per BIO-4. o) The Contractor shall store all construction-related vehicles and equipment in the designated staging areas. These areas shall not contain native or sensitive vegetation communities and shall not support sensitive plant or wildlife species. p) The Contractor shall avoid wildlife entrapment by completely covering or providing escape ramps for all excavated steep-walled holes or trenches more than 1 foot deep at the end of each construction work day. The qualified biologist shall inspect open trenches and holes and shall remove or release any trapped wildlife found in the trenches or holes prior to					

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
filling by the construction contractor. q) Special-status wildlife can be attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar features; construction equipment; or construction debris left overnight in areas that may be occupied by special-status species that could occupy such structures shall be inspected by a qualified biologist prior to being used for construction. Such inspections shall occur at the beginning of each day's activities for those materials to be used or moved that day. If necessary, and under the direct supervision of the biologist, the structure may be moved up to one time to isolate it from construction activities, until the special-status species has moved from the structure of their own volition, has been captured and relocated, or has otherwise been removed from the structure. r) Capture and relocation of trapped or injured wildlife listed under ESA or CESA can only be performed by personnel with appropriate state and/or federal permits. Any sightings and any incidental take shall be reported to the City via email within one working day of the discovery. A follow-up report shall be sent to the regulatory agencies, including dates, locations, habitat description, and any corrective measures taken to protect special-status species encountered. For each special-status species encountered, the biologist shall submit a completed California Natural Diversity Data Base field survey form (or equivalent) to CDFW no more than 90 days after completing the last field visit to the project site. s) The City shall be notified within one working day of the discovery of, injury to, or mortality of a special-status species that results from project-related construction activities or is observed at the project site. Notification shall include the date, time, and location of the incident or of the discovery of an individual special-status species that is dead or injured. For a special-status species that is injured, general information on the type or extent of injury shall be included. The location of the incident shall be clearly indicated on a					

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
USGS 7.5-minute quadrangle and/or similar map at a scale that will allow others to find the location in the field, or as requested by the City. The biologist is encouraged to include any other pertinent information in the notification.					
t) The spread of dust from work sites to sensitive natural communities or sensitive species habitats on adjacent lands shall be minimized by use of a water truck. Dirt access roads, haul roads, and spoils areas shall be watered at least twice each day when being used during construction dry periods.					
u) The Contractor shall strictly limit their activities, vehicles, equipment, and construction materials to established roads and the project disturbance limits. Posted speed limit signs on local roads and a 15 mile-per-hour speed limit along ingress and egress routes shall be observed. Extra caution shall be used when special-status reptile species may be basking on roads.					
v) To avoid injury or death to wildlife, no firearms shall be allowed on the Project site except for those carried by authorized security personnel or local, state, or federal law enforcement officials.					
w) To prevent harassment, injury, or mortality of sensitive wildlife by dogs or cats, no canine or feline pets shall be permitted in the active construction area.					
x) Plastic monofilament netting or similar material shall not be used for erosion control because smaller wildlife may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackifier hydroseeding compounds. This limitation shall be communicated to the contractor through specifications or special provisions included in the construction bid solicitation package.					
y) Rodenticides and herbicides shall be used in accordance with the manufacturer recommended uses and applications and in such a manner as to prevent primary or secondary poisoning of special-status fish, wildlife, and plant species and depletion of prey populations upon which they depend.					

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
All uses of such compounds shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, the California Department of Pesticide Regulation, and other appropriate state and federal regulations, as well as additional project-related restrictions imposed by the City.					
z) Hazardous materials and equipment stored overnight, including small amounts of fuel to refuel hand-held equipment, shall be stored within secondary containment when within 50 feet of open water to the fullest extent practicable. Secondary containment shall consist of a ring of sand bags around each piece of stored equipment/structure. A plastic tarp/visqueen lining with no seams shall be placed under the equipment and over the edges of the sandbags, or a plastic hazardous materials (HazMat) secondary containment unit shall be used by the Contractor.					
aa) The Contractor shall be required to conduct vehicle refueling in upland areas where fuel cannot enter waters of the U.S. or state and in areas that do not have potential to support federally and/or state-listed species. Any fuel containers, repair materials including creosote-treated wood, and/or stockpiled material that is left onsite overnight shall be secured in secondary containment within the work area and staging/assembly area, and covered with plastic at the end of each work day.					
bb) In the event that no activity is to occur in the work area for the weekend and/or a period of time greater than 48 hours, the Contractor shall ensure that all portable fuel containers are removed from the Project site.					
cc) Equipment and containers will be inspected daily for leaks. Should a leak occur, contaminated soils and surfaces will be cleaned up and disposed of following the guidelines identified in the Stormwater Pollution Prevention Plan (SWPPP), Materials Safety Data Sheets, and any specifications required by other permits issued for the Project.					
dd) The Contractor shall utilize off-site maintenance and repair shops as much as possible for maintenance and repair of					

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
equipment. ee) If maintenance of equipment must occur onsite, fuel/oil pans, absorbent pads, or appropriate containment shall be used to capture spills/leaks within all areas. Where feasible, maintenance of equipment shall occur in upland areas where fuel cannot enter waters of the U.S. or state and in areas that do not have potential to support federally and/or state-listed species.					
CULTURAL RESOURCES					
CULT-1 Construction-Related Vibration. Prior to the issuance of project-specific construction documents for CIP Capacity and Condition Projects (Hardscape Environs), the City Engineer shall determine whether construction activities would occur within 25 feet of a NRHP or CRHR eligible or listed historic structure. For structures that have not been previously evaluated, the City Engineer shall consult with a qualified Architectural Historian approved by the City to conduct an evaluation of the structure. If the structure is determined eligible or already eligible or listed in the NRHP or CRHR, a structural evaluation shall be conducted by a Professional Structural Engineer to identify maximum allowable levels of vibration during construction. If a historic determination is required, the engineer shall provide recommendations on approaches to stabilization in conjunction with vibration monitoring. Permanent stabilization measures shall follow the Secretary of the Interior's guidelines for the treatment of historic properties. If the buildings are temporarily stabilized for the duration of construction activities, when removed, the buildings shall be restored to their pre-construction condition when the stabilization measures are removed.	Prior to and following construction	1, 2	City of Vista Engineering Department	Native American Heritage Commission (NAHC)	

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
CULT-2 - Project-Specific Archaeological Survey. Prior to the issuance of project-specific construction documents for CIP Capacity and Condition Projects (Hardscape and Cross County Environs), Pump Station Rehabilitations, and Out-of-Service Area Projects, a Qualified Archaeologist approved by the City shall contact the NAHC regarding a Sacred Lands File Search for the project area. In addition, the City shall request a written response from the San Luis Rey Band of Mission Indians (SLR Band) (a tribe traditionally and culturally affiliated with the site) regarding whether the site of the 2017 CSMP improvement project may potentially affect Native American resources. If the NAHC and/or the SLR Band confirms potential known resources, a pedestrian survey (i.e., physical walk over) shall first be conducted by the Qualified Archaeologist and a TCA (traditionally and culturally affiliated) Native American Monitor. Should the pedestrian survey identify Native American cultural resources, the Qualified Archeologist shall, in consultation with the TCA Native American monitor and the SLR Band, make an immediate written evaluation of the significance and appropriate treatment of the resource, including any avoidance measures, additional testing and evaluations, or data recovery plans, and Pre-Excavation Agreements with the Tribe. If the SLR Band confirms, in consultation with the Qualified Archaeologist, that there is a potential for unknown resources to be uncovered during construction activities, then Mitigation Measure CULT-3, Archaeological Monitoring, shall be implemented.	Prior to construction	1, 2, 3, 4	City of Vista Engineering Department	NAHC	
CULT-3 Archaeological Monitoring. Cultural resource mitigation monitoring shall be conducted to provide for the identification, evaluation, treatment, and protection of any cultural resources that are affected by or may be discovered during the construction of the proposed project. The monitoring shall consist of the full-time presence of a Qualified Archaeologist and a TCA (traditionally and culturally affiliated) Native American Monitor, and the monitoring activities shall be identified and defined in a Pre-Excavation Agreement between the City's Engineering Department and the San Luis Rey Band. The purpose of this agreement shall be to formalize protocols and procedures for the	During construction	1, 2, 3, 4	City of Vista Engineering Department	NAHC	

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
protection, treatment, and disposition of, but not limited to, such items as Native American human remains, funerary objects, cultural and religious landscapes, ceremonial items, traditional gathering areas and cultural items, located and/or discovered through the cultural resource mitigation monitoring program in conjunction with the construction of the proposed project, including additional archaeological surveys and/or studies, excavations, geotechnical investigations, soil surveys, grading, or any other ground disturbing activities. Other tasks of the monitoring program shall include the following: • The requirement for cultural resource mitigation monitoring shall be noted on all applicable construction documents, including demolition plans, grading plans, etc. • The Qualified Archaeologist and TCA Native American Monitor shall attend all applicable pre-construction meetings with the Contractor and/or associated Subcontractors. • The Qualified Archaeologist shall maintain ongoing collaborative consultation with the TCA Native American Monitor during all ground disturbing or altering activities, as identified above. • The Qualified Archaeologist and/or TCA Native American Monitor may halt ground-disturbing activities if archaeological artifact deposits or cultural features are discovered. In general, ground-disturbing activities shall be directed away from these deposits for a short time to allow a determination of potential significance, the subject of which shall be determined by the Qualified Archaeologist and the TCA Native American Monitor, in consultation with the San Luis Rey Band. Ground disturbing activities shall not resume until the Qualified Archaeologist, in consultation with the TCA Native American Monitor, deems the cultural resource or feature has been appropriately documented and/or protected. At the Qualified Archaeologist's discretion, the location of ground disturbing activities may be relocated elsewhere on the project site to avoid further disturbance of cultural resources.					

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
• The Qualified Archaeologist and/or TCA Native American Monitor may also halt ground disturbing activities around known archaeological artifact deposits or cultural features if, in their respective opinions, there is the possibility that they could be damaged or destroyed. • The avoidance and protection of discovered unknown and significant cultural resources and/or unique archaeological resources is the preferable mitigation for the proposed project. If avoidance is not feasible, a Data Recovery Plan may be authorized by the City as the Lead Agency under CEQA. If data recovery is required, then the San Luis Rey Band shall be notified and consulted in drafting and finalizing any such recovery plan. • Prior to the release of any Bonds associated with the construction of improvements noted in the 2017 CSMP, a Monitoring Report and/or Evaluation Report, which describes the results, analysis and conclusions of the cultural resource mitigation monitoring efforts (such as, but not limited to, a Data Recovery Program) shall be submitted by the Qualified Archaeologist, along with the TCA Native American Monitor's notes and comments, to the City's Director of Community Development for approval.					
CULT-4 Paleontological Monitoring. Monitoring during construction grading or trenching shall be required for all CIP conveyance projects (Hardscape and Cross-Country Environs) that would excavate to a depth of ten feet or more. Prior to the issuance of project specific construction documents, the City Engineer shall retain a Professional Paleontologist to observe all earth-disturbing activities. All fossil materials recovered during mitigation monitoring shall be cleaned, identified, cataloged, and analyzed in accordance with standard professional practices. The results of the field work and laboratory analysis shall be submitted in a technical report and the entire collection transferred to an approved facility.	During constriction	1, 2, 3, 4	City of Vista Engineering Department	NAHC	

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
CULT-5 Disturbance to Human Remains. As specified by California Health and Safety Code Section 7050.5, if human remains are found on the project site during construction or during archaeological work, the person responsible for the excavation, or his or her authorized representative, shall immediately notify the San Diego County Coroner's office by telephone. No further excavation or disturbance of the discovery or any nearby area reasonably suspected to overlie adjacent remains (as determined by the Qualified Archaeologist and/or the TCA (traditionally and culturally affiliated) Native American Monitor) shall occur until the Coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code 5097.98. If such a discovery occurs, a temporary construction exclusion zone shall be established surrounding the area of the discovery so that the area would be protected (as determined by the Qualified Archaeologist and/or the TCA Native American Monitor), and consultation and treatment could occur as prescribed by law. As further defined by State law, the Coroner would determine within two working days of being notified if the remains are subject to his or her authority. If the Coroner recognizes the remains to be Native American, he or she shall contact the Native American Heritage Commission (NAHC) within 24 hours. The NAHC would make a determination as to the Most Likely Descendent. If Native American remains are discovered, the remains shall be kept "in situ" ("in place"), or in a secure location in close proximity to where they were found, and the analysis of the remains shall only occur on-site in the presence of the TCA Native American Monitor.	During construction	1, 2, 3, 4	City of Vista Engineering Department	NAHC, San Diego County	

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
HAZARDS AND HAZARDOUS MATERIALS					
HAZ-1 - Halt Construction Work if Potentially Hazardous Materials are Encountered. All construction contractors shall immediately stop all surface or subsurface activities in the event that potentially hazardous materials are encountered, an odor is identified, or considerably stained soil is visible. Contractors shall follow all applicable local, state, and federal regulations regarding discovery, response, disposal, and remediation for hazardous materials encountered during the construction process. These requirements shall be included in the contractor specifications. If any hazardous materials, waste sites, or vapor intrusion risks are identified prior to or during construction, a qualified professional, in consultation with appropriate regulatory agencies, will develop and implement a plan to remediate the contamination and properly dispose of the contaminated material. If material imports are proposed, the contractor shall furnish the City will appropriate documentation certifying that the imported materials are free of contamination.	During construction	1, 2, 3, 4	City of Vista Engineering Department		
HAZ-2 - Hazardous Materials Surveys. Prior to the issuance of a building permit that includes demolition of on-site structures and prior to commencement of demolition or rehabilitation activities, a Hazardous Materials Assessment (surveys) would be performed to determine the presence or absence of ACMs/LBP located in the structure(s) to be demolished. Suspect materials that would be disturbed by the demolition or rehabilitation activities would be sampled and analyzed for asbestos content, or assumed to be asbestos containing. All lead containing materials scheduled for demolition must comply with applicable regulations for demolition methods and dust suppression. Lead containing materials shall be managed in accordance with applicable regulations. The ACM survey would be conducted by a person certified by the California Division of Occupational Safety and Health (Cal/OSHA). The LBP survey would be conducted by a person certified by the California Department of Health Services. Copies of the surveys would be provided to SDCDEH and SDCAPCD once completed.	Prior to construction	1, 2, 4	City of Vista Engineering Department		

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
HAZ-3 - Keep Construction Area Clear of Combustible Materials. During construction, construction contractors shall ensure that staging areas, welding areas, or areas slated for construction using spark-producing equipment shall be cleared of combustible vegetation or other materials that could serve as fire fuel. All vegetation clearing shall be coordinated with a qualified biologist and any required permits prior to removal. The contractor shall keep these areas clear of combustible materials in order to maintain a firebreak. Any construction equipment that normally includes a spark arrester shall be equipped with an arrester in good working order. This includes, but is not limited to, vehicles, heavy equipment, and chainsaws.	During construction	1, 2, 4	City of Vista Engineering Department		
HAZ-4 - Provide Accessible Fire Suppression Equipment. Work crews shall be required to have sufficient fire suppression equipment readily available to ensure that any fire resulting from construction activities is immediately extinguished. All off-road equipment using internal combustion engines shall be equipped with spark arrestors.	During construction	1, 2, 4	City of Vista Engineering Department		
HYDROLOGY AND WATER QUALITY					
HWQ-1 - Assess Project Risk, Receiving Water Vulnerability, and Implement a Water Quality Protection Strategy. The construction contractor will assess the receiving water vulnerability and develop a SWPPP that complies with the requirements of the NPDES General Construction Permit (Order 2009-0009-DWQ as amended by 2010 0014-DWQ and 2012-006-DWQ) based on the project-specific risk level subject to the City Engineer's approval. The SWPPP shall identify specific actions and BMPs relating to the prevention of stormwater pollution from project-related construction sources by identifying a practical sequence for site restoration, BMP implementation, contingency measures, responsible parties, and agency contacts. The SWPPP shall reflect localized surface hydrological conditions, local jurisdictional requirements. and shall be reviewed and approved by the City Engineer prior to commencement of	Prior to, during, and following construction	1, 2, 3, 4	City of Vista Engineering Department	Cities of Carlsbad, San Marcos, Oceanside; San Diego County; Regional Water Quality Control Board (RWQCB), Region 9	

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
work. The SWPPP shall be prepared by a qualified SWPPP developer with BMPs selected to achieve maximum pollutant removal and that represent the best available technology that is economically achievable. BMPs for soil stabilization and erosion control practices and sediment control practices will also be required. Performance and effectiveness of these BMPs shall be determined either by visual means where applicable (i.e., observation of above-normal sediment release), or by actual water sampling in cases where verification of contaminant reduction or elimination, (e.g., inadvertent petroleum release) is required to determine adequacy of the measure. The SWPPP shall also address other project-specific water quality threats, as required for individual improvements including but not limited to, temporary dewatering, hydrostatic testing, and other resources permits as required under the Federal Clean Water Act, County Grading Ordnance, and State Fish and Game Code, as applicable. Construction and post-construction BMPs will be designed to avoid the creation of standing water and potential mosquito breeding habitat.					
HWQ-2 - Prepare and Implement a Flow Diversion Plan For Construction. The construction contractor shall develop a Flow Diversion Plan(s) for in-channel construction activities. The contractor shall incorporate measures to minimize changes to flood flow elevation(s) during construction, address accumulation of floating debris, provide measures that minimize sedimentation to surface waters, and include contingency measures in the event of substantial rainfall.	Prior to and during construction	1, 4	City of Vista Engineering Department	RWQCB	
NOISE AND VIBRATION					
NV-1 - Construction Noise Reduction Measures. The Construction Contractor shall demonstrate to the satisfaction of the City Engineer that the following noise control techniques are implemented during the clearing, demolition, grading and construction phases of projects identified in the 2017 CSMP	Prior to and during construction	1, 2, 3, 4	City of Vista Engineering Department	Cities of Carlsbad, San Marcos, Oceanside; San Diego County	

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
within 200 feet of noise-sensitive land uses. • Heavy equipment repair and contractor staging shall be conducted at sites as far as practical from nearby residences. • Construction equipment, including vehicles, generators and compressors, shall be maintained in proper operating condition and shall be equipped with manufacturers' standard noise control devices or better (e.g., mufflers, acoustical lagging, and/or engine enclosures). • Temporary sound barriers (or curtains), stockpiles of excavated materials, or other effective shielding or enclosure techniques shall be used where construction noise would exceed 90 dBA within less than 50 feet from a noise sensitive receptor. • Construction work, including on-site equipment maintenance and repair, shall be limited to the hours specified in the noise ordinance of the affected jurisdiction(s). • Electrical power shall be supplied from commercial power supply, wherever feasible, in order to avoid or minimize the use of engine-driven generators. • Electrically powered equipment shall be used instead of pneumatic or internal-combustion powered equipment, where feasible. • Unnecessary idling of internal combustion engines (i.e., in excess of 5 minutes) shall be prohibited. • Operating equipment shall be designed to comply with all applicable local, state, and federal noise regulations. • Construction site and access road speed limits shall be established and enforced during the construction period. • If lighted traffic control devices are to be located within 500 feet of residences, the devices shall be powered by batteries, solar power, or similar sources, and not by an internal combustion engine.					

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
• The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only. • No project-related public address or music system shall be audible at any adjacent sensitive receptor. • The construction contractors shall provide advance notice, between 2 and 4 weeks prior to construction, by mail to all residents or property owners within 200 feet of the alignment. The announcement shall state specifically where and when construction will occur in the area. If construction delays of more than 7 days occur, an additional notice shall be made, either in person or by mail. The City shall publish a notice of impending construction on the City website, stating when and where construction will occur. • The construction contractors shall identify and provide a public liaison person before and during construction to respond to concerns of neighboring residents about noise and other construction disturbance. The construction contractors shall also establish a program for receiving questions or complaints during construction and develop procedures for responding to callers. Procedures for reaching the public liaison officer via telephone or in person shall be included in notices distributed to the public in accordance with the information above.					
TRANSPORTATION AND CIRCULATION					
Mitigation Measure TR-1 - Prepare and Implement a Traffic Control Plan. The construction contractor shall prepare a Traffic Control Plan for roadways and intersections affected by individual 2017 CSMP improvements for approval by the City Engineer. The Traffic Control Plan will comply with local agency requirements (e.g., Vista, Carlsbad, Caltrans, etc.) with jurisdiction over project construction. The Traffic Control Plan will include, but not be limited to, the following elements based on local site and roadway conditions:	Prior to and during construction	1, 2, 4	City of Vista Engineering Department	Cities of Carlsbad, San Marcos, Oceanside; San Diego County	

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
• Provide street layout showing location of construction activity and surrounding streets to be used as detour routes, including "special signage." Post a minimum 72-hour advance warning of construction activities within affected roadways to allow motorists to select alternative routes. • Restrict delivery of construction materials to non-peak travel periods (9 a.m. – 3 p.m.) as appropriate. Weekend and night work shifts will be allowed in non-residential areas only. • Maintain the maximum travel-lane capacity during non-construction periods and provide flagger-control at construction sites to manage traffic control and flows. • Limit the construction work zone in each block to a width that, at a minimum, maintains alternate one-way traffic flow past the construction zone. • Maintain access for driveways and private roads, except for brief periods of construction, in which case property owners will be notified. • Require temporary steel-plate trench crossings, as needed, to maintain reasonable access to homes, businesses, and streets. When required by the applicable encroachment permit, maintain the existing lane configuration during nonworking hours by covering the trench or jack pit with steel plates or by using temporary backfill. • Require appropriate warning signage and safety lighting for construction zones. • Access for emergency vehicles shall be maintained at all times. Police, fire, and emergency services shall be notified of the timing, location, and duration of construction activities that could hinder and/or delay emergency access through the construction period. • Coordinate with NCTD to plan, as needed, for the temporary relocation of bus stops and/or detour of transit routes on affected pipeline alignments.					

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
• Identify detours, where available, for bicyclists and pedestrians in areas potentially affected by project construction. • Provide adequate off-street parking locations for workers' vehicles and construction equipment in those areas where on-street parking availability is insufficient. • Repair or restore the roadway ROW to its original condition or better upon completion of work.					

[1] Project categories identified in the CSMP SPEIR include:

Category 1: CIP Capacity and Condition Projects (Hardscape Environs). Tables 3-3 and 3 4 in Chapter 3 identify the near-term and build out CIP capacity-related projects included within this category. Figures 3-7 and 3-8 illustrate the locations of the capacity improvements. Table 1 in Appendix B of this SPEIR includes a list of CIP condition Projects included within this category. Figures 3-9 through 3-17 illustrate the location of the condition relate improvements.

Category 2: CIP Capacity and Condition Projects (Cross-Country Environs). Tables 3-3 and 3-4 identify the near-term and build out CIP capacity-related projects included within this category. Figures 3-7 and 3-8 illustrate the locations of the capacity improvements. Table 2 in Appendix B of this SPEIR includes a list of CIP condition projects included in this category. Figures 3-9 through 3-17 illustrate the location of the condition-relate improvements.

Category 3: O&M Program Operations and Pump Station Rehabilitation. Table 3-5 in Chapter 3 of this SPEIR includes a list of the O&M Program improvements included within this category.

Category 4: Out-of-Service Area Projects. Figures 3-19 and 3-20 illustrate the out-of-service area project(s) improvements included within this category.

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Appendix A2: Carlsbad Tribal, Cultural, and Paleontological Resources Guidelines

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Carlsbad Tribal, Cultural, and Paleontological Resources Guidelines

Prepared for:

The City of Carlsbad, California

Prepared by:

ECORP Consulting, Inc.

with contributions from Cogstone Resource Management

September 2017

City of Carlsbad California

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Attachment A – Carlsbad City Council Policy No. 83

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Appendix 1 – Separate Implementation Manual

LIST OF ACRONYMS

AB	Assembly Bill
ACHP	Advisory Council on Historic Preservation
APE	Area of Potential Effects
ARMR	Archaeological Resource Management Report
ARPA	Archaeological Resources Protection Act
BLM	Bureau of Land Management
BP	years Before the Present
BSO	Building, Structure, and Object record
CCR	Code of California Regulations
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CHRIS	California Historical Resources Information System
CONUS	Continental United States
CRHR	California Register of Historical Resources
CRMP	Cultural Resources Management Plan
DPR	Department of Parks and Recreation
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EP	Evaluation Plan
FOE	Finding of Effect
GIS	Geographic Information System
GLO	General Land Office
GPS	Global Positioning System
HABS	Historic American Building Survey
HAER	Historic American Engineering Record
HALS	Historic American Landscape Survey
HPDF	Historic Property Data File
HPTP	Historic Property Treatment Plan

IC	Information Center
MLD	Most Likely Descendant
NAD	North American Datum
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPS	National Park Service
NRHP	National Register of Historic Places
OHP	Office of Historic Preservation
PA	Programmatic Agreement
PI	Principal Investigator
PQS	Professional Qualification Standards
ROD	Record of Decision
SB	Senate Bill
SHPO	State Historic Preservation Officer
SLRBMI	San Luis Rey Band of Mission Indians
SOI	Secretary of the Interior
SOQ	Statement of Qualifications
STP	Shovel Test Pits or Shovel Test Probes
TCP	Traditional Cultural Property
TCR	Tribal Cultural Resource
THPO	Tribal Historic Preservation Officer
USA	Underground Service Alert
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
UTM	Universal Transverse Mercator

1.0 Purpose and Need for Guidelines

In 1990, the City of Carlsbad developed its first set of guidelines for the treatment of cultural resources that fall within the limits of the City. The original Cultural Resource Guidelines were prepared with funding from the National Park Service (NPS) via the California Office of Historic Preservation (OHP) and established a standard of performance for cultural resources investigations to meet the requirements of the California Environmental Quality Act (CEQA) that, by today's standards, were narrowly scoped to largely address archaeological sites.

Since 1990, a number of changes have occurred in the regulatory context within which the City operates. These changes occurred at various levels of jurisdiction, including at the city, state, and national levels and in the thresholds and expectations for best professional practices in cultural resources management. Changes have also occurred in terms of the level of involvement by stakeholders in cultural resources, particularly Native American tribes, as well as historical societies and the general public. The changes include the following.

- Carlsbad City Council Policy No. 83, adopted in 2016, calls for the City to "recognize [the City's] responsibility to protect with improved certainty the important historical and cultural values of current Tribal Cultural Resources within the City limits and to establish an improved framework for the City's consultations with Native American Tribes that are traditionally and culturally affiliated with the City of Carlsbad, including the San Luis Rey Band of Mission Indians." This policy calls for improved communication and consultation procedures with local Native American tribes. It will assist the City in implementing the requirements of Assembly Bill (AB) 52 and Senate Bill (SB) 18 through an update to the 1990 Guidelines, which is represented by the current document.

- AB 52, passed by the California legislature in 2014, amended CEQA to require early consultation with California Native American tribes when preparing a CEQA document for a specific project. The City, as CEQA lead agency, must offer consultation with tribes that request notification of projects at the initiation of CEQA. The consultation, if initiated, is to determine whether or not Tribal Cultural Resources, as defined by AB 52, would be affected by the project.

- SB 18, passed by the California legislature in 2005, mandates consultation with California Native American tribes when the City is considering the adoption or amendment of a General Plan or Specific Plan. SB 18 requires that CEQA lead agencies consult with local tribes regarding the provision of open space to protect resources important to Native American tribes.

- The regulations implementing Section 106 of the National Historic Preservation Act of 1966 were amended in 2000 and 2004. The amended regulations, found in the *Federal Register* at 36 CFR Part 800, specify how federal agencies are supposed to take into account the effects of their undertakings on historic properties. The Section 106 regulations apply to projects in the City when the project would receive federal funding, assistance, licenses, approvals, or permits

(such as a Section 404 Clean Water Act permit from the U.S. Army Corps of Engineers [USACE] or funding by the Federal Highway Administration through Caltrans).

- Decisions by the California Courts of Appeal and the California Supreme Court became case law that changed the interpretation of the CEQA Statute and Guidelines. The decision in the *Madera Oversight Coalition vs. County of Madera and Tesoro Viejo, LLC* (January 2012), said that evaluation of cultural resources to determine significance cannot be deferred until after the CEQA document is certified. This decision also said that preservation in place must be adopted to mitigate impacts to archeological sites, if feasible, unless the lead agency determines that another form of mitigation is available and provides "superior mitigation." In the *League for Protection of Oakland's Architectural and Historical Resources vs. City of Oakland and Montgomery Ward & Co, Inc*. (February 1997), it was found that documentation of a historically significant building prior to demolition may not reduce impacts to less than significant. If this is the case, a Statement of Overriding Considerations would be necessary in the Environmental Impact Report (EIR).

- An update to the CEQA Guidelines that took effect January 1, 1999 removed Appendix K and added Section 15064.5, Determining the Significance of Impacts to Archaeological and Historical Resources. This section more clearly defined a Historical Resource in the context of CEQA analysis, and established guidelines to determine whether a project may have a substantial adverse effect on the significance of a Historical Resource. The definition of a Historical Resource was added to the Guidelines in Section 15064.5(a) as a result of *League for Protection of Oakland's Architectural and Historical Resources vs. City of Oakland and Montgomery Ward & Co, Inc., (1997),* which, among other findings, determined that Historical Resources are not just those listed on a local register, but also resources that are eligible for listing in the CRHR or may otherwise be considered locally significant. Other subsections describe the types of actions that have substantial adverse effects, the relationship between historical resources and archaeological resources, and the protocol to follow if human remains are found.

- An update to the CEQA Guidelines took effect September 27, 2016 to revise Appendix G to the CEQA Guidelines to separate the consideration of tribal cultural resources from cultural and paleontological resources, and to add sample checklist questions.

- Best practices in cultural resources management now emphasize avoidance and preservation over destruction with documentation or data recovery. In addition, advances in digital technology have provided cultural resources managers with new tools for resource mapping, documentation, and data management.

- There has been an increased awareness of the importance of early consultation with resource stakeholders as part of project planning, particularly with tribes.

- There is an increasingly complex tribal consultation process that the City is either directly or indirectly affected by, and which varies from project to project.

- City budgetary constraints, coupled with a recent post-recession increase in private-sector development, have led to the need for streamlined processing and compliance verification, and greater City staff efficiency.
- Paleontological resources are now protected under state law and local regulations. These remnants of ancient life have scientific and educational value and are of great interest to many citizens of the City.

These changes have necessitated not only an update to the City's Cultural Resources Guidelines, but the addition of new procedures to address the additional requirements that emerged since the Cultural Resources Guidelines were adopted in 1990. However, guidelines are only effective when they translate a complicated regulatory setting into an understandable set of procedures and when they offer clarification and standardization of implementation that the regulations themselves fail to provide. The City's Cultural Resources Guidelines must:

- be user-friendly for City staff, by including process flow charts, compliance verification forms, and processing checklists that collectively standardize the implementation of the Guidelines and increase efficiency;
- include resources for cultural resources and paleontological consultants that ensure that the work products provided for review by City staff are consistent in terms of level of detail and format, which will contribute to greater efficiency in City staff review and result in fewer denials or requests for further information; and
- be clear, have established timeframes, and provide built-in accountability that removes the uncertainty from the compliance process so that the number of challenges to the need for following specific procedures is reduced.

With the preceding in mind, the following updated and newly named Tribal, Cultural, and Paleontological Resources Guidelines were developed in consultation with the San Luis Rey Band of Mission Indians, cultural and paleontological resources professionals, City staff, and the public. These Guidelines were authored by cultural resources professionals from ECORP Consulting, Inc. who meet the Secretary of the Interior's Professional Qualifications Standards for prehistoric and historic archaeology. Input regarding the built environment was provided by ECORP and City staff who meet the same standards for historian, architectural historian, and historic preservation planner. Contributions regarding paleontological resources were provided by professionally qualified paleontologists from Cogstone Resource Management.

1.1 Organization

These Guidelines are organized into twelve main sections. Section 1 presented the purpose and need for the Guidelines. Section 2 provides definitions of resources that are utilized throughout the Guidelines, and Section 3 provides an overview of the regulatory context. Section 4 includes detailed

cultural and paleontological context statements that can be used by the City and professional consultants in evaluating significance or interpreting site function. Section 5 outlines the roles and responsibilities of those responsible for participating in, implementing, or verifying compliance with these Guidelines. Section 6 presents high-level sensitivity models for archaeological, architectural history, and paleontological resources that are intended to aid the City in making informed decisions about land use. Section 7 provides general standards of analysis, and Sections 8, 9, and 10 provide the processes by which resources are considered under these Guidelines for tribal cultural resources, cultural resources, and paleontological resources, respectively. Section 11 discusses the process by which compliance is verified. References cited in these Guidelines are provided in Section 12.

Attachment A provides a copy of Carlsbad City Council Policy No. 83, which led to the need to update these Guidelines. Appendix 1 is a separate Implementation Manual, which contains templates and forms needed to carry out the procedures specified in these Guidelines. Modifications to the Implementation Manual do not require an amendment to these Guidelines.

2.0 Definitions of Resources

These Guidelines pertain to a variety of types of resources within the City. In the broadest sense, these resources can be classified as either those relating to past human activities or those relating to past non-human life-forms.

2.1 Types

"Cultural resources" are broadly defined as anything made, modified, or moved by a human in the past. Cultural resources can also be described in terms of time period (prehistoric, ethnographic, and historic), culture (for example, Native American or Euroamerican), physical state (archaeological, built environment, landscape level, and sacred/religious), and significance, which is defined as meeting certain criteria and age thresholds specified in the regulations. In particular, a resource that is considered sacred, religious, spiritual or an object of cultural value to Native American tribes, regardless of time period, is a "Tribal Cultural Resource" that is given special and separate consideration under state and federal law, as well as these Guidelines.

"Paleontological resources" are unrelated to humankind. Paleontology is defined as the study of ancient life; paleontological resources include direct remnants of ancient life, such as fossilized bones of vertebrate animals like whales and bison, fossilized invertebrate animals like snail shells and crabs, or fossilized plant parts like pine cones and leaves. In addition, paleontological resources include indirect remnants of ancient life such as fossilized tracks and burrows. Vertebrate fossils are less commonly found compared with invertebrate and plant fossils.

Resources from the human environment (collectively, cultural resources) take many forms. The way in which they are described or classified can similarly vary, such as by time period, cultural affiliation, and physical characteristics. Most often, cultural resources are described using a combination of these characteristics. Commonly accepted definitions for each are provided below.

2.2 Cultural Association

Native American cultural resources are those that are reasonably considered or confirmed (with or without tribal consultation) to be associated with Native American cultures that predated or coexisted with the arrival of Europeans to California. As it pertains to the City, these are generally composed of the Luiseño and Kumeyaay, inclusive of their descendants, ancestors, and modern groups, such as the San Luis Rey Band of Mission Indians.

A specific type of Native American place is one that is considered sacred, spiritual, or religious in nature. This can include Traditional Cultural Properties (TCPs), Traditional Cultural Landscapes (TCLs), and Tribal Cultural Resources (TCRs) that are identified as such by Native American tribes or communities. A TCP, which is a term that applies to federal undertakings and Section 106, "is eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community

that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community" (Parker and King 1998). It is often referenced within the context of Native American culture, but is not exclusive to that culture. A TCR is a term that applies to CEQA and is defined in Section 21074(a) of the Public Resources Code as a site, feature, place, geographically defined cultural landscape, sacred place, or object with cultural value to a California Native American tribe, as defined in Section 3. TCPs and TCRs may or may not exhibit noticeable signs of their presence unless called out by those who identify with them as being cultural resources and may include natural landforms, such as mountain peaks, rivers, or ridge tops. Although at the time of the preparation of these Guidelines a formal definition of TCL has not been developed by the NPS, the ACHP states: "Traditional cultural landscapes are considered by the NRHP to be a type of significance rather than a property type. Property types are limited to those specified in the NHPA and the NRHP regulations and include districts, buildings, structures, sites, and objects. Traditional cultural landscapes can and often do embrace one or more of these property types" (ACHP 2012:2).

Euroamerican resources are those associated with people of European origin and descent, who first arrived in the San Diego area in the mid- to late 1700s. These include, but are not limited to, missionaries, fur trappers, gold miners, ranchers, and farmers who lived in the area when California was administered by Spain, Mexico, and the United States.

2.3 Time Period

Prehistoric resources are places that contain the material remains of activities carried out by the native population of the area (Native Americans) prior to the arrival of Europeans in California. The term "prehistory" originated in academia to mean the time before there were written records, but it is widely understood that the term does not mean "before history;" Native American occupation is known to extend back 10,000 years, representing a Native American "history" that long predates the arrival of Europeans. However, because it is a nearly universal term used in cultural resources management to refer to ancient Native American sites, its usage is retained herein. It is a strong belief held by California Native Americans, including but not limited to the Luiseño, that their people have inhabited this region since time immemorial.

Artifacts found in prehistoric sites include flaked stone tools such as projectile points, knives, scrapers, drills, and the resulting flakes from tool production (also known as debitage); ground stone tools such as manos, metates, mortars, and pestles for grinding seeds and nuts; bone tools, such as awls; ceramic vessels or fragments; and shell or stone beads. Subsistence byproducts (burned animal bone, charred seeds, nuts, or organic residue on ground stone tools) may also be present. Prehistoric features include hearths or rock rings, bedrock mortars and milling slicks, rock shelters, rock art, and burials.

Ethnographic or protohistoric resources are typically considered to be associated with Native American culture, but they can be associated with other groups, like Hispanic, Asian, or other ethnic populations that migrated to California in historic times. Ethnographic resources often reflect a blending or co-occurrence of European and Native American items, such as the presence of glass beads, woven cloth,

and trade goods in Native American sites. With respect to Native American ethnographic sites, archaeologists tend to distinguish this time period as being marked by the arrival of Spaniards to the San Diego area, sometime between 1769 and 1776.

Historic-period resources are places that contain the structures or material remains of activities carried out by people after the arrival of Europeans in the 1700s. Historic archaeological material usually consists of domestic refuse, disposed of either as roadside dumps or near structure foundations. Historic artifacts can include domestic refuse (food containers such as cans and bottles, ceramic and glass vessels for preparing and serving food and beverages, utensils, food waste, cosmetic and grooming items [perfume and cosmetics jars, combs brushes, mirrors], and clothing fasteners), building material (brick, concrete, concrete blocks, lumber, window glass, water and sewer pipe, nails, screws, bolts, and other metal fasteners), auto parts and oil cans, tools, and other miscellaneous items. Historic features include privies, pits, wells, and structure foundations. Archaeological investigations of historic-period sites are usually supplemented by historical research using written records.

Historic structures include houses, garages, barns, commercial structures, industrial facilities, community buildings, dams, levees, and other structures and facilities with extant architecture that are usually more than 45 years old. Historic structures may also have associated archaeological deposits, such as abandoned wells, cellars, and privies, refuse deposits, and foundations of former outbuildings. Note that the use of "historic" instead of "historical" is deliberate in this context, as explained in Section 3.

2.4 Physical Characteristics

Archaeological resources are composed of the remnants of past human activity, and include, but are not limited to, surface or subsurface artifact scatters, midden deposits, subsurface features, and human remains associated with any culture. According to National Register Bulletin 15, a "site" is the "location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, whether standing, ruined, or vanished, where the location itself possesses historic, cultural, or archeological value regardless of the value of any existing structure. They include village sites, cemeteries, rock art, habitation sites, camp sites, and other archaeological features." A discussion of the National Register of Historic Places and related federal laws, upon which the National Register Bulletin relies and implements, is provided in Section 3.

Archaeological sites are the locations of an event, a prehistoric or historic occupation or activity, or the former location of a building or structure, where the location itself possesses historic, cultural, or archaeological value regardless of the value of any existing structure or feature (OHP 1995). Archaeological sites can be defined by the presence of one or more features or artifacts. When based solely on artifact presence, archaeological sites are defined as such when there are at least three artifacts in a ten-square meter area.

Archaeological isolates are individual artifacts that are reasonably believe to be out of primary context, such as artifacts that have been transported a distance from their original locations due to a variety of cultural or natural processes. In some cases, isolates indicate the presence of more extensive subsurface archaeological deposits. In other cases, particularly where the isolate is not in primary context, the presence of an isolate may indicate a more extensive prehistoric site in the vicinity, or simply reflects the general sensitivity of the area.

Archaeological districts are further defined as "a significant concentration, linkage, or continuity of sites important in history or prehistory" by plan or by physical development (Keller and Keller, n.d.; OHP 1995). Examples of historic archaeological districts may consist of ranches, farms, mining landscapes, and historic town sites that contain a subsurface element. The same criteria are applied to prehistoric districts, which may consist of interconnected village sites, temporary camping sites, and a combination of archaeological sites, ethnographic landscapes, and/or traditional cultural properties.

Features are considered "minor components of larger resources, like sites or districts. Features generally consist of small constructed works, discrete activity areas, landscaping, earthworks, non-portable natural objects modified by human use, and other similar cultural entities. They include, but are not limited to values such as: a garage or landscaping associated with a house; a gate valve associated with a ditch; an adit (entrance to an underground mine), tailings, or ruined mill that are part of a mining complex; or a trash pit, orchard, discrete activity area, bedrock milling station, rock art panel, or carved tree associated with a site" (OHP 1005:3). Historic archaeological features can include refuse dumps along roads or drainages with domestic refuse and/or building material; refuse dumps and deposits of domestic refuse and/or building material associated with a farmstead, ranch, residence, or commercial establishment; features and dumps/deposits associated with a historic-period farmstead, ranch, residence, or commercial establishment; or foundations or privies. Features associated with transportation include roads, highways, bridges, railroad grades and tracks, airfields, and runways that are at least 50 years old. Linear features may have since been paved over or graded, but may retain their original alignments, thereby possessing some aspects of integrity.

The *built environment* generally is considered to describe extant architecture and structures that are above ground and can still be utilized for the purpose it was originally intended, even if not effectively due to a loss of integrity. Sections IV and VIII of National Register Bulletin 15 (How to Apply the National Register Criteria for Evaluation) further define a building as "a house, barn, church, hotel, or similar construction, is created principally to shelter any form of human activity. 'Building' may also be used to refer to a historically and functionally related unit, such as a courthouse and jail or a house and barn. If a building has lost any of its basic structural elements, it is usually considered a "ruin" and is categorized as a site." Bulletin 15 also defines the term 'structure' "to distinguish from buildings those functional constructions made usually for purposes other than creating human shelter and include dams and earthworks." The built environment may also include roads, agricultural irrigation systems, and similar features. These types of resources are studied by architectural historians, rather than archaeologists.

Common types of resources within the built environment include buildings, structures, objects, and signs. A *building*, such as a house, barn, church, hotel, or similar construction, is created principally to shelter any form of human activity. Building may also be used to refer to a historically and functionally related unit, such as a courthouse and jail or a house and barn (OHP 1995).

The term *structure* is used to distinguish from buildings those functional constructions made usually for purposes other than creating human shelter, such as roads, bridges, canals, fences, windmills, dams, etc.) (OHP 1995).

The term *object* is used to distinguish from buildings and structures those constructions that are primarily artistic in nature or are relatively small in scale and simply constructed; although it may be, by nature or design, movable, an object is associated with a specific setting or environment (OHP 1995). This includes *signs*.

Furthermore, in accordance with Title 22 of the City's Municipal Code, *historic district* means any area that contains several historic resources or landmarks that have special character or special historical value, or which represent one or more architectural periods or styles typical to the history of the City, that has been designated a historic district pursuant to Title 22 (see Section 3).

Title 22 also defines *historic resources* as sites, places, areas, landscape, buildings, structures, signs, features, or other objects of scientific, aesthetic, educational, cultural, architectural, or historic significance to the citizens of the City and includes both historic landmarks and historic districts. This is notably different from the term "historical resource," which is defined in the California Public Resources Code as a cultural resource that warrants further consideration under CEQA.

Historic site, as defined in Title 22, means any parcel or portion of real property that has special character or special historic, cultural, archeological, paleontological, architectural, community or aesthetic value.

A *cultural landscape* is recognized for the relationship between cultural and natural features on a broad scale. These can be prehistoric or historic, and can be associated with specific cultures. Examples include large areas of historic mine tailings, prehistoric or ethnographic hunting and gathering locations, historic agricultural areas, and archaeological or historic districts. A rural historic landscape is defined as "a geographical area that historically has been used by people, or shaped or modified by human activity, occupancy, or intervention, and that possesses a significant concentration, linkage, or continuity of areas of land use, vegetation, buildings and structures, roads and waterways, and natural features" (McClelland *et al.* 1999). Cultural landscapes may include historic homesteads, ranching and grazing lands, or agricultural facilities and fields that have persisted for generations.

An *ethnographic landscape* is defined as a cultural landscape, composed of natural and cultural features, which an associated population defines as a heritage resource. In either case, the individual elements that compose the cultural landscapes (or districts) are always recognized for being related in time and function. The National Park Service (NPS) initially identified ethnographic landscapes within

the grouping of four types of "historical landscapes" (historic site, historic vernacular, historic designed, and ethnographic). The NPS defined ethnographic landscapes as "a landscape containing a variety of natural and cultural resources that associated people define as heritage resources. Examples are contemporary settlements, sacred religious sites, and massive geological structures. Small plant communities, animals, subsistence and ceremonial grounds are often components" (NPS 2000).

The NPS's Applied Ethnography program believed the initial definition of ethnographic landscapes to be too broad, and thus expanded the definition to include "a relatively contiguous area of interrelated places that contemporary cultural groups define as meaningful because it is inextricably and traditionally linked to their own local or regional histories, cultural identities, beliefs and behaviors. Present-day social factors such as people's class, ethnicity, and gender may result in the assignment of diverse meanings to a landscape and its component places" (Evans et al. 2001).

A *prehistoric landscape* falls under the NPS's definition of a "cultural landscape" which includes several types of historic landscapes. The NPS defines a historic landscape as "a geographic area, including both natural and cultural resources, including the wildlife or domestic animals therein, that has been influenced by or reflects human activity or was the background for an event or person significant in human history" (Melnick 1984). Prehistoric landscapes are similar to ethnographic and historic landscapes, in that they may include the natural and cultural resources within a designated area. But unlike ethnographic landscapes, they do not contain landscape features associated with cultural practices or beliefs of a living community which have been passed down through generations. Prehistoric landscapes may consist of prehistoric travel routes, quarry sites, or groups of sites associated by archaeological deposits and/or features within a geographic region.

A *rural historic landscape* is defined as "a geographical area that historically has been used by people, or shaped or modified by human activity, occupancy, or intervention, and that possesses a significant concentration, linkage, or continuity of areas of land use, vegetation, buildings and structures, roads and waterways, and natural features" (McClelland *et al*. 1999).

3.0 Regulatory Context

These Guidelines were developed to satisfy a variety of local, state, and federal requirements, to the greatest extent that they apply to any given project and for requirements over which the City has either jurisdiction or the ability to execute. Full compliance with federal law cannot be achieved solely by the City, and therefore, these procedures will result in project planning and environmental impact decisions that can be utilized by federal agencies to complete the compliance process. A summary of the scope of the regulatory context, including excerpts, is provided below. Not all projects under City jurisdiction will require compliance with all of these regulations.

3.1 Local

3.1.1 City of Carlsbad General Plan

The City of Carlsbad General Plan (2015) affords consideration for the preservation of cultural resources. The City's Vision Statement Core Values for their General Plan note examples of the historical resources within the City including the Rancho Carrillo, the Marron Adobe, the Barrio neighborhood, the Magee House, and the Village. The General Plan includes guidelines to help revitalize the historic Barrio and Village neighborhoods. The General Plan also states the goal of enhancing education about the area's Native American history. Following are relevant goals and policies of the *Arts, History, Culture, and Education Element* of the City's General Plan*:*

Goal 7-G-1: Recognize, protect, preserve, and enhance the city's diverse heritage.

> Policy 7-P.1 Prepare an updated inventory of historic resources in Carlsbad, with recommendations for specific properties and districts to be designated in national, state, and local registries, if determined appropriate and with agreement of the property owners.
>
> Policy 7-P.2 Encourage the use of regional, state and federal programs that promote cultural preservation to upgrade and redevelop properties with historic or cultural value. Consider becoming a participant in the Mills Act tax incentive program.
>
> Policy 7-P.5 Encourage the rehabilitation of qualified historic structures through application of the California Historical Building Code.
>
> Policy 7-P.6 Ensure compliance with the City of Carlsbad Cultural Resource Guidelines to avoid or substantially reduce impacts to historic structures listed or eligible to be listed in the National Register of Historic Places or the California Register of Historical Resources.
>
> Policy 7-P.7 Implement the City of Carlsbad Cultural Resources Guidelines to avoid or substantially reduce impacts to archaeological and paleontological resources.
>
> Policy 7-P.8 During construction of specific development projects, require monitoring of grading, ground-disturbing, and other major earth-moving activities in previously undisturbed

areas or in areas with known archaeological or paleontological resources by a qualified professional, as well as a tribal monitor during activities in areas with cultural resources of interest to local Native American tribes. Both the qualified professional and tribal monitor shall observe grading, ground-disturbing, and other earth-moving activities.

Policy 7-P.9 Ensure that treatment of any cultural resources discovered during site grading complies with the City of Carlsbad Cultural Resource Guidelines. Determination of the significance of the cultural resource(s) and development and implementation of any data recovery program shall be conducted in consultation with interested Native American tribes. All Native American human remains and associated grave goods shall be returned to their most likely descendent and repatriated. The final disposition of artifacts not directly associated with Native American graves shall be negotiated during consultation with interested tribes; if the artifact is not accepted by Native American tribes, it shall be offered to an institution staffed by qualified professionals, as may be determined by the City Planner. Artifacts include material recovered from all phases of work, including the initial survey, testing, indexing, data recovery, and monitoring.

Policy 7-P.10 Require consultation with the appropriate organizations and individuals (e.g., Information Centers of the California Historical Resources Information Systems [CHRIS], the Native American Heritage Commission [NAHC], and Native American groups and individuals) to minimize potential impacts to cultural resources that may occur as a result of a proposed project.

Policy 7-P.11 Prior to occupancy of any buildings, a cultural resource monitoring report identifying all materials recovered shall be submitted to the City Planner.

Goal 7-G.2: Make Carlsbad's history more visible and accessible to residents and visitors.

Policy 7-P.3 Formalize a program of historical markers/plaques at resources in state and national registers or of local importance.

Policy 7-P.4 Promote community education of historic resources, integration and celebration of such resources as part of community events:

a. Enhance the community's recognition that objects of historic importance increase both fiscal and community value.

b. Promote the use of historic resources for the education, pleasure and welfare of the people of the city. Cooperate with historic societies, schools, libraries, parks and community members to stimulate public interest in historic preservation.

c. Maintain historical reference materials on file at the Carlsbad City Library.

The General Plan includes designating Special Resource Areas that help reserve natural and cultural features within the City. Following is a relevant policy of the *Open Space, Conservation, and Recreation Element* of the City's General Plan:

> Policy 4-P.32: Where appropriate, designate as open space those areas that preserve historic, cultural, archeological, paleontological and educational resources. Promote expansion of recreational and educational use opportunities in areas of significant ecological value, such as lagoons, where discretionary use of the resource allows. Consider partnering with private foundations for the conservation of such lands and the development of educational programming.
>
> - Combine historically significant sites with recreational learning opportunities, where possible.
> - Utilize community parks in support of historical and cultural programs and facilities when feasible and appropriate.
> - Coordinate the efforts of the Historic Preservation Commission on the siting and care of historic ruins within parks.

3.1.2 City of Carlsbad Municipal Code

The City of Carlsbad Municipal Code *Title 22 Historic Preservation* discusses historic and archaeological resources within the City. It includes definitions of local resource types, procedures for owners who want to voluntarily apply for historic site, landmark or district designations, and some regulatory provisions that may be available to owners of historic properties. The full text of Title 22 is available on the City's website. Compliance with Title 22 is voluntary as stated in the ordinance as of the date of these Guidelines. As such, Title 22 is not a regulatory code for the purposes of implementing CEQA. The other laws and regulations referenced and discussed in these Guidelines are instead utilized by the City for CEQA purposes, including Municipal Code *Title 19, Environment*.

The City of Carlsbad Historic Preservation Commission implements Title 22 and the duties of the Commission specified in Municipal Code Chapter 2.42. The five-member Historic Preservation Commission acts in an advisory capacity to the City Council and Planning and Housing Commissions in all matters relating to the identification, protection, retention, and preservation of historic sites and areas in the City. Their responsibilities are to recommend the designation of historic landmarks or historic districts, to maintain a historic resources inventory, to provide advice and guidance on the restoration or modification of any historical area or site when requested by the property owner, and to conduct programs to educate local residents regarding historic places, structures, or events. The Historic Preservation Commission is included on the list of interested parties that receive notices for Mitigated Negative Declarations and Environmental Impact Reports prepared for development projects in accordance with CEQA. The notice provides the opportunity for the Commission to comment on CEQA documents for any development project that would affect a historic structure,

archaeological or paleontological site that is identified on an adopted city historic resources inventory or within a project's cultural resources study.

3.1.3 Local Coastal Program

The City of Carlsbad's Local Coastal Program (LCP), which provides guidelines and land use policies for the City's Coastal Zone, outlines requirements for cultural resources within the Coastal Zone. The coastal zone is separated into several geographic areas or segments; the first two created in the early 1980s were called Mello I and Mello II, after state legislator Henry Mello, who sponsored the legislation that created the mechanism for the LCP. Select policies relevant to cultural resources are included below.

Mello I Segment, Policy 4 - Environmental Impact Report: In the event of commercial and/or residential development pursuant of a coastal development permit, biological and cultural resources on the site shall be identified, and any adverse impacts associated with development mitigated, through a site specific environmental impact report (EIR). Proposed mitigation shall be incorporated in the project design.

Mello II Segment: There are two applicable policies:

> Policy 8-2 Potentially Historic Structures: The City's historic structures which have the potential to meet criteria for inclusion in the National Register of Historic Places appear to be economically well-used at present. The sites with historic significance of "local importance" also appear to be in active use. However, maintenance, repair and use of these properties may require special attention. The building code flexibility and tax benefits which may be available to such properties need further study. The City of Carlsbad in conjunction with individual property owners of historically significant structures should determine which local and federal programs are applicable and take advantage of them as appropriate.
>
> Policy 8-4 Archaeological and Paleontological Resources: The environmental impact review process will determine where development will adversely affect archaeological and paleontological resources. A site-specific review should also determine the most appropriate methods for mitigating these effects. Most importantly, the City of Carlsbad should require the implementation of these measures.

West Batiquitos Lagoon/Sammis Properties Segment: A program of preservation and/or impact mitigation regarding archaeological sites located on the affected area shall be completed prior to any development.

North Coast Corridor PWP Overlay Local Coastal Program Land Use Plan Amendment (2014), Policy 3.7 Archaeological and Paleontological Resources, 3.7.1: Transportation, community and resource enhancement projects in the North Coast Corridor shall strive to protect and minimize impacts to archaeological and paleontological resources. Where North Coast Corridor projects may potentially adversely impact archaeological or paleontological resources, appropriate mitigation measures shall

be required and implemented consistent with the policies of the NCC PWP/TREP (as prepared by Caltrans/SANDAG, dated August 13, 2014). Any future amendment of the original PWP shall not decrease the level of protection of archaeological and paleontological resources guaranteed by the policies in the NCC PWP/TREP such that the project as a whole would no longer be, on balance, most protective of significant coastal resources.

3.1.4 City of Carlsbad Council Policy No. 83

Effective March 1, 2016, the City Council passed Policy No. 83, *Tribal Consultation and Treatment and Protection of Tribal Cultural Resources*. The purpose of the policy was to recognize the City's "responsibility to protect with improved certainty the important historical and cultural values of current Tribal Cultural Resources within the City limits and to establish an improved framework for the City's consultation with Native American Tribes that are traditionally and culturally affiliated with the City of Carlsbad, including the San Luis Rey Band of Mission Indians."

This policy arose out of focused consultation with San Luis Rey Band of Mission Indians and, to the extent allowed under the authority of the City, urges City and private projects under the jurisdiction of the City to be designed to avoid or substantially reduce impacts to Tribal Cultural Resources, as defined in CEQA (see below). The policy also requires the updating of the 1990 Guidelines.

3.2 State

3.2.1 California Environmental Quality Act (CEQA)

The City is similarly bound to comply with applicable sections of CEQA (Pub. Res. Code §21000 et seq.) as it relates to tribal, cultural, and paleontological resources. The goal of CEQA is to develop and maintain a high-quality environment that serves to identify the significant environmental effects of the actions of a proposed project and to either avoid or mitigate those significant effects where feasible. CEQA pertains to all proposed discretionary projects that require state or local government agency approval, including the enactment of zoning ordinances, the issuance of conditional use permits, and the approval of development project maps. Ministerial actions, or those that fall under one of a number of exemptions, are not subject to CEQA.

In accordance with CEQA, any project with an effect that may cause a substantial adverse change in the significance of a cultural resource, either directly or indirectly, is a project that may have a significant effect on the environment. As a result, such a project would require avoidance or mitigation of impacts to those affected resources. Significant cultural resources must meet at least one of four criteria that define eligibility for listing on the California Register of Historical Resources (CRHR) (Pub. Res. Code §5024.1, Title 14 CCR, §4852). Resources listed on or eligible for inclusion in the CRHR are considered Historical Resources under CEQA.

A Historical Resource is a resource that 1) is listed in or has been determined eligible for listing in the CRHR by the State Historical Resources Commission; 2) is included in a local register of historical

resources, as defined in Public Resources Code 5020.1(k); 3) has been identified as significant in an historical resources survey, as defined in Public Resources Code 5024.1(g); or 4) is determined to be historically significant by the CEQA lead agency [CCR Title 14, Section 15064.5(a)]. In making this determination, the CEQA lead agency usually applies the CRHR eligibility criteria.

The eligibility criteria for the CRHR are as follows [CCR Title 14, Section 4852(b)]:

1. It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;
2. It is associated with the lives of persons important to local, California, or national history.
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or
4. It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

In addition, the resource must retain integrity. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association [CCR Title 14, Section 4852(c)]. Impacts to a Historical Resource (as defined by CEQA) are significant if the resource is demolished or destroyed or if the characteristics that made the resource eligible are materially impaired [CCR Title 14, Section 15064.5(a)].

Prior to the amendments to the CEQA guidelines that established the significance criteria under the CRHR and defined Historical Resources, the CEQA statute only required that the lead agency consider whether or not the project will have a significant impact on unique archaeological sites. A unique archaeological resource is an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria.

1. It contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2. It has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. It is directly associated with a scientifically recognized important prehistoric or historic event or person (PRC Section 21083.2 [g]).

CEQA Guidelines require that it should first be determined whether an archaeological site is an Historical Resource (is eligible for the CRHR) (14 CCR Section 15064[c][1]). If the site is a Historical Resource, then the guidelines for assessing impacts to, and mitigation for, archaeological sites that are Historical Resources should be followed and the financial limits on mitigation for unique archaeological sites do not apply (14 CCR Section 15064[c][2]).

As a practical matter a site that meets any of the three criteria for unique archaeological sites will almost always meet the definition of a Historical Resource under the CRHR eligibility criteria. Likewise, a site that fails to meet the definition of a unique archaeological site will similarly not meet the definition of a Historical Resource. Therefore, in almost all cases the provisions for unique archaeological sites will not apply if archaeological sites are first evaluated using CRHR criteria to determine if they are Historical Resources. The State CEQA Guidelines note that if a resource is neither a unique archaeological resource nor a Historical Resource, the effects of the project on that resource shall not be considered a significant effect on the environment (14 CCR Section 15064[c][4]).

CEQA also requires that the lead agency consider impacts to Tribal Cultural Resources. A Tribal Cultural Resource that meets the statutory definition does not have to be further evaluated for significance. Section 21074(a) of the Public Resource Code defines Tribal Cultural Resources for the purpose of CEQA as:

> Sites, features, places, cultural landscapes (geographically defined in terms of the size and scope), sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
>
> a. included or determined to be eligible for inclusion in the California Register of Historical Resources; and/or
>
> b. included in a local register of historical resources as defined in subdivision (k) of Section 5020.1; and/or
>
> c. a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

Recognizing that California Native American tribes are experts in their Tribal Cultural Resources and heritage, AB 52 amended CEQA to require lead agencies initiate consultation with tribes at the commencement of the CEQA process to identify Tribal Cultural Resources. Furthermore, because a substantial adverse change to a Tribal Cultural Resource is considered a significant impact on the environment under CEQA, consultation is required to develop appropriate avoidance, impact minimization, and mitigation measures.

The process by which consultation with tribes occurs in CEQA was established with the passage of AB 52. Effective July 1, 2015, a lead agency must provide notice to any California Native American tribe that has requested notice of projects proposed by the lead agency; and for any tribe that responded to the notice within 30 days of receipt with a request for consultation, the lead agency must consult with the tribe. Topics that may be addressed during consultation include the presence or absence of Tribal Cultural Resources, the potential for the project to cause a substantial adverse change to Tribal

Cultural Resources, type of environmental document that should be prepared, and possible mitigation measures and project alternatives.

The CEQA Guidelines, Appendix G, include paleontological resources among those resources that should be considered when evaluating the environmental impacts of a proposed project. Effects to unique paleontological resources typically occur through ground-disturbing activities. Significance of the discovery and importance of the resource may determine the level of consideration.

Changes to the CEQA Statute resulting from the passage of AB 52 and revisions to the CEQA Guidelines to incorporate the requirements of AB 52 have clarified that cultural resources, tribal cultural resources, and paleontological resources being considered as separate types of resources. This is because all Tribal Cultural Resources are cultural resources by definition, but not all cultural resources are Tribal Cultural Resources. In addition, a Tribal Cultural Resource might also meet the legal definition of a historical resource under CEQA, warranting consideration as both types of resources. Paleontological resources are natural (related to geology and biology), and not cultural (related to humans), in nature.

3.2.2 Senate Bill 18

SB 18 was signed into law in September 2004 and became effective in March 2005. SB 18 (Burton, Chapter 905, Statutes of 2004) requires city and county governments to consult with California Native American tribes early in the planning process with the intent of protecting traditional tribal cultural places. The purpose of involving tribes at the early stage of planning efforts is to allow consideration of tribal cultural places in the context of broad local land use policy before project-level land use decisions are made by a local government. As such, SB 18 applies to the adoption or substantial amendment of general or specific plans. The process by which consultation must occur in these cases was published by the Governor's Office of Planning and Research through its Tribal Consultation Guidelines: Supplement to General Plan Guidelines (November 14, 2005).

3.2.3 California Coastal Act

Section 30244 of the Act, "Archaeological or Paleontological Resources" states that: "Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required."

If paleontological resources are present, efforts should be undertaken to monitor construction activities in potentially significant areas to reduce the adverse effects to paleontological resources and to salvage any significant fossils, or to avoid the site entirely. The City's certified Local Coastal Program, in conjunction with the California Coastal Commission, implements the California Coastal Act within the boundaries of Carlsbad.

3.2.4 Public Resources Code Section 5097.5

Section 5097.5 (a & b) of the California Public Resources Code Section states:

> "No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.
>
> As used in this section, "public lands" means lands owned by, or under the jurisdiction of, the state, or any city, county, district, authority, or public corporation, or any agency thereof."

3.2.5 California Public Resources Code 5097.9

Public Resources Code 5097.9 establishes that no public agency or private party using or occupying public property or operating on public property, under a public license, permit, grant, lease, or contract made on or after July 1, 1977 shall interfere with the free expression or exercise of Native American religion. This code also prohibits damage to a Native American sanctified cemetery, place of worship, religious or ceremonial site, or sacred shrine located on public property, except on a clear and convincing showing that the public interest and necessity so require.

3.2.6 California Public Resources Code 5097.98

Public Resources Code 5097.98 specifies procedures to be followed in the event of the discovery of Native American human remains. This code specifies that the county Medical Examiner shall immediately notify the persons believed to be most likely descended from the deceased Native American. It provides that the most likely descendant has the right to inspect the site, with permission of the land owner, and provide recommendations for treatment of the remains and grave goods within 48 hours of being granted access to the site. The code also provides procedures in the event that the most likely descendant is unable to be identified or the identified descendants fail to make a recommendation.

3.2.7 California Public Resources Code 5097.99

Public Resources Code 5097.99 states that no person shall obtain or possess any Native American artifacts or human remains except as otherwise provided by law. The code further states that unlawful possession of these items is a felony, punishable by imprisonment.

3.2.8 California Health and Safety Code 7050.5

Health and Safety Code 7050.5 establishes the intentional disturbance, mutilation, or removal of interred human remains a misdemeanor. This code also requires that upon the discovery of human remains outside of a dedicated cemetery excavation or disturbance of land cease until a county Medical Examiner makes a report. The code also requires that the county Medical Examiner contact the NAHC within 24-hours if he or she determines the remains to be of Native American origin.

3.2.9 California Code of Regulations (Title 14, Division 3, Chapter 1)

Section 4307 of the California Code of Regulations regarding Geological Features applicable to lands administered by the California Department of Parks and Recreation states: "No person shall destroy, disturb, mutilate, or remove earth, sand, grave, oil, minerals, rocks, paleontological features, or features of caves."

Section 4309 of the California Code of Regulations regarding Special Permits applicable to lands administered by the California Department of Parks and Recreation states: "The Department may grant a permit to remove, treat, disturb, or destroy plants or animals or geological, historical, archaeological or paleontological materials; and any person who has been properly granted such a permit shall to that extend not be liable for prosecution for violating the forgoing."

3.3 Federal

3.3.1 National Historic Preservation Act

Regulations implementing Section 106 of the National Historic Preservation Act (NHPA) (36 CFR 800) provide procedures for federal agencies to identify, evaluate, assess effects, and provide treatment for adverse effects on historic properties for federal undertakings. A "historic property" is defined in 36 CFR Part 800.16(l)(1) as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria" in 36 CFR Part 60. Historic Properties, as defined therein, are subject to these Guidelines.

A federal undertaking is a project that receives federal funding or when a federal permit (such as a Section 404 permit from the USACE) is required. The Section 106 process is the responsibility of the federal agency that provides the funding or issues the permit. It is the federal agency official who determines if the project qualifies as an undertaking. However, the City must ensure that projects that qualify as federal undertakings that are initiated by the City or by applicants to the City go through the Section 106 process following the requirements of the responsible federal agency. The City or the applicant may hire a consultant to prepare the reports needed by the federal agency official for the Section 106 process.

The steps in the Section 106 process generally parallel those carried out for CEQA and include identification of historic properties, evaluation of historical significance, assessment of effects, and resolving adverse effects. At various points in the Section 106 process the federal official must consult with the State Historic Preservation Officer (SHPO) and any Consulting Parties (such as Native American tribes and local governments, such as the City) identified by the federal official.

A reasonable and good faith effort to identify potential historic properties in the Area of Potential Effect (APE) of the undertaking is required. Identification efforts may include background research, including a records search from the appropriate CHRIS Information Center and the NAHC, consultation with Native American groups, and field survey.

If potential historic properties are identified, they must be evaluated to assess whether they are historic properties (have historic or prehistoric significance). Historic properties are those that are eligible for or are already listed in the National Register of Historic Places (NRHP). The four NRHP eligibility criteria are as follows (36 CFR 60.4):

> "The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of state and local importance that possess aspects of integrity of location, design, setting, materials, workmanship, feeling, association, and
>
> a. is associated with events that have made a significant contribution to the broad patterns of our history;
>
> b. is associated with the lives of a person or persons significance in our past;
>
> c. embodies the distinctive characteristics of a type, period or method of construction, or represents the work of a master, or possesses high artistic value, or represents a significant and distinguishable entity whose components may lack individual distinction; or
>
> d. has yielded or may be likely to yield information important in prehistory or history.

In addition, the resource must be at least 50 years old, except in exceptional circumstances (36 CFR 60.4).

Effects to NRHP-eligible resources (historic properties) are adverse if the project may alter, directly or indirectly, any of the characteristics of an historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

In addition, the resource must possess sufficient integrity to adequately express the characteristics that make it eligible. Evaluation procedures include historical research to assess association with important historical events or persons, assessment of distinctive architectural or engineering characteristics, and archaeological investigation (may include test excavations) to assess information potential of archaeological sites. The federal agency official makes the determination of eligibility and the SHPO reviews the determination. The SHPO may concur or not concur with the determination.

If properties are determined to be eligible (historic properties are identified), it must be determined if the historic property will be adversely affected by the undertaking. The criteria of adverse effect are applied. Adverse effects occur when an undertaking may directly or indirectly alter characteristics of a historic property that qualify it for inclusion in the NRHP (make it eligible for the NRHP). Examples of adverse effects include physical destruction or damage, alterations to a building or structure that are not consistent with the Secretary of the Interior's Standards, relocation, and change of use or setting.

Alteration or destruction of an archaeological site is an adverse effect. After applying the criteria of adverse effect, the agency official will make a finding that historic properties are or are not adversely affected. The SHPO will review and concur or not concur with the finding.

When there are adverse effects to historic properties, a Memorandum of Agreement (MOA) is negotiated between the federal agency and the SHPO, with input from the Consulting Parties. The City may be a signatory, invited signatory, or concurring party to the MOA. The MOA stipulates the treatment that will be applied to resolve the adverse effects. Treatment (mitigation measures) may include documentation of buildings and structures using HABS/HAER standards (including large format photography), rehabilitation using the Secretary of the Interior's Standards, or data recovery for archaeological sites. Other types of mitigation could include ethnographic studies, nominations to the National Register of Historic Places, oral history documentation, coalescing of collections of imagery, or other types of documentation.

4.0 Context Statements

4.1 Regional Archaeology and Ancient Native American History

Most archaeologists contend that approximately 10,000 years ago at the beginning of the Holocene, warming temperatures and the extinction of the megafauna resulted in changing subsistence strategies with an emphasis on hunting smaller game and increasing reliance on plant gathering. The San Dieguito Complex was defined based on material found at the Harris site (CA-SDI-149) on the San Dieguito River near Lake Hodges in San Diego County (Warren 1968). San Dieguito artifacts include: large leaf-shaped points; leaf-shaped knives; large ovoid, domed, and rectangular end scrapers and side scrapers; engraving tools; and crescentics (Koerper, Langenwalter, and Schroth 1991). The San Dieguito Complex at the Harris site dates to 9,000 to 7,500 before present (B.P.) (Gallegos 1991: Figure 3.9). However, sites from this time period in coastal San Diego County have yielded artifacts and subsistence remains characteristic of the succeeding Encinitas Tradition, including manos, metates, core-cobble tools, and marine shell (Gallegos 1991; Koerper, Langenwalter, and Schroth 1991).

The Encinitas Tradition (Warren 1968) and the Milling Stone Period (Wallace 1955) refer to a long period of time during which small mobile bands of people foraged for a wide variety of resources including hard seeds, berries, and roots/tubers (yucca and agave in inland areas), rabbits and other small animals, and shellfish and fish in coastal areas.

The La Jolla Pattern of the Encinitas Tradition was found along the San Diego County coast beginning about 8,500 B.P. Phases within the La Jolla Pattern consist of La Jolla I (8,500 B.P. to 5,000 B.P.), La Jolla II (5,000 to 4,000 B.P.), and La Jolla III (4,000 B.P. to 1,300 B.P.) (Sutton and Gardner 2010). Most La Jolla Complex sites are located around the coastal lagoons, which began filling with sea water at the beginning of this period because of sea level rise as the ice caps melted at the end of the last ice age. Shellfish from these lagoons were an important part of the diet and most La Jolla sites are classified as shell middens. During La Jolla I both rocky shores shellfish, such as *Mytilus* sp. (mussels), and bay/estuary shellfish, such as *Argopecten* sp. (scallops), *Chione* sp. (cockles), and *Ostrea lurida* (oyster) are found in La Jollan sites. Later in time (after 3,000 B.P.) the rocky shores species are much reduced in quantity and almost disappear from the middens. This has been attributed to increased sediment deposition around the mouths of the lagoons along the northern and central San Diego coast, which covered the rocky habitats. Fewer sites were occupied in these areas during La Jolla III. However, the larger bays to the south (Mission Bay and San Diego Bay) never silted in and there are numerous La Jolla III sites in this area (Masters and Gallegos 1997).

The Encinitas Tradition in inland San Diego County is known as the Pauma Pattern and was originally defined as the Pauma Complex (True 1958, 1980). The Pauma Pattern is divided into the Pauma I Phase (7,500-3,000 B.P.) and the Pauma II Phase (3,000-1,000 B.P.) (Sutton and Gardner 2010). Pauma sites have numerous manos and metates and lack the marine subsistence remains seen in La Jolla sites. Other Pauma Complex artifacts include core and cobble tools, scraper planes, and unifacial scrapers.

In most Pauma Pattern sites, the mano-metate tool kit predominates, which suggests that collecting and processing hard seeds was emphasized. Pauma sites are located on older high elevation alluvial terraces in valleys and canyons. Some Pauma sites may be buried in shallow alluvium. The inland Pauma Complex and the coastal La Jolla Complex may be different seasonal manifestations of the same people with the La Jolla Pattern emphasizing marine resources (shellfish and fish) and the Pauma Pattern emphasizing hard seeds. There are more planing-scraping tools in the La Jolla Complex and more manos and metates in the Pauma Complex (Waugh 1986:55-56).

Following the Pauma Complex, Waugh (1986:310) has defined a Transition Phase from about 2,000 B.P. to 1,000 B.P. in inland northern San Diego County. During this phase people lived in small groups which occupied seasonal camps on knolls and low hills along the San Luis Rey River and the Santa Margarita River and its major tributaries. These groups used the river as corridors for travel between the coastal mesas and interior valleys (Temecula Valley on the upper Santa Margarita River and San Jose Valley on the upper San Luis Rey River) where grass seeds and sage seeds were abundant. Seasonal residential bases were probably established in these areas. While traveling along the river corridors, camps were established in areas where chaparral was producing large amounts of seeds. The knoll locations along the rivers may have been selected in order to see game and members of other groups approaching. The camps had cached metates indicating the camps were-reused seasonally by the same groups.

Artifacts found as a result of excavation at CA-RIV-3063, a Transition Phase site on a knoll overlooking the Santa Margarita River in Temecula Canyon, include 5 domed scrapers, 5 cobble tools, 3 cores, 2 biface fragments, 9 unifacially modified flakes, 18 manos, and 4 metates (slab and flat block). Obdisian from both the Coso and Obsidian Butte sources was present (Waugh 1986:233-241). Transition Phase artifacts include artifacts characteristic of the preceding Pauma Complex (core/cobble tools, hammerstones, cortex-based scrapers, domed scrapers), but they make up a smaller proportion of the total tool assemblage. Other artifacts found in Pauma Complex sites, such as scraper planes, hammer-grinders, and discoidals, are absent in the Transition Phase. Small unifacial flake tools and new forms for metates (slab and flat block) first appear during the Transition Phase (Waugh 1986:312).

The period from 1,000 B.P. to 150 B.P. in northern San Diego County is divided into the San Luis Rey I Phase (1,000 to 500 B.P.) and the San Luis Rey II Phase (500 to 150 B.P.) (Sutton 2011). San Luis Rey I is characterized by Cottonwood Triangular arrow points, use of bedrock mortars, stone pendants, shell beads, quartz crystals, and bone tools. San Luis Rey II sees the addition of ceramics, including ceramic cremation urns, red pictographs on boulders in village sites, and steatite arrow straighteners. San Luis Rey II represents the archaeological manifestation of the antecedents of the historically known Luiseño.

A new settlement system developed in the upper San Luis Rey River drainage area (east of Pala) at the beginning of the San Luis Rey I phase (1,000 – 400 B.P.). The most important determinants of the new settlement system were access to water and access to acorns. Small permanent residential sites were located in a linear arrangement along the lower reaches of each of the tributaries on the north side of the San Luis Rey River (Waugh 1986:305). Acorns from coast live oak were available nearby as well as

plant foods from the riparian woodland and chaparral plant communities. Camps were also established on Agua Tibia Mountain / Palomar Mountain / Aguanga Mountain above 5,000 feet to collect and process acorns from black oaks and to hunt deer. These camps were occupied in the fall and were permanent in the sense that they were re-occupied every year (True and Waugh 1982). The watershed of each tributary along the north side of the river probably comprised the territory of a corporate kin group (Waugh 1986:314) or lineage. Settlements within the territory included the multiple residential sites along the drainage in the lowlands and the fall acorn camps in the uplands. An extended family within the lineage probably occupied each of the lowland residential sites (Waugh 1986:296), which together comprised the lineage settlement.

The artifacts and features at the lowland residential sites indicate that a full range of activities took place at each site. These activities included hunting, tool manufacturing and maintenance, food processing, and social interaction (Waugh 1986:313). One of these residential sites (CA-SDI-731) is on lower Frey Creek above its confluence with the San Luis Rey River. The site is within the chaparral plant community and near coast live oaks. There are 23 bedrock mortars, 8 bedrock metates, and 20 bedrock slicks or milling surfaces. Ground stone tools include manos, metates, bowl mortars, and pestles. Fire-affected rock and ash features are present. There are both unifacial flaked stone tools, including domed scrapers, and bifacial flaked stone tools, including numerous Cottonwood Triangular arrow points which date to after 700 B.P. in this area (Waugh 1986:179, 262). All, except one, pieces of obsidian were from the Obsidian Butte source. Primary and secondary flakes among the debitage indicates that lithic reduction took place (Waugh 1986:303). A cache of burned *Olivella* shell beads was found adjoining an ash feature. There were 161 beads, 122 of which were *Olivella* cupped beads, which date to A.D. 1150 – 1792 in the Santa Barbara Channel area. Faunal specimens consisted mostly of rabbit and deer. There are more deer bones and small rodent bones in the upper levels of the site. A few pieces of marine shell were found (Waugh 1986:179, 222, 266).

The San Luis Rey I Complex indicates decreased residential mobility and increased intensification of land use, compared to the previous Transition Phase. Residential sites were located so as to control critical resources, especially water. All residential sites were in direct proximity to water. The transformation to settlement in stable permanent residential sites occurred within a relatively short span of time and coincided with the beginning of acorn use (Waugh 1986:313). Acorns required a much greater labor effort for processing (Basgall 1987), but were storable, allowing year-round settlement in permanent residential sites. This specialization and intensification of resource procurement is indicated by the bedrock mortars and pestles for acorn processing and the arrow points for deer hunting (Waugh 1986:314). At the beginning of San Luis Rey I, decreased mobility in order to control a water source resulted in multiple season residency, intensified use of restricted or smaller habitats or territories, and a specialized system of resource use (Waugh 1986:318-319).

There was a consolidation of settlement at the beginning of San Luis Rey II (400 – 130 B.P.) in the upper San Luis Rey River drainage area. The number of lowland residential sites decreased from 42 to 13. Each of the 13 residential sites consisted of a large village located at a reliable water source. Each of

the 13 villages had a territory that consisted of the watershed of one of the 13 major drainages that descend from Agua Tibia Mountain – Palomar Mountain – Aguanga Mountain (True and Waugh 1982; True 1990). Multiple lineages now lived together in one village, probably resulting in the parties comprised of multiple lineages described ethnographically for the Luiseño. Each territory had one or more permanent camps in the uplands for gathering black oak acorns and deer hunting in the fall. San Luis Rey II villages are recognized by their large size as well as the presence of ceramics and red pictograph panels on boulder outcrops. The pictographs were painted by girls during their puberty ceremonies and demonstrated clan (party) affiliation and ownership of their territory and its resources. The girls' puberty ceremonies symbolized established party and lineage rights to female labor and reproduction (Waugh 1986:316, 321).

One of the 13 San Luis Rey II villages in the upper San Luis Rey River drainage area, known as *Molpa* (CA-SDI-308), was investigated by archaeologists during the 1950s (True, Meighan, and Crew 1974). It is located on two low knolls overlooking open grassland. There is a reliable spring below the site. The midden area at *Molpa* occupies 40,000 square yards (about 33,400 square meters). There are two pictograph panels and one cupule rock. There are 289 bedrock mortars and 109 bedrock milling surfaces on 10 outcrops. Seven subsurface features were found consisting of rock clusters and ash. Flaked stone tools included 327 Cottonwood Triangular arrow points, 10 Desert Side-Notched arrow points, and 6 leaf-shaped arrow points. There were also 49 knives, 12 drills, 5 domed scrapers, 1 keeled scraper, 5 flake scrapers, 59 retouched flakes, 7 hammerstones, 2 hammer-grinders, and 1 chopper. Ground stone tools include 88 manos, 24 metates, 8 pestles, and 9 portable mortars. Other artifacts consisted of 59 bone tools fragments, most probably representing awls and needles, 1 steatite arrow shaft straightener, 1 quartz crystal, 1 tourmaline crystal, 1 conically drilled bone fragment which may have been a pendant, 16 *Olivella* shell beads, 3 abalone ornaments, and 2 glass beads. Ceramics consisted of 2,728 sherds, 8 fired clay pipes and 4 fired clay figurines. Most of the ceramics came from the upper 18 inches of the site, which represents the San Luis Rey II component.

There is less information about settlement along the lower San Luis Rey River west of Pala. However, a village site occupied during the San Luis Rey II phase, known as *Tom-Kav* (CA-SDI-682) was excavated during the 1950s and 1960s (True, Pankey, and Warren 1991). It is located near Bonsall on the San Luis Rey River where there is no adjacent upland area for collecting black oak acorns. There are 116 bedrock mortars, 51 bedrock metates, and 31 milling surfaces (slicks) on 7 groups of outcrops at *Tom-Kav*. There are small and large cupules on some of the outcrops and there is a pictograph panel on the ceiling of a rockshelter at the east end of the site. Flaked stone tools consist of 94 Cottonwood Triangular arrow points, large bifaces used as knives, drills, scrapers, and retouched flakes. Ground stone tools include 159 manos, 31 metates, 5 pestles, 5 portable mortars, and 29 smoothing stones. Bone artifacts consisted of 77 bone awls, 22 needles, and 57 worked bone fragments. Ceramics consisted of 1,720 Tizon Brown Ware sherds, 76 Colorado Buff Ware sherds, and 18 fired clay pipes. Animal bone was only classified as small and large mammal. A small amount of marine shell (*Chione* sp. and *Argopecten* sp.) was recovered.

There were no upland acorn collecting camps associated with *Tom-Kav*, but there are several small processing stations with bedrock milling features and camps nearby. Their function is unknown and they would seem to be superfluous since all the resources collected from *Tom-Kav's* territory could have been brought back to the village for processing. It is possible these sites date to San Luis Rey I because most have no pottery (True, Pankey, and Warren 1991:47). There is a different proportion of bedrock mortars to bedrock milling surfaces at *Tom-Kav* compared to *Molpa*. At *Tom-Kav* there are 116 mortars and 82 bedrock milling surfaces for a ratio of 1.4 to 1. At *Molpa* there are 289 mortars and 109 bedrock milling surfaces for a ratio of 2.65 to 1. This indicates that acorn use was less intensive at *Tom-Kav* and that hard seeds made up a greater proportion of the plant foods (True, Pankey, and Warren 1991:47).

Better documentation of a settlement system similar to that around *Tom-Kav* comes from an investigation of sites on Rancho Lilac on Keys Creek, a tributary which enters the San Luis Rey River from the south, west of Pala. The sites in the Rancho Lilac valley include a Late Prehistoric village, 5 temporary camps with bedrock milling features and subsurface deposits including tools, debitage and animal bone, 9 sites with bedrock milling features only, and 3 lithic scatters. CA-SDI-4909 has been identified as a Late Prehistoric village (Clevenger, Phillips, and Gallegos 1990). It has four loci with midden, each with associated bedrock milling features. The number and type of milling features at CA-SDI-4909 is not provided. Test excavations recovered triangular arrow points, bifaces, utilized and retouched flakes, worked bone, ground stone tools, ceramics, animal bone, marine shell, a shell pendant, and glass beads. The ceramics and glass beads indicate a San Luis Rey II occupation at CA-SDI-4909. The five temporary camps have bedrock milling features (59 mortars and 105 basins/slicks), flaked and ground stone tools, and animal bone. CA-SDI-4909 appears to be a San Luis Rey II village, based on the presence of ceramics. The investigators state that all the temporary camps are associated with the village and that all the sites in the valley comprise a settlement system, implying that were all occupied at the same time by one group. However, the temporary camps lack ceramics and, as with sites around *Tom-Kav,* there is no need for camps so close to the village. As with the *Tom-Kav* area, it is more likely that the camps date to the San Luis Rey I Phase.

The temporal and functional relationships of the sites cannot be determined because radiocarbon dates are not available. The ratio of mortars to milling surfaces (basins to slicks) is 0.56 mortars to 1 milling surface, indicating that in the Keys Creek area acorns were even less important than in the *Tom-Kav* area. In the Keys Creek area, hard seeds from the chaparral community which surrounds the sites were the most important plant resource. Their use could have been intensified through managed burning of the chaparral to allow grasses to grow and produce new sprouts from the chaparral plants. This pattern of settlements associated with hard seed processing is probably more characteristic of the lower San Luis Rey River area and the area around Carlsbad. In these areas there was abundant coastal sage scrub and chaparral with numerous plants that produced hard seeds, while acorns were available only from coast live oak trees which had a limited distribution, mostly in canyons.

4.2 Ethnography and Native American History

The City of Carlsbad is located in a culturally-rich region, which has long since been home to, or within traditional use areas of, Native American cultures. The cultural history of Carlsbad is complex, and a representative summary of two main cultures, namely, the Luiseño and the Kumeyaay, is provided herein. Figure 1 illustrates the organization of both cultures. The reader is encouraged to seek additional information through references that are cited throughout.

4.2.1 Luiseño

The Luiseño were one of the Takic-speaking groups in southern California prior to the arrival of Euro-Americans. Luiseño occupied most of the area drained by the San Luis Rey and Santa Margarita Rivers.

The Luiseño lived in sedentary and autonomous village groups, each with specific subsistence territories encompassing hunting, collecting, and fishing areas. Villages were typically located in valley bottoms, along streams, or along coastal strands near mountain ranges where water was available and village defense was possible. Inland populations had access to fishing and gathering sites on the coast, which they used during the winter months (Bean and Shipek 1978).

Luiseño subsistence was based on the gathering of acorns, seeds, greens, bulbs, roots, berries, and other vegetal foods. This was supplemented by hunting mammals such as deer, antelope, rabbit, woodrat, ground squirrels, and mice, as well as birds including quail, doves, and ducks. Bands along the coast also exploited marine resources, such as sea mammals, fish, crustaceans, and mollusks. Inland, trout and other fish were taken from mountain streams (Bean and Shipek 1978).

Hunting was done both individually and by organized groups. Tool technology for food acquisition, storage, and preparation reflects the size and quantity of items procured. Small game was hunted with the use of curved throwing sticks, nets, slings, or traps. Bows and arrows were used for hunting larger game. Dugout canoes, basketry fish traps, and shell hooks were used for near-shore ocean fishing. Coiled and twined baskets were made for food gathering, preparation, storing, and serving. Other items used for food processing included large shallow trays for winnowing chaff from grain, ceramic and basketry storage containers, manos and metates for grinding seeds, and ceramic jars for cooking (Bean and Shipek 1978).

Luiseño social organization was based on patrilineal and patrilocal lineages. Exogamy rules required that a man could not marry a woman related to them within five generations. Women moved to their husband's village, but kept their identity as a member of their natal lineage (Cultural Systems Research 2005:15).

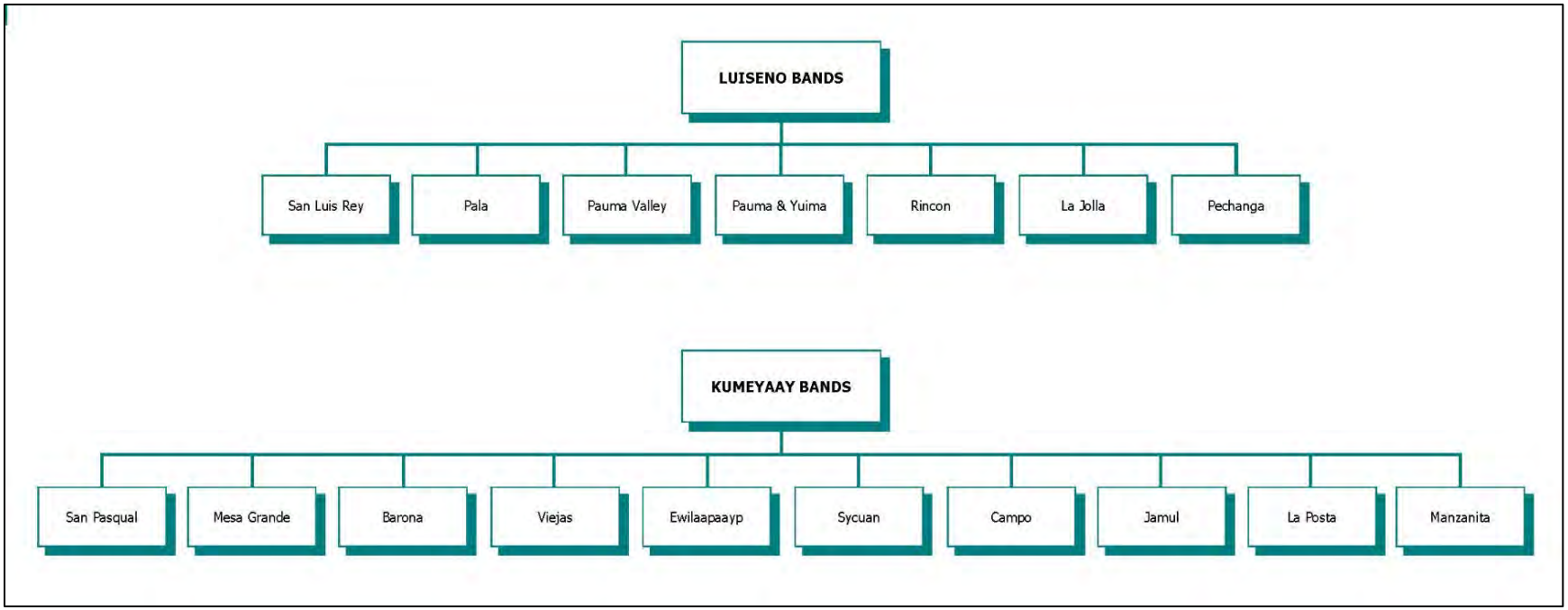

Figure 1. Luiseño and Kumeyaay Bands in the Region of Carlsbad.

The Luiseño corporate group was a "party" composed of one major lineage with a ceremonial leader (chief), a ceremonial bundle, and a ceremonial house or enclosure. Members of other lineages within the party could live in the same village as the major lineage or within other villages within the party territory. The ceremonial chief was also the hereditary chief of the party who organized religious, economic, and military activities (Goldberg I:47). An advisory council of ritual specialists and shamans was consulted for their specialized knowledge. Resources within the party territory were owned by the party. The party territory was marked by boundary markers and was defended against trespassers (Waugh 1986:74).

The most important ceremonies were boy and girl initiation ceremonies and mourning ceremonies for all who had died during the year. The corporate identity of the Luiseño party was reaffirmed through these ceremonies. Ceremonies were usually held during fall and winter when stored foods were available for exchange with other groups. During the girls' initiation ceremony, the girls made geometric red paintings on boulders with their hands. Luiseño girls painted the same geometric rectilinear red designs on rocks and their faces for four successive months. Thus, there are red pictographs associated with every Luiseño village site usually on a boulder or outcrop in or near the village (Cultural Systems Research 2005:55-56). Non-geometric designs were made by shamans in isolated rockshelters and on sheltered outcrops away from the village (Shepard 1996).

Ceremonies were held in and around an unroofed ceremonial enclosure surrounded by a brush fence. The enclosure could be round, elliptical, or rectangular. One example measured 38 by 58 feet. There was a *ramada* (a structure with a thatched roof supported by willow poles) in the center of the enclosure near fire pits. Spectators watched the dances from outside the fence. The ceremonial enclosure was located near the chief's house (Cultural Systems Research 2005:11-12).

Houses were circular with conical roofs and were made of a framework of logs covered by tules, sedge, or bark and a layer of earth. The floors of the houses were about two feet below the ground surface. Houses had a central fireplace, but most cooking was done outside (Cultural Systems Research 2005:9). Round earth-covered semi-subterranean sweathouses with an interior fire pit were primarily used by men and were located next to a stream or pond. Ramadas, flat-roofed open structures, provided shade for work areas (Cultural Systems Research 2005:12-13). Women's work areas often consisted of a circular windbreak made of arrow weed or tule. They had a hard-packed earth floor that was swept to remove debris. Earth ovens consisted of a pit with a ring of rocks. Granaries for storing acorns, seeds, and nuts were made of woven arrow weed or willow, sealed with mud. They were built on platforms, on top of houses, or on boulders to keep burrowing animals out. Caves and rockshelters in or near villages were used for activity areas, as caches, and for ceremonies. Rockshelters away from the village could be used as temporary camps. Other temporary camps had lean-tos made of willows with an adjacent fire pit (Cultural Systems Research 2005:12-14).

When the Spanish arrived in southern California in 1769, it is estimated that there were 50 Luiseño villages with a population of about 200 each, suggesting a total population of about 10,000 (White 1963:104).

The first contact with Euro-Americans by Native Americans in southern California came as a result of the Spanish Portolá Expedition in 1769. Missions were established by Franciscan friars to convert, educate, and control the native population. Mission San Diego was established to convert the Native Americans that lived in the area, known as the *Kumeyaay* or Diegueño. Mission San Juan Capistrano was established in 1776 on San Juan Creek (in what is now southern Orange County) to convert the *Agjachemem* or Juaneño. Coastal Luiseño people were also taken to Mission San Juan Capistrano. Mission San Luis Rey was established in 1798 on the lower San Luis Rey River (in what is now Oceanside) to convert the Luiseño (Castillo 1978:100). Some missions later established outposts in inland areas. An *asistencia* (mission outpost) of Mission San Luis Rey, known as San Antonio de Pala, was built in Luiseño territory along the upper San Luis Rey River near Mount Palomar in 1810 (Pourade 1961).

Some coastal Luiseño people were converted and baptized by Franciscan friars and taken to the San Juan Capistrano Mission after it opened in 1776. However, the friars at San Luis Rey Mission (established 1798), allowed many native people to remain in their villages, especially along the upper San Luis Rey River, with a continuation of traditional economic organization and leadership (Bean and Shipek 1978:558). The friars travelled to the villages to say mass and teach farming skills and European crafts (Bean and Shipek 1978:558).

Hundreds of Luiseño who lived near San Luis Rey Mission were converted and brought to live at the mission. Other Luiseño converts worked on ranches established by the mission friars. The ranches were within 10 leagues of the mission and included ranches at Santa Margarita, Las Flores, San Mateo, Pala (around the *asistencia*), and Temecula. The friars appointed Luiseño *alcaldes* or overseers to manage the labor of the Luiseño on the ranches where the Luiseño grew wheat, barley, and corn and looked after large herds of cattle. Each ranch had houses, storehouses, and a chapel. The priests from the mission came to say Mass in the chapels on the ranches. The Luiseño on the ranches were able to maintain more of their culture and religious traditions than those at the mission. Other Luiseño remained in their villages on the upper San Luis Rey River and the headmen of these villages retained their authority. People who left the mission usually returned to these villages (Phillips 2014).

The Spanish saw the native people as lower class, conquered people who had obligations which included obedience, allegiance to the crown, and fidelity to God. The Luiseño saw these as foreign obligations that were forced on them. However, the friars saw not fulfilling these obligations as a crime punishable by forcible return to the mission, public whipping, or incarceration. The friars thought the Luiseño had a child-like culture and therefore the friars should serve *in loco parentis* and have rights of judgment and punishment (Carrico 2008).

After Mexico became independent of Spain in 1821, the Mexican government said that the Indians were citizens of Mexico and released some of them from the control of the missions. In 1834, Mexico secularized the missions. This meant that the friars no longer had political or legal jurisdiction over the converts. While some Luiseño returned to the inland villages, others remained at the mission and on the mission ranches. The Mexican governor of Alta California appointed Pío Pico as administrator of

Mission San Luis Rey. Pico continued the system the friars had established for running a large agricultural enterprise using the labor of the Luiseño, but without the religious instruction that the friars had provided. Pico was assisted by three Mexicans who served as ranch managers. The Luiseño carried out agricultural labor, including plowing, seeding, and harvesting. Craftsmen included shoemakers, blacksmiths, carpenters, soap makers, and weavers. In 1840 the mission and its ranches had 25,000 sheep and 3,000 cattle. Pico served as mission administrator from 1835 to 1840 (Phillips 2014).

Under the secularization law Indian pueblos were supposed to be created. The only Indian pueblo in Luiseño territory was Las Flores on the coast north of the Santa Margarita River which was established on one of the former mission ranches. In 1836 there were 196 Luiseño at Las Flores and some had individual plots of farm land. Farm animals were given to the people of Las Flores by the Mexican government in 1839 (Phillips 2014).

The mission administrators exploited native labor to enrich themselves. The Luiseño were not paid and were treated like serfs who were given only food. At the mission, some lived in the mission buildings. Under the Mexican system the Luiseño were free to leave the mission and many returned to the inland villages. Others went to Los Angeles where they worked as part time laborers or worked on ranches that had been given as land grants by the Mexican governor to Mexican citizens. One of the land grants in Luiseño territory included Rancho Santa Margarita y Las Flores which included the former mission ranch of Santa Margarita and the pueblo of Las Flores which was also on a former mission ranch. Rancho Santa Margarita was granted to Pío and Andres Pico in 1841 (Aviña 1976), one year after Pío Pico resigned as administrator of Mission San Luis Rey. In 1844 Las Flores was added to the land grant (Aviña 1976). Pio Pico put a large cattle herd on his land grant, possibly taken from the mission herds. He also had a resident labor force from the pueblo of Las Flores, which was now on his land grant (Phillips 2014).

Other Mexican land grants in Luiseño territory included Temecula, Little Temecula, Pauba, Monserate, Guajome, Pauma, and Cuca. Temecula and Little Temecula were located on one of the former mission ranches. The Little Temecula land grant was given to Pablo Apis, a Luiseño who had been an *alcalde* at Mission San Luis Rey. Apis became the headman or captain of a village community of Luiseño on the little Temecula land grant (Phillips 2014).

During the Mexican-American War in 1846, Manuelito Cota, a mestizo who lived near Pala, led a group of Indians who killed 11 Mexicans on the Rancho Pauma land grant. In retaliation, 38 Luiseños and Cupeños were killed at Aguanga. The Cupeños were another Takic-speaking group who lived in San Jose Valley east of the upper end of San Luis Rey River (Phillips 2014).

After Mexico lost the Mexican-American War, the U.S. government took control of California. California was governed by the U.S. Army from 1847 to 1849 and became a state in 1850. The U.S. government considered the Luiseño to be Mission Indians who were not U.S. citizens, but were residents of San Diego County. As residents of San Diego County, they were required to pay taxes, which caused much

resentment. The captains of the village communities of Temecula, Pala, Potrero, La Jolla, and Pauma had to sell some of their cattle in San Diego in order to pay the taxes (Phillips 2014).

George Barbour was appointed by Congress as Indian Commissioner in 1851 and was told to negotiate treaties with the southern California Indians. Many Luiseño communities sent representatives to meet with Barbour at Rancho del Chino east of Los Angeles. Barbour did not attend the meeting and returned to Washington, D.C. without accomplishing anything (Phillips 2014).

During the Gold Rush, hundreds of gold seekers used the southern route into California, crossing the Colorado River at Yuma where they came into conflict with the Quechan, a Yuman-speaking group. Two white men, Lincoln and Glanton, established a ferry at Yuma and the Quechan established a competing ferry. During a meeting between the two ferry-operating groups, Glanton clubbed the Quechan chief. In retaliation, the Quechan later killed Glanton and Lincoln. The Morehead Expedition was sent by the California state militia to punish the Quechan, but was forced to retreat by the Quechan. However, later in 1850, Camp Yuma, whose name was later changed to Camp Independence, was established. By 1851 there were only 11 men in the camp. The Quechan attacked a group of sheepherders who were crossing the river and stole some of their sheep. They then surrounded the military camp. Captain Davidson of the militia from San Diego went to Camp Independence and rescued the men there; they abandoned Camp Independence and returned to San Diego. The Quechan destroyed Camp Independence and the ferry in late 1851 (Phillips 2014).

Perhaps emboldened by the success of the Quechan, Antonio Garra, a Cupeño leader, organized a revolt against the Americans. The Mexican land grant known as Valle de San Jose came into the possession of an American named John Warner and the ranch became known as Warner's Ranch. Most of the Cupeño villages were on Warner's Ranch, including the village of Kupa. Garra's son and others killed four Americans in Kupa. Another group attacked Warner's house. Although Warner escaped, when he returned he found that all his possessions in his house had been stolen and all his cattle were gone (Phillips 2014).

The Luiseño leaders supported the Americans and refused to join the revolt of the Cupeños. However, a volunteer force of the California militia was organized in San Diego to put down the "Indian revolt" and martial law was declared in San Diego County on November 26, 1851. Antonio Garra, Garra's son, and four other Indians thought to have killed the Americans at Kupa were captured by forces from the California militia and the U.S. Army, were tried by military tribunals, and executed in December 1851 and January 1852. Kupa and other Cupeño villages were burned. Captain Heintzelman of the U.S. Army returned to Yuma where the Quechan were robbing travelers and "subdued" the Quechan by the end of 1852 (Phillips 2014).

The revolt by Antonio Garra and some of the Cupeño people was a result of the requirement by the County officials that the Indians must pay taxes and the unfulfilled promise of treaty negotiations on the part of the federal government. Meanwhile, the Americans in San Diego believed that all of the

southern California Indians were united against them and that they would be attacked by thousands of warriors (Phillips 2014).

Indian Commissioner Wozencraft, a representative of the federal government, negotiated a treaty with the Luiseño captains at Temecula on January 5, 1852. The purpose of the treaty, from the government's point of view, was to stop all acts of hostility against U.S. citizens and other Indians. The Indians had to accept the jurisdiction, authority, and protection of the U.S. Government and to be governed by the U.S. Indian Bureau. In return, the Luiseño, Cahuilla, and Serrano would be given a large vaguely defined reservation that extended from the San Gorgonio and San Jacinto Mountains on the north to a line running west from the San Jose Valley to Pauma on the south. From Pauma the western boundary would run north through Temecula. The eastern boundary was the desert. The Indians who signed the treaty were to be given flour, clothing, cloth, plows and other farm tools, along with horses and oxen. A similar treaty was negotiated with the Kumeyaay on January 6, 1852. The Kumeyaay were to be given a reservation that extended south from the Luiseño reservation through the eastern mountains to the Mexican border (Phillips 2014).

The California Legislature opposed ratification of the treaties by the U.S. Senate and the Senate rejected them. Instead, Congress appointed Edward S. Beale as Indian Agent for California. Beale gave Benjamin D. Wilson of Los Angeles a contract to prepare a report on Indian policy for southern California. Wilson recommended setting aside smaller reserves (reservations) where the Indians were currently living, at places including San Gorgonio, San Jacinto, Temecula, Agua Caliente (Kupa), and Tejon. He noted that some of these places had existing vineyards and orchards from mission times. There should be one town in each reserve and the government should provide cattle, clothing, and tools to promote farming. There should be no hereditary chiefs. The Indian agent assigned to the reserve would appoint leaders based on good behavior who would enforce compulsory labor and rationing of food from commonly held stores of the produce of the small self-supporting agricultural community. Congress authorized five reserves, each with a military garrison, in California. One of these was Tejon (north of Los Angeles), established by Beale in 1853. The others were in northern California. Once again, the federal government failed to provide any land for the southern California Indians (Phillips 2014).

Cave Couts was appointed Indian subagent for the Luiseño in 1853 and John Warner was appointed subagent for the Cupeño and Kumeyaay. Couts came from a slave-holding family in Tennessee and came to California as an officer in the U.S. Army during the Mexican-American War. He served on the military tribunal in San Diego that sentenced Antonio Garra to be executed. Couts married the daughter of a wealthy Mexican rancho owner in 1851 and received the Rancho Guajome land grant, near Mission San Luis Rey, as a wedding present (San Diego History Center 2016). Couts' appointment as Indian subagent was based on the 1850 Act for the Government and Protection of Indians. Using his position as Indian subagent to enforce provisions of the Act, he instituted a feudal labor system that bound Luiseño to ranch owners who exploited their labor. One of the provisions of the Act allowed employers to take custody of Indian children until they reached majority age, providing them with free

child labor. Couts procured Luiseño labor for the development of his Rancho Guajome and for neighboring ranches. When Indian laborers didn't work hard enough, Couts flogged them, which sometimes resulted in their deaths. Couts was indicted for the flogging death of a Luiseño captain named Urbano in 1855 (Hanks 2012).

Couts appointed Manuelito Cota, the mestizo who had killed the Mexicans at Rancho Pauma during the Mexican-American War, to be a paramount chief over the captains of the Luiseño villages on the upper San Luis Rey River. Cota had a ranch east of Pala. Because Cota was not part of any Luiseño lineage, the Luiseño captains did not want to accept his authority. Cota actually served as an Indian labor recruiter and contractor for his own and neighboring ranches (Hanks 2012).

Couts wrote in 1856 that the Luiseño were industrious agriculturalists, but that the Kumeyaay did not farm. According to Couts, they subsisted on acorns and stolen cattle (Phillips 2014).

When Cota retired in 1860 the Luiseño captains chose Francisco Majal to succeed him. Couts was opposed to Majal because Majal was unwilling to recognize Couts' authority over him. Couts denounced Majal as a drunkard and thief and was successful in getting the Office of Indian Affairs to re-appoint Manuelito Cota in 1865 (Hanks 2012).

In 1867 Indian Agent Stanley met with 20 Luiseño captains at Temecula. He gave them supplies and tools and asked them to establish and maintain farms with fruit trees and grape vines. He noted that the Indians were losing their land to white men who also sold them liquor in exchange for their labor and for access to their women. In 1868 Stanley recommended establishing a reservation at Pala. In 1869 Cota recommended San Pasqual as a reservation. In 1870 President Grant, by executive order, set aside land at Pala and San Pasqual for exclusive Indian use (Phillips 2014).

The Luiseño captains, who were not happy with Cota because he was trying to get them to move onto reservations, elected Manuel Olegario (also known as Olegario Calac) as paramount chief over 12 villages in 1870. Olegario was a member of an important Luiseño lineage, unlike Cota. However, Olegario was not recognized by the federal government because he had not been appointed by an Indian agent. Olegario and the Luiseño captains said they would not go to the reservations. The Luiseño feared that on the reservations they would become dangerously dependent on the federal government and would lose control over their affairs. Because the Luiseño refused to move onto the ill-defined reservations, President Grant in February 1871 rescinded his executive order creating the reservations (Phillips 2014). Rescinding the order reinforced the Luiseño's belief that on the reservations they would be landless indigents with no claims to the land they currently occupied (Hanks 2012).

Violence erupted between the Cota faction and Olegario's followers at Pala and Pauma in the summer of 1871. Cota's sister, Margarita, was taken by Olegario's supporters and hung by her wrists (Hanks 2012).

Olegario and Manuel Largo of the Mountain Cahuilla went to San Bernardino in August 1871 and convinced Justice Wagner to issue an arrest warrant for Cota. News that the leaders of the Luiseño and the Cahuilla had joined forces and were trying to overthrow the government-appointed Indian leaders led to fears of another Indian uprising, such as the one led by Antonio Garra in 1851 (Hanks 2012).

During a meeting with Indian Superintendent Whiting at Temecula in 1871, the Luiseño captains complained about Cota who they said had abandoned them, did not defend and protect them, and neglected their welfare. Whiting recognized the forced resignation of Cota. At this meeting Olegario said that he was the leader elected and chosen by the Luiseño and that the reservations were promoted by the ranch owners who wanted the land the Indians currently occupied. Whiting said that neither Cota nor Olegario could be chief and appointed Jose Antonio Sal, Cota's relative, as general chief who should appoint captains and alcaldes. Like Cota, Sal supported reservations. However, most Luiseño continued to support Olegario (Hanks 2012, Phillips 2014). In 1873 Olegario complained that whites were taking Indian lands and sent a petition to the General Land Office in Los Angeles (Phillips 2014).

In 1875, Indian agent Charles Wetmore proposed establishing trust lands for Indians which they could not sell or buy. He also recommended that the proposed trust lands be surveyed to establish their boundaries. Wetmore said that there should be a town on the trust lands where there would be a Catholic church with a priest to "help" the Indians. Olegario opposed the land surveys, saying that surveying would limit Indian lands to small patches and that whites would take the rest. Surveying, which had begun at Pauma, was stopped (Phillips 2014).

Olegario began to change his mind about reservations after all of the Luiseño people were evicted from Rancho Temecula by the San Diego County Sheriff in 1875 (Phillips 2014). The Luiseño people from Temecula were forced into a waterless canyon which later became the Pechanga Reservation (Hanks 2012). Encroachment on traditional Luiseño lands was also occurring around other Luiseño villages.

Olegario went to Washington D.C. in November of 1875 and met with Secretary of the Interior Chandler and President Grant. As a result of this face-to-face appeal, on December 26, 1875 President Grant created nine small reservations in San Diego County by executive order. The Pala Reservation, Potrero Reservation (later became the La Jolla Reservation), and the Rincon Reservation were in Luiseño territory. The Agua Caliente Reservation was created at Kupa for the Cupeño. The other reservations were in Kumeyaay territory (Hanks 2012, Phillips 2014).

In June 1877 Antonio Varela, who was leasing land at Rancho Cuca near the Potrero reservation, began grazing his cattle on land outside the rancho, threatening traditional Luiseño food sources. Olegario and his warriors blocked the access of Varela to the ranch in an effort to keep his cattle off of traditional Luiseño lands. Several Luiseño were arrested and brought before Justice of the Peace Cave Couts, who uncharacteristically decided he had no jurisdiction and freed the prisoners (Hanks 2012).

Olegario sought the removal of the owner of Rancho Cuca, Margaret Trujillo, and return of the rancho land to the Luiseño. Deputy Sherriff Ed Bushyhead was sent to Cuca to arrest Olegario. Olegario and

his followers refused to recognize the authority of the arrest warrant and a standoff ensued. Bushyhead returned to San Diego without his prisoner. Olegario went to court and argued that Cuca was traditional Luiseño land, owned and worked by his people "since time began." However, the judge made no ruling in the case (Hanks 2012).

Olegario fought for the sovereign rights of the Luiseño people using the white's own legal system. "Olegario Calac redefined the nature of resistance in southern California by his use of the courts as well as confrontation" (Hanks 2012:47). He led the Luiseño in their fight for self-determination and resistance of white domination. "Olegario kept his people together, maintained the tribal integrity of their reservations, and represented the whole of the Luiseño nation with dignity and wisdom" (Hanks 2012:47). Olegario died July 31, 1877. Many Luiseño believed Olegario had been poisoned, but a Medical Examiner's inquest by Justice Cave Couts found no foul play (Hanks 2012).

The reservation created by President Grant at Agua Caliente for the Cupeño was rescinded by President Hayes in 1880 at the request of former Governor Downey who was then the owner of Warner's Ranch and wanted all Indians removed from his property. In 1903, all Cupeño were removed to Pala (Phillips 2014).

In 1882, Indian Commissioner Hiram Price authorized Helen Hunt Jackson to investigate the conditions of the southern California Indians. Accompanied by Abbot Kinney, she visited the Cahuilla, Luiseño, and Kumeyaay settlements. In her report she recommended resurveying the reservation boundaries and issuing federal patents for them, removing white settlers, establishing schools, distributing farm equipment, and hiring a law firm to represent the Indians. As a result of her visit to Soboba, the Soboba reservation was established in 1883 (Phillips 2014). She wrote the novel *Ramona* (published 1884) based on her investigations.

The Act for the Relief of Mission Indians established trust-patent reservations in 1891 (Bean and Shipek 1978:558-559). The Act created the Pechanga Reservation near Temecula, the Pauma and Yuima Reservation, and the San Pasqual Reservation (not established until 1910) (CIAP 2004).

The Act also established the Bureau of Indian Affairs (BIA) to "manage" the Native Americans and help them "assimilate" into American society (Bean and Shipek 1978:558-559). The BIA established native governments on the reservations (subject to the approval of the BIA) and started boarding schools for native children so that they would "adapt" to American culture. The Perris Indian School opened as a manual training boarding school for Indians in 1892, but lack of water resulted in a move to the Sherman Indian Institute in Riverside in 1901. The purpose of the boarding schools was to remove Indian children from their native environment in order to ensure "the transculturation of American Indians" which included "imposed assimilation" to American culture "and the subsequent loss of a distinct Indian culture," according to Albert Smiley, an Indian commissioner for southern California (Hanks 2012:87).

Many Luiseño children were taken to the Perris Indian School and, later to the Sherman Indian Institute. Conditions were poor at the Perris Indian School, resulting in poor health of the children. This caused

great distress among the parents at Temecula who also thought their children were not being fed properly. This may have contributed to the murder of Mrs. Platt, the teacher at the day school at the Pechanga Reservation in 1894. The schoolhouse was burned with Mrs. Platt in it, resulting in her death. Some of the Luiseño parents had asked her for money so they could go to investigate conditions at the Perris Indian School and see their children, but Mrs. Platt refused. At Sherman Institute, children were beaten when caught speaking their native language and many had to steal food from the kitchen to get enough to eat. Many escaped and went home, only to be sent back to the school (Hanks 2012).

Constance G. Dubois visited the southern California reservations and villages in 1900. She found that the Indians lived a miserable existence in terrible poverty. They had some legal rights on the reservations, but on private land were vulnerable to the white civil justice system (Phillips 2014).

Native Americans were finally granted U.S. citizenship when Congress passed the Indian Citizenship Act in 1924. It was thought that granting citizenship would help assimilate Native Americans into mainstream society. However, this did little to change the authority of the BIA and its agents on the reservations. Indian agent police brutally enforced Prohibition on the reservations during the 1920s (Hanks 2012).

The Mission Indian Federation was organized in 1920 to counter the control of the BIA and its agents. The Federation was made up of representatives from all the reservations in southern California, but was led by Jonathan Tibbet of Riverside who could serve as an intermediary with white society. The Federation put its own police on the reservations in order to solve problems before the BIA agents could intervene. The Federation was also a lobbying organization and assisted in convincing Congress to pass the Indian Citizenship Act and other federal legislation affecting Native Americans (Hanks 2012).

4.2.2 Kumeyaay

The Kumeyaay (also known as Tipai and Ipai) were Yuman speakers (part of the Hokan language family) who occupied San Diego County. The Kumeyaay have been ancestrally located in the southern part of the City of Carlsbad, southeast into Imperial County and south of the United States into Baja California. From west to east, the Kumeyaay occupied the coast, coastal hills, mountains, and desert.

The primary source of Kumeyaay subsistence was vegetal food. Seasonal travel followed the ripening of plants from the lowlands to higher elevations of the mountain slopes. Acorns, grass and sage seeds, cactus fruits, wild plums, pinyon nuts, and agave stalks were the principal plant foods. Deer, rabbits, small rodents, and birds provided meat. Residential bases were selected for seasonal use and were occupied by exogamous, patrilineal clans or bands. Three or four clans might winter together and then disperse during the spring and summer (Luomala 1978).

The Kumeyaay were loosely organized into exogamous patrilineal groups termed sibs, clans, gens, and tribelets by ethnographers. The Kumeyaay term was *cimul*. The *cimul* used certain areas for hunting and gathering, but apparently did not control a bounded and defended territory, as did the Luiseño.

In addition, members of several different *cimul* usually lived in the same residential base, unlike the Luiseño where a single lineage, party, or clan controlled a village and its territory. Kumeyaay lived in residential bases during the winter and subsisted on stored resources. No permanent houses were built. Brush shelters were temporary and were not re-used the next year. Ceremonies, including rites of passage and ceremonies to insure an abundance of food, were held in the winter residential bases. The *cimul* leader directed the ceremonies and settled disputes (Christenson 1990:58, 62). One of the most important ceremonies was the mourning ceremony. Upon death, the Kumeyaay cremated the body of the deceased. Ashes were placed in a ceramic urn and buried or hidden in a cluster of rocks. The family customarily held a mourning ceremony one year after the death of a family member. (Luomala 1978).

The Kumeyaay were geographically and linguistically divided into western and eastern Kumeyaay. The western and eastern Kumeyaay spoke two different dialects (Christenson 1990:64). The western Kumeyaay lived along the coast and in the valleys along the drainages west of the mountains. The eastern Kumeyaay lived in the canyons and desert east of the mountains. The western Kumeyaay spent the winter in residential bases in the lowland valleys and then broke into smaller *cimul* groups that moved gradually eastward toward the mountains, following ripening plants and occupying temporary residential sites along the way. Thus, each group occupied several different residential bases during the course of a year (Christenson 1990:292-293). The eastern Kumeyaay spent the winter in villages on the desert margin where water was available from springs at canyon mouths. They moved up the canyons toward the mountains during spring and summer. The eastern and western Kumeyaay met in the mountains in the fall where they gathered black oak acorns, traded, and held ceremonies (Christenson 1990:63).

It is estimated that the precontact Kumeyaay population was about 9,000 (Luomala 1978). Beginning in 1775, the semi-nomadic life of the Kumeyaay began to change as a result of contact with European-Americans, particularly from the influence of the Spanish missions. Through successive Spanish, Mexican, and Anglo-American control, the Kumeyaay were forced to adopt a sedentary lifestyle and accept Christianity (Luomala 1978).

4.3 Euro-American History

Euro-American colonization of California began with the Spanish Portolá land expedition. The expedition, led by Captain Gaspar de Portolá of the Spanish army and Father Junipero Serra, a Franciscan missionary, explored the California coast from San Diego to the Monterrey Bay area in 1769. As a result of this expedition, Spanish missions to convert the native population, *presidios* (forts), and towns were established. The Franciscan missionary friars established 21 missions in Alta California (the area north of Baja California) beginning with Mission San Diego in 1769 and ending with the mission in Sonoma established in 1823. The purpose of the missions and presidios was to establish Spanish economic, military, political, and religious control over the Alta California territory. As previously mentioned, missions were established at San Diego in 1769, at San Juan Capistrano in 1776 and San

Luis Rey Mission was established in 1798 on the lower San Luis Rey River (in what is now Oceanside) (Castillo 1978:100). Some missions later established outposts in inland areas.

The missions sustained themselves through cattle ranching and traded hides and tallow for supplies brought by ship. Large cattle ranches were established by Mission San Luis Rey at Temecula and San Jacinto (Gunther 1984). The Spanish also constructed *presidios*, or forts, at San Diego and Santa Barbara, and a *pueblo*, or town, was established at Los Angeles. The Spanish period in California began in 1769 with the Portolá expedition and ended in 1821 with Mexican independence.

After Mexico became independent from Spain in 1821, what is now California became the Mexican province of Alta California. The Mexican government closed the missions in the 1830s and former mission lands were granted to retired soldiers and other Mexican citizens for use as cattle ranches. Much of the land along the coast and in the interior valleys became part of Mexican land grants or "ranchos" (Robinson 1948). During the Mexican period there were small towns at San Diego (near the presidio), San Juan Capistrano (around the mission), and Los Angeles. The rancho owners lived in one of the towns or in an adobe house on the rancho. The Mexican Period includes the years 1821 to 1848.

Most of what is now Carlsbad was the Mexican land grant known as Rancho Agua Hedionda, granted to Juan María Marrón by the Mexican governor of Alta California in 1842 (Aviña 1976:92). When originally granted, the rancho covered three square leagues. When surveyed by the U.S. Surveyor General's Office, the area of the grant was 13,311 acres. Marron had been a ship captain and arrived in San Diego in the 1820s. He married the daughter of the *Alcalde* of San Diego and was a *regidor* (city councilman) in San Diego. Marrón raised cattle and horses on his rancho. He supported the Americans during the Mexican War which caused trouble with his neighbors when they used his support for the Americans as a pretext to remove all the livestock from his rancho in 1846 (Anderson 2007).

The American period began when the Treaty of Guadalupe Hidalgo, which ended the Mexican War, was signed between Mexico and the United States in 1848. As a result of the treaty, Alta California became part of the United States as the territory of California. Rapid population increase occasioned by the Gold Rush of 1849 allowed California to become a state in 1850. Most Mexican land grants were confirmed to the grantees by U.S. courts, but usually with more restricted boundaries which were surveyed by the U.S. Surveyor General's office. Land that was not part of a land grant was owned by the U.S. Government until it was acquired by individuals through purchase or homesteading. Floods and drought in the 1860s greatly reduced the cattle herds on the ranchos, making it difficult to pay the new American land taxes on the thousands of acres that comprised many of the ranchos. Many Mexican-American cattle ranchers borrowed money at usurious rates from newly arrived Anglo-Americans. The resulting foreclosures and land sales transferred most of the land grants into the hands of Anglo-Americans (Cleland 1941:137-138).

Don Juan María Marrón died in 1853 at the age of 45, leaving most of Rancho Agua Hedionda to his widow and four children. His brother, Silvestre Marrón, received 360 acres. In 1860 the heirs took a

loan of $6,000 from Francis Hinton with the rancho as collateral. Drought, which greatly reduced the Marron's cattle herd, left the Marrón family unable to repay the debt and Hinton foreclosed in 1865.

Hinton was born in New York and came to California as part of the Boundary Commission Guard during the Mexican War. He previously was a merchant in Yuma (Allen and Harmon n.d.). Hinton never married and lived at the rancho until his death in 1870. Robert Kelly, who had come to San Diego from Yuma with Hinton as a member of the Boundary Commission Guard, became a partner in the Jamacha Rancho near San Diego where he raised cattle. In 1860 Kelly became ranch foreman on Hinton's Rancho Jamul and later became a partner with Hinton in Rancho Agua Hedionda. Hinton had no children and, upon Hinton's death in 1870, Hinton's half interest in Rancho Agua Hedionda was bequeathed to Robert Kelly who now fully owned the Rancho (Allen and Harmon n.d.). When Robert Kelly died without heirs in 1890 the rancho passed to the nine children of his brother, Matthew Kelly, who had died in 1885. Matthew Kelly had come to California as part of the Gold Rush and then moved to the San Diego area to join his brother, Robert. The Kelly children divided the rancho equally among them and the new parcels were surveyed in 1895 (Allen and Harmon n.d.).

Matthew Kelly lived outside the rancho (just east of the southeastern rancho boundary) on land (in Section 19 of T3 W, R 12 S) that he purchased from the federal government in 1881 and 1884 (BLM 2016). Kelly's land was known as Rancho de los Kiotes. His heirs sold Rancho de los Kiotes to a San Francisco syndicate in 1922. They sold the land (840 acres) to actor Leo Carrillo in 1938. Carrillo remodeled the adobe house Kelly had built and lived there until his death in 1961 when the ranch passed to his adopted daughter, Mrs. Marie Antoinette Carrillo Delpy (Anderson 2007a). Leo Carrillo Ranch, located in Carlsbad, is now California Historical Landmark No. 1020 and is listed on the NRHP.

The original town of Carlsbad was located outside of Rancho Agua Hedionda on federal land along the coast south of Buena Vista Lagoon. The town began as a station (Frazier's Station) on the new California Southern Railroad which completed its line from National City (south of San Diego) to Colton in 1882. The railroad was later completed through San Bernardino to Barstow, where it connected with the transcontinental AT&SF (Santa Fe) Railroad in 1885. The railroad became part of the AT&SF Railway in 1906 (Robertson 1998).

John A. Frazier, a former ship captain, arrived in the area in 1883 and dug a well near the railroad to provide water for the steam locomotives when they stopped at what became known as Frazier's Station beginning in 1884. Frazier dug another well that produced mineral water. Frazier had the mineral water analyzed and the mineral content was found to be similar to the water of one of Europe's most popular health spas, Karlsbad, in Bohemia (now known as Karlovy Vary, Czech Republic) (Anderson 2007b, Gudde 1969:54). Frazier bought land from the federal government around Frazier's Station and along the coast (in Section 1 of T5 W, R 12 S) in 1886 and purchased additional land in 1892 (BLM 2016). Frazier and several businessmen from the eastern U.S. formed the Carlsbad Land and Mineral Water Company Frazier provided the land and the other partners in the company provided the capital. Frazier's Station was renamed Carlsbad when the company divided some of the land into town lots and filed a town plat with the County. The company began bottling the mineral water and sold it

nationwide as (The American) Carlsbad Mineral Water. The Company built a large hotel and spa (the Carlsbad Hotel) near the mineral water well for those who wanted to take the waters in person (by drinking and bathing) (Carlsbad Spa 2016). Frazier sold lots around the hotel and those who bought the lots built businesses and residences that formed the beginning of the town of Carlsbad. In 1890 there were a telegraph office, Wells Fargo Express, a school, a Methodist and a Congregational church, a hotel, and another hotel under construction. The Carlsbad Hotel was destroyed by fire in 1896 (Allen and Harmon n.d.).

Several of the partners in the Carlsbad Land and Mineral Water Company, including Samuel C. Smith and Gerhard Schutte, moved to Carlsbad. Gerhard Schutte's home, built in the Queen Anne style, became one of the two Twin Inns. The Twin Inns was greatly expanded and redecorated with exotic foreign themes and later became a fried chicken restaurant. The Shipley family purchased the Smith home, as well as large tracts of land around Carlsbad (Allen and Harmon n.d.).

There was little further development in Carlsbad until 1914 when the South Coast Land Company bought up all the remaining lands of the Carlsbad Land and Mineral Water Company, as well as other adjoining properties. The new company drilled wells to provide water for farming. New settlers arrived and bought farm land, growing winter vegetables, grains, and poultry. During the 1920s Carlsbad became a major avocado production area. The Carlsbad Avocado Growers Club was formed in early 1923 with John Newberry as president. The peak years for avocado production were 1947 and 1948. Commercial flower and bulb production also began in the 1920s. In 1949, it was estimated that 90 per cent of the nation's freesia bulbs came from Carlsbad's annual production of nearly three million bulbs (Allen and Harmon n.d.). After a vote about whether to join Oceanside or incorporate, Carlsbad incorporated as a city in 1951 (Allen and Harmon n.d.).

In 1930, the Eastman Hotel Company acquired the mineral water well and built the California-Carlsbad Mineral Springs Hotel. The hotel had 130 rooms with a spa and clinic for taking mineral water baths. The hotel was purchased by the Lutheran Services of San Diego in 1956 and became a retirement home (Allen and Harmon n.d.). By the early 1950s, the mineral water well had been buried and forgotten. B. M. Christiansen rediscovered and reopened the well and made a Bohemian-themed well house to protect and commemorate the well (Allen and Harmon n.d.). In 1995, the mineral well was reopened as the Carlsbad Mineral Water Artesian Well by Ludvik and Veronica Grigoras from Karlovy Vary, Czech Republic. A new spa opened as the Carlsbad Mineral Water Spa and the water was sold as Carlsbad Alkaline Water (Carlsbad Spa 2016).

4.4 Paleontological Resources

The sediments of the City of Carlsbad contain a geological sequence of marine and non-marine sedimentary rocks that record portions of 140 million years of the earth's history (Figure 2). The primary geologic formations present are marine and non-marine Pleistocene and Holocene sediments, the Santiago Formation, Point Loma Formation, Lusardi Formation, and the Delmar Formation. Other geologic units present in the area consist of the Torrey Sandstone, alluvial flood-plain deposits, paralic

deposits which consist of both marine and continental sediments, marine beach deposits, paralic estuarine deposits, Tonalite, Dacite stock, Leucogranodiorite of Lake Hodges, and some metasedimentary and metavolcanic rocks.

The area contains abundant alluvial and flood-plain deposits from the early Pleistocene and Holocene (about 2 million years ago [Mya] to present). The City of Carlsbad also contains many paralic deposits from the Pleistocene (approximately 2 Mya to 10,000 years ago). These paralic deposits are deposits that contain intertwined marine or continental sediments. Based on grain size and depositional history, most of these units have low to moderate fossil potential and should be surveyed to determine fossil potential in individual locations.

The Santiago Formation (49-45 Mya) and the Delmar Formation (49-47 Mya) are part of the La Jolla Group and are primarily middle Eocene (49-38 Mya) sandstones and siltstones. The Santiago Formation contains lenses of fossiliferous claystone and siltstone. The accompanying Delmar Formation is a sandy claystone interbedded with sandstone. This formation is not well known for producing fossils, but has the potential to yield specimens. Before the Eocene, this area was a shallow sea (approximately 74 Mya). This sea deposited the sands and silts which comprise the major formations from this time.

The Point Loma Formation (76-72 Mya) is a sandstone and siltstone unit with significant fossil potential. This Upper Cretaceous unit is known to contain abundant calcareous nannoplankton. The Lusardi Formation (90-75 Mya), also Upper Cretaceous in age, is primarily a cobble and boulder conglomerate which is unlikely to produce any fossil material, but does contain lenses of medium grained sandstone which have the potential to yield fossil material.

There are also zones of metasedimentary and metavolcanic deposits which have low to marginal potential to produce any significant fossil discoveries.

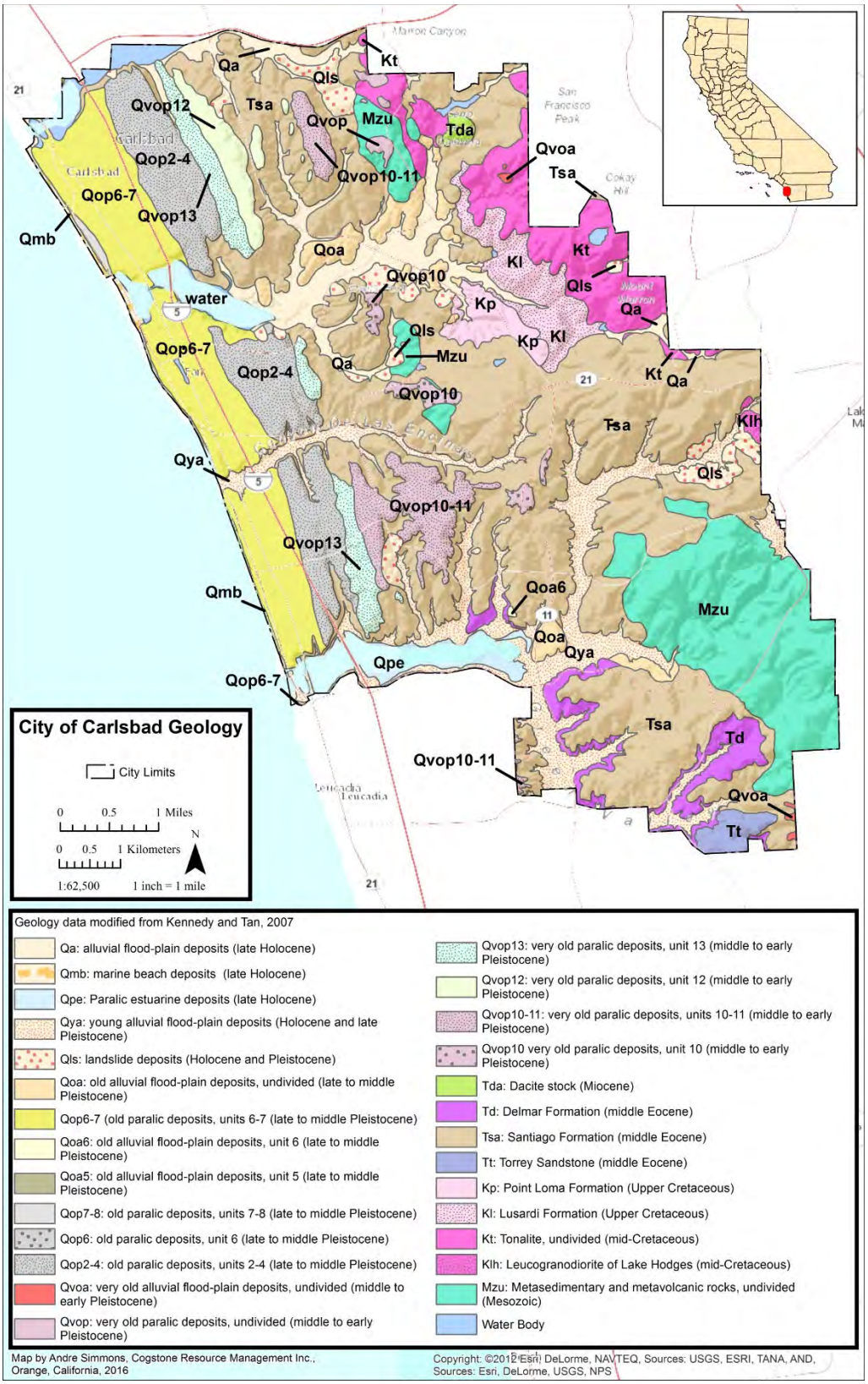

Figure 2. Geology of the City of Carlsbad.

5.0 Roles and Responsibilities

Implementation of these Guidelines requires effort from, and collaboration with, a number of City staff; professionally qualified City and consultant staff; and tribes, agencies and interested parties. Those that are expected to either materially participate in their implementation, or those that will contribute important information to the process, are presented below.

5.1 City of Carlsbad

The City of Carlsbad will serve either as a CEQA lead or responsible agency for discretionary approval of private-sector projects, or as lead agency and a project proponent for City projects. The City also administers the issuance of ministerial approvals, plan checks, and non-discretionary actions related to projects under its jurisdiction, which are not subject to compliance with CEQA. The City Building Division monitors and enforces the building and safety standards contained in the state Building Codes and in various municipal codes and policies. This includes oversight of ministerial actions, which are not subject to these Guidelines. There are three primary divisions or departments that may be expected to implement these Guidelines, in whole or in part, as follows.

- The City Planning Division and Land Development Engineering are responsible for ensuring compliance of all development proposals with the City's zoning, subdivision, and environmental ordinances, as well as various codes, standards, and policies.
- The Public Works Department is responsible for administering and planning City projects that affect public streets, the water and sewer system, and other important infrastructure in the City.
- The Parks and Recreation Department operates 40 parks and nearly 68 miles of trails, as of May 2017, throughout the City, and plans and administers City projects in these areas. This includes areas of public open space that contain, or may contain, tribal, cultural, or paleontological resources.

The Planning Division, Public Works, and Parks and Recreation Departments are the departments most likely to be responsible for CEQA compliance.

In addition, the Historic Preservation Commission will receive Notices of Preparation for Environmental Impact Reports and notices of public review periods for other CEQA documents prepared for development projects under consideration by the Planning Department. Such notices allow the Historic Preservation Commission to comment during the public review period on environmental documents for projects that involve historic structures, and archaeological or paleontological sites, as shown on the historic resources inventory or as identified in an environmental study.

5.2 Private Applicants for Projects

Developers and citizens who propose development projects within the City, which are typically funded wholly with private money on privately-owned property, are considered private-sector applicants. These applicants are subject to compliance with all applicable laws, codes, regulations, and permits, both discretionary and ministerial. Although the City is ultimately responsible for approval or denial of a proposed project, the applicants and City may engage third-party consultants to implement portions of these Guidelines and carry out technical analyses used to support decision-making of discretionary projects.

5.3 Consultants

To ensure that consultants implementing these Guidelines are professionally qualified and produce technical documentation that can be used to support CEQA and discretionary approval of projects, minimum qualifications standards are required. These standards apply to both City-contracted consultants and those retained directly by private-sector project applicants.

5.3.1 Minimum Qualifications for Cultural Resources Professionals

The Principal Investigator (PI) is the professional that is primarily responsible for the design, preparation, execution, and results of a cultural resources study, and is the individual responsible for ensuring that the study is conducted in accordance with the terms of these Guidelines and all applicable laws and regulations. PIs implementing these guidelines shall meet the Secretary of the Interior's Professional Qualification Standards (PQS) that pertain to the particular area of study. The PQS standards are published in 36 CFR Part 61 and Volume 62, No 119 of the Federal Register (June 20, 1997) and state:

> The qualifications define minimum education and experience required to perform identification, evaluation, registration, and treatment activities. In some cases, additional areas or levels of expertise may be needed, depending on the complexity of the task and the nature of the historic properties involved. In the following definitions, a year of full-time professional experience need not consist of a continuous year of full-time work but may be made up of discontinuous periods of full-time or part-time work adding up to the equivalent of a year of full-time experience.

The NPS (NPS n.d.) published more detailed and comprehensive professional qualifications standards that apply to these Guidelines. Qualification standards are provided for PIs in the following disciplines and can be found in their entirety at https://www.nps.gov/history/local-law/gis/html/quals.html. All of the following disciplines also require a demonstrated ability to carry out applicable research or work, and education and experience must be in the relevant field:

- Prehistoric Archaeologist: graduate degree plus 2.5 years of experience

- Historical Archaeologist: graduate degree plus 2.5 years of experience
- Architectural Historian: graduate degree plus 2 years of experience or an undergraduate degree plus 4 years of experience
- Conservator: graduate degree plus 3 years of experience or an undergraduate degree plus 3 years of experience and another 3 years of full-time apprenticeship
- Cultural Anthropologist: graduate degree plus 2 years of experience or an undergraduate degree plus 4 years of experience
- Curator: graduate degree plus 2 years of experience or an undergraduate degree plus 4 years of experience
- Historic Engineer: licensed civil engineer plus 2 years of experience or a Masters of Civil Engineering plus 2 years of experience or a Bachelors of Civil Engineering plus 2 years of experience
- Folklorist: graduate degree plus 2 years of experience or an undergraduate degree plus 4 years of experience
- Historical Architect: licensed architect plus 2 years of experience, or a Masters of Architecture degree plus 2 years' experience or a Bachelors of Architecture with 2 years of experience
- Historical Landscape Architect: licensed landscape architect plus 2 years of experience, or a Masters of Architecture degree plus 2 years of experience or a Bachelors of Architecture with 3 years of experience
- Historic Preservation Planner: licensed land use planner plus 2 years of experience or a graduate degree in planning plus 2 years of experience, or an undergraduate degree plus 4 years of experience
- Historic Preservationist: graduate degree plus 2 years of experience or an undergraduate degree plus 4 years of experience
- Historian: graduate degree plus 2 years of experience or an undergraduate degree plus 4 years of experience

The Secretary of the Interior's Professional Qualification Standards allow for lead agencies to use some discretion in the combination of education and experience criteria required for each specialty. Consultants who may not definitively meet the criteria presented above must obtain approval from the City, in consultation with applicable agencies, prior to acceptance of work products intended to be utilized under these Guidelines, and may be subject to a mandatory peer review of the resulting documentation. Technical staff working under the direct supervision of the qualified PI need not meet the above criteria.

5.3.2 Minimum Qualifications for Paleontological Professionals

The qualifications listed below were derived from professional societies, federal, state, and local agencies. The roles are summarized from the same sources.

A Principal Paleontologist is an individual with a graduate degree in paleontology, geology, or related field, with at least one year of prior experience as a principal investigator. Generally, such persons will have a total of five or more years of paleontology experience; however, an advanced degree is less important than demonstrated competence. Competence in paleontology can be demonstrated by a thesis or dissertation on paleontological topics, at least three peer-reviewed publications on paleontological topics, or at least 10 paleontological resources consulting reports.

The Principal Paleontologist is responsible for ensuring that all subordinate personnel are appropriately qualified and trained. In addition, the Principal Paleontologist is responsible for the evaluation of fossils to determine if they meet legal significance standards, production of a final report with a complete catalog, and for ensuring the curation of significant specimens. Specimens not meeting significance standards may be donated for educational use in the City.

Other members of a paleontological field team may include Field Directors, Supervisors, and Technicians/Monitors. Laboratory work and use of specialists may be required to remove rock from fossils, obtain radiocarbon dates and perform other needed tasks. An undergraduate degree in paleontology, geology, or related field is preferable, but is less important than documented experience performing paleontological mitigation. These personnel must work under the supervision of a Principal Paleontologist.

5.4 California Office of Historic Preservation

The California OHP is a state agency led by the SHPO that, through delegation of authority by Congress, acts on behalf of the Advisory Council on Historic Preservation in the implementation of the regulations in 36 CFR Part 800 that implement Section 106 of the NHPA. The OHP is also responsible for maintaining the California Historical Resources Information System (CHRIS), and for administering the CRHR, NRHP, CHL, and various grants and programs related to historic preservation in California. Although OHP does not participate in the CEQA process for individual private-sector projects, it may enter into consultation as part of Section 106 compliance or when state-owned historical resources may be affected by a project.

5.5 California Native American Heritage Commission

The California NAHC is composed of a nine-member governor-appointed advisory body responsible for the identification and cataloging of places of special religious or social significance to Native Americans, including sacred sites and known Native American graves and cemeteries. The NAHC may serve as a trustee agency under CEQA, and is responsible for identifying a Most Likely Descendant for Native American human remains that are unearthed in California.

5.6 California Native American Tribes

California Native American tribes are defined in Section 21073 of the California Public Resources Code and Chapter 905 of the Statutes of 2004. Those that notified the City in writing of their request to receive notice of all projects subject to CEQA are subject to the procedures enacted by AB 52. These tribes need not be physically located in or near Carlsbad, but must be traditionally and culturally affiliated with the land currently under the jurisdiction of the City.

In addition, California Native American Tribes, including but not limited to those that do not request that the City notice them under AB 52, may be consulted under SB 18, as determined by the NAHC. The SB 18 lists typically provided by the NAHC in response to City requests include the San Luis Rey Band of Mission Indians, but also include other tribes. The City is required to offer consultation under SB 18 to all of the tribes named by the NAHC on its SB 18 list.

5.6.1 San Luis Rey Band of Mission Indians

The San Luis Rey Band of Mission Indians (SLRBMI) and the City enjoy a special planning partnership for all discretionary actions carried out or contemplated by the City. This relationship, which was further fortified by the passage of Council Policy No. 83 in 2016, allows for a higher level of involvement in project planning than is typically afforded to tribes, which is reflected in portions of these Guidelines. The SLRBMI is also a participant in the City's CEQA compliance under AB 52. Although the tribe is not federally-recognized, SLRBMI is a California Native American tribe and is considered by federal agencies as a consulting party in Section 106 consultation.

5.7 Federally-Recognized Tribes

Federally recognized tribes are those defined in 25 CFR Part 83 and identified as such by the Bureau of Indian Affairs. These tribes are recognized by the federal government as having special sovereignty, immunities, and privileges by virtue of their government-to-government relationship with the United States. Federally-recognized tribes are eligible for funding and services from the BIA and are afforded special consultation rights under Section 106 of the NHPA. Federally-recognized tribes may include, but are not limited to, California Native American tribes as described in Section 5.6.

5.8 Other Permitting or Approving Agencies

There are several federal agencies that may issue federal approvals, permits, licenses, or funding for projects in the City, which will trigger compliance with Section 106 NHPA and potential consultation with interested parties including but not limited to California Native American tribes, historical societies, and preservation organizations, etc.:

- U.S. Army Corps of Engineers (USACE): issuance of a permit for temporary and permanent discharge of fill into Waters of the United States, in accordance with Section 404 of the Clean Water Act

- U.S. Fish and Wildlife Service (USFWS): issuance of a biological opinion or incidental take permit for federally-listed biological species
- Federal Highways Administration (FHA), and its designee, California Department of Transportation (Caltrans): issuance of Federal pass-through funds, which will require separate compliance with the Caltrans Section 106 PA, or issuance of encroachment permits, which will require separate review by Caltrans
- Other federal agencies that may provide funding to City or private projects such as the U.S. Department of Housing and Urban Development's Community Development Block Grant program

5.9 Interested Parties

Other parties may express interest or provide input in planning and project approval decisions that are based, in part, on the implementation of these Guidelines. These include the City's Historic Preservation Commission, external historical societies and organizations, the City's Cultural Arts Office, professional societies, academia, and the general public. Although these entities do not have responsibility for implementing these Guidelines, any input will be taken into consideration as appropriate.

6.0 Sensitivity Models

6.1 Uses

Cultural resources come in a variety of forms, and range from historic, existing architecture to deeply buried archaeological and tribal cultural resources. The very nature of the latter makes identification and avoidance difficult, as some archaeological and tribal cultural resource sites sometimes do not manifest on the surface, such that they would be detectable by typical surface or near-surface methods alone. The ability to predict the presence of cultural resources is not always possible; however, the use of modeling to produce sensitivity and compliance status maps can be very helpful in long-range planning efforts. There are a number of benefits and uses for a sensitivity model for the City including:

- serving as a screening tool for planners and developers to determine if cultural resources surveys and evaluations have already been completed for a project area, thereby reducing the effort necessary to inventory for cultural resources;
- serving as a planning tool to identify to developers particularly sensitive areas that have a high potential for cultural resources, which may result in larger areas set aside for avoidance and preservation of cultural resources;
- identifying areas that may require additional or more specialized studies, such as geo-archaeological investigations;
- identifying areas that may require focused consultation with Native American tribes;
- identifying areas that may require consultation with specific special interest groups, like, historical societies, or other ethnic groups;
- serving as a model for predicting the types of cultural resources that may be expected in a project area;
- allowing for the development of research themes and questions, guidelines for treatment, and an overall compliance framework that can be applied in a consistent manner over time; and
- being housed in a Geographic Information System (GIS) database and continually updated and refined, as information generated through implementation of the City's Guidelines is fed back into the model.

However, as discussed further in Section 7.3, confidential information in the possession of the City cannot be disclosed to the public. Only City staff, professionally qualified consultants meeting the qualifications in Section 5, and California Native American tribes (when appropriate) may have access to information about specific site locations and descriptions.

More important than the purpose of this sensitivity model is acknowledgement of what this model is not—it does not provide a predictive map of where resources are located, does not represent an inventory of resources, and must not be used as a substitute for appropriate level of study under applicable state and federal law.

The initial sensitivity model for the City was developed through a broad and high-level records search and literature review, a review of geological maps and soils data, aerial photograph review, and from professional expertise in cultural resources management efforts throughout the City. General maps were created based on the model, which show general areas sensitive for archaeology, built environment resources (Figure 2), and paleontology (Figure 3). In the future, tribes may elect to submit information about areas of special concern, which may be included in the sensitivity model with their authorization.

In accordance with Section 7.3 of these Guidelines, archaeological information is restricted from public distribution or access under a variety of laws and regulations. Therefore, the sensitivity model for archaeological resources has been redacted from these Guidelines and will be kept in a secure location at the City. Only City planning staff and those qualified professionals meeting the applicable Secretary of the Interior's Professional Qualifications will be permitted to view the information. However, the CHRIS information centers are the primary source of archaeological information available to qualified professionals.

6.2 Architectural History Sensitivity Model

The three types of areas depicted on Figure 3 are High Sensitivity, Moderate Sensitivity, and Low Sensitivity for resources in the built environment.

High Sensitivity: areas shown in red in Figure 3 represent those areas that have known historic districts and features. These include Historic Village and Barrio Neighborhoods; McClellan Palomar Airport; and neighborhoods built before 1968 (as determined by reviewing historic aerial photographs and historic USGS quadrangle maps).

Moderate Sensitivity: areas shown in green in Figure 3 represent those areas that can be classified neither as high nor low, because they have not been surveyed for cultural resources or do not otherwise fall into either the high or low categories. These include developments that were built between 1968 and 1983 (as determined by reviewing historic aerial photographs and historic USGS quadrangle maps).

Low Sensitivity: areas shown without highlight in Figure 3 represent areas that are reflected in the files at CHRIS for having been previously surveyed, and/or have lower frequencies of previously recorded sites, or have recently been fully developed (as determined from historic through modern aerials), or have no visible indication of cultural resources on aerial photographs, or are set back from major water courses, such that the potential for cultural resources is relatively low. This includes heavily developed areas and areas built after 1983.

Figure 3. Architectural History Sensitivity Model, showing high sensitivity in pink and moderate sensitivity in green, with the balance being considered low sensitivity.

The categories presented above are considered preliminary only, and are expected to shift over time; thus, they should be considered only for screening and are not definitive. For example, where a property is currently situated in an area of high sensitivity, and such property is subject to the Guidelines for identification, evaluation, and treatment of cultural resources, it will eventually be surveyed. If the survey concludes, with agency concurrence, that there are no cultural resources located within its boundaries, then the model would be updated by the City to reflect a lower sensitivity, regardless if the development were to proceed; the color would change from red to green or no color. If development of that property is delayed, the classification of low sensitivity would alert the City to require, perhaps, a field visit to confirm ground conditions, but not necessarily a full re-survey. Also, with the passage of time, built environment resources age and new context statements emerge, so these resources may achieve higher sensitivity levels. Over time, over the course of the implementation of the Guidelines, the sensitivity model would more accurately reflect the actual inventory of cultural resources. As such, this model will not be available in its entirety to the public, but will be utilized by qualified City staff. However, at any time, a potential applicant for a project within the City can request information about whether the project is located in a high, moderate, or low sensitivity area. Knowledge of the relative sensitivity of the project location may help make a determination about whether development, adaptive re-use or strict preservation is the appropriate land use.

6.3 Archaeological Sensitivity Model

Similar to the architectural history model presented above, the three types of areas depicted in the sensitivity model are High Sensitivity, Moderate Sensitivity, and Low Sensitivity. These sensitivity levels were initially developed not by actual site locations, but by the presence or absence of development, or by existing landform.

High Sensitivity: these represent those areas that are situated in landforms that typically contain archaeological sites, or for which signatures of cultural resources are visible from aerial photography, or for which there is a higher concentration of previously recorded cultural resources.

Moderate Sensitivity: these represent those areas that can be classified neither as high nor low, because they have not been surveyed for cultural resources or do not otherwise fall into either the high or low categories.

Low Sensitivity: these areas represent areas that are either reflected in the files at CHRIS for having been previously surveyed, and/or have lower frequencies of previously recorded sites, or have recently been fully developed (as determined from historic through modern aerials), or have no visible indication of cultural resources on aerial photographs, or are set back from major water courses, such that the potential for cultural resources is relatively low. This includes heavily developed areas and areas built after 1983.

This model will not be available to the public, but will be utilized by City staff. However, at any time, a potential applicant for a project within the City can request information about whether the project is

located in a high, moderate, or low sensitivity area. While the City cannot release confidential information to the requesting party, knowledge of the relative sensitivity of the project location may help make a determination about whether development or conservation is the appropriate land use. The sensitivity model is also useful in suggesting the types of cultural resources that may be encountered, which, in turn, can be used to pre-define research themes and topics. It can also be used to develop standard treatment methods when avoidance or mitigation of significant cultural resources is necessary.

6.4 Paleontological Sensitivity Model

The sensitivity of each rock unit in the City was determined by considering the known yield of fossils in each geologic formation. A rank of high, moderate, or low sensitivity for paleontological resources was based on this information. Figure 4 shows the model in its current form. Table 1 provides a summary.

High: High sensitivity was assigned to geologic formations known to contain paleontological localities with fossils meeting significance criteria as defined above. These formations have the highest potential to produce unique invertebrate fossil assemblages or unique vertebrate fossil remains.

The High potential units in the City of Carlsbad are the Point Loma Formation, Santiago Formation and some of the old paralic deposits which are equivalent to the Bay Point Formation (130,000-80,000 years old).

Moderate: Moderate sensitivity was assigned to geologic formations known to contain paleontological localities or to represent depositional environments that should preserve fossils, but not in every location. This is described as patchiness. These geologic formations are judged to have a strong, but often unproven, potential for producing unique fossil remains (Deméré and Walsh 1993).

The Moderate sensitivity units in the City of Carlsbad include the Lusardi Formation, Delmar Formation, a few of the paralic deposits from the late to middle Pleistocene, the late Holocene marine beach deposits, and the late Holocene paralic estuarine deposits.

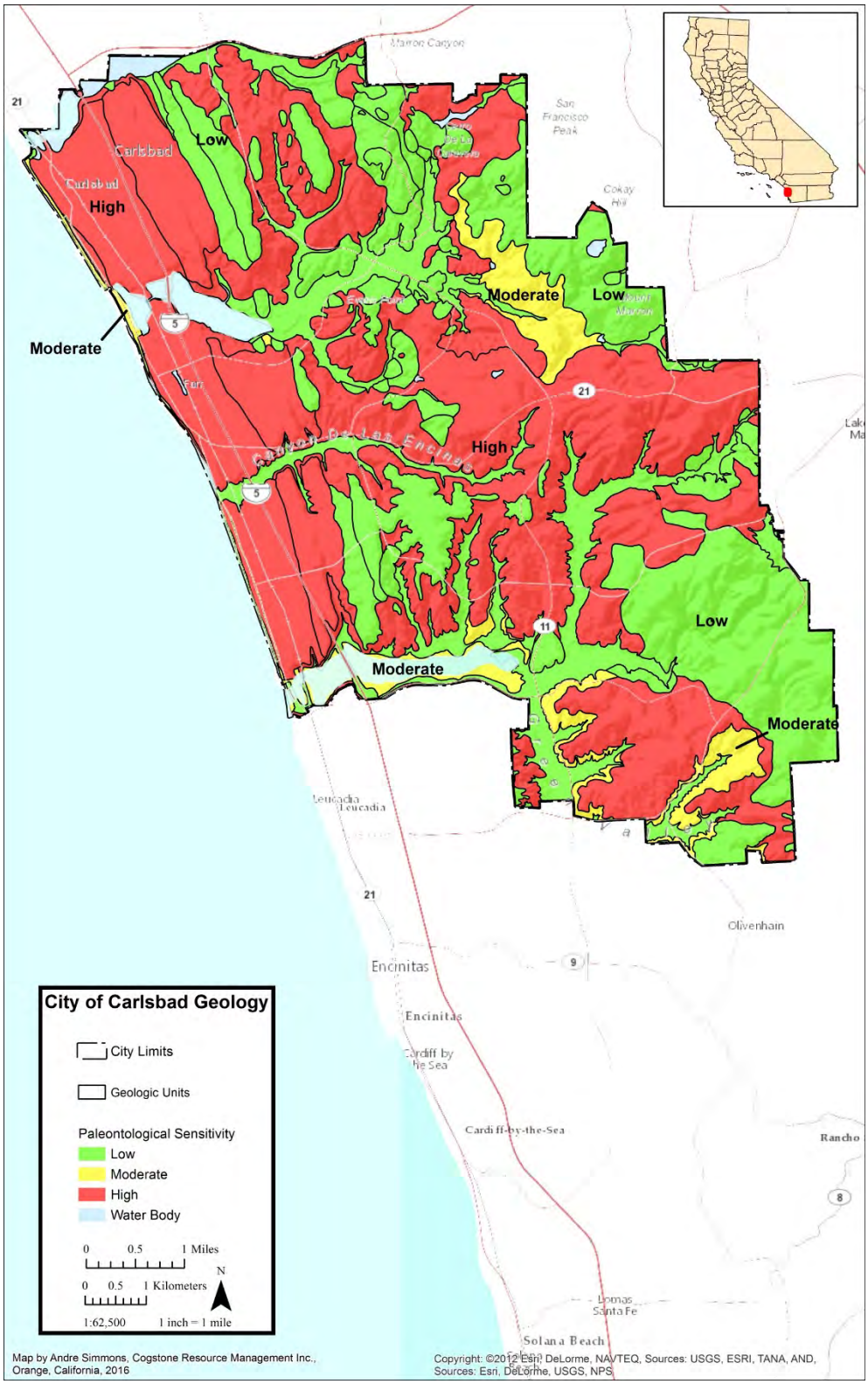

Figure 4. Paleontology Sensitivity Model.

Table 1. Summary of Paleontological Sensitivity by Map Unit

Map Unit	Description	Age	High	Moderate	Low
Qa	alluvial flood-plain deposits	late Holocene			X
Qmb	marine beach deposits	late Holocene		X	
Qpe	paralic estuarine deposits	late Holocene		X	
Qya	young alluvial flood-plain deposits	Holocene and late Pleistocene			X
Qls	landslide deposits	Holocene and Pleistocene			X
Qoa	old alluvial flood-plain deposits, undivided	late to middle Pleistocene			X
Qoa6	old alluvial flood-plain deposits, unit 6	late to middle Pleistocene			X
Qoa5	old alluvial flood-plain deposits, unit 5	late to middle Pleistocene			X
Qop7-8	old paralic deposits, units 7-8	late to middle Pleistocene	X		
Qop6-7	old paralic deposits, units 6-7	late to middle Pleistocene	X		
Qop6	old paralic deposits, unit 7	late to middle Pleistocene		X	
Qop2-4	old paralic deposits, units 2-4	late to middle Pleistocene	X		
Qvoa	very old alluvial flood-plain deposits, undivided	middle to early Pleistocene			X
Qvop	very old paralic deposits, undivided	middle to early Pleistocene			X
Qvop13	very old paralic deposits, unit 13	middle to early Pleistocene			X
Qvop12	very old paralic deposits, unit 12	middle to early Pleistocene			X
Qvop10-11	very old paralic deposits, units 10-11	middle to early Pleistocene			X
Qvop10	very old paralic deposits, unit 10	middle to early Pleistocene			X
Tda	Dacite Stock	Miocene			X
Td	Delmar Formation	middle Eocene		X	
Tsa	Santiago Formation	middle Eocene	X		
Tt	Torrey Sandstone	middle Eocene			X
Kp	Point Loma Formation	Upper Cretaceous	X		
Kl	Lusardi Formation	Upper Cretaceous		X	

Table 1. Summary of Paleontological Sensitivity by Map Unit

Map Unit	Description	Age	High	Moderate	Low
Kt	Tonalite, undivided	mid-Cretaceous			X
Klh	Leucogranodiorite of Lake Hodges	mid-Cretaceous			X
Mzu	Metasedimentary and metavolcanic rocks, undivided	Mesozoic			X

Low: Low sensitivity was assigned to geologic formations that, based on their relatively young age and/or high-energy depositional history, are judged unlikely to produce unique fossil remains. Low resource potential formations rarely produce fossil remains of scientific significance and are considered to have low sensitivity. However, when fossils are found in these formations, they are often very significant additions to the geologic understanding of the area. Low resource potential and low sensitivity is also assigned to geologic formations that are composed either of volcanoclastic (derived from volcanic sources) or metasedimentary rocks, but that nevertheless have a limited probability for producing fossils from certain formations at localized outcrops. Volcanoclastic rock can contain organisms that were fossilized by being covered by ash, dust, mud, or other debris from volcanoes. Sedimentary rocks that have been metamorphosed by head and/or pressure caused by volcanoes or plutons are called metasedimentary. If the sedimentary rocks had paleontological resources within them, those resources may have survived the metamorphism and still be identifiable with the metasedimentary rock, but since the probability of this occurring is so limited, these formations are considered to have a low sensitivity. Low resource potential and low sensitivity also applies to geologic formations that are composed entirely of volcanic or plutonic igneous rock, such as basalt or granite, and therefore do not have any potential for producing fossil remains. These formations have very low paleontological resource potential; i.e. they are not sensitive.

Those formations within the City of Carlsbad with Low potential include the Pleistocene and Holocene alluvial and flood-plain deposits, most of the paralic deposits, and the Torrey Sandstone (middle Eocene). It would be unlikely to find paleontological resources in the metasedimentary and metavolcanic rocks, as the heat and pressure these rocks experienced would likely have destroyed any fossil material. The volcanic units in the area, including the Dacite stock (Miocene; 23-5 Mya), and the Cretaceous (146-65 Mya) Tonalite and Leucogranodiorite of Lake Hodges, are also in the Low potential sensitivity and are highly unlikely to yield any paleontological resources.

6.5 Management of the Models

The City Planning Division will periodically obtain updates to the models presented in these Guidelines. Formal updates will be carried out by qualified professionals or with collaboration with the CHRIS, or both; however, in the interim, the City will keep confidential records of the results of cultural resources studies that affect the level of sensitivity on a parcel-by-parcel basis. Periodic official updates to the sensitivity models shall not require a revision to these Guidelines; however, any subsequent revisions may be accompanied by an update to the models. In addition, the Planning Division shall notify the secretary to the Historic Preservation Commission upon the updating of non-confidential sensitivity models.

7.0 General Methods and Standards of Analysis

7.1 General Standards

There are numerous standards and guidelines that currently apply to cultural resources management. While modifications to these standards are expected to occur over the lifetime of the Guidelines and its individual projects, the fundamental standards for professional cultural resources management will always apply.

These fundamental standards and guidelines include:

- CEQA and applicable sections of the CEQA Guidelines and Public Resources Code;
- Archaeological Resource Management Reports: Recommended Contents and Format (February 1990), published by the California OHP;
- Instructions for Recording Historical Resources (March 1995), published by the OHP;
- Section 106 of the NHPA and its implementing regulations at 36 CFR Part 800;
- Standards for curation of archaeological collections in 36 CFR Part 79;
- Ethical and professional standards of the Society for California Archaeology, the Society for American Archaeology, and the Register of Professional Archaeologists (RPA); and
- Secretary of Interior's Standards and Guidelines for the identification, evaluation, and treatment of archaeological and historical resources as appropriate.

The following sections present the specifications for project work that meet the standards and guidelines above. These specifications are also based on standard practice by the NPS for similar projects. Deviation from any standards, guidelines, or work plan specifications must be approved by the City, in consultation with applicable federal agencies, in advance of implementation.

7.2 Thresholds of Review

There are two broad types of actions that the City is responsible for: discretionary projects and ministerial actions. *Discretionary projects* are those that require that the City exercise judgement or deliberation when determining whether or not to approve a project. Because discretionary projects can result in no approval (denial), they are subject to compliance with CEQA and, by extension, these Guidelines.

Ministerial actions are agency decisions involving little or no judgment by City staff as to the wisdom or manner of carrying out the project. These actions include plan checks, over-the-counter building permit issuance, dog or business licenses, and other similar actions for which an agency official has no ability to deny or reject the action, as long as the subject of the action meets the pre-approved

parameters and the required terms and conditions are met. Ministerial actions are not subject to CEQA or to these Guidelines. Therefore, the following procedures for the identification, evaluation, determination of effect, and mitigation of significant impacts to tribal, cultural, and paleontological resources apply only to discretionary projects (in which the City has the ability to deny a project through the exercise of judgment as to the wisdom or manner of carrying out the project), or to applicable City projects not exempt under CEQA.

7.3 Confidentiality

Maintaining confidentiality of the location and nature of archaeological sites and TCRs is of the utmost importance to the City. Similarly, federal and state law recognize this need. As it pertains specifically to CEQA and these Guidelines, the City shall make best efforts to meet the following objectives in the California Public Resources Code, which are provided herein:

"Any information, including, but not limited to, the location, description, and use of the tribal cultural resources, that is submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with subdivision (r) of Section 6254 of, and Section 6254.10 of, the Government Code, and subdivision (d) of Section 15120 of Title 14 of the California Code of Regulations, without the prior consent of the tribe that provided the information. If the lead agency publishes any information submitted by a California Native American tribe during the consultation or environmental review process, that information shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. This subdivision does not prohibit the confidential exchange of the submitted information between public agencies that have lawful jurisdiction over the preparation of the environmental document" (Section 21082.3[c][1]).

"This subdivision does not prohibit the confidential exchange of information regarding tribal cultural resources submitted by a California Native American tribe during the consultation or environmental review process among the lead agency, the California Native American tribe, the project applicant, or the project applicant's agent. Except as provided in subparagraph (B) or unless the California Native American tribe providing the information consents, in writing, to public disclosure, the project applicant or the project applicant's legal advisers, using a reasonable degree of care, shall maintain the confidentiality of the information exchanged for the purposes of preventing looting, vandalism, or damage to a tribal cultural resources and shall not disclose to a third party confidential information regarding tribal cultural resources" (Section 21082.3[c][2][A]).

"This paragraph does not apply to data or information that are or become publicly available, are already in the lawful possession of the project applicant before the provision of the information by the California Native American tribe, are independently developed by the project applicant or the project applicant's agents, or are lawfully obtained by the project applicant from a third party that is not the lead agency, a California Native American tribe, or another public agency" (Section 21082.3[c][2][B]).

"This subdivision does not affect or alter the application of subdivision (r) of Section 6254 of the Government Code, Section 6254.10 of the Government Code, or subdivision (d) of Section 15120 of Title 14 of the California Code of Regulations" (Section 21082.3[c][3]).

"This subdivision does not prevent a lead agency or other public agency from describing the information in general terms in the environmental document so as to inform the public of the basis of the lead agency's or other public agency's decision without breaching the confidentiality required by this subdivision" (Section 21082.3[c][4]).

"Consistent with subdivision (c), the lead agency shall publish confidential information obtained from a California Native American tribe during the consultation process in a confidential appendix to the environmental document and shall include a general description of the information, as provided in paragraph (4) of subdivision (c) in the environmental document for public review during the public comment period provided pursuant to this division" (Section 21082.3[f]".

In addition, information obtained or derived from information provided by the California Historical Resources Information System maintained by the California Office of Historic Preservation cannot be disclosed to the public.

The California Public Records Act exempts from public disclosure the "records of Native American graves, cemeteries, and sacred places and records of Native American places, features, and objects described in Section 5097.9 and 5097.993 of the Public Resources Code maintained by, or in the possession of, the Native American Heritage Commission, another state agency, or a local agency" (GC § 6254(r)); and "records that relate to archaeological site information and reports maintained by, or in the possession of, the Department of Parks and Recreation, the State Historical Resources Commission, the State Lands Commission, another state agency, or a local agency, including the records that the agency obtains through a consultation process between a California Native American tribe and a state or local agency" (GC § 6254.10).

Although no federal lands currently exist within the City boundaries, dissemination of archaeological site information is also prohibited by Exemption 3 of the federal Freedom of Information Act (5 USC 5), because the disclosure of cultural resources location information is prohibited by the Archaeological Resources Protection Act of 1979 (16 USC 470hh) and Section 304 of the NHPA. Therefore, it is also exempted from disclosure under the Freedom of Information Act.

Therefore, in light of these requirements for confidentiality, the City shall not make publicly available the locations of cultural and paleontological resources, and dissemination of such information will be tightly guarded on a "need to know" basis only. Such circumstances are generally limited to City staff, landowners of property that contain resources, and consultants and engineers who are responsible for designing proposed projects in accordance with these Guidelines.

8.0 Tribal Cultural Resources Procedures

Tribal cultural resources (TCR) are identified by California Native American Tribes through a consultation process in CEQA prescribed by AB 52. In recognition of the special relationship between the City and SLRBMI, this process, at minimum, requires consultation by the City with SLRBMI; however, in compliance with AB 52, this does not preclude additional California Native American Tribes from participation. No delegation of consultation authority from the City to Applicants or consultants is provided by these Guidelines, although these parties may be asked to provide technical and administrative support.

8.1 Tribal Outreach and Coordination

There are three regulatory mechanisms by which government-to-government consultation between tribes and agencies may occur: Section 106 NHPA, AB 52, and SB 18. Not all three will apply for any given project; however, the following procedures will be conducted when applicable, and documentation of compliance with these procedures shall be kept separate.

The City of Carlsbad made a commitment to SLRBMI when it adopted City Council Policy No. 83. To follow through on that commitment, these Guidelines contain specific additional tribal consultation procedures that will apply to SLRBMI, in addition to their participation under the three regulatory mechanisms, when applicable. The procedures under Notices of Exemption are not required by any of the regulatory mechanisms listed previously, and are above and beyond what is normally required. Because these procedures are outside of the strictly regulatory process, they are listed first.

8.1.1 Notices of Exemption

Section 15061 of the CEQA Guidelines requires that the City first consider whether or not the project is subject to CEQA, if not exempted by statute or by category. Statutory exemptions are provided in Article 18 of the CEQA statute, from Section 15260 to 15285 and include, but are not limited to:

- projects ongoing since 1970;
- feasibility and planning studies;
- discharge requirements;
- adoption of coastal plans and programs;
- general plan time extensions;
- financial assistance to low or moderate income housing;
- ministerial projects;
- emergency projects;

- family day care homes;
- specified mass transit projects;
- transportation improvement and congestion management programs;
- application of coatings;
- air quality permits; and
- specifically named projects either in the CEQA guidelines (Section 15282) and CEQA statute (Section 21080 et seq.).

Statutory exemptions under CEQA are not subject to these Guidelines.

In addition, Section 21084 of the Public Resources Code required the development of a list of classes of projects that have been determined not to have a significant effect on the environment and are therefore exempt from CEQA, as long as there is no exception to the exemption as specified in Section 15300.2 of the CEQA Guidelines. These categorically exempted projects currently include, but are not limited to the following projects in Sections 15301 through 15333:

- operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of use;
- replacement or reconstruction of existing structures and facilities;
- new construction or conversion of small structures;
- minor alterations to land;
- minor alterations in land use limitations;
- information collection; inspections;
- loans;
- accessory structures;
- surplus government property sales;
- minor additions to schools;
- minor land divisions;
- acquisition or transfers of lands for conservation or preservation of parks, wilderness, historical resource, or wildlife conservation;
- transfer of ownership of land in order to create parks;
- open space contracts or easements;

- annexation of existing facilities;
- educational or training programs;
- normal operations of facilities for public gatherings;
- leasing facilities;
- small hydroelectric or cogeneration projects at existing facilities;
- some types of hazardous materials responses;
- in-fill development; and
- small areas of habitat restoration.

In accordance with Section 15300.2(f) of the CEQA Guidelines, categorical exemptions cannot be used for a project that may cause a substantial adverse change in the significance of a historical resource or under unusual circumstances. Because some TCRs may also meet the regulatory definition of historical resources under CEQA, consideration of the project's effects on TCRs must be taken into consideration before determining that a Notice of Exemption (NOE) is the appropriate CEQA document, and such consideration will include input from the California Native American tribes. This additional consideration (the process of which is provided below) is above and beyond what is required under AB 52 in order to meet the spirit and intent of City Council Policy No. 83.

8.1.1.1 Procedure for Pre-NOE Consultation with SLRBMI

The City will first screen every discretionary project to determine whether or not it is categorically exempt from CEQA and these Guidelines and does not invoke the exception to the exemption rule. The following types of projects are expected to be categorically exempt and have no reasonable potential to impact either historical resources or TCRs, and therefore, shall not be subject to the tribal notifications below:

- statutory exemptions, including ministerial projects;
- subdivisions without construction;
- wireless communication projects without ground-disturbing activity;
- changes of use of existing structures and facilities without ground-disturbing activity;
- sign permits;
- Consistency Determinations;
- time extensions;
- repair, minor alteration, repaving or replacement of existing infrastructure within previously excavated alignments, trenches or facilities; and

- other similar projects or permits, without ground disturbing activities or occurring within previously excavated graded areas, alignments, or trenches, as determined by the City Planner.

Some projects that are found to be eligible for Categorical Exemptions may still warrant consultation with the SLRBMI in order to determine whether or not a NOE is the appropriate CEQA document. In the event that the City screens a project activity, taking into consideration applicable sensitivity models, and determines that it otherwise qualifies for a Categorical Exemption under CEQA, then no later than 14 calendar days after deeming the application complete, City shall provide written notice by email to the SLRBMI of the intent to determine that a NOE will be prepared under CEQA. No response is necessary from SLRBMI if the tribe has no concerns.

If the tribe has concerns, the tribe shall provide confidential comments to the city within 10 business days of receiving the notice of intent. Upon receipt of comments from SLRBMI, within 5 calendar days the City shall acknowledge by email or letter its receipt of the comments. The City shall review and evaluate the comments as follows:

- to determine if the comments provide specific evidence about the presence of potential tribal cultural resources within the project area;
- to determine if the comments provide specific information that the project may result in potentially significant impacts to tribal cultural resources that may affect the City's ability to utilize a Categorical Exemption;
- if the comments are provided in verbal form only, to make a reasonable and good faith effort to interpret the comments in a way that is respectful of the tribe's concerns;
- to determine if additional consultation is warranted and would lead to important information prior to the project, as opposed to being conducted as part of implementation of standard unanticipated discovery measures; and
- to determine if the information presented meets the definitions and thresholds established by AB 52.

The above shall factor into the City's determination of the appropriate CEQA document for the project, as reflected in the CEQA determination letter prepared by the City for the project in accordance with the timelines prescribed by the Permit Streamlining Act. The City shall copy SLRBMI on CEQA determination letters.

If comments are received after the prescribed comment period, then the City shall evaluate those comments, but is not obligated to halt the project review and approval process in the meantime. Evaluation and notification of determinations following the receipt of late-arriving comments shall follow the same procedure above.

The City may coordinate with SLRBMI and the applicant regarding potential project conditions that may still be desirable for projects that do not meet AB 52 thresholds and warrant a NOE. However, in

the event that the above procedure indicates that a potentially significant TCR is present as defined by CEQA and may be adversely impacted, then the City shall not prepare a NOE, but shall undertake an Initial Study.

8.1.2 Section 106 of the NHPA

As a non-federal lead agency, the City is not directly responsible for compliance with Section 106 of the NHPA. However, some projects for which the City is the proponent will require federal permits, approval, or funding assistance. The legal responsibility to consult under Section 106 falls to the federal agency and therefore, the lead federal agency may direct the consultant otherwise; these Guidelines are not intended to supersede federal law or agency directives. To ensure that cultural resources investigations are compatible with the federal requirements under Section 106 and its implementing guidelines, the qualified professional consultant may implement the following procedures, subject to approval by the federal lead agency.

For projects subject to Section 106 of the NHPA, the City, or its designee which is likely to be the qualified professional consultant, shall first contact the NAHC to request a search of the Sacred Lands File and list of contacts. Upon receipt of the results, the City or its designee shall send by mail or email a project notification letter to each contact named by the NAHC. The notification letter shall, at minimum, include a boundary map of the project area and a brief description of the project, and the name and contact information to whom comments should be addressed. No sooner than one week following the delivery of the project notification letters, the City or its designee shall attempt, up to two times, to reach each contact by phone or email to verify receipt of the project notification letter and solicit comments. All non-written correspondence shall be documented in a log or appropriate record of conversation, which includes both successful and non-successful attempts to contact each individual.

Copies of the written correspondence and logs shall be forwarded by the City or designee to the applicable federal agencies with the applicable technical report in order for the federal agency to follow up and continue with government-to-government consultation.

8.1.3 AB 52

Each CEQA lead agency maintains its own file of general request letters from California Native American tribes under AB 52. The City shall first review project applications and within 14 days of determining that the application is deemed complete and it is ready to undertake CEQA review, it shall notify in writing those tribes that specifically requested notification under CEQA. The tribes notified may be different than the tribes being consulted under SB 18 or Section 106, although some overlap may occur. For tribes that respond within 30 days with a request to consult, the City shall initiate consultation within 30 days of receiving the written request to consult. Consultation concludes when either the parties come to agreement on impacts to, and mitigation measures for, TCRs, or, when the City determines, after acting in good faith and in a reasonable manner, that mutual agreement cannot

be reached. The procedures outlined in AB 52 shall be conducted as specified in the California Public Resources Code Sections 21074, 21080.3 et seq., 21082.3, 21083.09, and 21084.3.

8.1.4 SB 18

If a project will require a general plan or specific plan adoption or amendment, the City must comply with SB 18, which requires local agencies, including cities and counties, to contact and consult with California Native American tribes prior to amending or adopting a general plan or specific plan, or designating land as open space containing Native American cultural resources. The consultation that is conducted under SB 18 is different than that which is normally conducted in conjunction with cultural resources studies under AB 52 or Section 106 of the NHPA. In addition, consultation under SB 18 must be government-to-government, between the Native American community and the local agency and in accordance with the Governor's Office of Planning and Research's Tribal Consultation Guidelines (2005).

First, the City or its designee will obtain the list of applicable Native American tribes and organizations to contact for SB 18 consultation for the project from the NAHC. Each listed tribe will be contacted by letter to provide them with information about the project and ask if they wish to consult with the City. Follow-up phone calls will be made to each group and the results of all correspondence will be documented in a summary report. Native American consultation meetings will be conducted by City staff.

8.2 Identification of Tribal Cultural Resources

The determination of whether or not a TCR is present in or near a project site falls to the City, in consultation with the California Native American tribes through the AB 52 consultation process.

A TCR, defined in Section 21074 as sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a Native American tribe that are:

- Included or determined to be eligible for inclusion in the California Register of Historical Resources;
- Included in a local register of historical resources as defined in subdivision k of Section 5010.1; and/or
- Determined by the City to be significant, as supported by substantial evidence, including a cultural landscape with a geographically defined boundary.

Therefore, when determining that a resource meets the definition of a TCR, the City must, through tribal consultation, specify which of the seven aspects of integrity are present during pre-project (current) conditions. *National Register Bulletin 38* provides some guidance on establishing integrity of Traditional Cultural Properties, which is the equivalent of TCRs under the Section 106 process. City staff

may also rely upon professional cultural resources consultants to assist in determining or verifying integrity.

8.2.1 Impact Analyses and Mitigation Measures

AB 52 established that a substantial adverse change to a TCR has a significant effect on the environment. In making this determination, the City must determine if the Project will cause a substantial adverse change to the TCR. However, because the nature of TCRs can vary, and because they represent a new type of resource in the CEQA process since the adoption of the original Guidelines, and because some TCRs (particularly religious and sacred resources) may be difficult to quantify, determining whether or not a project will significantly impact a TCR may be difficult. Determining impacts to TCRs *may* initially follow the process typically used to assess impacts to Historical Resources, which relates to integrity. Determination of impacts to TCRs must take into account the significance ascribed to them by the California Native American tribe and may not always parallel impact assessments for Historical Resources.

Integrity of a resource is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association [CCR Title 14, Section 4852(c)]. Impacts may be significant if the resource is demolished or destroyed or if the characteristics that made the resource eligible are materially impaired [CCR Title 14, Section 15064.5(a)]. Accordingly, impacts to a TCR would likely be significant if the project negatively affects the qualities of integrity that made it significant in the first place, as determined through consultation with the California Native American tribe.

Once the significance of that TCR has been established and further defined by one or more of those aspects of integrity, the City must next determine whether or not the project will adversely affect (significantly impact) those applicable aspects of integrity. In making this determination, the City should address the aspects of integrity that are important to the TCR's significance, which were identified by the tribal experts.

8.2.2 Preferred Treatment Options and Mitigation Measures

In the event that the City applies these thresholds and determines that there will be a significant impact on a TCR, the following are preferred treatment options and mitigation measures. Some or all of these options or measures may be required of projects, depending on the particular TCR and/or nature of the impact.

8.2.2.1 Avoidance and Preservation

Avoidance and preservation of TCRs can only be accomplished when a legal mechanism prevents future development and there are appropriate measures in place for long-term maintenance. For TCRs, this may require either the recording of a deed restriction or the dedication of a conservation easement over the resource, recorded with the County, to restrict development in perpetuity. Management of the protected resource in perpetuity will be the responsibility of either a qualified third-party easement

manager or the affiliated California Native American tribe. Long-term funding will be required to be demonstrated by the project proponent in either case.

The management shall include, but is not limited to, the following measures, as deemed appropriate:

- fence and gate repair;
- sign replacement;
- regular monitoring and associated reporting by a professional archaeologist for damage;
- erosion control;
- trash removal;
- vegetation and weed control with no or minimal ground intrusiveness;
- security patrols;
- vandalism abatement; and
- removal of trespassers.

No signs indicating the presence of TCRs shall be permitted. In addition, the deed restriction or conservation easement will be subject to negotiated conditions that restrict certain uses of the property, depending on the nature of the resource. This will be determined in consultation with the California Native American tribe.

The Applicant shall provide a copy of the recorded deed or conservation easement that includes the preserved resource as proof of the restriction of future activities that could affect the integrity of the site. Proof of compliance will typically be submitted to the City prior to ground-disturbing activities.

8.2.2.2 Dignified and Respectful Treatment

It is important that TCRs be treated with dignity and respect. The City may require as mitigation the implementation of a Contractor Sensitivity Training Session to allow a tribal representative to instill a sense of appropriate respect for TCRs in its construction contractors, and to educate workers about the proper level of respect.

8.2.2.3 Repatriation

The City recommends that the landowner or project proponent (if not the City) enter into an agreement with the applicable California Native American tribe on an appropriate reburial location on the property for any cultural materials or human remains that may be unearthed during ground disturbing activities during the project. The location shall be one that will not be subjected to ground disturbing activities in the future. This location will be documented as a reinternment location by the Native American tribe, and the tribe may file it as such with the NAHC, County, City, and the CHRIS. The site of any reburial of Native American human remains shall be kept confidential and not be disclosed pursuant to the

California Public Records Act, California Government Code §§ 6254.10, 6254(r). The Medical Examiner shall also withhold public disclosure of information related to such reburials pursuant to the specific exemption set forth in California Government Code § 6254.5(e).

8.2.2.4 Tribal Monitoring

The presence of a Native American monitor will be necessary during ground-disturbing activities that have the potential to affect TCRs. Monitoring may be required for an entire site or portions of a site, depending on discussions and consultation with the tribes and other information based on where native soils occur, a site's geomorphology, geotechnical reports, prior grading plans for disturbed soils, or other reasons. In cases where the TCR is also considered a historical resource under CEQA (i.e., it is also significant for archaeological characteristics), then archaeological monitoring may also be required. In other cases, where the TCR is not significant archaeologically, only a tribal monitor may be required.

When monitoring is required to address potential impacts to TCRs, then prior to the commencement of any ground-disturbing activities, including but not limited to exploratory geotechnical investigations/borings for contractor bidding purposes, the project developer shall enter into a Pre-Excavation Agreement, otherwise known as a Tribal Cultural Resources Treatment and Tribal Monitoring Agreement, with the SLRBMI or other Luiseño tribe. This agreement will contain provisions to address the proper treatment of any tribal cultural resources and/or Luiseño Native American human remains inadvertently discovered during the course of the project. The agreement will outline the roles and powers of the Luiseño Native American monitors and the archaeologist, and may include the following provisions. In some cases, the language below may be modified in consultation with SLRBMI if special conditions warrant.

1. A Luiseño Native American monitor shall be present during all ground disturbing activities. Ground disturbing activities may include, but are not be limited to, archaeological studies, geotechnical investigations, clearing, grubbing, trenching, excavation, preparation for utilities and other infrastructure, and grading activities.

2. Any and all uncovered artifacts of Luiseño Native American cultural importance shall be returned to the San Luis Rey Band of Mission Indians, and/or the Most Likely Descendant, if applicable, and not be curated, unless ordered to do so by a federal agency or a court of competent jurisdiction.

3. The Luiseño Native American monitor shall be present at the project's preconstruction meeting to consult with grading and excavation contractors concerning excavation schedules and safety issues, as well as to consult with the archaeologist PI concerning the proposed archaeologist techniques and/or strategies for the project.

4. Luiseño Native American monitors and archaeological monitors shall have joint authority to temporarily divert and/or halt construction activities. If tribal cultural resources are discovered

during construction, all earth-moving activity within and around the immediate discovery area must be diverted until the Luiseño Native American monitor and the archaeologist can assess the nature and significance of the find.

5. If a significant tribal cultural resource(s) and/or unique archaeological resource(s) are discovered during ground-disturbing activities for this project, the San Luis Rey Band of Mission Indians shall be notified and consulted regarding the respectful and dignified treatment of those resources. Pursuant to California Public Resources Code Section 21083.2(b) avoidance is the preferred method of preservation for archaeological and tribal cultural resources. If, however, the Applicant is able to demonstrate that avoidance of a significant and/or unique cultural resource is infeasible and a data recovery plan is authorized by the City of Carlsbad as the lead agency, the San Luis Rey Band of Mission Indians shall be consulted regarding the drafting and finalization of any such recovery plan.

6. When tribal cultural resources are discovered during the project, if the archaeologist collects such resources, a Luiseño Native American monitor must be present during any testing or cataloging of those resources. If the archaeologist does not collect the tribal cultural resources that are unearthed during the ground disturbing activities, the Luiseño Native American monitor may, at their discretion, collect said resources and provide them to the San Luis Rey Band of Mission Indians for dignified and respectful treatment in accordance with their cultural and spiritual traditions.

7. If suspected Native American human remains are encountered, California Health and Safety Code Section 7050.5(b) states that no further disturbance shall occur until the San Diego County Medical Examiner has made the necessary findings as to origin. Further, pursuant to California Public Resources Code Section 5097.98(b) remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made. Suspected Native American remains shall be examined in the field and kept in a secure location at the site. A Luiseño Native American monitor shall be present during the examination of the remains. If the San Diego County Medical Examiner determines the remains to be Native American, the Native American Heritage Commission (NAHC) must be contacted by the Medical Examiner within 24 hours. The NAHC must then immediately notify the "Most Likely Descendant" about the discovery. The Most Likely Descendant shall then make recommendations within 48 hours, and engage in consultation concerning treatment of remains as provided in Public Resources Code 5097.98.

8. In the event that fill material is imported into the project area, the fill shall be clean of tribal cultural resources and documented as such. Commercial sources of fill material are already permitted as appropriate and will be culturally sterile. If fill material is to be utilized and/or exported from areas within the project site, then that fill material shall be analyzed and confirmed by an archeologist and Luiseño Native American monitor that such fill material does not contain tribal cultural resources.

9. No testing, invasive or non-invasive, shall be permitted on any recovered tribal cultural resources without the written permission of the SLRBMI.

10. Prior to the release of the grading bond, a monitoring report and/or evaluation report, if appropriate, which describes the results, analysis and conclusions of the monitoring program shall be submitted by the archaeologist, along with the Luiseño Native American monitor's notes and comments, to the City of Carlsbad for approval. Said report shall be subject to confidentiality as an exception to the Public Records Act and will not be available for public distribution.

The above measures are intended as guidance for the development of an agreement, which may or may not be accompanied by a mitigation measure in a CEQA document. Each project will be evaluated for the presence or potential presence of TCRs individually, and when an agreement is deemed appropriate, measures will be tailored to that specific project.

8.2.2.5 Data Recovery and Curation

TCRs can also be archaeological sites that are eligible under NRHP Criterion D / CRHR Criterion 4 because they possess information that is important in history or prehistory. In such a case, data recovery excavations are one method of mitigating for adverse effect. Data recovery or curation, or both, may not be appropriate for TCPs or TCRs and thus would be a last resort.

9.0 Cultural Resources Procedures

9.1 Sensitivity Model Review

In reviewing the cultural resources sensitivity maps, the City shall first determine the sensitivity of the project for archaeological and architectural historical resources. In the event that the project is wholly located within an area of low sensitivity for either or both, the City shall require the applicant to retain a professionally qualified consultant to first request a records search from the South Coastal Information Center (SCIC) at San Diego State University. The SCIC is a clearinghouse (part of the CHRIS) that contains previous cultural resources reports, site records, historic maps, text, and lists of historically important sites, buildings, districts, and other locations. The SCIC results may indicate that the project area has never been surveyed by a qualified professional. In those cases, the City shall cause the implementation of a survey using professionally qualified consultants.

If the review of the sensitivity models reflect either moderate or high sensitivity, the City shall require a professionally qualified consultant to be retained to carry out a records search and literature review with SCIC, and any additional survey or evaluation that may be required based on the qualified consultant's professional judgement.

9.2 Records Searches and Literature Reviews

All archival research conducted as part of identification efforts for a particular project area within the boundaries of the City shall begin with a record search and literature review at the SCIC. All records searches must be no more than one year old at the time of submission to the City.

The records search must include the project under consideration. The consultant, meeting the applicable Professional Qualifications Standards published by the Secretary of the Interior, shall utilize best judgment for the review of a radius around the project area.

In addition to the site records and reports on file at the SCIC, the *Office of Historic Preservation's Historic Property Data File for San Diego County* (HPDF), on file at the SCIC, should be consulted to obtain an inventory of evaluated resources from the historic period. The California Historical Resource Status Codes (OHP 2004, plus updates) for each inventoried resource in the HPDF in the records search radius should be consulted to determine if the resource has been determined eligible for, or listed in, the NRHP or the CRHR.

In addition to information from the records search at the SCIC, the following sources should be consulted, if available and appropriate:

- *California Inventory of Historic Resources*
- The National Register Information System

- *California Historical Landmarks*
- *Historic Spots in California* (Kyle 2002)
- Historic GLO land patent records and plat maps available from the BLM's General Land Office Records
- The City of Carlsbad historic resources inventory (see Policy 7-P.1 of Goal 7-G-1 of the General Plan) or other relevant documents including but not limited to other city document inventories and building permits, etc.
- Caltrans Bridge Local and State Inventories
- *Handbook of North American Indians* for lists and maps of nearby Native American villages
- Local historical societies
- Historical aerial photographs and historical maps to provide information on the past land uses of the property and locations of historical buildings
- County Assessor records

All archival research efforts, regardless of outcome and particularly if such research failed to yield information on cultural resources, should be documented in the technical report, including the name of repository and any personnel assisting in the research, the date that the research was conducted, the individual conducting the research, and what sources were consulted or reviewed.

The reporting of records search results within technical reports must include the title and author of each report, its SCIC report number, author, and date. In addition, technical reports must include an accounting of all previously-recorded resources within the records search radius, and whether or not each is located within the project area. Given privacy concerns surrounding the distribution of records search information for property that is not included in the project, the results of the records search for the radius around the project area shall not be transmitted to the City or any third party.

As part of the identification efforts, the NAHC should be contacted to carry out a search of the Sacred Lands File. The NAHC holds files containing information about sacred lands and other cultural resources of importance to Native Americans. The NAHC will also provide lists of Native American contacts that may be able to provide information about Native American cultural resources in and near the project area, should the AB 52 process not result in tribal comment on TCRs. The list should be forwarded to any federal agencies that will carry out Section 106 consultation.

9.3 Field Surveys

All surveys, either archaeological or for historic structures, must be conducted using the Secretary of the Interior's standards for the identification of Historic Properties, including any future updates, and in accordance with these Guidelines. For archaeological surveys, fieldwork must be systematic and

pedestrian, using parallel transects no more than 15 meters apart, unless wider transect widths are justified by the PI. Vehicular, All Terrain Vehicle, or horseback surveys are not permitted for survey or identification; however, consultants who are only using such means to transport themselves to a site location for a site-specific investigation may utilize any method of transportation that is acceptable to the landowner. For surveys of the built environment, typically a pedestrian survey will be conducted, but can include combination of a vehicular survey if appropriate at the discretion of the qualified professional consultant. Field surveys are generally considered valid for five years, and a new or an updated survey will be required for surveys older than five years. However, should a case be made to the City that demonstrates that the ground conditions have not changed since a previous, older survey, and that the methods used in older surveys are consistent with these guidelines, then an updated survey may not be required.

In accordance with Council Policy No. 83, it is the City's policy that California Native American Tribes be invited to participate in all archaeological pedestrian field surveys. Moreover, it is the City's policy that any archaeological fieldwork that disturbs the ground shall be carried out in coordination with a Luiseño Native American monitor, under the following parameters. Cultural resources surveys that are intended to inventory built environment resources only (not archaeology) are exempt from this requirement.

- If the City is the project proponent, then the City's archaeological consultant shall provide written proof, upon contract or task order award, that a Luiseño Native American monitor has been invited to participate in the archaeological pedestrian field survey, and retained in the event that ground-disturbing archaeological fieldwork is required.
- If the City is not the project proponent but is only serving as the lead agency under CEQA, and the proponent or property owner retains the services of an archaeologist to survey his or her property and no documentation of outreach or participation by a Luiseño Native American monitor can be provided, then the archaeological inventory shall be deemed incomplete until outreach to the tribe, and a tribal survey if requested by the tribe, is carried out. If the proponent or property owner's archaeologist conducts archaeological fieldwork that disturbs the ground and no documentation of participation by a Luiseño Native American monitor can be provided (subject to the exception below), then the archaeological inventory shall be deemed incomplete until a tribal survey is carried out.
- In the event that a Luiseño Native American monitor elects to not participate in the archaeological field survey or does not report at the agreed upon time and location, then the survey may proceed without the monitor present and the resulting technical study shall be deemed complete with the incorporation of documentation demonstrating reasonable and good faith effort to include a Luiseño Native American monitor. In such a case, the tribe shall be provided a copy of the archaeological inventory report for review and comment prior to submittal to the City.

Site recording shall include any physical evidence of human activities over 45 years old. Any cultural resource that contains at least three artifacts in a 10-square-meter area or consists of one or more features should be considered a site. Any indications of cultural presence in the project area that fail to meet the definition of a site should be recorded as isolates or noted on a location map. Any building that is at least 45 years of age or older warrants at least initial consideration under these Guidelines. The PI shall exercise professional judgment when drawing site boundaries and in recording resources, which must be justified in the technical report.

9.4 Site Records and Survey Reports

Site recording, or updates to previously recorded sites, shall be documented by the qualified professional using the most current revision of the California OHP's DPR 523 series Historical Resources Inventory forms following the *Instructions for Recording Historical Resources* (OHP 1995). Photography and submeter GPS precision for mapping of site boundaries is strongly encouraged. All completed DPR 523 forms should be sent by the qualified professional to the SCIC as soon as possible, so that primary numbers and trinomials (if appropriate) can be assigned, which will then be included in the technical reports in place of the temporary numbers assigned in the field.

Survey or inventory reports for all required archaeological surveys of a project area shall be prepared in a manner consistent with the California OHP's Archaeological Resource Management Reports: Recommended Contents and Format, the "Secretary of the Interior's Standards and Guidelines for Identification" (48 FR 44720-23; NPS 1998), and the NPS's publication, "The Archeological Survey: Methods and Uses" (1978: GPO stock #024-016-00091).

9.5 Evaluations of Significance

9.5.1 Properties Exempt from Evaluation of Eligibility

Buildings, structures, and facilities less than 45 years old at the time of study are exempt from evaluation as modern resources, unless determined to be of exceptional significance and meet Criterion Consideration (g) of the NRHP (*A property achieving significance within the past 50 years* and is thereby subject to the guidance in *National Register Bulletin 22* (Sherfy and Luce 1979, rev. 1998). Historic archaeological sites that consist of refuse dumps containing only surface items that are less than 45 years old are also exempt from evaluation.

9.5.2 General Methods

All evaluations of eligibility shall be conducted relative to all four of the CRHR and NRHP eligibility criteria, regardless of the type of resource.

9.5.3 Archival Research

For historic-era archaeological sites or resources in the built environment, this may require additional property-specific archival research, beyond that which is conducted generally during an inventory or

survey. The research may use sources including county records, historical aerials, historical USGS topographic maps, General Land Office (GLO) Plat maps and patent records, and assessor property records in an attempt to gather historical property and building information relevant to the construction and use of the building. Archival research may also be conducted to gather more detailed property history and information regarding use of the building, architectural designs and styles, and other history, as necessary.

9.5.4 Architectural History and Built Environment

Evaluation of eligibility of the built environment is often initiated during the inventory stage, but cannot be completed until evaluated within its historic context. Developing a historical context generally begins with compiling information from sources on relevant historical themes. National Register Bulletin 15 defines a theme as "a means of organizing properties into coherent patterns based on elements such as environment, social/ethnic groups, transportation networks, technology, or political developments that have influenced the development of an area during one or more periods of prehistory or history. A theme is considered significant if it can be demonstrated, through scholarly research, to be important in American history." Historical research, scaled appropriately for the size and nature of the undertaking, should be conducted to identify and develop the appropriate themes to determine whether those themes are significant and to establish the context within which to assess significance of the built environment or for archaeological resources. If a significant historic context is identified by the qualified professional, then evaluation requires an identification of the essential physical features - commonly referred to as "character-defining features" - that must be present to represent the property's significance. Following procedures outlined by OHP and NPS, the qualified professional must determine if the character-defining features are visible enough to convey their significance, often through a comparison of archival materials or similar properties elsewhere; determine which aspects of integrity are particularly important to the property and if they are present; and, if present, with what period of significance the resource is associated.

9.5.5 Historic Districts

As described in Section 2.0, a district is "a significant concentration, linkage, or continuity of sites important in history or prehistory" by plan or by physical development (Keller and Keller, n.d.; OHP 1995). When determining whether or not a district is present, consideration must be paid to whether or not individual buildings or sites contribute to the significance of the district as a whole. Contributing elements are those that possess some aspect that the significance or historic theme, such as a common architectural style. Non-contributing elements may be associated with the period of significance of the district, but may be minor or heavily remodeled such that they fail to convey the significance of the district as a whole. Elements may or may not also be individually significant.

9.5.6 Archaeological Excavation

In all cases where evaluation of eligibility of cultural resources cannot be ascertained from survey-level data alone, and archaeological testing is necessary, the PI, in consultation with the Luiseño Native

American monitor, shall prepare and implement a testing program to guide evaluation of cultural resources using research themes and questions, as presented below. The testing program should be consistent with the "Secretary of the Interior's Standards and Guidelines for Evaluation" (48 FR 44723-26; NPS 1998).

Prior to the initiation of subsurface excavation, the PI shall review utility maps, when appropriate, to determine what areas lack subsurface integrity due to utility trenches or past earth-moving activities. The PI shall utilize Underground Service Alert (USA) North services (http://www.usanorth.org/; 1-800-227-2600) to assist in the identification of subsurface utility lines, in accordance with state law.

Any archaeological testing shall be limited to disturbing no more than 5 percent of the surface area of the resource or four cubic meters, whichever is less. No complete (100 percent) surface collections are allowed under these Guidelines for evaluations of eligibility in order to avoid a significant effect during testing. Suggested subsurface testing methods include shovel test pits (STPs) or auguring placed systematically across the site and one by one meter excavation units. Testing must proceed downward until either culturally-sterile soil is encountered, or, if possible, the maximum depth of project disturbance is reached, so that the full extent of impacts is understood early. If the full extent cannot be tested for any reason, then monitoring may be required during ground-disturbance. Even after testing, if new deposits are found, previously unknown during testing, then unanticipated discovery measures would apply.

The following documentation should be prepared during all excavation work: (1) general site photographs taken before, during, and at the completion of excavation work; (2) photographs of at least one wall of every excavation unit and all features; (3) excavation records and field notes for each unit, level, and feature; (4) individual feature records; (5) scale profile drawings of unit walls with associated Munsell soil color readings; and (6) photograph record forms, field catalog forms, and sample artifact catalog forms (may be combined with field catalog forms).

9.5.7 Research Topics and Questions for Archaeological Sites

The significance of a historic property can be assessed only when it is evaluated within its historic context. Developing a historical context generally begins with compiling information from sources on relevant historical themes. National Register Bulletin 15 defines a theme as "a means of organizing properties into coherent patterns based on elements such as environment, social/ethnic groups, transportation networks, technology, or political developments that have influenced the development of an area during one or more periods of prehistory or history. A theme is considered significant if it can be demonstrated, through scholarly research, to be important in American history." Historical research, scaled appropriately for the size and nature of the undertaking, should be conducted to identify and develop the appropriate themes to determine whether those themes are significant and to establish the context within which to assess significance of the built environment or for archaeological resources.

The California OHP requires the use of a research design that "should present important research questions recognized for the region and relevant to the study, based on previous research" (OHP 1989:9). Research questions serve to guide research methods and to assess the potential for the recovery of scientifically valid data, ethnographic background, or oral history that are likely to satisfy any of the four CRHR and NRHP criteria. Sources of data sought in the evaluations of eligibility shall be selected by the PI, using professional judgment, as appropriate for the nature and type of the resource being evaluated and may vary according to criterion and resource. Sources may include, but are not limited to: archaeological data; architectural style; records, maps, and historical accounts in the archival record; oral history information; ethnographic and prehistoric contexts, and comments from California Native American Tribes. Comments from tribes can only be included in the consultation and administrative record if express permission has been granted by the commenting tribe. For documentation of compliance with AB 52 or SB 18, the City may contain a confidential (non-public) administrative record of tribal comments, when such comments have been identified by the tribe as being restricted from public distribution.

Following are examples of research themes and questions; however, the PI will utilize professional judgement in developing the research design that is appropriate for the resource being evaluated. Research themes and questions may be suggested by consulting tribes and shall be taken into consideration during the testing. In the event that testing is not supported, then evaluations of eligibility shall utilize all other available data and may result in an assumption of eligibility for the purpose of the project only.

Prehistoric Sites

Research topics for the prehistoric sites in the project area include activities and site function, internal site organization, subsistence patterns, and chronology and temporal patterning.

Activities and Site Function. Collecting site function and activities data is an important research theme in regard to explaining the past. Cultural material and feature data could explain the relationship between humans and their environment. Research questions could include:

- Is there a full range of activities represented, such as would be characteristic of a habitation site, or is there only a limited set of activities characteristic of a location? For example, are activities limited to resource procurement, or do they represent more permanent occupation?
- Is there evidence of flaked stone tool use?
- Is there evidence of flaked stone tool manufacturing?
- Is there evidence of food processing?
- Is there evidence of food preparation and cooking?
- Is there evidence of overnight stays?
- Is there evidence for flaked stone tool production and what techniques were used?

- Is there evidence for ceremonial activity?
- Do the site activities suggest a contribution to broad settlement patterns or mobility patterns?

Data requirements to address these questions include tools classified functionally and debitage classified technologically. If subsurface features (hearths, ovens) are present, the type and number of features will also help address these questions.

Internal Site Organization. Habitation sites are often composed of features that can be ascribed to living, food processing, refuse, religion or ceremonial functions, and many other aspects of prehistoric society. Identification of such features, and analysis of the internal site organization, can give insight into the social organization. Pertinent research questions could include:

- Are there distinct manufacturing, processing, food preparation, or ceremonial areas within the site?
- Were male and female activities conducted in different areas of a site?
- If bedrock milling features are present, are distinct activity areas associated with each outcrop containing bedrock milling features, or was a single activity area used by everyone using any of the bedrock milling features at the site?
- Does the arrangement of the features within the site suggest a broader prehistoric community design or sense of planning?

Data requirements include maps of the spatial distribution of tools, debitage, subsistence remains, and features. If the site is small and there are few categories that do not vary spatially, this domain cannot be addressed.

Subsistence Patterns. How prehistoric populations acquired food and water is a fundamental question studied by archaeology. While reflections of subsistence patterns are found in various features within habitation sites, such as hearths and midden deposits, reconstruction of subsistence systems often require information from multiple sites. These kinds of patterns may be indicative of eligibility under NRHP Criterion A or CRHR Criterion 1. Research questions could include:

- Where were the food procurement locations utilized by the occupants of the site?
- What resources were brought to the sites, and were they processed, prepared, or consumed at the site?
- Is there evidence for specialization or intensification of resource use?
- Are subsistence strategies narrowly focused on a few resources, or are they broad-based?
- Do subsistence strategies change through time?
- Can changes in the natural or cultural environment account for change?

- Do the site activities suggest a contribution to broad subsistence patterns or mobility patterns?

Specialization would be indicated by large numbers of the remains of a few species. Intensification would be indicated by reliance on resources that require greater amounts of labor to procure or process. Data categories necessary to address these questions include faunal remains, protein and blood residue analysis, artifact use-wear analysis, and landscape-site associations.

Chronology and Temporal Patterning. In order for archaeologists to study cultural similarities and differences in cultures of the past, they must first put sites in temporal order. Patterns may be indicative of eligibility under NRHP Criterion A or CRHR Criterion 1. Research questions could include:

- Can the site be assigned to a particular period, complex, or phase?
- Were the sites used at the same time as other nearby sites or sequentially?
- Were the sites used continuously for a short or long period of time?
- Were there periods of time when the sites were not used (continuous occupation or periodic abandonment)?
- What portions of local chronological sequences are represented by cultural resources in the project area?
- What are the chronological ranges for particular projectile point types?
- Can we identify chronological patterns in lithic raw material procurement practices or flaking technologies? If so, can these be used to date sites lacking other diagnostic artifacts?
- Do significant correlations exist between the timing of climatic shifts and technological innovations?
- Do the sites suggest a contribution to broad cultural change?

Chronological dating of sites often relies on the presence of subsurface material rather than surface material alone. Substantial subsurface material combined with a necessary degree of site integrity and preservation may aid in the dating of the archaeological site. Sites most likely to contribute to this theme include habitation sites that may contain thermal features, refuse deposits, and stratified middens. These sites may contain stone artifacts, such as projectile points, with temporally indicative stylistic characteristics. Also, charcoal, animal bone, and shell may be dated by radiocarbon assay. Some indication of the time range (relative dating) for obsidian artifacts may be obtained from measurement of obsidian hydration rinds.

Trade and Exchange. Archaeological information about trade and exchange comes mostly from exotic lithic and shell materials. These are materials with no known local source that must have been obtained from elsewhere through trade or exchange. Research questions could include:

- What inferences about mode of exchange can be made between the site area and the source area(s)?
- Do exotic artifacts present at the site reflect inter-tribal relationships or broad patterns of mobility or settlement?

Historic Archaeological Sites

Material from rural archaeological sites from the nineteenth and early twentieth centuries can provide information about the developing domestic economy of farmsteads and ranches, changes in socio-economic status, and changes in the spatial organization of activities within the farmstead. Early settlers may have been relatively self-sufficient, producing most food for their own consumption on the farm. Over time they may have increasingly participated in the developing market economy, exchanging their agricultural products for manufactured goods obtained from towns. Some farmers/ranchers may have specialized in a single crop or product and ceased to produce food for domestic consumption, obtaining all food from stores in the nearest town. The socio-economic status of rural residents may also have changed, based on increased access to markets for their agricultural products and changing commodity prices. By about 1920, most rural residents fully participated in the national economic system and agriculture had become mechanized. For the period after about 1920, there is little information that historical archaeology can provide about rural ranching and farming that is not already known from historical sources.

Research topics could include:

- Self-sufficiency versus participation in a market economy. Were food and household items produced on the farm or obtained from local, regional, or national sources? Did the degree of self-sufficiency decrease over time?
- Socio-economic status. What was the socio-economic status of rural residents, as reflected in material possessions? Did socio-economic status change over time?
- Organization of activities. What was the spatial organization of activities within the farmstead and did this change over time in conjunction with increased production for the market?

More specific research questions should be developed based on the historic context for the resource being evaluated.

Data categories necessary to address the research topics and questions include artifacts from before 1920 classified functionally. Technological attributes will provide a date range. Features, such as foundations, wells, privies, pits, walls, and fences will provide information on the organization of activities.

9.5.8 Evaluation Reports

Evaluation reports for archaeological sites will provide a prehistoric or historic context for the resource(s) evaluated, the methods employed, the results of archival research, the results of subsurface testing, and an evaluation of the resource using all four NRHP and CRHR eligibility criteria. Note that tribal consultation by the agency may be required in order to complete the evaluations, and so any partial evaluations advanced by consultants during pre-project planning studies must clearly identify any resources that require consultation to complete.

9.6 Impact Analyses and Mitigation Measures

9.6.1 Thresholds

In the event that any cultural resources are found to be eligible for either the CRHR or NRHP or both (hereafter, "eligible cultural resources"), then an impact assessment must be conducted, as described below. Assessment of impacts to non-eligible cultural resources, as required by CEQA (unique archaeological resources) and NEPA will be addressed separately by the project's CEQA and NEPA documentation.

As discussed in Section 3, the determination of whether or not a historical resource under CEQA will be significantly affected by a project parallels the comparable process under federal law. A significant impact under CEQA, or an adverse effect under Section 106, occurs when a project may alter, directly or indirectly, any of the characteristics of a resource that negatively affect its significance. These include reasonably foreseeable effects caused by the project, or those that may occur later in time or those that may be cumulative. Examples of adverse effects include, but are not limited to: physical destruction or damage to all or part of the property; alteration, restoration, rehabilitation, repair, maintenance, stabilization, or remediation; removal of the property from its historic location; change of the character or physical features; introduction of visual, atmospheric, or audible elements; neglect; or transfer, lease, or sale out of federal ownership (36 CFR 800.5[a][2] et seq.).

It is important to be specific as to the effect that will occur to the resource. This will assist in the determination of impact significance and, if warranted, the measures that are appropriate to mitigate the impact. Adverse effects on historic properties include, but are not limited to:

(i) Physical destruction of or damage to all or part of the property;

(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the SOI's standards for the treatment of historic properties (36 CFR part 68) and applicable guidelines;

(iii) Removal of the property from its historic location;

(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;

(v) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features;

(vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and

(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

In addition, impacts to a Historical Resource (as defined by CEQA) are significant if the resource is demolished or destroyed or if the characteristics that made the resource eligible are materially impaired [CCR Title 14, Section 15064.5(a)].

Therefore, the PI, in consultation with the City, project applicant, and, if applicable, SLRBMI or California Native American Tribes, shall determine whether or not the project will have a significant impact on a cultural resource. This determination may be combined with an evaluation of eligibility report if sufficient information exists for the PI to make a determination of effect.

For the purpose of these Guidelines, there are three categories of measures: Standard Conditions (for complete avoidance and preservation); Standard Treatment Measures (agreed-upon mitigation that will minimize or mitigate adverse effect without further review); and Non-Standard Treatment Measures (for other mitigation measures that are atypical, require phased implementation, or are otherwise not accounted for herein). The findings are summarized below and the following section provides details of each condition.

- If there are eligible cultural resources within the project area that will not be affected by the project because the criteria for adverse effect are not met, then the report shall specify a finding of "No Adverse Effect to Historic Properties" for Section 106 and/or "No Significant Impact to Historical Resources" under CEQA. The CEQA document findings would be "Less Than Significant Impact to Historical Resources."
- If there are eligible cultural resources within the project area that will not be affected by the project because of the incorporation of Standard Conditions presented in the following section, then the report shall specify a finding of "No Adverse Effect to Historic Properties, with Standard Conditions" and/or "No Significant Impact to Historical Resources, with Standard Conditions." This finding applies only to complete avoidance and preservation of eligible resources. The standard conditions must be included in the CEQA document as mitigation measures or conditions of approval. The CEQA document findings would be "Less Than Significant Impact with Mitigation Measures Incorporated."

- If there are eligible cultural resources within the project area that will be adversely affected by the project and the Applicant has determined that one or more of the Standard Treatment Measures provided in the following section will minimize or mitigate adverse effect, then the report shall specify a finding of "Adverse Effect to Historic Properties, with Standard Treatment Measures" and/or "Significant Impact to Historical Resources, with Standard Treatment Measures." The standard treatment measures must be included in the CEQA document as mitigation measures or conditions of approval. The CEQA document findings would also be "Less Than Significant Impact with Mitigation Measures Incorporated."
- If there are eligible cultural resources within the project area that will be adversely affected by the project, and the Applicant has determined that non-standard treatment measures are required to minimize or mitigate adverse effect, then the report shall specify a finding of "Adverse Effect to Historic Properties, with Non-Standard Treatment Measures" and/or "Significant Impact to Historical Resources, with Non-Standard Treatment Measures." A treatment plan must be prepared to specify the non-standard mitigation, phased mitigation, or other circumstances not accounted for in the standard treatment measures. The CEQA document findings would also be "Less Than Significant Impact with Mitigation Measures Incorporated."

9.6.2 Preferred Treatment Options and Mitigation Measures

9.6.2.1 Standard Treatment Measures

Avoidance is the preferred treatment method for all eligible cultural resources, including archaeological sites, TCPs, TCRs, historic structures, and ethnographic landscapes. The project proponent for a specific project area must consider redesigning the development project to avoid adverse effects to resources. This could include converting a lot that had been planned for residential development to open space designation or redesigning a road to curve around a Historic Property. However, not all eligible cultural resources can be avoided; if such redesign is not feasible, then the Applicant may be asked to justify why that is the case prior to project approval or permit issuance, and this may require additional consultation with interested parties and California Native American Tribes.

Standard Treatment 1: Conservation Easement

Avoidance and preservation of eligible cultural resources can only be accomplished when a legal mechanism prevents future development and there are appropriate measures in place for long-term maintenance. For archaeological resources on privately owned property, this will require the dedication of a conservation easement over the site, recorded with the County, to restrict development in perpetuity. The easement may be held either by the City, the County, a non-profit corporation, or a California Native American tribe, as long as the land owner and the easement holder are not the same. For archaeological resources on City-owned property, this will require the placement of a deed restriction and incorporation into the appropriate City department's operations and management plan (O&M Plan). For archaeological resources within public rights-of-way or under roadways, where a legal

encumbrance is not possible, then the City Planning Division shall note the confidential location both on the archaeological sensitivity model and in a confidential section of the project's file, and all future projects in that location shall be subject to additional tribal consultation prior to ground disturbance.

Management of the preserved site will be the responsibility of a qualified third-party preserve manager (which also may be the City, the County, a non-profit corporation, or a California Native American tribe) and in accordance with the applicable O&M Plan with sufficient long-term funding. Management shall include but is not limited to the following measures, as deemed appropriate: fence and gate repair; sign replacement; regular monitoring and associated reporting by a professional archaeologist for damage; erosion control; trash removal; vegetation and weed control; security patrols; vandalism abatement; and removal of trespassers. No signs indicating the presence of tribal cultural resources shall be permitted. In addition, the following activities are prohibited within the boundaries of preserved sites, unless otherwise agreed to by SLRBMI, even if such activities are permissible in other areas of larger biological or open space preserves, within which the site may be located):

- Unseasonable watering; use of fertilizers, pesticides, biocides, herbicides or other agricultural chemicals
- Use of off-road vehicles and use of other motorized vehicles except on existing roadways
- Agricultural cultivation activity of any kind
- Recreational activities, including, but not limited to, camping, with the exception of the use of a pedestrian trail adjacent to the site boundaries
- Construction, reconstruction, erecting or placement of any building, billboard or sign (except for that which is designed to keep the public out), or any other structure or improvement
- Depositing or accumulation of soil, trash, ashes, refuse, waste, bio-solids or any other materials
- Lighting fires, incendiary devices, or flammable substances
- Planting, introduction or dispersal of nonnative or exotic plant or animal species (animal grazing is permitted for fire control)
- Filling, dumping, excavating, draining, dredging, mining, drilling, removing or exploring for or extracting artifacts, minerals, loam, soil, sand, gravel, rock or other material on or below the surface of the sites, or granting or authorizing surface entry for any of these purposes
- Altering the surface or general topography of the sites, including but not limited to any alterations to habitat, building roads or trails, over paving or otherwise covering the sites with concrete, asphalt or any other impervious material, except for capping as described below or another form of capping with no objection from SLRBMI
- Removing, destroying, or cutting of trees, shrubs, or other vegetation, except as required by law for fire control and prevention or treatment of disease

- Mechanical or chemical weed abatement activities (hand and grazing methods are acceptable)
- Manipulating, impounding or altering any natural water course, body of water or water circulation on the sites, and any activities or uses detrimental to water quality, including but not limited to degradation or pollution of any surface or sub-surface waters
- Engaging in any use or activity that may violate, or may fail to comply with, relevant federal, state, or local laws, regulations, permit conditions, or applicable policies

Conservation Easements may also be used to preserve resources of the built environment, and the terms and limitations of such easements will need to reflect the type of resources being preserved.

The Applicant shall provide a copy of the recorded Conservation Easement as proof of the restriction of future activities that could affect the integrity of the site. Proof of compliance must be submitted to the City Planner, or city project manager for a city project, in accordance with the schedule that was agreed upon through consultation.

If avoidance and preservation of eligible cultural resources is not possible, then implementing one of the following Standard Treatment Measures may minimize or mitigate adverse effects. If a project will implement one or more of these measures without modification (except where allowed, below), and the agencies determine that no other mitigation is necessary, then the standard treatment measures will become mitigation measures or conditions of approval without the need for developing a separate treatment plan.

In this case, the determination of effect must be explicit about the site-specific requirements for each treatment measure, include a schedule for implementation relative to pre-construction, construction, and post-construction phases, and provide the means by which proof of compliance will be provided. If the City concludes that enough modifications to the measures have occurred that change the following pre-approved measures in a manner than could alter the purposes for which they are intended, then a separate treatment plan may be required to negotiate Non-Standard Treatment Measures.

Standard Treatment 2: Capping

In certain cases, the use of capping with natural materials will be desirable as a supplement to a conservation easement. This could include sites that are located in highly visible areas where public access could otherwise present a risk to the preservation of the site, where existing topography or future grade differentials could cause erosion and stabilization issues, or where there is not sufficient horizontal separation from project activities, but that vertical separation could be achievable. In these scenarios, the use of capping with soil, vegetation, and/or geotextile fabric may be preferred over complete exposure of the site. Figure 5 illustrates this in concept. Exceptions to these guidelines can be negotiated in consultation with all parties.

Where capping is considered an appropriate treatment measure, the following guidelines will be employed:

- The thickness of the soil cap must take into consideration the size and shape of the site, particularly the elevation of above-surface features like bedrock outcrops.
- The methods used to cap the resource must be designed to avoid damage to the resource during the process of installing the cap (such as prohibition of heavy equipment during installation).
- Caps may be covered with vegetation (without invasive root systems) to discourage erosion and unauthorized digging.
- No buildings or structures shall be placed on top of the cap.
- Non-motorized pedestrian paths may be placed over the cap, but only when constructed of natural materials such as bark or pea gravel (i.e., no pavement, brick, imported stone) and only when the entire site is capped by at least 18 inches of soil.
- No signage to indicate the location of a site beneath the cap shall be installed.
- Design and final implementation of the capping plan will be developed and monitored by a qualified professional archaeologist and Native American monitor, when appropriate.
- The area subject to capping must be legally restricted from future development, in perpetuity (with a conservation easement or documented in accordance with Standard Treatment #1 above if located within public rights-of-way); however, long-term management can be scaled accordingly.
- As appropriate, the capping should include a combination of layers of culturally-sterile and chemically-compatible soil of different colors and/or the layering of cyclone, chain link, or orange barrier fencing to discourage digging.

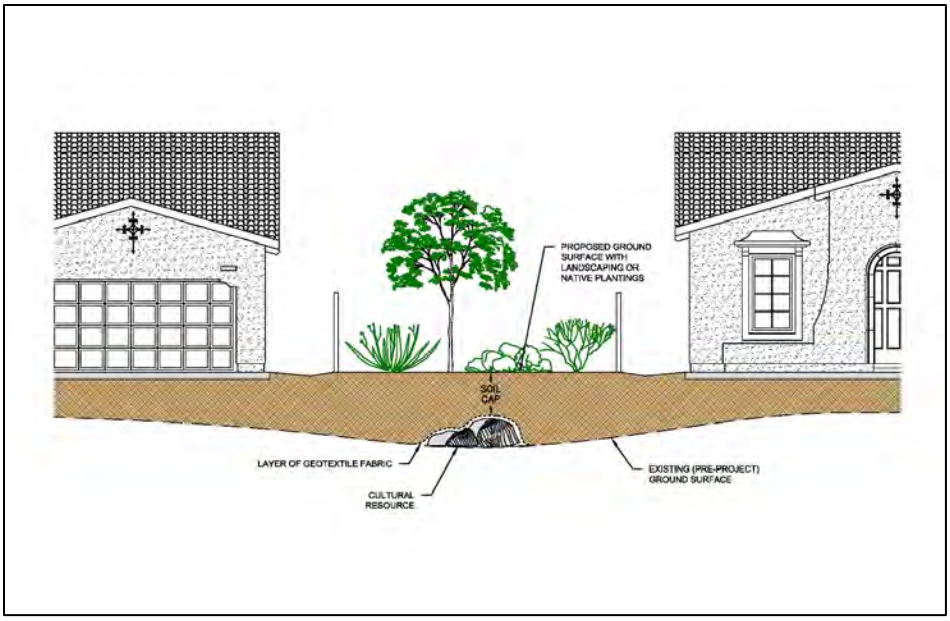

Figure 5. Conceptual capping of a site, in conjunction with a deed restriction (illustration courtesy of Bonadelle Neighborhoods).

Standard Treatment 3: Data Recovery Excavation

Archaeological sites that are eligible under NRHP Criterion D / CRHR Criterion 4, at minimum, are significant because they possess information that is important in history or prehistory. In such a case, data recovery excavations are one method of mitigating for adverse effect. Data recovery may not be appropriate for TCPs or TCRs and shall not be employed over the objection of the tribe or cultural group that associates with the resource. Should data recovery of a Native American site be pursued, then the SLRBMI shall be afforded an opportunity to comment on the data recovery plan in advance of implementation.

Should data recovery be an appropriate mitigation, the finding of effect shall specify the specific sites, number and size of units, and volume of excavation and is subject to City approval. Data recovery of prehistoric sites cannot be utilized as a Standard Treatment Measure over the objection of California Native American Tribes.

The data recovery will be documented in a confidential technical report that provides a discussion of the research topics that guided data recovery, discusses the field and laboratory methods employed, describes the recovered artifacts, updates the feature sketch map, and discusses how the recovered material contributed to addressing the research topics. A catalog of the recovered artifacts will be provided in a report appendix.

A sample of artifacts recovered from each site, not to exceed 10 percent (by artifact count, unless the Principal Investigator recommends another basis for this calculation) of the collection, may be permanently curated at an approved curation facility (see below). The sampling should not be restricted to diagnostics only, but shall represent the full spectrum of cultural materials observed at

the site. The remaining 90 percent of collected artifacts shall be offered to a local historical society for incorporation into publicly accessible or educational collections. Unclaimed collections will remain in the possession of the applicant and used as appropriate for public display within the facilities in the development.

Standard Treatment 4: Project-Specific Public Interpretation and Education

Any eligible cultural resource may be interpreted for the benefit of the general public through the development and installation of one or more interpretive panels in parks, along trails, or at scenic overlooks. The consultation conducted with SLRBMI would determine whether or not this measure is appropriate for Native American cultural resources. The number, location, and content of the panels shall not disclose the locations of confidential archaeological sites. Panels will measure approximately two feet by three feet and will be displayed along newly constructed trails within the permit area. Panels may be upright (as shown in Figure 6) or may be lower and angled.

Panels will be printed, manufactured, and installed by appropriate and experienced professionals. Immediately following installation, photographs and GPS coordinates of the installed signs will be provided to the City as proof of compliance with this requirement. Should the subject of the panels or signs be Native American culture, then the SLRBMI shall be afforded an opportunity to review and comment on the draft panels, prior to manufacturing.

Figure 6. Example of an interpretive panel.

Standard Treatment 5: Construction Monitoring

Monitoring by a qualified professional archaeologist, Native American monitor, and/or tribal representative shall only be used after reasonable and good-faith efforts, as determined by the City and through consultation, have been made to identify eligible cultural resources or significant tribal cultural resources prior to project approval. Monitoring can also be used to ensure avoidance of eligible cultural resources or significant tribal resources during ground-disturbing activities. Monitoring is appropriate in the following circumstances (and shall follow the requirements and provisions of Section 8.2.2.4 when tribal cultural resources are involved):

- when buried archaeological or known or potential tribal cultural resources are likely in the vicinity, but their specific location is unknown;
- when ground-disturbing activities will come within 100 feet of a recorded non-tribal eligible cultural resource;
- When within, or within close proximity to, a known or potential TCR;
- when installing or verifying the placement and integrity of temporary exclusionary (orange barrier or silk) fencing around resources that must be avoided; and/or
- when "pioneering" (breaking ground for) temporary/preliminary access roads for geotechnical trenching or boring.

Monitoring is considered a last resort to minimizing or mitigating adverse effects and is not the default treatment for all projects. Any monitoring required must be justified and balanced by a reporting schedule.

Should the City determine that monitoring is not an appropriate mitigation, then the City, with permission from the landowner, may extend an opportunity to members of the public or consulting parties to visit the project during construction on a volunteer basis, provided that the visitors receive safety training and sign liability release waivers. The City shall not have the authority to grant property access to private property over the objections of the landowner.

Standard Treatment 6: HABS/HAER/HALS-Like Documentation

The Historic American Building Survey (HABS), Historic American Engineering Record (HAER), and Historic American Landscape Survey (HALS) programs are administered by the NPS, in consultation with the federal agency and SHPO. These programs provide documentation for eligible buildings and structures. For the purpose of these Guidelines, federal agencies, NPS, and SHPO are not involved; however, documentation comparable with this program may be utilized. It should be noted that this documentation does not mitigate certain impacts to CEQA-defined Historical Resources to a less-than-significant level.

Standard Treatment 7: CC&Rs

The collecting, digging, disturbance, or removal of any artifact or other prehistoric or historic object located in an open space area, conservation easement, a lot subject to a deed restriction, or to any archaeological site or Historic Property that may become unearthed in the future, is prohibited. Notification of such restrictions shall be included in a restrictive type of covenant recorded on each parcel. Homeowners shall not be provided the locations of known cultural resources and archaeological sites, as these are confidential and restricted from public dissemination under state and federal law. A copy of the recorded covenant shall be provided to the City as proof of compliance.

Standard Treatment 8: Tribal Access Agreements

Upon transfer to the holder of any portion of a conservation easement that is intended to preserve confidential Native American or tribal resources, and upon request from a federally recognized and/or California Native American tribe to gain access to the tribal resource for visitation, the City shall develop a right-of-access authorization for requesting tribes, in cooperation with the landowner. The authorization shall specify the terms under which tribal access can be legally achieved and shall define the acceptable and prohibited uses thereof, and appropriate liability waivers. Use of this Standard Treatment Measure cannot occur over the objection of the private landowner, if applicable.

Standard Treatment 9: Contractor Awareness Training

There always remains a possibility that unanticipated discoveries may occur during project construction. For this reason, an archaeological sensitivity training program (Contractor Awareness Training) will be developed and delivered by a qualified professional archaeologist during a pre-construction meeting for construction supervisors prior to beginning any ground-disturbing work in the project. The sensitivity training program will provide information about notification procedures when potential archaeological material is discovered, procedures for coordination between construction personnel and monitoring personnel, and information about other treatment or issues that may arise if cultural resources (including human remains) are discovered during project construction. This protocol shall be communicated to all new construction personnel during orientation, prior to the employee beginning ground-disturbing work on the project, and on a poster that is placed in a visible location inside the construction job trailer.

Standard Treatment 10: Controlled Grading Procedures

A program of controlled grading may be implemented during the excavation of soil that is identified as part of a prehistoric cultural deposit at a particular location. Controlled grading is a method employed to peel away layers of soil to reveal cultural materials in a manner that significantly enhances the opportunity to identify and understand the relationship of artifacts and features within a prehistoric site. Controlled grading will not be required for soil that is identified as non-cultural formational soil or fill dirt imported to the site. The determination of the transition from cultural soil to formational soil will be made jointly by the project archaeological consultant, the Native American representative, and the project geologist, if applicable.

Controlled grading will involve use of a small piece of equipment or a road grader to peel away native soil using shallow cuts made in approximately five-inch-deep layers. The grading equipment will push the shallow cuts of soil to the outside of the cultural deposit area. This deposited soil may be sampled and screened to ensure adequate detection of any cultural materials that may be present. The project archaeologist and Native American representative will direct the controlled grading process, including the pace of the grading and the depth of layers to be removed. The potential exists that discoveries may temporarily suspend the controlled grading process if significant discoveries are made that require focused archaeological excavations.

As successive layers of the prehistoric site are exposed, any cultural features or artifact concentrations that are exposed and identified will be excavated as part of the data recovery program. In the event that a human burial or human remains are exposed, the protocol stated in the data recovery program will be implemented. The archaeological monitor and Native American monitor will follow closely behind the grading equipment and mark any cultural material with pin flags. Each artifact will be recorded to provide horizontal and vertical locational data. If no cultural deposits are encountered, the road grader will continue to make passes until one of two conditions are met (whichever occurs first):

- Grading will continue to a depth of 30 centimeters below the depth of any recorded artifacts, suggesting an end to the potential for cultural deposits, or
- Non-cultural formational soils are encountered that predate any human occupation of this location.

Once the cultural deposit has been completely removed, the controlled grading process will be terminated and mass grading may proceed.

Standard Treatment 11: Post-Review Discoveries

There always remains the potential for ground-disturbing activities to expose previously unrecorded cultural resources, even for phases that do not have known resources present. If subsurface deposits believed to be cultural or human in origin are discovered during construction, then all work must halt within a 100-foot radius of the discovery and the following procedures apply.

A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for prehistoric and historic archaeologist, shall be retained to evaluate the significance of the find, and shall have the authority to modify the no-work radius as appropriate, using professional judgment and in consultation with the Luiseño Native American monitor. The following notifications shall apply, depending on the nature of the find:

- If the professional archaeologist, in consultation with the Luiseño Native American monitor, determines that the find does not represent a cultural resource, then work may resume immediately and no agency notifications are required.
- If the professional archaeologist, in consultation with the Luiseño Native American monitor, determines that the find does represent a cultural resource from any time period or cultural

affiliation, then he or she shall immediately notify the City and applicable landowner. The City shall consult with the other permitting agencies, if applicable, and the San Luis Rey Band of Mission Indians on a finding of eligibility and implement appropriate treatment measures, if the find is determined to be eligible for inclusion in the NRHP or CRHR. Work cannot resume within the no-work radius until the City, through consultation as appropriate, determines that the site either: 1) is not eligible for the NRHP or CRHR; or 2) that the treatment measures have been completed to their satisfaction.

- If the find includes human remains, or remains that are potentially human, then he or she shall ensure reasonable protection measures are taken to protect the discovery from disturbance (AB 2641). The archaeologist shall notify the San Diego County Medical Examiner (per Section 7050.5 of the Health and Safety Code). The provisions of Section 7050.5 of the California Health and Safety Code, Section 5097.98 of the California Public Resources Code, and Assembly Bill 2641 will be implemented. If the Medical Examiner determines the remains are Native American and not the result of a crime scene, then the Medical Examiner will notify the Native American Heritage Commission, which then will designate a Native American Most Likely Descendant (MLD) for the project (Section 5097.98 of the Public Resources Code). The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. Further, pursuant to California Public Resources Code Section 5097.98(b) remains shall be left in place and free from disturbance until a final decision as to the treatment and disposition has been made. If the landowner does not agree with the recommendations of the MLD, then the NAHC can mediate (Section 5097.94 of the Public Resources Code). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (Section 5097.98 of the Public Resources Code). This will also include either recording the site with the NAHC or the appropriate Information Center; using an open space zoning designation or conservation easement as appropriate; and/or recording a reinterment document with the County in which the property is located (AB 2641). Work cannot resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the treatment measures have been completed to their satisfaction.

Non-Standard Treatment Measures

Based on the number and type of resources within a project, or based on the construction timing of the project, there may be a need to develop and negotiate certain types of mitigation that are not provided for above. These may be alternate ways of resolving adverse effect (e.g., Section 6.3.1, below), or may require the phased implementation of mitigation measures for long-term buildout.

Compensatory mitigation (such as the analysis and proper curation of pre-existing artifact collections) is one such measure; however, in recognizing that no two cultural resources are the same, care must be taken to ensure that such a mitigation, if entertained, actually mitigates the impacts caused by a project.

In such circumstances where a non-standard treatment measure is considered, the Applicant shall propose mitigation measures in a treatment plan that is submitted to the City for review and consultation with the other applicable agencies and tribes.

9.7 Curation

Should permanent curation be necessary (such as for curation of historic-era archaeological artifacts), archaeological specimens, including their associated documentation (i.e., field notes, photographs, maps, and all environmental materials such as pollen, soils, sediments, bone, and shell) shall be curated using the standards set out in 36 CFR Part 79 to the greatest extent that facilities in southern California meet such standards. The San Diego Archaeological Center is the preferred location for curated collections of historic (non-Native American) artifacts and prehistoric artifacts that are not claimed by a culturally and traditionally affiliated California Native American tribe. Other curation facilities may become available in the future. Approval for the use of alternate facilities is at the discretion of the City, in consultation with the applicable federal agencies and SHPO.

Native American human remains, grave goods, items of cultural patrimony, and sacred objects encountered during the undertaking that are located on state or private land shall be treated in accordance with the requirements of Section 7050.5 of the California State Health and Safety Code and Section 5097.98 of the California Public Resources Code, which collectively penalize the intentional disturbance or removal of human remains and require that activity stop in the event of a discovery of human remains so that the Medical Examiner and, if applicable, NAHC, can determine the identity and/or historical significance of the find.

10.0 Paleontological Resources Procedures

10.1 Sensitivity Model Review

In reviewing the paleontology sensitivity map, the City shall first determine whether or not the project is located in a medium or high sensitivity area, which will require a paleontological survey. Projects located entirely within low sensitivity areas require no further study for paleontology; however, the result of the sensitivity model check shall be reported in the CEQA document and, at minimum, a standard mitigation measure for unanticipated discovery shall apply to all non-exempt projects (described further below).

10.2 Records Searches and Literature Reviews

The San Diego Natural History Museum (SDNHM) is the sole institution holding fossils for San Diego County, and therefore, represents the best source for information about fossil-bearing sediments and rock. For projects that require a paleontological survey, the City or qualified consultant shall first request a paleontological assessment from the SDNHM for the project area plus a one-mile radius. Other sources that may be reviewed include online paleontology databases, the published literature, and project or nearby geotechnical boring reports to obtain information on subsurface rock unit depths.

10.3 Field Surveys

If the underlying geologic formation is exposed on the site, a field survey may be warranted. All paleontological field surveys for the project area must be completed by or under the direction of the Principal Paleontologist, who is responsible for ensuring that the surveyor is knowledgeable about local geology and paleontology.

All paleontological resources encountered during the survey shall be documented on standard locality forms, and documented with photography and GPS coordinates. The surveyor shall describe the sediments of the project in detail and evaluate the potential for specific sediments to be conducive to the preservation of fossils.

Only qualified, trained paleontologists with specific expertise in the type of fossils being evaluated can determine the scientific significance of paleontological resources. Fossils are considered to be significant if one or more of the following criteria apply:

1. The fossils provide information on the evolutionary relationships and developmental trends among organisms, living or extinct;

2. The fossils provide data useful in determining the age(s) of the rock unit or sedimentary stratum, including data important in determining the depositional history of the region and the timing of geologic events therein;

3. The fossils provide data regarding the development of biological communities or interaction between paleobotanical and paleozoological biotas;

4. The fossils demonstrate unusual or spectacular circumstances in the history of life;

5. The fossils are in short supply and/or in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation, and are not found in other geographic locations; and/or,

6. All identifiable vertebrate fossils are considered significant due to the rarity of their preservation.

As so defined, significant paleontological resources are determined to be fossils or assemblages of fossils that are unique, unusual, rare, uncommon, or diagnostically important. Significant fossils can include remains of large to very small aquatic and terrestrial vertebrates or remains of plants and animals previously not represented in certain portions of the stratigraphy. Assemblages of fossils that might aid stratigraphic correlation, particularly those offering data for the interpretation of tectonic events, geomorphologic evolution, and paleoclimatology, are also critically important (Scott and Springer, 2003; Scott *et al*., 2004).

10.4 Impact Analyses and Mitigation Measures

Under current law, an analysis of the record search and survey results, if survey is required, must be used in a determination of whether or not "unique" (or "significant") paleontological resources will be impacted by the project, and whether or not that impact is significant. This conclusion must be based on actual information indicating a high probability of potential to damage or destroy significant fossils and documented in a Paleontological Assessment Report, used to support a CEQA document.

10.4.1 Negative Surveys

If the survey resulted in a negative finding for paleontological resources, then the paleontology sensitivity model should be updated to reflect low sensitivity for that project area. The Principal Paleontologist shall determine whether or not, based on professional judgement, the designation of low sensitivity can be extended outside of the project area.

In addition, the CEQA document shall require the adoption of a standard unanticipated discovery measure that instructs construction personnel to immediately halt ground-disturbing activity at the location of a suspected paleontological exposure plus a 50-foot radius around the find. Work shall be halted within the no-work radius until the City can consult with a qualified paleontologist on the identification and evaluation of the find.

At the discretion of the Principal Paleontologist, an additional mitigation measure requiring contractor awareness training may be warranted. However, unlike the unanticipated discovery measure, this is not a default mitigation measure for all projects that result in a negative survey for paleontological resources.

10.4.2 Positive Surveys

If the survey and/or Paleontological Assessment Report resulted in a positive finding for paleontological resources or a high probability for fossil-bearing sediments below the surface, then a Principal Paleontologist shall be retained to prepare a Paleontological Mitigation and Monitoring Plan to address the following information, as applicable and appropriate:

- the level of monitoring (spot checks, part time or full time), protocols and authorization for work stoppages, and safety procedures
- the need for Contractor Awareness Training for all earthmoving personnel for any projects where a monitor will not be present full time
- a research design listing the research questions and the data requirements for those questions
- the level and type of assistance from the contractor needed by the paleontologist to take bulk samples and place them into a safe area for processing
- the methods for fossil collection, fossil preparation, fossil identification, stratigraphic profiles, and curation
- the types of progress reports that will be provided to the project proponent and City (weekly or monthly)
- the schedule for reporting
- a recommendation for the updating of the paleontology sensitivity model, which takes into consideration the presence or absence of paleontological resources, the amount of ground disturbance, and the potential for future discoveries
- the identity of the financially-responsible party

10.4.3 Preferred Treatment Options and Mitigation Measures

Vertebrate fossils are rare in contrast with invertebrate and plant fossils. Due to this factor, all vertebrate fossils are generally recovered while samples of invertebrates and plants are taken. Documentation and curation is the preferred treatment method for paleontological resources.

10.5 Curation

In accordance with the Paleontological Mitigation and Monitoring Plan, specimens of significant fossils, all paleontological data, and a copy of the final report shall be curated at the SDNHM.

11.0 Document Review and Consultation

As discussed earlier, the City is ultimately responsible for the compliance with these Guidelines. As such, the City planning staff will be responsible for receiving applications, reviewing documentation generated under these Guidelines, carrying out non-federal Native American consultation, preparing CEQA documentation, and, ultimately, making a project decision. Appendix 1 to these Guidelines provides the Implementation Manual with template forms and letters.

11.1 Application Requirements

Applicants or consultants implementing these Guidelines are required to submit two bound copies and one PDF on a CD of every cultural resources and paleontological resources technical document prepared for the project. One hard copy is intended for City use. One hard copy of technical documents that address archaeological resources will be transmitted to SLRBMI for review. Depending on the number of consulting tribes and parties, if electronic copies are not acceptable, additional hard copies of the reports may be requested by the City. All hard and electronic copies of technical documentation containing confidential information that is restricted from public distribution must be bound separately in a confidential appendix, and clearly marked on the cover of the document.

11.2 Completeness Review

A completeness review of the cultural and paleontological technical documentation will be conducted by the planning staff using a Cultural Resources Compliance Review Checklist (Appendix 1). Upon receipt of the documentation, the City shall first acknowledge in writing the date on which the materials were received. This begins a 30-day review period for the City staff to review the submitted materials and identify any additional technical information that is necessary. The checklist prompts the City to verify specific information. This includes:

- Does the project boundary provided by the applicant take into account all areas of ground disturbance, conservation, construction staging, infrastructure, and off-site mitigation?
- Is the records search and literature review less than one year old?
- Has a search of the Sacred Lands File with the NAHC been conducted within the past year?
- Has the project area and any off-site improvement areas been surveyed for cultural resources in accordance with the methods in these Guidelines?
- Is there documentation that Native American tribes were invited to participate and/or participated in the archaeological field survey and any archaeological testing?
- Are all identified cultural resources recorded and evaluated under all four NRHP and CRHR criteria?

- Have the criteria of adverse effect been applied to all significant cultural resources?
- Have Standard Conditions, Standard Treatment Measures, or Non-Standard Treatment Measures been proposed, if applicable?
- What federal agency approvals or permits, if any, will be required?
- What state agency approvals or permits, if any, will be required?
- What local agency approvals will be required?

If the documentation is not complete or is not in conformance with these Guidelines, it will be returned to the project proponent with an explanation and request for additional information. Until the requested information is submitted to the City, processing of the cultural resources compliance will pause. However, tribal consultation will proceed in accordance with the schedules noted in AB 52 and SB 18, as applicable.

11.3 Consultation

The city shall verify that all information identified on the Cultural Resources Compliance Review Checklist has been received and that no additional cultural resources information is required in conjunction with determining the overall project's completeness in accordance with Section 15060 of the CEQA Guidelines. When such determination is made, the City shall issue a written Notice of Completeness to the applicant and shall initiate the following actions within 14 days:

- Only if applicable, the City shall notify the point-of-contact for each agency that is expected to issue a federal approval or permit for the project by letter (or other agreed upon notification method). The notice shall serve to alert the agency that consultation under Section 106 may be required and request coordination of efforts.
- The City shall mail project notification letters to each tribe who requested notification letters under AB 52 and afford them an opportunity to consult on the project if they respond affirmatively within 30 days.
- If the project requires a federal permit, approval, or funding, the City shall mail separate project notification letters to each tribe identified on the NAHC contact list to solicit information about the project, and shall copy the federal agency on all letters.
- If the project requires a General Plan or Specific Plan adoption or amendment, or the dedication of open space that includes a tribal resource within it, the City shall mail separate project notification letters to the tribes identified on the SB 18 list obtained from the NAHC, and offer them an opportunity to consult if they respond within 90 days.
- The City shall notify any other consulting parties it feels appropriate.

The City shall conduct the consultation in accordance with the regulatory requirements, which may require meetings, field visits, providing copies of or making revisions to cultural resources technical reports and documents, or both.

11.4 Compliance Verification

The City shall be responsible for ensuring that any mitigation or permit conditions are implemented. Upon verification that all requirements are satisfied in full, and unless the mitigation requires further coordination and review by other agency staff, the City shall issue a written notice to the other lead agencies to notify them of the completion of mitigation requirements.

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LIST OF ATTACHMENTS

Attachment A – Carlsbad City Council Policy No. 83

CITY OF
CARLSBAD

Policy No.	83
Date Issued:	February 23, 2016
Effective Date:	March 1, 2016
Resolution No.	2016-042
Cancellation Date:	n/a
Supersedes No.	n/a

Council Policy Statement

Category: **TRIBAL CULTURAL RESOURCE PROTECTION**
Specific Subject: **Tribal Consultation and Treatment and Protection of Tribal Cultural Resources**

PURPOSE: It is the intent of the City Council that the City of Carlsbad recognize its responsibility to protect with improved certainty the important historical and cultural values of current Tribal Cultural Resources within the City limits and to establish an improved framework for the City's consultations with Native American Tribes that are traditionally and culturally affiliated with the City of Carlsbad including the San Luis Rey Band of Mission Indians.

BACKGROUND: The City of Carlsbad is proudly home to California Native American Tribes that have been here for more than ten thousand years. The City is acknowledged by California Native American Tribes, archaeologists, ethnographers, and anthropologists to be rich in Tribal Cultural Resources. These Tribal Cultural Resources are significant for their traditional, cultural, spiritual and religious ties to the California Native American people living today and the cultural significance these resources have to the lives of California Native American Tribal people in the present.

Currently, in the design and construction of development projects on private property and projects on City-owned properties, the City of Carlsbad Cultural Resources Guidelines and General Plan Policies 7-P.7 through 7-P.11 are implemented. In addition, during the project review process City staff, as the City's representative managing both projects on private and City-owned properties, must implement their best professional judgment to attempt to avoid or substantially reduce impacts to Tribal Cultural Resources, historical, archaeological and paleontological resources by developing mitigation measures for appropriate treatment and protection of such resources. However, the City's Cultural Resource Guidelines (1990) require updating to ensure consistency with State law and the City's General Plan Policies, define a predictable and reliable means of approving projects, and ensure appropriate long term protection of Tribal Cultural Resources. To meet these goals the City, within the areas of its authority, will establish improved guidelines for Native American tribal consultation and the protection of Tribal Cultural Resources in a way that is respectful to California Native American Tribes.

POLICY: To the extent allowed under the authority of the City, the City shall guide all development projects on private property and projects on City-owned properties to be designed and constructed in a manner to avoid or substantially reduce impacts to Tribal Cultural Resources, as they are defined by State Law, and to establish and adopt preservation measures to maintain their permanence in protection. To facilitate this Policy, the City shall consult with California Native American tribes that are traditionally and culturally affiliated with the City, including San Luis Rey Band of Mission Indians, early in the design process of development projects on City-owned properties and early in the permit process of development projects on private property to avoid or substantially lessen potential adverse impacts to Tribal Cultural Resources that may occur as a result of a proposed project. The City shall

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update its Cultural Resource Guidelines to incorporate State definitions of Tribal Cultural Resources, require consultation in the detection, treatment and protection of Tribal Cultural Resources for all Projects on City-owned lands and on private property to the full extent of the City's authority, ensure a complete understanding by project proponents, including the City and Tribal Representatives, of current and previous mitigation commitments for Tribal Cultural Resources, and provide improved protocols for ensuring the permanence of preservation mitigation measures.

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Appendix B. Biological Resources Letter Report

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August 29, 2019

Elmer Alex, Sewer Engineering Division Manager
200 Civic Center Drive
Vista, CA 92084

Re: Biological Memo Addressing the Vista-Carlsbad Interceptor (Reach 1) Access Road Project

Introduction

This biological memo addresses the Vista-Carlsbad (VC) Interceptor (Reach 1) Access Road (VC1) Project, as contemplated in the certified Supplemental Program Environmental Impact Report (SPEIR) for the 2017 Comprehensive Sewer Master Plan (2017 CSMP) (State Clearinghouse No. 2007091072). The 2017 CSMP identifies a set of recommended projects for inclusion in the City of Vista's (City) Capital Improvement Program (CIP) and operations and maintenance (O&M) program. The Vista-Carlsbad Interceptor (Reach 1) Access Road Project was identified in the SPEIR as a Category 4: Out of Service Area project. The SPEIR analyzed the potential environmental impacts of these improvements, as contemplated in the CSMP, and is incorporated by reference, including the adopted mitigation monitoring and reporting program (MMRP).

The O&M Program component of the 2017 CSMP provides a continuation of the City's existing condition assessment program consistent with the City's adopted Sanitary Sewer Management Plan (SSMP). The O&M Program also includes the replacement/rehabilitation of the City's existing sewer trunks and the repair, upgrade, and rehabilitation of existing access roads.

The City maintains multiple easements to facilitate access to the conveyance and pumping facilities within and outside its service area. These easements range from 10 to 20 feet in width to accommodate maintenance equipment. The SPEIR for the 2017 CSMP analyzed the potential environmental impacts associated with the proposed repair, upgrade, and/or rehabilitation of two existing unpaved access roads as part of the O&M Program. One of the two access roads for future maintenance described in the SPEIR is located along the existing Vista-Carlsbad (VC) Interceptor Reach 1 (VC1) and traverses the cities of Oceanside and Carlsbad (Figure 3-20 of the SPEIR). The proposed project includes the improvement of the existing VC1 access road and securing of permanent easements to facilitate long-term access.

When VC1 was constructed in 1985, an earthen access road was also constructed to provide maintenance access to sewer manholes, some requiring culverts to convey run-off underneath the road. The condition of this earthen access road has degraded over time primarily due to erosion from stormwater discharged south from State Route (SR) 78. Due to the placement of the existing access road, sedimentation and debris have clogged the culverts, diverting drainages along the access road and resulting in additional erosion. Direct access by way of an improved road is also not provided to a number of manholes within the project area.

The City's goal for implementing the proposed project is to provide all weather access to the manholes for VC1, including during the 50-year storm event. The project would improve sewer maintenance access by providing the City's O&M staff with reliable access to the VC1 pipeline. Improved and reliable access during large rainfall events is required for the City to clean and maintain the pipeline consistent with its adopted SSMP and minimize the potential for sanitary sewer overflows (SSOs).

The certified SPEIR and approved MMRP (Attachment A) are incorporated by reference within this biology memo. All Mitigation Measures and conditions presented in the SPEIR remain applicable to the project. These mitigation measures, in combination with project-specific mitigation measures provided in Section 4.0, would avoid substantial effects on biological resources. This memo provides the results to date of the implementation of **Mitigation Measure BIO-2**.

Project Location

The proposed project is located on the northern edge of the City of Carlsbad in San Diego County, California (Figure 1). The project is located within the Core 2 Focus Planning Area of Carlsbad's Multiple Habitat Conservation Program subarea plan (the Carlsbad Habitat Management Plan [HMP]). The proposed project is generally located south of SR 78, north of Buena Vista Creek, and between the eastern terminus of Haymar Drive (west of College Boulevard) and the western terminus of Haymar Drive (east of El Camino Real) (Figure 2). The VC1 site ranges from 30 to 146 feet above mean sea level. The City of Oceanside is located immediately north with its southern limits roughly corresponding to the southern edge of SR 78. A majority of the project site is located within the Buena Vista Creek Ecological Reserve, which is a 148-acre property owned by the California Department of Fish and Wildlife (CDFW) (Figure 2). The project site is located on Assessor Parcel No. 167-040-31-00, 167-040-38-00, and 167-040-39-00.

Proposed Project

The proposed project involves the rehabilitation and improvement of the existing VC1 access road to provide more reliable access to the VC1 pipeline and manholes for maintenance, including during up to the 50-year rainfall event. The proposed alignment of the access road is approximately 4,000 feet in length and is shown on Figure 3 and Figure 4. As shown, the proposed project would maintain the existing Vista-Carlsbad roadway alignment along its western end with slight variations. At the eastern end, the roadway alignment would be realigned to the north and disconnected from Oceanside's existing sewer access easement,

which was acquired during a previous spill event. As shown in Figure 3, the proposed alignment roughly corresponds with the alignment contemplated in the SPEIR.

The proposed access road would be constructed with an aggregate or crushed rock to provide a permeable roadway surface, approximately 15 feet in width, with a maximum longitudinal slope of eight percent. The roadway thickness and selected materials will be determined during the final design of the roadway in coordination with CDFW. A minimum 10-foot radius of crushed rock base would be provided around each manhole (or MH); except in environmentally sensitive areas. When a manhole is adjacent to the sewer access road or within an area at risk of flooding due to its proximity to an existing creek, a raised concrete manhole collar is proposed per City Standard Drawing SWR-30A at MH27.

The proposed project would include improvements at five drainage crossings to minimize degradation of the access road surface. No crossing of Buena Vista Creek is proposed. At each drainage crossing, the City is considering a combination of low-flow (e.g. Arizona crossings) or culvert crossings to convey stormwater across the access road and away from the roadway crown. The final selection will be based on the quantity of flow during the 50-year event. Drainage ditches along the roadway may also be required to safely convey flows downstream to Buena Vista Creek.

Figure 1. Regional Map

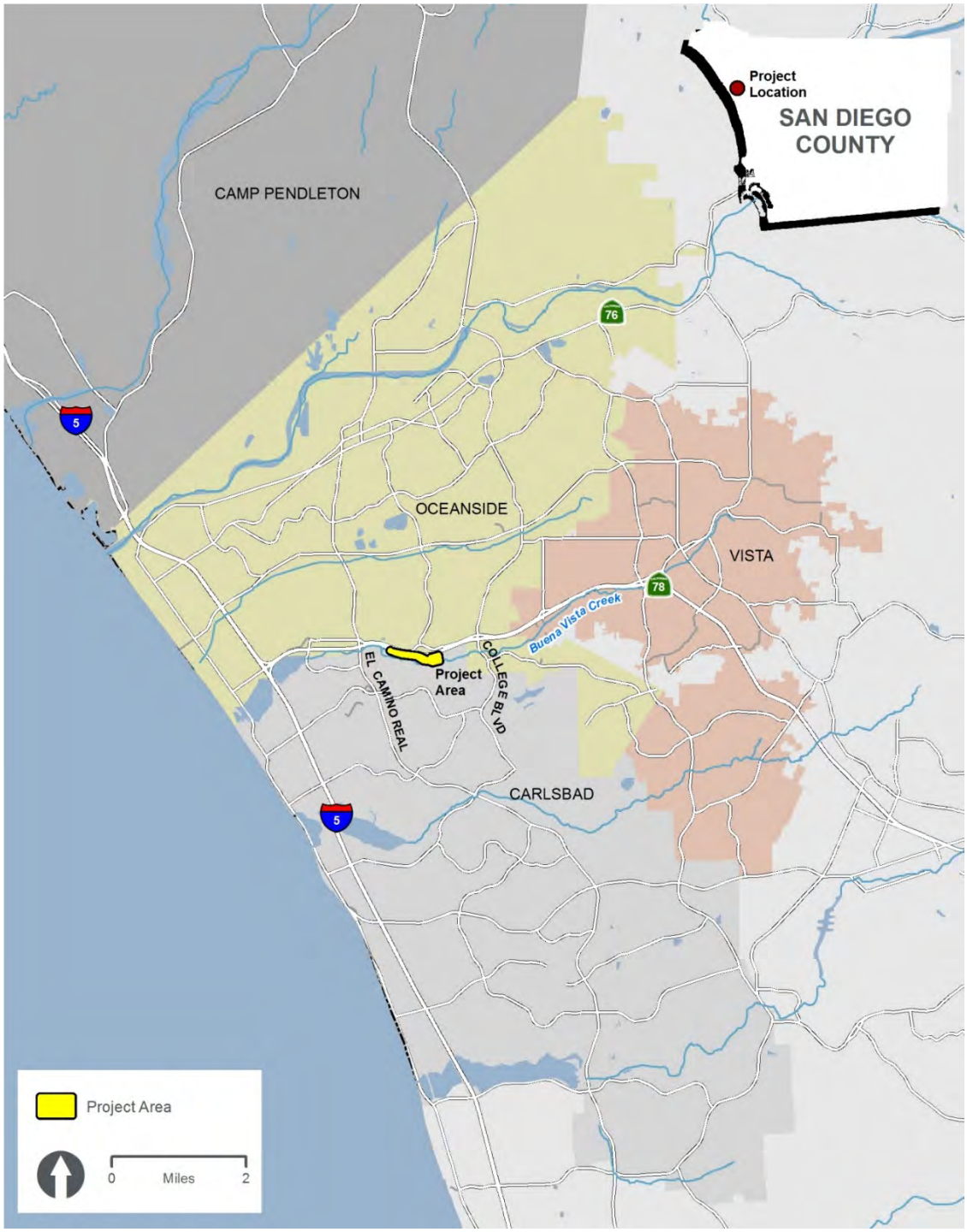


Figure 2. Project Area

Figure 3. Proposed Access Road (West)

Figure 4. Proposed Access Road (East)

Methods

Literature Review

A list of special-status species that have the potential to occur within the SPEIR study area, which includes the vicinity of the project area, was provided in Tables 4.2-1 and 4.2-2 of the SPEIR. An updated list of special-status species that have the potential to occur within the vicinity of the project area was prepared using information provided by the USFWS species list from the online Information for Planning and Conservation Environmental Conservation Online System (USFWS 2019), the CDFW's California Natural Diversity Database (CNDDB) RareFind program (CDFW 2019), and the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California (CNPS 2019) as these database searches are only good for a period of six to nine months. This information was supplemented through coordination with CDFW's Land Management Division for the Buena Vista Creek Ecological Reserve. Attachment B provides the updated lists based on the literature review. In addition to a review of special-status species databases, aerial photographs and topographic mapping (1-foot contours) of the project area at a scale of 1:2,400 were reviewed prior to the field survey.

Field Surveys

In compliance with Mitigation Measure BIO-2, HDR biologists conducted vegetation mapping and habitat assessments for federally and/or state-listed plant and wildlife species on March 14, 2019. Vegetation communities were mapped using the classification system methodology and associations described in the *Vegetation Classification Manual for Western San Diego County* (SANDAG 2011), adapted from *A Manual of California Vegetation* (Sawyer et al. 2009). This updated classification system was used to provide consistency with the National Vegetation Classification System and is currently the state-wide standard for vegetation mapping (Section 1900 of the Fish and Game Code). A jurisdictional delineation of the site was also conducted in compliance with Mitigation Measure BIO-3. Detailed information regarding the methodology for the delineation is provided under separate cover.

Based on the results of the vegetation mapping and habitat assessment, focused surveys were initiated for federally and/or state-listed plants and wildlife, including:

- San Diego thorn-mint (*Acanthomintha ilicifolia*) – federally threatened, state endangered
- San Diego ambrosia (*Ambrosia pumila*) – federally endangered
- Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*) – federally endangered
- Thread-leaved brodiaea (*Brodiaea filifolia*) – federally threatened, state endangered
- Orcutt's spineflower (*Chorizanthe orcuttiana*) – federally and state endangered
- San Diego button-celery (*Eryngium aristulatum* var. *parishii*) – federally and state endangered

- Spreading navarretia (*Navarretia fossalis*) – federally threatened
- Coastal California gnatcatcher (*Polioptila californica californica*) – federally threatened
- Least Bell's vireo (*Vireo bellii pusillus)* – federally and state endangered
- Southwestern willow flycatcher (*Empidonax traillii extimus*) – federally and state endangered

Based on the presence of suitable habitat for the federally endangered San Diego fairy shrimp (*Branchinecta sandiegonensis*), dry season and wet season surveys are recommended to determine the presence/absence of this species in the VC1 study area. These surveys are recommended for the second half of 2019.

The rare plant surveys were conducted by HDR biologist Shelly Austin [CDFW Plant Voucher Collecting Permit No. 2081(a)-15-109-V] on March 14 and April 22, 2019. Surveys were conducted in accordance with CNPS *Botanical Survey Guidelines* (2001) and CDFW *Protocols for Surveying and Evaluation Impacts to Special Status Native Plant Populations and Natural Communities* (2009). Surveys were floristic in nature—all plant species encountered during the surveys were identified to the taxonomic level necessary to determine whether or not they were a special-status plant species. Plant nomenclature follows the Jepson Flora Project (2019). The Calflora online database (Calflora 2019) was also used to assist with plant identification.

Breeding season surveys for coastal California gnatcatcher were conducted per protocol identified in the *Presence/Absence Survey Guidelines* (USFWS 1997). Surveys for least Bell's vireo were conducted per protocol identified in the *Least Bell's Vireo Survey Guidelines* (USFWS 2001). Breeding season surveys for southwestern willow flycatcher were conducted per protocol identified in *A Natural History Summary and Survey Protocol for Southwestern Willow Flycatcher* (USGS 2010). San Diego fairy shrimp is identified in the MHCP as a narrow endemic species requiring 100 percent avoidance in preserve areas. Therefore, protocol presence/absence surveys for San Diego fairy shrimp will be conducted within potentially suitable habitat prior to construction. Surveys will be conducted per the 2015 USFWS survey protocol guidelines.

Results

Existing Environmental Conditions

The existing environmental setting, including vegetation communities, jurisdictional waters, and special-status species with the potential to occur in the project area, is described in the 2017 SPEIR and incorporated herein by reference. Any differences from what was noted in the 2017 SPEIR are described below based on additional site specific investigations.

Vegetation Communities and other Land Cover Types

Vegetation communities and other land cover types in the project area are provided on Figure 5. Acreages of vegetation communities and other land cover types in the VC1 project area are provided in Table 1.

Table 1. Vegetation Communities and other Land Cover Types in the Study Area

Vegetation Community or Other Land Cover Type	Alliance level Vegetation Community Type	Area (acres)
Tree-dominated habitats		
Willow riparian forest	Mixed willow riparian	9.21
Non-native woodland	Eucalyptus woodland	0.08
Shrub-dominated habitats		
Coastal sage scrub	California sagebrush scrub	0.79
	California sagebrush-black sage scrub	0.90
	California sagebrush-California buckwheat scrub	0.04
	Coyote brush scrub	4.18
	California brittle bush scrub	0.44
	Menzies's golden bush scrub	0.48
Non-native shrubland	Butterfly bush patch	0.11
	Golden wattle patch	0.02
Ornamental (planted)	Ornamental (planted)	0.04
	Non-native cactus scrub	0.09
Herbaceous-dominated habitats		
Native herbaceous stand	Fiddleneck field	0.03
Freshwater marsh	Cattail marsh	0.0005
Wet meadow	Yerba mansa meadow	0.02
Non-native grassland	Annual brome grassland	3.19
	Red brome grassland	2.02
Non-native herbaceous stand	Upland mustard stand	0.65
	Poison hemlock patch	0.10
	Bristly ox-tongue patch	0.18
Other land cover types		
Open water	Ponded water	0.01
Disturbed habitat	Disturbed habitat	1.47
Urban/developed	Urban/developed	0.39
	Total	**24.43**

Vegetation community mapping of the Buena Vista Creek Ecological Reserve conducted by the Center for Natural Lands Management was provided to HDR on May 3, 2019. This vegetation mapping was reviewed for consistency with HDR's vegetation mapping of the project area, which is a subset of the area mapped for the reserve. These two datasets are generally consistent with only minor differences that do not affect the determination of project impacts or mitigation.

Figure 5. Vegetation Communities and Other Land Cover Types in the Study Area

Wetlands and Waters of the U.S. and State

Based on the results of a jurisdictional delineation conducted at the project site, the study area includes wetland and non-wetland waters of the U.S. subject to USACE jurisdiction pursuant to the Clean Water Act, waters of the state subject to Regional Water Quality Board jurisdiction, and streambed and riparian areas subject to jurisdiction by CDFW (Table 2; Figure 6, and Figure 7). Detailed information on the existing site conditions related to jurisdictional areas is provided under separate cover.

Table 2. Jurisdictional Resources in the Study Area

Jurisdictional Type	Acreage
USACE Wetland Waters of the U.S.	0.23
USACE Non-wetland Waters of the U.S.	0.19
Total USACE	**0.42**
CDFW Unvegetated Streambed	0.13
CDFW Riparian	1.79
Total CDFW	**1.92**

Figure 6. USACE Jurisdictional Resources in the Study Area

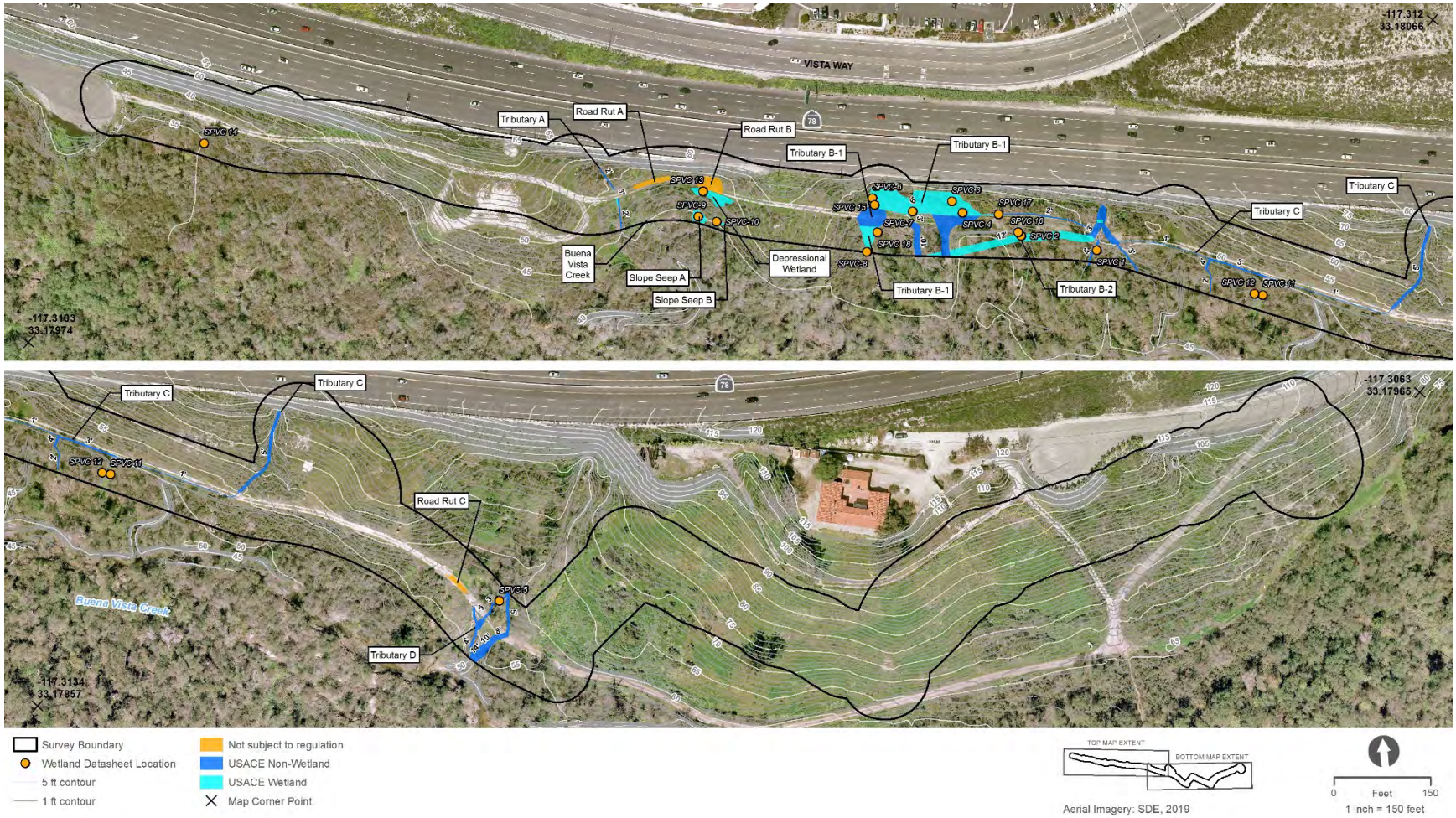


Figure 7. CDFW Jurisdictional Resources in the Study Area

Special-Status Plant Species

Special-status plant species and their potential to occur in the project area were provided as Table 4.2-1 in the SPEIR (Attachment C). Based on the results of the updated literature review search described in Section 2.1 and field reconnaissance of the project area, one additional special-status plant species was determined to have the potential to occur in the project area (Table 3).

Table 3. Additional Special-status Plant Species with the Potential to Occur in the Project Area

Scientific Name	Common Name	Status	Species Summary	Potential to Occur
ASTERACEAE (Sunflower Family)				
Senecio aphanactis	chaparral ragwort	Federal: None State: None CRPR: 2B.2	Annual herb. Occurs in chaparral, cismontane woodland, coastal scrub, and alkaline flats from 49 to 2,624 feet above mean sea level. Blooms January–April.	Moderate potential

Source: CNDDB 2019

Notes:
0.2 Fairly endangered in California
CRPR=California Rare Plant Rank; List 2B=Plants rare, threatened or endangered in California but more common elsewhere

The project site has at least marginally suitable habitat for the following federally and state-listed plant species: San Diego thorn-mint (flowers April through June), San Diego ambrosia (flowers April through October), and thread-leaved brodiaea (flowers March through June). However, based on focused special-status plant species surveys conducted on March 14, April 22, and June 13, 2019, no federally and/or state-listed plant species were observed in the study area.

Two plant species considered sensitive by CNPS were observed at the project site: southwestern spiny rush (*Juncus acutus* ssp. *leopoldii*) and Southern California black walnut (*Juglans californica*) (Figure 8). These species are both included as CRPR List 4[1] plants, indicating that they are plants of limited distribution and are on a watch list. The occurrences on the project site would not be considered locally significant populations. California native plant survey field forms for occurrences of these species will be submitted to CDFW for inclusion in their California Natural Diversity Data Base. A list of all plant species observed at the project site is provided as Attachment D.

[1] CNPS recommends that California Rare Plant Rank List 4 plants be evaluated for impact significance during preparation of environmental documents relating to CEQA. Locally significant populations may include those at the periphery of a species' range, areas where the taxon is particularly uncommon, areas where the taxon has sustained heavy losses, or populations exhibiting unusual morphology or occurring on unusual substrates.

Figure 8. Special-status Plant and Wildlife Species in the Study Area

Special-Status Wildlife Species

Special-status wildlife species and their potential to occur in the Comprehensive Sewer Master Plan project area were provided as Table 4.2-2 in the SPEIR (Attachment C). Based on the results of the updated literature review search described in Section 2.1 and the project-specific habitat assessments, Table 4 identifies additional special-status wildlife species determined to also have the potential to occur in the project area. Based on the results of the habitat assessment, Table 5 identifies the special-status species including federally or state-listed species determined to be absent based on the absence of suitable habitat (Table 5).

Table 4. Additional Special-status Wildlife Species with the Potential to Occur in the Project Area

Scientific Name	Common Name	Status	Species Summary	Potential to Occur
Reptiles				
Anniella stebbinsi	Southern California legless lizard	SSC	Occurs in sparsely vegetated areas of beach dunes, chaparral, pine-oak woodland, desert scrub, sandy washes, and stream terraces. Current known range includes cismontane southern California.	Potential
Birds				
Asio otus	Long-eared owl	SSC	Species known to be widespread and a winter migrant along the California coastline. Requires dense stands of vegetation, including various grasses and brush, as well as ditches and wetlands for resting and roosting. Nests on dry ground concealed in vegetation.	Potential
Lanius ludovicianus	Loggerhead shrike	SSC	Breeds in shrublands or open woodlands with a fair amount of grass cover and areas of bare ground.	Potential
Mammals				
Lasiurus blossevilli	Western red bat	SSC	Ranges in the western half of California. Generally occurs in most habitats. Roosts in trees, sometimes shrubs, and typically at the margins of habitats.	Potential

Source: CNDDB 2019

Notes:
SSC=Species of Special Concern

Table 5. Special-Status Wildlife Species Identified as Having Potential to Occur in the SPEIR, but for which Suitable Habitat is Absent from the Project Area

Scientific Name	Common Name	Status	Species Summary	Potential to Occur
Federally or State-Listed Species				
Invertebrates				
Streptocephalus wootoni	Riverside fairy shrimp	FE	Vernal pools and deep cool water seasonal pools. Occupies pools with low to moderate dissolved solids.	No seasonal ponds of suitable depth and ponding duration occur within the study area.
Fish				
Eucyclogobius newberryi	tidewater goby	FE	Endemic to California. Inhabits coastal lagoons, estuaries, and marshes. Generally found in brackish water in shallow lagoons and in lower stream reaches where water is still, but not stagnant. This species prefers a sandy substrate for breeding. Favors sparse vegetation containing submerged or emergent aquatic plants such as widgeongrass (Ruppia maritima), bulrushes (Scirpus spp.), and pondweed (Potamogeton spp.). Historically found as far south as Agua Hedionda Lagoon in northern San Diego County.	Not expected due to lack of suitable habitat.
Reptiles				
Anaxyrus californicus	arroyo toad	FE	Inhabits washes, arroyos, sandy riverbanks, riparian areas with willows (Salix spp.), sycamores (Platanus spp.), oaks (Quercus spp.), and cottonwoods (Populus spp.). Requires exposed sandy streamsides with stable terraces for burrowing, scattered vegetation for shelter, and areas of quiet water or pools free of predatory fishes with sandy or gravel bottoms without silt for breeding. Range includes coastal southern California streams.	Not expected due to lack of suitable habitat. Buena Vista Creek is deeply incised and lacks exposed, sandy streamsides and pools with sandy or gravel bottoms.

Table 5. Special-Status Wildlife Species Identified as Having Potential to Occur in the SPEIR, but for which Suitable Habitat is Absent from the Project Area

Scientific Name	Common Name	Status	Species Summary	Potential to Occur
Federally or State-Listed Species				
Birds				
Agelaius tricolor	Tricolored blackbird (nesting colony)	ST	Preferred nesting habitat includes cattails (Typha spp.), bulrushes Himalayan blackberry (Rubus armeniacus), and agricultural silage. Dense vegetation is preferred, but heavily lodged cattails not burned in recent years may preclude settlement. Need access to open water. Strips of emergent vegetation. May occupy narrow areas of cattails in some ponds, especially where associated with Himalayan blackberry and deep water.	Not expected due to lack of suitable habitat
Buteo swainsoni	Swainson's hawk (Nesting)	ST	Nests in stands with few trees in riparian areas, juniper-sage flats, and oak savannah. Forages in adjacent grasslands, agricultural fields, and pastures. Breeding resident and migrant in northern California, the Central Valley, and Mojave Desert.	Not expected. Site is outside of known breeding range.
Charadrius alexandrinus nivosus	western snowy plover	FT	Barren to sparsely vegetated sand beaches, dry salt flats in lagoons, dredge spoils deposited on beach or dune habitat, levees and flats at salt-evaporation ponds, river bars, along alkaline or saline lakes, reservoirs, and ponds. Breeds throughout California.	Not expected due to a lack of suitable habitat.
Riparia riparia	bank swallow	ST	Found near water in fields, marshes, streams, and lakes. Typically seen feeding in flight over water at all seasons. Nests in colonies in vertical banks of dirt or sand, usually along rivers or ponds, seldom away from water.	Potential for foraging only

Table 5. Special-Status Wildlife Species Identified as Having Potential to Occur in the SPEIR, but for which Suitable Habitat is Absent from the Project Area

Scientific Name	Common Name	Status	Species Summary	Potential to Occur
Federally or State-Listed Species				
Coccyzus americanus occidentalis	western yellow-billed cuckoo	FT	Mature riparian woodland.	Potential as rare and sporadic visitor in summer only. Although suitable habitat is present, has not been known to breed in San Diego County for decades.
Laterallus jamaicensis coturniculus	California black rail	ST	Requires fresh, brackish, and pickleweed (Salicornia spp.)-dominated salt marshes. Appears to prefer tidal salt marshes with a heavy canopy of pickleweed and an open structure below the canopy for nesting and accessibility. Known to occur in coastal California. Begins nesting in February, in stands of pickleweed and tall grasses, near the upper limits of tidal flooding zone.	Not expected due to a lack of suitable habitat.
Passerculus sandwichensis beldingi	Belding's savannah sparrow	SE	Resident in coastal salt marshes, including southern California. Nests in pickleweed from January to August. Also found in mudflats, sandflats, and rock jetties.	Not expected due to a lack of suitable habitat.
Rallus obsoletus obsoletus	Ridgway's rail	FE/SE	Inhabits coastal marshes and lagoons in southern California south to northern Baja California. Requires shallow water and mudlfats for foraging, with adjacent higher vegetation for cover during high water. Prefers tidal marshes dominated by cordgrass (Spartina spp.).	Not expected due to a lack of suitable habitat.
Sternula antillarum browni	California least tern	FE/SE	Found on sea coasts, beaches, bays, estuaries, lagoons, lakes, and rivers. Nests on sandy or gravelly beaches and banks of rivers or lakes.	Not expected due to a lack of suitable habitat.

Table 5. Special-Status Wildlife Species Identified as Having Potential to Occur in the SPEIR, but for which Suitable Habitat is Absent from the Project Area

Scientific Name	Common Name	Status	Species Summary	Potential to Occur
Federally or State-Listed Species				
Mammals				
Dipodomys stephensi	Stephens' kangaroo rat	FE/ST	Inhabits annual and perennial grassland habitats, but may occur in coastal scrub or sagebrush with sparse canopy cover, or in disturbed areas such as abandoned agricultural fields. Preferred perennials are California buckwheat (Eriogonum fasciculatum) and chamise (Adenostoma fasciculatum), preferred annuals are brome grass (Bromus spp.) and filaree (Erodium spp.). Found in northern San Diego between 180 and 4,100 feet above mean sea level.	Project site is outside of known geographic range for the species (Burke 1991).
Perognathus longimembris pacificus	Pacific pocket mouse	FE	Inhabits shrublands with firm, sandy soils in the immediate vicinity of the ocean, coastal dunes, river alluvium, and coastal sage scrub growing on marine terraces. Has been found on flats, often submerged by high tides at the mouth of the Tijuana River.	Not expected due to a lack of suitable habitat.
Leptonycteris curasoae yerbabuenae	lesser long-nosed bat	Delisted	Occurs in the Sonoran desert with columnar cacti and agaves. Requires columnar cacti and agaves for roosting and food. Day roosts include caves, mines, rock crevices, trees and shrubs, and occasionally abandoned buildings. Very sensitive to human disturbance. Requires columnar cactus flowers and fruits; agave flowers represent the core diet. Also important are nectar, pollen, and fruit produced by a variety of columnar cacti.	Not expected due to lack of suitable foraging and roosting habitat

Table 5. Special-Status Wildlife Species Identified as Having Potential to Occur in the SPEIR, but for which Suitable Habitat is Absent from the Project Area

Scientific Name	Common Name	Status	Species Summary	Potential to Occur
Federally or State-Listed Species				
Other Special-Status Species				
Campylorhynchus brunneicapillus sandiegensis	San Diego cactus wren	SSC	Favors coastal lowlands and coastal sage scrub with thickets of chollas or prickly-pear cacti tall enough to support and protect the birds' nests. Can nest in relict stands of cactus or even spiny ornamental garden plants.	Not expected due to a lack of suitable habitat.
Ixobrychius exilis	least bittern	SSC	Nest and forages in dense tall emergent freshwater or brackish marsh vegetation. May be over fairly deep water, it mostly climbs in reeds rather than wading. Southern California populations are non-migratory.	Not expected due to a lack of suitable habitat.
Eumops perotis californicus	western mastiff bat	SSC	Occurs near significant rock features offering suitable roosting habitat. Found in a variety of habitats including desert scrub, chaparral, oak woodland, dry desert washes, flood plains, coastal sage scrub, grasslands, agricultural areas, and ponderosa pine. Primarily a crevice dwelling species, often found under large exfoliating slabs of granite, sandstone slabs or in columnar basalt, on cliff faces or in large boulders. Roosts are generally high above the ground with a clear vertical drop. Primarily feeds on moths, but also includes beetles and crickets.	Not suitable roosting habitat in the vicinity?

Source: CNDDB 2019

Notes:
FE=Federally Endangered; FT=Federally Threatened; SE=State Endangered; ST=State Threatened

Pursuant to survey protocol for coastal California gnatcatcher in Natural Community Conservation Plan areas, three protocol surveys were conducted on April 10 and 22, and May 1, 2019 (Figure 8). Three pairs of coastal California gnatcatcher were detected using coastal sage scrub habitat within the survey area (Figure 8). These results are consistent with the results of past biennial surveys for coastal California gnatcatcher conducted in the

Buena Vista Creek Ecological Reserve by the Center for Natural Lands Management (CNLM) (Attachment E).

Protocol surveys for least Bell's vireo were initiated prior to becoming aware that CNLM were in the process of conducting monitoring surveys for the reserve. Upon learning of the duplicate survey effort, HDR discontinued surveys after the first protocol survey visit was conducted on April 22, 2019. By that time, least Bell's vireo had been detected throughout the survey area, which is consistent with the results of past CNLM surveys that indicate the entire willow riparian area along Buena Vista Creek is occupied by least Bell's vireo during the breeding season (Figure 8 and Attachment E).

The project site includes suitable willow riparian habitat for southwestern willow flycatcher. Focused surveys for this species will begin on May 28, 2019, and will conclude by July 17, 2019. Should southwestern willow flycatcher be detected, the project-specific mitigation measures pertaining to least Bell's vireo would serve to mitigate for any potentially significant impacts on southwestern willow flycatcher.

Based on the habitat assessment conducted on March 14, 2019, the project site also includes suitable habitat for the federally endangered San Diego fairy shrimp. Suitable fairy shrimp habitat includes isolated depressions subject to ponding within and immediately adjacent to the existing dirt access road (Road Ruts A, B, and C, and Depressional Wetland) (Figure 8).

Non-listed special-status wildlife species that were observed during field surveys include western spadefoot toad (*Spea hammondii*), yellow warbler (*Setophaga petechia*), and yellow breasted chat (*Icteria virens*), all California Species of Special Concern, and white-tailed kite (*Elanus leucurus*), a CDFW Fully Protected species. Other special-status species with potential to occur include: arroyo chub (*Gila orcuttii*), California glossy snake (*Arizona elegans occidentalis*), orange-throated whiptail (*Aspidoscelis hyperythra*), southern California legless lizard, coastal whiptail (*Aspidoscelis tigris stejnegeri*), red-diamond rattlesnake (*Crotalus ruber*), coast patch-nosed snake (*Salvadora hexalepis virgultea*), coast horned lizard (*Phrynosoma blainvillii*), western pond turtle (*Emys marmorata*), two-striped garter snake (*Thamnophis hammondii*), south coast gartersnake (*Thamnophis sirtalis* ssp.), northern harrier (*Circus hudsonius*), long-eared owl, western red bat (*Lasiurus blossevillii*), pallid bat (*Antrozous pallidus*), Dulzura pocket mouse (*Perognathus californicus femoralis*), northwestern San Diego pocket mouse (*Chaetodipus fallax*), Townsend's big-eared bat (*Corynorhinus townsendii*), western yellow bat (*Lasiurus xanthinus*), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), San Diego desert woodrat (*Neotoma lepida intermedi*a), and pocketed free-tailed bat (*Nyctinomops femorosaccus*).

As noted in the SPEIR, migratory birds are protected under the Migratory Bird Treaty Act (MBTA). Suitable habitat that would support breeding, roosting, and foraging migratory birds occurs throughout the project site.

A list of all wildlife species observed at the project site is provided as Attachment F. Wildlife species observed while conducting focused surveys for coastal California gnatcatcher, least Bell's vireo, and southwestern willow flycatcher are provided under separate cover.

Regulatory Background

The description of the federal, state, and local regulatory framework as provided in Section 3.3 of the SPEIR is incorporated by reference. The project site is subject to the City of Carlsbad's Habitat Management Plan (HMP) and is identified as a covered project.

Impact Analysis

The impact analysis provided below is based on the thresholds of significance for biological resources as defined in Appendix G of the 2019 updated CEQA Guidelines, consistent with the SPEIR. Specifically, project impacts to biological resources would be considered significant if the project was determined to:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified in as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by CDFW or USFWS.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS.

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

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

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

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

IMPACT A

IMPACT A.	Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by CDFW or USFWS?

Direct Construction Impacts

SPECIAL-STATUS PLANT SPECIES

As noted in Section 3.1, no federally and/or state-listed plant species were observed in the project area. Therefore, no mitigation is required.

Based on the preliminary project design, neither of the two non-listed special-status plant species observed on the project site would be directly impacted by the project (Figure 8). Therefore, the project would not have a substantial adverse effect, either directly or through habitat modifications, on these non-listed special-status plant species.

SPECIAL-STATUS WILDLIFE SPECIES

Potential impacts on special-status wildlife species from both construction and operations, including federally and state-listed species and nesting migratory birds are consistent with what was addressed in the SPEIR.

Specifically, as noted in Section 3.1, two federally and/or state-listed wildlife species have been observed in the project area: coastal California gnatcatcher and least Bell's vireo and two have potential to occur within or immediately adjacent to the project area: southwestern willow flycatcher and San Diego fairy shrimp. Based on the preliminary project design, temporary direct impacts would occur to approximately 0.99 acre of suitable coastal sage scrub habitat for coastal California gnatcatcher, 0.32 acre of suitable willow riparian habitat for least Bell's vireo and southwestern willow flycatcher, and 0.009 acre of potentially suitable habitat for San Diego fairy shrimp. Permanent direct impacts would occur to approximately 0.34 acre of suitable coastal sage scrub habitat for coastal California gnatcatcher, 0.13 acre of suitable willow riparian habitat for least Bell's vireo and southwestern willow flycatcher, and 0.01 acre of potentially suitable habitat for San Diego fairy shrimp (Table 6). Removal of coastal sage scrub could result in direct impacts to coastal California gnatcatcher. If willow riparian habitat removal were to occur during the breeding season for least Bell's vireo or southwestern willow flycatcher (March 15 through September 15 and May 1 through September 15, respectively), there would be potential for direct take of these species. Grading and fill of Road Ruts A, B and C within the existing access road and Depressional Wetland adjacent to the roadway would result in direct impacts to San Diego fairy shrimp if present. Direct impacts to coastal California gnatcatcher, least Bell's vireo, southwestern willow flycatcher and San Diego fairy shrimp would be considered significant prior to implementation of mitigation. Compliance with the MHCP and MMRP Mitigation Measures BIO-2, BIO-3, BIO-4, and BIO-5 will reduce impacts to less than significant.

Also as identified in the SPEIR, direct impacts to nesting birds, including yellow breasted chat, northern harrier, white-tailed kite, long-eared owl or yellow warbler, would be considered significant prior to implementation of mitigation. Compliance with MMRP Mitigation Measure BIO-1 will reduce impacts to less than significant.

The project is not expected to directly impact arroyo chub habitat, which is limited to the Buena Vista Creek active channel, or roosting habitat for Townsend's big-eared bat, pocketed free-tailed bat or pallid bat roosting habitat. Therefore, no direct impacts are expected to these species.

Direct impacts to California glossy snake, orange-throated whiptail, southern California legless lizard, coastal whiptail, red-diamond rattlesnake, coast patch-nosed snake, coast horned lizard, two-striped garter snake, south coast gartersnake, western red bat, Dulzura pocket mouse, northwestern San Diego pocket mouse, western yellow bat, San Diego black-tailed jackrabbit and San Diego desert woodrat could result from grading operations. None of these species is covered by the MHCP, however, based on the small quantities of suitable habitat being impacted (less than one acre distributed over almost a mile), only a very small number of individuals would be impacted, if any. Given the wide range of habitat these species utilize, their wide geographic range and the existing MCP framework, loss of a small number of individuals would not significantly alter these species' future survival.

Both western spadefoot toad and southern western pond turtle, however, are dependent upon more limited aquatic habitat. Neither is covered by the MHCP. Direct impacts could result from grading and could be significant prior to implementation of mitigation. Mitigation measures recommended in addition to MMRP BIO-1 to reduce impacts to less than significant are provided in Section 5.0.

Indirect Construction Impacts

SPECIAL-STATUS PLANT SPECIES

Implementation of the project could result in indirect impacts on special-status plant species, which may include temporary, construction-related dust effects on flowering of these species. However, standard dust control best management practices would minimize dust during construction and dust is not expected to substantially affect the small number of special-status plants observed at the project site. These impacts are consistent with impacts identified in the SPEIR and would not be considered significant.

SPECIAL-STATUS WILDLIFE SPECIES

As indicated in the SPEIR, implementation of the project could result in indirect impacts on special-status wildlife species through habitat loss and temporary, construction-related dust, noise and water quality effects (e.g., hazardous materials leaks, such as fuel, hydraulic fluid, and/or lubricants) from equipment working in or around occupied habitat.

In particular, indirect impacts to coastal California gnatcatcher, least Bell's vireo, southwestern willow flycatcher and San Diego fairy shrimp, if present, would be considered significant. These impacts are consistent with impacts identified in the SPEIR. Compliance with the MHCP and MMRP Mitigation Measures BIO-2, BIO-3, BIO-4, and BIO-5 will reduce impacts to less than significant.

Indirect noise, dust and water quality impacts on other special-status species would be temporary and of relatively brief duration. Wildlife could temporarily move out of the area in response to these temporary construction disturbances. Also, as discussed above, the loss of less than one acre of habitat distributed over a length of almost one mile, is not anticipated to significantly alter the local population dynamics of these species, if present. Therefore, indirect impacts to other special-status species would be less than significant.

Operations and Maintenance Impacts

SPECIAL-STATUS PLANT SPECIES

Once constructed, ongoing operations and maintenance activities associated with the project would be conducted within the confines of the access road. Therefore, impacts on special-status plant species are unlikely and this impact would be considered less than significant.

SPECIAL-STATUS WILDLIFE SPECIES

Once constructed, ongoing operations and maintenance activities associated with the project would be conducted within the confines of the access road at the same frequencies as before project implementation. Impacts on special-status wildlife species would be limited to mortality from vehicle strikes and indirect effects such as minor dust production and noise,

however, the risk is these effects is no different than under existing conditions and would therefore be considered less than significant.

IMPACT B

IMPACT B.	Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS?

Direct Construction Impacts

VEGETATION COMMUNITIES AND OTHER LAND COVER TYPES

Based on the preliminary project design, construction of the project would result in direct impacts on vegetation communities and other land cover types, as indicated in Table 6 and on Figure 9. Impacts on riparian and other sensitive natural communities would be considered significant. Because a discretionary permit from the City of Carlsbad is required for project implementation, the project will need to comply with the Carlsbad HMP and impacts to vegetation communities and habitat for special-status species identified in the Carlsbad HMP will be mitigated per the ratios noted in Table 11 of the HMP (Attachment G). Compliance with the Carlsbad's HMP would avoid conflicts with species conservation goals and a less than significant impact would result.

Table 6. Vegetation Communities Impacts - 50% Design

Vegetation Community or Other Land Cover Type	Alliance level Vegetation Community Type	Permanent Impacts (acres)	Temporary Impacts (acres)	Total Impact (acres)	Riparian or Other Sensitive Natural Community?
Tree-dominated habitats					
Willow riparian forest	Mixed willow riparian	0.132	0.323	0.456	Yes
Non-native woodland[1]	Eucalyptus woodland	0.001	0.013	0.013	No
Shrub-dominated habitats					
Coastal sage scrub[2]	California sagebrush scrub	0.005	0.057	0.062	Yes
	California sagebrush-black sage scrub	0.000	0.264	0.264	Yes
	Coyote brush scrub	0.280	0.527	0.807	Yes
	California brittle bush scrub	0.040	0.124	0.164	Yes
	Menzies's golden bush scrub	0.013	0.23	0.036	Yes

Vegetation Community or Other Land Cover Type	Alliance level Vegetation Community Type	Permanent Impacts (acres)	Temporary Impacts (acres)	Total Impact (acres)	Riparian or Other Sensitive Natural Community?
Non-native shrubland	Butterfly bush patch	0.002	0.050	0.052	No
Herbaceous-dominated habitats					
Freshwater marsh	Cattail marsh	0.000	0.0005	0.0005	Yes
Non-native grassland[1]	Annual brome grassland	0.286	0.764	1.050	No
	Red brome grassland	0.205	0.991	1.196	No
Non-native herbaceous stand	Upland mustard stand	0.008	0.047	0.056	No
	Poison hemlock patch[3]	0.007	0.013	0.020	No
	Bristly ox-tongue patch[3]	0.015	0.037	0.051	No
Other land cover types					
Open water	Open water	0.000	0.003	0.003	Yes
Disturbed habitat	Disturbed habitat	0.554	0.520	1.074	No
Urban/developed	Urban/developed	0.001	0.005	0.006	No
	Total	**1.550**	**3.760**	**5.310**	

Notes:

[1] Although non-native grassland and eucalyptus woodland are not considered sensitive natural communities, impacts to these communities require mitigation per the Carlsbad HMP.

[2] All types of coastal sage scrub are considered sensitive because they provide potential breeding, foraging, or dispersal habitat for coastal California gnatcatcher.

[3] Although these vegetation types are not typically considered a sensitive natural community for CEQA analysis, they are dominated by wetland plants and will be included in the jurisdictional impact assessment.

Figure 9. Vegetation Community and Other Land Cover Type Impacts – 50% Design

Indirect Construction Impacts

Project construction would result in indirect impacts on riparian habitats and other sensitive natural communities that are consistent with the impacts identified in the SPEIR. These impacts could be significant. Compliance with the MHCP and MMRP Mitigation Measures HWQ-1 and HWQ-2 in the SPEIR reduce these potential impacts to less than significant.

Operations and Maintenance Impacts

Implementation of the project would result in no new impacts since the road is existing.

IMPACT C

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

Direct Construction Impacts

Implementation of the project would result in direct impacts on state or federally protected wetlands and other waters of the U.S. and state (Table 7; Figure 10 and Figure 11). Per the MHCP and regulatory requirements, the project has been designed to minimize impacts to wetland and riparian habitat to the maximum extent feasible by utilizing the existing access road alignment where crossing aquatic features and implementing alternative technologies, such a cellular concrete block where feasible. Based on the 50 percent design, unavoidable impacts to these resources would include up to 0.099 acre of USACE waters of the U.S./RWQCB waters of the State, including 0.045 acre of wetland waters of the U.S./RWQCB Waters of the State, and up to 0.116 acre of CDFW riparian and unvegetated streambed, which are less than with the impacts identified in the SPEIR. These impacts would be considered significant and require mitigation. Compliance with the MHCP, Mitigation Measures BIO-3 and BIO-5, and SWRCB and USACE wetland mitigation policies, impacts to wetlands will be mitigated to ensure no let loss of aquatic value and function.

Table 7. Jurisdictional Resource Impacts – 50% Design

Jurisdictional Type	Permanent Impacts (acres)	Temporary Impact (acres)	Total Impact (acres)
USACE			
USACE Wetland Waters of the U.S.	0.045	0.076	0.121
USACE Non-wetland Waters of the U.S.	0.054	0.069	0.123
Total USACE	**0.099**	**0.145**	**0.244**
CDFW			
CDFW Unvegetated Streambed	0.048	0.052	0.100
CDFW Riparian	0.069	0.298	0.367
Total CDFW	**0.116**	**0.350**	**0.466**

Notes:
CDFW=California Department of Fish and Wildlife; USACE=United States Corps of Engineers

Figure 10. USACE Jurisdictional Resource Impacts – 50% Design

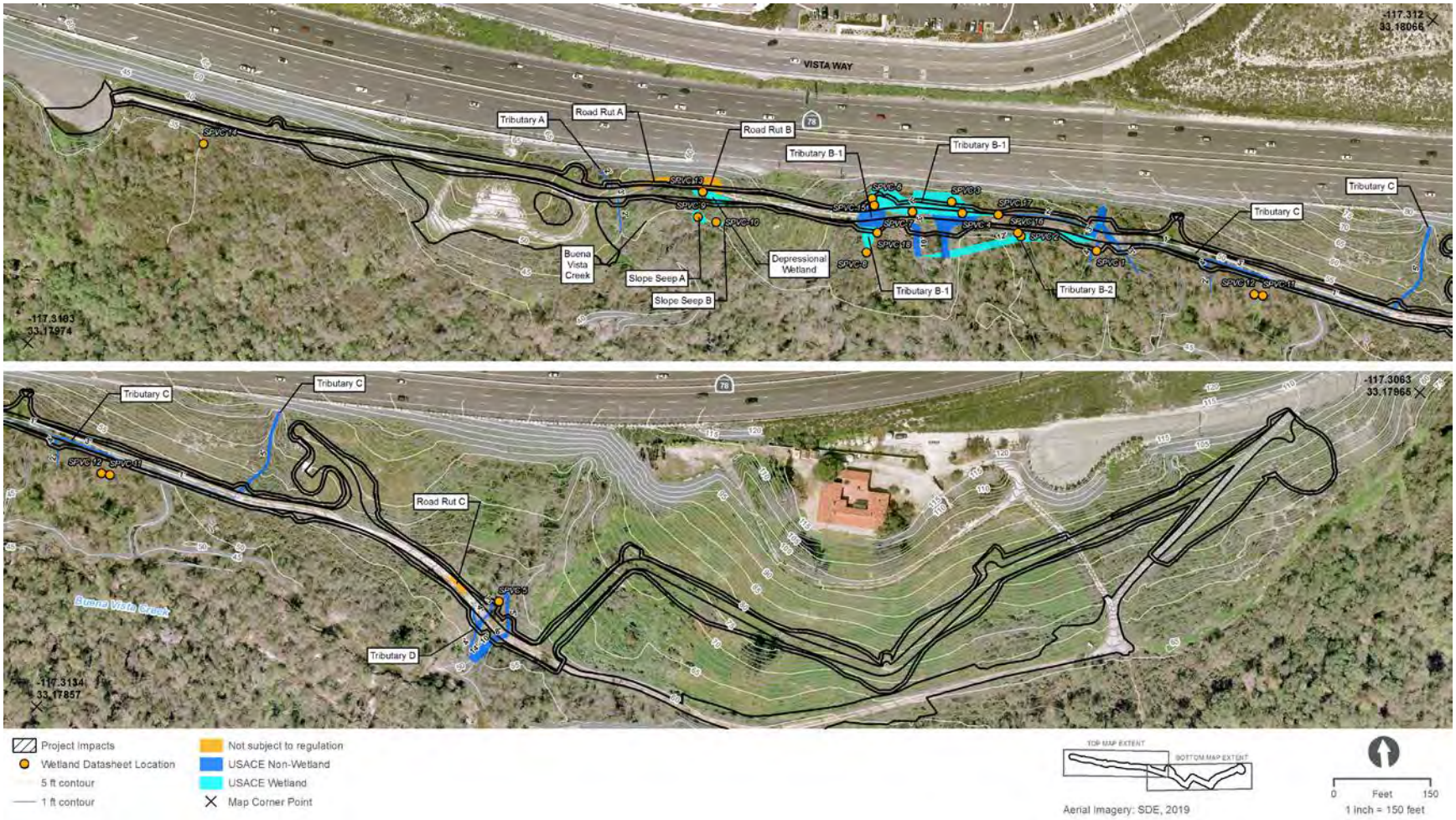
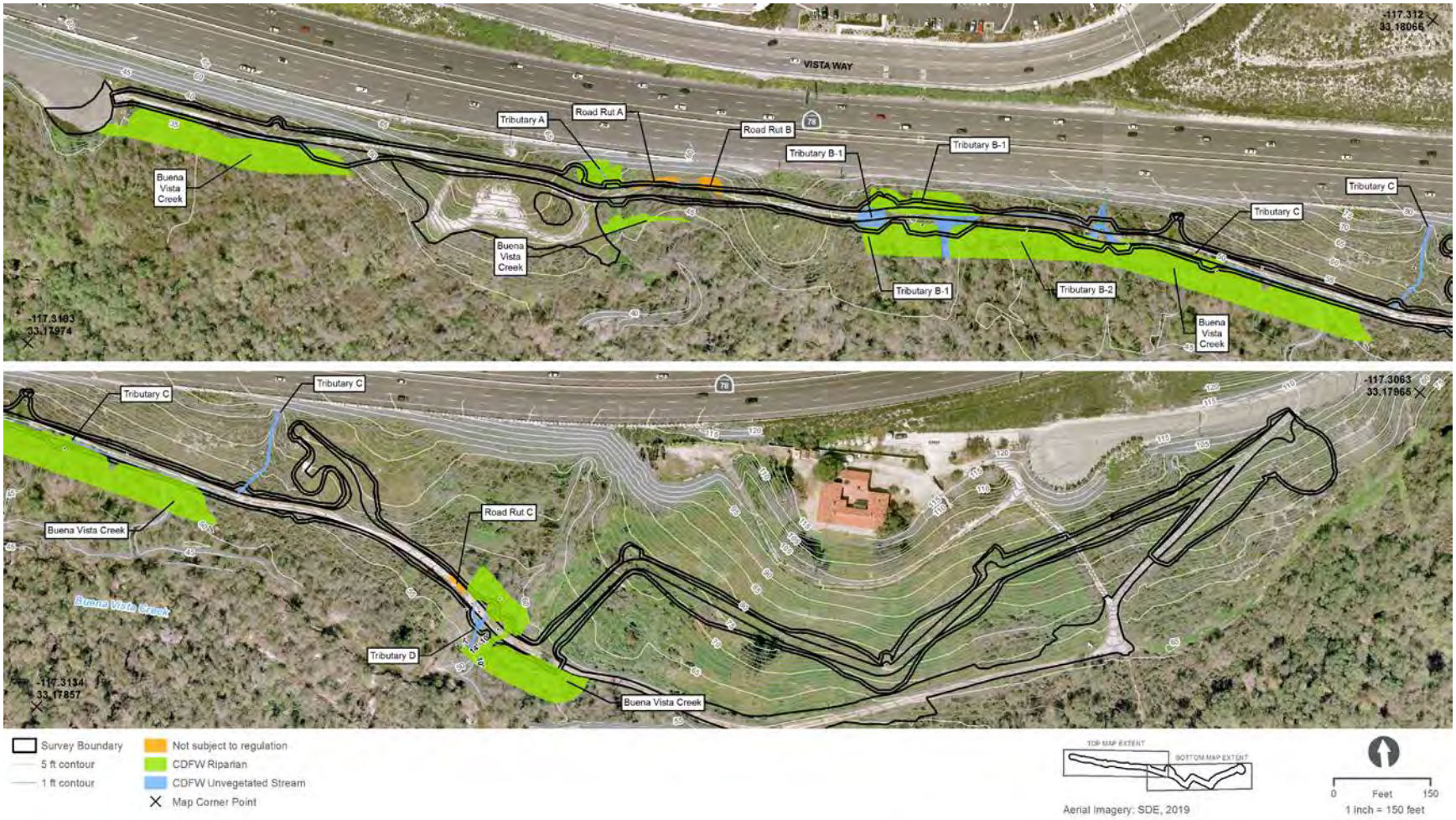


Figure 11. CDFW Jurisdictional Resource Impacts – 50% Design



Indirect Construction Impacts

Implementation of the project would result in indirect impacts on state or federally protected wetlands that are consistent with the impacts identified in the SPEIR. These impacts could be significant. MMRP Mitigation Measures BIO-2, HWQ-1, and HWQ-2 in the SPEIR are proposed to mitigate this impact. No other project-specific mitigation measures are recommended.

Operations and Maintenance Impacts

Implementation of the project would result in no new impacts since the road is existing.

IMPACT D

IMPACT D.	Would the project 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?

Direct Construction Impacts

Construction of the access road may have a temporary impact to the movements of some terrestrial wildlife during construction, as noted in the SPEIR. However, construction of the project would not result in any permanent barriers to the movement of terrestrial species. Additionally, based on the history of disturbance in the project area and fragmentation by existing development impacts to migratory corridors are considered less than significant.

Indirect Construction Impacts

Implementation of the project would not result in new growth or secondary projects that could otherwise result in indirect impacts to wildlife corridors. For this reason, this impact would be less than significant.

Operations and Maintenance Impacts

Operations and maintenance activities associated with the existing access road would continue within the confines of the access road following project completion and therefore, would be consistent with what was identified in the SPEIR. These activities would not impeded the movement of any native wildlife species or use of nursery sites. In this context, the project would result in a less than significant impact to existing wildlife corridors.

IMPACT E

IMPACT E.	Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Direct Construction Impacts

Access road improvements associated with the project would be required to maintain conformance with applicable Carlsbad HMP standards, including implementation of minimum buffer widths. Compliance with these requirements would be a condition of approval prior to

the pruning or removal of protected trees within the City of Carlsbad. Based on these preexisting regulations, this impact is less than significant.

Indirect Construction Impacts

Implementation of the project would not result in secondary activities, not otherwise considered in the SPEIR that could conflict with local plans and polices adopted for the purpose of protecting biological resources. For this reason, this impact would be less than significant.

Operations and Maintenance Impacts

Ongoing operations and maintenance activities would be conducted within the confines of the access road. Compliance with the Carlsbad HMP requirements would be a condition of approval prior to the pruning or removal of protected trees, if required as part of ongoing operations and maintenance, within the City of Carlsbad.

IMPACT F

IMPACT F.	Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation plan, or other approved local, regional, or state habitat conservation plan?

Direct Impacts

The project is a covered activity under the Carlsbad HMP. Therefore, all impacts to biological resources will be mitigated in compliance with the requirements identified in the HMP, as noted in the SPEIR.

Indirect Impacts

Although the subarea plan of the MHCP for the project region has not been adopted, the project would be consistent with draft sub area plan of MHCP. Implementation of the project would not result in land use changes or secondary effects that could otherwise result in conflicts with an adopted HCP or NCCP. For this reason, this impact would be less than significant.

Operations and Maintenance Impacts

Ongoing operations and maintenance activities are included as a covered activity under the Carlsbad HMP. Ongoing operations and maintenance activities would be conducted within the confines of the access road and consistent with the requirements of the HMP. Therefore, this impact would be less than significant.

Project-Specific Mitigation Measures

As previously noted, the project will be mitigated in compliance with the measures adopted in the MMRP prepared in conjunction with the City's SPEIR, Carlsbad's HMP, and San Diego County's MHCP. The SPEIR MMRP is included as Attachment A, MHCP Section 6 ad Appendix C have been included as Attachments H and I, respectively. Based on the results of this analysis and to address the project's direct and indirect impacts to waters of the U. S. and State, including sensitive habitats for Federal and State listed bird species, the following mitigation is required.

BIO-1 **MBTA Nest Avoidance.** If construction activities occur between January 15 and September 15, a preconstruction survey (within seven days prior to construction activities) shall be conducted by a qualified biologist to determine if active nests are present within or adjacent to the area proposed for development in order to avoid the nesting activities of breeding birds/raptors. The results of the surveys shall be submitted to the City (and made available to the Wildlife Agencies, upon request) prior to initiation of any construction activities.

If nesting activities within 200 feet of the proposed work area are not detected, construction activities may proceed. If nesting activities are confirmed, construction activities shall be delayed within an appropriate buffer (e.g., 300-feet to 500 feet contingent on the species observed) from the active nest until the young birds have fledged and left the nest or until the nest is no longer active as determined by a qualified biologist. The size of the appropriate buffer shall be determined by a qualified biologist based on field conditions. The results of all biological monitoring shall be submitted to the City (and made available to the Wildlife Agencies, upon request).

BIO-2 **Habitat Assessment and Focused Surveys for Special-Status Species and Sensitive Habitats:** Prior to the issuance of project-specific construction documents for CIP Capacity and Conditions Projects (Cross-County) and Out-of-Service Access Roads, a habitat assessment shall be conducted by a qualified biologist to determine the potential for special-status species to occur within the anticipated construction area. If the habitat assessment identifies potentially suitable habitat for threatened and endangered species, focused surveys shall be conducted by a qualified biologist to determine their presence or absence. Sensitive vegetation communities shall be documented as part of the habitat assessment.

- If threatened and endangered species are observed/detected, project specific mitigation measures shall be developed to mitigate impacts on threatened and endangered species to below a level of significance. Specific measures shall include, but are not limited to:
- Early consultation with the wildlife agencies (i.e., U.S. Fish and Wildlife Service [USFWS] and California Department of Fish and Wildlife [CDFW]) for ESA- and CESA-listed species to ensure avoidance to the greatest extent feasible and appropriate "take" authorization.

- Provision of a qualified biological monitor on site during all earth disturbing activities to ensure avoidance of impacts on listed species.
- The use of fencing or flagging to identify sensitive areas that support the listed species and to ensure that the areas are protected from direct and indirect impacts.
- Implementation of noise reduction measures (e.g., noise attenuation structures) within habitats occupied by listed avian species, and noise monitoring during the breeding season.
- Identification and transplantation of listed plant species populations in accordance with best practices.
- Avoidance of the breeding seasons for listed species such as:
    - Arroyo toad – March 1 to September 30
    - Least bell's vireo – March 15 to September 15
    - Willow flycatcher (all subspecies) – May 1 to September 15
    - Coastal California gnatcatcher – February 15 to August 15

If no threatened or endangered species are observed or detected during focused surveys, but potentially suitable habitat for non-threatened and non-endangered plant or wildlife species is present, a site-specific determination shall be made as to whether the potential impacts are significant based on the degree of threat and the size of the population/occupied habitat to be impacted.

BIO-3 **Formal Wetland Delineation and Permit Acquisition.** If the habitat assessment identifies potential federal and/or state jurisdictional wetlands, a formal jurisdictional delineation shall be prepared. This document shall map the jurisdictional wetlands present and overlay it on the grading footprint of the project, thereby allowing a calculation of the total impacts. If jurisdictional wetlands would be impacted, mitigation shall be required at a minimum 1:1 ratio; however, coordination with USACE (through the 404 process) and CDFW (through the Section 1602 Streambed Alteration Agreement process) may determine a higher ratio is required. Mitigation shall be achieved through a combination of in-kind creation, restoration, and/or enhancement as determined to be appropriate for each site through consultation with the Resource Agencies. Mitigation shall first be considered on-site, then with an approved mitigation bank, and thirdly through offsite mitigation. The appropriate permit applications shall be submitted to state and federal regulatory agencies. The permits issued by these agencies would finalize the mitigation requirements.

Mitigation Measure BIO-4 is required based on the preliminary results of the focused surveys, which indicate that the project areas is inhabited by both least Bell's vireo and southwestern willow flycatcher.

BIO-4 **Avoid and Minimize Direct and Indirect Impacts to Least Bell's Vireo and Southwestern Willow Flycatcher.** Consistent with the HMP, the City shall adhere to the following measures to avoid or reduce impacts:

a) The removal of native vegetation and habitat shall be avoided and minimized to the maximum extent practicable. Determination of adequate avoidance and minimization of impacts shall be consistent with Sections 0-6 of the HMP. Deviations from these guidelines shall require written concurrence of USFWS and CDFW. For temporary impacts, the work site shall be returned to pre-existing contours and revegetation with appropriate native species. All revegetation for temporary and permanent impacts shall occur at the ratios specified in applicable permits (e.g., 404 or 1603). Revegetation specifications shall ensure creation and restoration of riparian woodland vegetation to vireo quality. All revegetation plans shall be prepared and implemented consistent with Section F-2 (Habitat Restoration and Revegetation) of the HMP and shall require written concurrence of USFWS and CDFW. If written objections are not provided by the wildlife agencies within 30 days of receipt of written request for concurrence by the local jurisdiction, then the deviation may proceed as approved by the local agency. The wildlife agencies shall provide written comments specifying wildlife agency concerns.

a) Contractor shall to the maximum extent practicable avoid impacts during the breeding season of least Bell's vireo (generally March 15 - September 15). Projects that cannot be conducted without placing equipment or personnel in or adjacent to sensitive habitats shall be timed to ensure that habitat is removed prior to the initiation of the breeding season (generally before March 15).

b) Construction noise levels at the riparian canopy edge shall be kept below 60 dBA Leq (Measured as Equivalent Sound Level) from 5 a.m. to 11 a.m. during the peak nesting period of March 15 to July 15. For the balance of the day/season, the noise levels shall not exceed 60 decibels, averaged over a one-hour period on an A-weighted decibel (dBA) (i.e., 1 hour Leq/dBA). Noise levels shall be monitored and monitoring reports shall be provided to the jurisdictional city, USFWS, and CDFW. Noise levels in excess of this threshold shall require written concurrence from USFWS and CDFW and may require additional minimization/mitigation measures.

c) Brown-headed cowbirds and other exotic species which prey upon least Bell's vireo shall be removed from the site. For new developments adjacent to preserve areas that create conditions attractive to brown-headed cowbirds, jurisdictions shall require monitoring and control of cowbirds.

d) Biological buffers of at least 100 feet shall be maintained adjacent to occupied least Bell's vireo habitat, measured from the outer edge of riparian vegetation. Within this 100-foot buffer, no new development shall

be allowed, and the area shall be managed for natural biological values as part of the preserve system. Buffers less than 100 feet shall require written concurrence of the USFWS and CDFW within 30 days of receipt of written request for concurrence by the local jurisdiction.

Western spadefoot toad and southern western pond turtle may be significantly impacted by the project and are not covered by the MHCP. Therefore, the following Mitigation Measure BIO-5 is recommended to reduce impacts on these species to a level of less than significant. These measures will also provide additional protections to other species with the potential to occur during construction.

BIO-5 Implement Biological Resource Protection Measures During Construction. The City will implement the following best management practices (BMPs), which are consistent with BMPs in the HMP, during construction to minimize direct and indirect impacts on special-status species.

a) Prior to the commencement of construction, the City shall designate a Project Biologist (a person with, at minimum, a bachelor's degree in biology, ecology, or environmental studies with familiarity with federally and/or state listed plant and wildlife species and other, non-listed special-status plant and wildlife species with the potential to be impacted by the project) who shall be responsible for overseeing compliance with protective measures for biological resources during vegetation clearing and work activities within and adjacent to areas of native habitat. The Project Biologist shall be familiar with the local habitats, plants, and wildlife, and shall maintain communications with the contractor to ensure that issues relating to biological resources are appropriately and lawfully managed. The Project Biologist may designate qualified biologists or biological monitors to help oversee project compliance or conduct pre-construction surveys for special-status species. These biologists shall have familiarity with the species for which they would be conducting pre-construction surveys or monitoring construction activities.

b) The Project Biologist or designated qualified biologist shall review final plans, designate areas that need temporary fencing (e.g., environmentally sensitive area [ESA] fencing), and monitor construction activities within and adjacent to areas with native vegetation communities or special-status plant and wildlife species. The qualified biologist shall monitor activities within designated areas during critical times such as vegetation removal, initial ground-disturbing activities, and the installation of BMPs and fencing to protect native species, and shall ensure that all wildlife and regulatory agency permit requirements, conservation measures, and general avoidance and minimization measures are properly implemented and followed. The qualified biologist shall check construction barriers or exclusion fencing and shall provide corrective measures to the contractor to ensure that the barriers or fencing are maintained throughout construction. The qualified biologist shall have the authority to stop work if a special-status wildlife species is encountered within the project area during construction. Construction

activities shall cease until the Project Biologist or qualified biologist determine(s) that the animal will not be harmed or that it has left the construction area on its own. The appropriate regulatory agency(ies) shall be notified within 24 hours of sighting of a special-status wildlife species.

c) Prior to the start of construction, all project personnel and contractors who will be on site during construction shall complete mandatory training conducted by the Project Biologist or a designated qualified biologist. Any new project personnel or contractors that come on board after the initiation of construction shall also be required to complete the mandatory WEAP training before they commence with work. The training shall advise workers of potential impacts to sensitive habitat and federally and/or state-listed and other special-status species, and the potential penalties for impacts to such habitat and species. At a minimum, the training shall include the following topics: (1) occurrences of the special-status species and sensitive vegetation communities in the project area (including vegetation communities subject to USACE, CDFW, and RWQCB jurisdiction), (2) the purpose for resource protection; (3) a physical description, life history, and habitat requirements of least Bell's vireo, southwestern willow flycatcher, and coastal California gnatcatcher; (4) sensitivity of the species to human activities; (5) protective measures to be implemented in the field, including strictly limiting activities, vehicles, equipment, and construction materials to the fenced to avoid sensitive resource areas in the field (i.e., avoided areas delineated on maps or on the project site by fencing); (6) environmentally responsible construction practices; (7) the protocol to resolve conflicts that may arise at any time during the construction process; and (8) the general provisions of the federal or state ESA, the need to adhere to the provisions of federal and state laws, and the penalties associated with violating federal or state laws; (9) reporting requirements and procedures to follow should a federally and/or state-listed species be encountered during construction; and, (10) avoidance and minimization measures designed to reduce the impacts to federally and/or state-listed and other special-status species.

d) The training program shall include color photos of federally and/or state-listed species and sensitive vegetation communities. Following the education program, the photos shall be posted in the contractor and resident engineer's office, where the photos shall remain throughout the duration of project construction. Photos of the habitat in which sensitive species are found shall be posted onsite. The contractor shall be required to provide the City with evidence of the employee training (e.g., a sign-in sheet) on request. Project personnel and contractors shall be instructed to immediately notify the Project Biologist or designated biologist of any incidents that could affect sensitive vegetation communities or special-status species. Incidents could include fuel leaks or injury to any wildlife. The Project Biologist shall notify the City of any incident and the City shall notify the USFWS within 24 hours of being noticed.

e) The Project Biologist shall request that the resident engineer halt work, if necessary, and confer with the City prior to contacting the Carlsbad Fish and Wildlife Office (CFWO) and CDFW to ensure the proper implementation of species and habitat protection measures. The Project Biologist shall report any non-compliance issue to the City and the City will notify the CFWO and CDFW within 24 hours of its occurrence.

f) The Project Biologist shall monitor the Project site immediately prior to and during construction to identify the presence of invasive weeds and shall recommend measures to avoid their inadvertent spread in association with the project. Such measures may include inspection and cleaning of construction equipment and use of eradication strategies. All heavy equipment shall be washed and cleaned of debris prior to entering sensitive habitat areas to minimize the spread of invasive weeds.

g) ESA fencing shall be placed along the perimeter of the identified work area. Work areas shall be clearly marked in the field and shall be confirmed by the Project Biologist or designated biologist prior to any clearing, and the marked boundaries shall be maintained throughout the duration of the work. Staging areas, including lay down areas and equipment storage areas, shall be flagged and fenced with ESA fencing.

h) All native or sensitive habitat areas outside of and adjacent to the designated project limits of disturbance shall be designated as Environmentally Sensitive Areas (ESAs) on project maps. Prior to construction, the Contractor shall delineate the project limits, including construction, staging, lay-down, and equipment storage areas, and erect the construction boundary, with fencing or flagging, along the perimeter of the identified construction area to protect adjacent sensitive habitats and sensitive plant populations. ESAs shall be clearly delineated with fencing or flagging or other BMPs prior to construction to inform construction personnel where the ESAs are located. ESAs fencing may include orange plastic snow fence, orange silt fencing, or stakes and flagging in areas of flowing water. No personnel, equipment, or debris shall be allowed within the ESAs. Fences and flagging shall be installed by Contractor in a manner that does not impact habitats to be avoided and such that it is clearly visible to personnel on foot and operating heavy equipment. Ten days prior to initiating construction, the Contractor shall submit to the City final plans for initial clearing and grubbing of habitat and project construction. At least five days prior to initiating construction (except for impacts resulting from clearing to install temporary fencing), The City shall submit to the CFWO and CDFW for approval, the final plans for initial clearing and grubbing of habitat and project construction. These final plans shall include photographs that show the fenced and flagged ESA limits and all areas to be impacted or avoided. If work occurs beyond the fenced or demarcated limits of impact, all work shall cease until the problem has been remedied to the satisfaction of the City, the CFWO, and CDFW. Temporary construction fences and markers shall be maintained in good repair by the Contractor and shall be removed upon completion of project construction.

i) No work activities, materials or equipment storage or access shall be permitted outside the project limits without permission from the City. All parking and equipment storage by the contractor related to the Project shall be confined to the project limits. Undisturbed areas and sensitive habitat outside and adjacent to the project limits shall not be used for parking or equipment storage. Project-related vehicle traffic shall be restricted to the project limits and established roads and construction access points.

j) Construction activities shall be limited to daylight hours to the extent feasible. If nighttime activities are unavoidable, then workers shall direct all lights for nighttime lighting into the work area and shall minimize the lighting of natural habitat areas adjacent to the work area. The contractor shall use light glare shields to reduce the extent of illumination into sensitive habitats. If the work area is located near surface waters, the lighting shall be shielded such that it does not shine directly into the water.

k) Clearing shall be confined to the minimal area necessary to facilitate construction activities. Cleared vegetation and spoils shall be disposed of daily at a permanent offsite spoils location or at a temporary onsite location that will not create habitat for special-status wildlife species. Spoils and dredged material shall be disposed of at an approved site or facility in accordance with all applicable federal, state, and local regulations.

l) Food-related and other garbage shall be disposed of in wildlife-proof containers and shall be removed from the project area daily during the construction period. Vehicles carrying trash shall be required to have loads covered and secured to prevent trash and debris from falling onto roads and adjacent properties.

m) All construction equipment used for the Project shall be maintained in accordance with manufacturer's recommendations and requirements and shall be maintained to comply with noise standards (e.g., exhaust mufflers, acoustically attenuating shields, shrouds, or enclosures).

n) The Contractor shall implement noise reduction measures (e.g., noise attenuation structures) within habitats occupied by federally and/or state-listed bird species, and shall conduct noise monitoring during the bird breeding season per BIO-4.

o) The Contractor shall store all construction-related vehicles and equipment in the designated staging areas. These areas shall not contain native or sensitive vegetation communities and shall not support sensitive plant or wildlife species.

p) The Contractor shall avoid wildlife entrapment by completely covering or providing escape ramps for all excavated steep-walled holes or trenches more than 1 foot deep at the end of each construction work day. The qualified biologist shall inspect open trenches and holes and shall remove or release any trapped wildlife found in the trenches or holes prior to filling by the construction contractor.

q) Special-status wildlife can be attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar features; construction equipment; or construction debris left overnight in areas that may be occupied by special-status species that could occupy such structures shall be inspected by a qualified biologist prior to being used for construction. Such inspections shall occur at the beginning of each day's activities for those materials to be used or moved that day. If necessary, and under the direct supervision of the biologist, the structure may be moved up to one time to isolate it from construction activities, until the special-status species has moved from the structure of their own volition, has been captured and relocated, or has otherwise been removed from the structure.

r) Capture and relocation of trapped or injured wildlife listed under ESA or CESA can only be performed by personnel with appropriate state and/or federal permits. Any sightings and any incidental take shall be reported to the City via email within one working day of the discovery. A follow-up report shall be sent to the regulatory agencies, including dates, locations, habitat description, and any corrective measures taken to protect special-status species encountered. For each special-status species encountered, the biologist shall submit a completed California Natural Diversity Data Base field survey form (or equivalent) to CDFW no more than 90 days after completing the last field visit to the project site.

s) The City shall be notified within one working day of the discovery of, injury to, or mortality of a special-status species that results from project-related construction activities or is observed at the project site. Notification shall include the date, time, and location of the incident or of the discovery of an individual special-status species that is dead or injured. For a special-status species that is injured, general information on the type or extent of injury shall be included. The location of the incident shall be clearly indicated on a USGS 7.5-minute quadrangle and/or similar map at a scale that will allow others to find the location in the field, or as requested by the City. The biologist is encouraged to include any other pertinent information in the notification.

t) The spread of dust from work sites to sensitive natural communities or sensitive species habitats on adjacent lands shall be minimized by use of a water truck. Dirt access roads, haul roads, and spoils areas shall be watered at least twice each day when being used during construction dry periods.

u) The Contractor shall strictly limit their activities, vehicles, equipment, and construction materials to established roads and the project disturbance limits. Posted speed limit signs on local roads and a 15 mile-per-hour speed limit along ingress and egress routes shall be observed. Extra caution shall be used when special-status reptile species may be basking on roads.

v) To avoid injury or death to wildlife, no firearms shall be allowed on the Project site except for those carried by authorized security personnel or local, state, or federal law enforcement officials.

w) To prevent harassment, injury, or mortality of sensitive wildlife by dogs or cats, no canine or feline pets shall be permitted in the active construction area.

x) Plastic monofilament netting or similar material shall not be used for erosion control because smaller wildlife may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackifier hydroseeding compounds. This limitation shall be communicated to the contractor through specifications or special provisions included in the construction bid solicitation package.

y) Rodenticides and herbicides shall be used in accordance with the manufacturer recommended uses and applications and in such a manner as to prevent primary or secondary poisoning of special-status fish, wildlife, and plant species and depletion of prey populations upon which they depend. All uses of such compounds shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, the California Department of Pesticide Regulation, and other appropriate state and federal regulations, as well as additional project-related restrictions imposed by the City.

z) Hazardous materials and equipment stored overnight, including small amounts of fuel to refuel hand-held equipment, shall be stored within secondary containment when within 50 feet of open water to the fullest extent practicable. Secondary containment shall consist of a ring of sand bags around each piece of stored equipment/structure. A plastic tarp/visqueen lining with no seams shall be placed under the equipment and over the edges of the sandbags, or a plastic hazardous materials (HazMat) secondary containment unit shall be used by the Contractor.

aa) The Contractor shall be required to conduct vehicle refueling in upland areas where fuel cannot enter waters of the U.S. or state and in areas that do not have potential to support federally and/or state-listed species. Any fuel containers, repair materials including creosote-treated wood, and/or stockpiled material that is left onsite overnight shall be secured in secondary containment within the work area and staging/assembly area, and covered with plastic at the end of each work day.

bb) In the event that no activity is to occur in the work area for the weekend and/or a period of time greater than 48 hours, the Contractor shall ensure that all portable fuel containers are removed from the Project site.

cc) Equipment and containers will be inspected daily for leaks. Should a leak occur, contaminated soils and surfaces will be cleaned up and disposed of following the guidelines identified in the Stormwater Pollution Prevention Plan (SWPPP), Materials Safety Data Sheets, and any specifications required by other permits issued for the Project.

dd) The Contractor shall utilize off-site maintenance and repair shops as much as possible for maintenance and repair of equipment.

ee) If maintenance of equipment must occur onsite, fuel/oil pans, absorbent pads, or appropriate containment shall be used to capture spills/leaks within all areas. Where feasible, maintenance of equipment shall occur in upland areas where fuel cannot enter waters of the U.S. or state and in areas that do not have potential to support federally and/or state-listed species.

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Attachment A

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Mitigation, Monitoring, and Reporting Program

1. Introduction

The California Environmental Quality Act (CEQA) requires a lead or responsible agency to adopt a mitigation monitoring and reporting program (MMRP) when approving or carrying out a project (Section 21081.6 of the California Public Resources Code). The purpose of this program is to ensure that the mitigation measures identified in an Environmental Impact Report (EIR) or a mitigated negative declaration are implemented as detailed in the environmental document. As lead agency for the Comprehensive Sewer Master Plan (CSMP) Update, the City of Vista (City) is responsible for implementation of this MMRP per the requirements of the (CEQA).

In this context, this MMRP was prepared to provide a monitoring guide to facilitate the implementation of the adopted mitigation measures and related compliance reporting. Once the City adopts the MMRP, the mitigation monitoring/reporting requirements will be incorporated into the appropriate permits and construction documents (i.e., engineering specifications, engineering and construction plans, etc.). In accordance with the aforementioned requirements, this MMRP lists each mitigation measure, describes the methods for implementation and verification, and identifies the responsible party or parties as detailed below in Section 3.

2. Monitoring and Reporting Procedures

This MMRP was developed for each of the improvement categories identified for the City's CSMP (State Clearinghouse Number 2007091072). The MMRP will be in place through all phases of the CSMP, including design, construction, and operation of individual improvements, and will facilitate the implementation of mitigation measures proposed to avoid, minimize, or reduce significant environmental effects.

The City will be responsible for administering the MMRP and ensuring that all parties, including its contractors, comply with its provisions. The City may delegate implementation and monitoring activities to staff, consultants, or contractors. The City will require that its construction contractors submit an environmental compliance plan for approval by the City and construction manager prior to the beginning construction activities.

This plan shall document how the contractor intends to comply with all measures applicable to the contract, including the application of best management practices (BMPs) in accordance with instructions listed in the construction specifications. The City also will ensure that monitoring is documented through systematic compliance verification and reporting and that deficiencies are promptly corrected.

3. Mitigation Monitoring and Reporting Program Implementation

This MMRP was prepared to verify compliance with individual mitigation measures proposed in the Final SPEIR for the 2017 CSMP. Table 1 of this MMRP identifies each mitigation measure by discipline, the entity responsible for its implementation, and the improvement category in which the measure applies. Certain inspections and reports may require preparation by qualified individuals

and these are specified as needed. The timing and method of verification for each measure are also specified.

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
BIOLOGICAL RESOURCES					
BIO-1 - MBTA Nest Avoidance. If construction activities occur between January 15 and September 15, a preconstruction survey (within seven days prior to construction activities) shall be conducted by a qualified biologist to determine if active nests are present within or adjacent to the area proposed for development in order to avoid the nesting activities of breeding birds/raptors. The results of the surveys shall be submitted to the City (and made available to the Wildlife Agencies, upon request) prior to initiation of any construction activities. If nesting activities within 200 feet of the proposed work area are not detected, construction activities may proceed. If nesting activities are confirmed, construction activities shall be delayed within an appropriate buffer (e.g., 300-feet to 500 feet contingent on the species observed) from the active nest until the young birds have fledged and left the nest or until the nest is no longer active as determined by a qualified biologist. The size of the appropriate buffer shall be determined by a qualified biologist based on field conditions. The results of all biological monitoring shall be submitted to the City (and made available to the Wildlife Agencies, upon request).	Prior to and during construction	1, 2, 3, 4	City of Vista Engineering Department	California Deportment of Fish and Wildlife (CDFW), U. S. Fish and Wildlife Service (USFWS)	
BIO-2 - Habitat Assessment and Focused Surveys for Special-Status Species and Sensitive Habitats. Prior to the issuance of project-specific construction documents for CIP Capacity and Condition Projects (Cross-County) and Out-of-Service Access Roads, a habitat assessment shall be conducted by a qualified biologist to determine the potential for special-status species to occur within the anticipated construction area. If the habitat assessment identifies potentially suitable habitat for threatened and endangered species, focused surveys shall be conducted by a qualified biologist to determine their presence or absence. Sensitive vegetation communities shall be documented as part of the habitat assessment. If threatened and endangered species are observed/detected, project specific mitigation measures shall be developed to	Prior to and during construction; post-construction if compensatory mitigation is proposed	2, 4	City of Vista Engineering Department	CDFW, USFWS; City of Carlsbad	

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
mitigate impacts on threatened and endangered species to below a level of significance. Specific measures shall include, but are not limited to: • Early consultation with the wildlife agencies (i.e., USFWS, CDFW) for ESA- and CESA-listed species to ensure avoidance to the greatest extent feasible and appropriate "take" authorization. • Provision of a qualified biological monitor on site during all earth disturbing activities to ensure avoidance of impacts on listed species. • The use of fencing or flagging to identify sensitive areas that support the listed species and to ensure that the areas are protected from direct and indirect impacts. • Implementation of noise reduction measures (e.g., noise attenuation structures) within habitats occupied by listed avian species, and noise monitoring during the breeding season. • Identification and transplantation of listed plant species populations in accordance with best practices. • Impacts to federally listed species covered by the City of Carlsbad's HMP will be required to be consistent with those authorized under the HMP and coordinated with the City of Carlsbad and USFWS. • Avoidance of the breeding seasons for listed species such as: o Arroyo toad—March 1 to September 30 o Least Bell's vireo—March 1 to September 30 o Willow flycatcher (all subspecies)—March 1 to September 30 o Coastal California gnatcatcher—March 1 to September 30					

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
If no threatened or endangered species are observed or detected during focused surveys, but potentially suitable habitat for non-threatened and non-endangered plant or wildlife species is present, a site-specific determination shall be made as to whether the potential impacts are significant based on the degree of threat and the size of the population/occupied habitat to be impacted.					
BIO-3 - Formal Wetland Delineation and Permit Acquisition. If the habitat assessment identifies potential federal and/or state jurisdictional wetlands, a formal jurisdictional delineation shall be prepared. This document shall map the jurisdictional wetlands present and overlay it on the grading footprint of the project, thereby allowing a calculation of the total impacts. If jurisdictional wetlands would be impacted, mitigation shall be required at a minimum 1:1 ratio; however, coordination with USACE (through the 404 process) and CDFW (through the Section 1602 Streambed Alteration Agreement process) may determine a higher ratio is required. Mitigation shall be achieved through a combination of in-kind creation, restoration, and/or enhancement as determined to be appropriate for each site through consultation with the Resource Agencies. Mitigation shall first be considered on-site, then with an approved mitigation bank, and thirdly through offsite mitigation. The appropriate permit applications shall be submitted to state and federal regulatory agencies. The permits issued by these agencies would finalize the mitigation requirements.	Prior to and during construction; post-construction if compensatory mitigation is proposed	2, 4	City of Vista Engineering Department	CDFW, USFWS	
BIO-4 – Avoid and Minimize Direct and Indirect Impacts to Least Bell's Vireo and Southwestern Willow Flycatcher. Consistent with the HMP, the City shall adhere to the following measures to avoid or reduce impacts: a) The removal of native vegetation and habitat shall be avoided and minimized to the maximum extent practicable. Determination of adequate avoidance and minimization of impacts shall be consistent with Sections 0-6 of the HMP. Deviations from these guidelines shall require written concurrence of USFWS and CDFW. For temporary impacts,	Prior to and during construction; post-construction if compensatory mitigation is proposed	4 (VC1)	City of Vista Engineering Department	CDFW, USFWS	

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
the work site shall be returned to pre-existing contours and revegetation with appropriate native species. All revegetation for temporary and permanent impacts shall occur at the ratios specified in applicable permits (e.g., 404 or 1603). Revegetation specifications shall ensure creation and restoration of riparian woodland vegetation to vireo quality. All revegetation plans shall be prepared and implemented consistent with Section F-2 (Habitat Restoration and Revegetation) of the HMP and shall require written concurrence of USFWS and CDFW. If written objections are not provided by the wildlife agencies within 30 days of receipt of written request for concurrence by the local jurisdiction, then the deviation may proceed as approved by the local agency. The wildlife agencies shall provide written comments specifying wildlife agency concerns.					
b) Contractor shall to the maximum extent practicable avoid impacts during the breeding season of least Bell's vireo (generally March 15 - September 15). Projects that cannot be conducted without placing equipment or personnel in or adjacent to sensitive habitats shall be timed to ensure that habitat is removed prior to the initiation of the breeding season (generally before March 15).					
c) Construction noise levels at the riparian canopy edge shall be kept below 60 dBA Leq (Measured as Equivalent Sound Level) from 5 a.m. to 11 a.m. during the peak nesting period of March 15 to July 15. For the balance of the day/season, the noise levels shall not exceed 60 decibels, averaged over a one-hour period on an A-weighted decibel (dBA) (i.e., 1 hour Leq/dBA). Noise levels shall be monitored and monitoring reports shall be provided to the jurisdictional city, USFWS, and CDFW. Noise levels in excess of this threshold shall require written concurrence from USFWS and CDFW and may require additional minimization/mitigation measures.					
d) Brown-headed cowbirds and other exotic species which prey upon least Bell's vireo shall be removed from the site. For new developments adjacent to preserve areas that create conditions attractive to brown-headed cowbirds, jurisdictions					

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
shall require monitoring and control of cowbirds. e) Biological buffers of at least 100 feet shall be maintained adjacent to occupied least Bell's vireo habitat, measured from the outer edge of riparian vegetation. Within this 100-foot buffer, no new development shall be allowed, and the area shall be managed for natural biological values as part of the preserve system. Buffers less than 100 feet shall require written concurrence of the USFWS and CDFW within 30 days of receipt of written request for concurrence by the local jurisdiction.					
BIO-5 – Implement Biological Resource Protection Measures During Construction. The City will implement the following best management practices (BMPs), which are consistent with BMPs in the HMP, during construction to minimize direct and indirect impacts on special-status species. a) Prior to the commencement of construction, the City shall designate a Project Biologist (a person with, at minimum, a bachelor's degree in biology, ecology, or environmental studies with familiarity with federally and/or state listed plant and wildlife species and other, non-listed special-status plant and wildlife species with the potential to be impacted by the project) who shall be responsible for overseeing compliance with protective measures for biological resources during vegetation clearing and work activities within and adjacent to areas of native habitat. The Project Biologist shall be familiar with the local habitats, plants, and wildlife, and shall maintain communications with the contractor to ensure that issues relating to biological resources are appropriately and lawfully managed. The Project Biologist may designate qualified biologists or biological monitors to help oversee project compliance or conduct pre-construction surveys for special-status species. These biologists shall have familiarity with the species for which they would be conducting pre-construction surveys or monitoring construction activities. b) The Project Biologist or designated qualified biologist shall	Prior to and during construction; post-construction if compensatory mitigation is proposed	4 (VC1)	City of Vista Engineering Department	CDFW, USFWS	

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
review final plans, designate areas that need temporary fencing (e.g., environmentally sensitive area [ESA] fencing), and monitor construction activities within and adjacent to areas with native vegetation communities or special-status plant and wildlife species. The qualified biologist shall monitor activities within designated areas during critical times such as vegetation removal, initial ground-disturbing activities, and the installation of BMPs and fencing to protect native species, and shall ensure that all wildlife and regulatory agency permit requirements, conservation measures, and general avoidance and minimization measures are properly implemented and followed. The qualified biologist shall check construction barriers or exclusion fencing and shall provide corrective measures to the contractor to ensure that the barriers or fencing are maintained throughout construction. The qualified biologist shall have the authority to stop work if a special-status wildlife species is encountered within the project area during construction. Construction activities shall cease until the Project Biologist or qualified biologist determine(s) that the animal will not be harmed or that it has left the construction area on its own. The appropriate regulatory agency(ies) shall be notified within 24 hours of sighting of a special-status wildlife species.					
c) Prior to the start of construction, all project personnel and contractors who will be on site during construction shall complete mandatory training conducted by the Project Biologist or a designated qualified biologist. Any new project personnel or contractors that come on board after the initiation of construction shall also be required to complete the mandatory WEAP training before they commence with work. The training shall advise workers of potential impacts to sensitive habitat and federally and/or state-listed and other special-status species, and the potential penalties for impacts to such habitat and species. At a minimum, the training shall include the following topics: (1) occurrences of the special-status species and sensitive vegetation communities in the project area (including vegetation communities subject to USACE, CDFW, and RWQCB jurisdiction), (2) the purpose					

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
for resource protection; (3) a physical description, life history, and habitat requirements of least Bell's vireo, southwestern willow flycatcher, and coastal California gnatcatcher; (4) sensitivity of the species to human activities; (5) protective measures to be implemented in the field, including strictly limiting activities, vehicles, equipment, and construction materials to the fenced to avoid sensitive resource areas in the field (i.e., avoided areas delineated on maps or on the project site by fencing); (6) environmentally responsible construction practices; (7) the protocol to resolve conflicts that may arise at any time during the construction process; and (8) the general provisions of the federal or state ESA, the need to adhere to the provisions of federal and state laws, and the penalties associated with violating federal or state laws; (9) reporting requirements and procedures to follow should a federally and/or state-listed species be encountered during construction; and, (10) avoidance and minimization measures designed to reduce the impacts to federally and/or state-listed and other special-status species. d) The training program shall include color photos of federally and/or state-listed species and sensitive vegetation communities. Following the education program, the photos shall be posted in the contractor and resident engineer's office, where the photos shall remain throughout the duration of project construction. Photos of the habitat in which sensitive species are found shall be posted onsite. The contractor shall be required to provide the City with evidence of the employee training (e.g., a sign-in sheet) on request. Project personnel and contractors shall be instructed to immediately notify the Project Biologist or designated biologist of any incidents that could affect sensitive vegetation communities or special-status species. Incidents could include fuel leaks or injury to any wildlife. The Project Biologist shall notify the City of any incident and the City shall notify the USFWS within 24 hours of being noticed. e) The Project Biologist shall request that the resident engineer halt work, if necessary, and confer with the City prior to					

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
contacting the Carlsbad Fish and Wildlife Office (CFWO) and CDFW to ensure the proper implementation of species and habitat protection measures. The Project Biologist shall report any non-compliance issue to the City and the City will notify the CFWO and CDFW within 24 hours of its occurrence. f) The Project Biologist shall monitor the Project site immediately prior to and during construction to identify the presence of invasive weeds and shall recommend measures to avoid their inadvertent spread in association with the project. Such measures may include inspection and cleaning of construction equipment and use of eradication strategies. All heavy equipment shall be washed and cleaned of debris prior to entering sensitive habitat areas to minimize the spread of invasive weeds. g) ESA fencing shall be placed along the perimeter of the identified work area. Work areas shall be clearly marked in the field and shall be confirmed by the Project Biologist or designated biologist prior to any clearing, and the marked boundaries shall be maintained throughout the duration of the work. Staging areas, including lay down areas and equipment storage areas, shall be flagged and fenced with ESA fencing. h) All native or sensitive habitat areas outside of and adjacent to the designated project limits of disturbance shall be designated as Environmentally Sensitive Areas (ESAs) on project maps. Prior to construction, the Contractor shall delineate the project limits, including construction, staging, lay-down, and equipment storage areas, and erect the construction boundary, with fencing or flagging, along the perimeter of the identified construction area to protect adjacent sensitive habitats and sensitive plant populations. ESAs shall be clearly delineated with fencing or flagging or other BMPs prior to construction to inform construction personnel where the ESAs are located. ESAs fencing may include orange plastic snow fence, orange silt fencing, or stakes and flagging in areas of flowing water. No personnel,					

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
equipment, or debris shall be allowed within the ESAs. Fences and flagging shall be installed by Contractor in a manner that does not impact habitats to be avoided and such that it is clearly visible to personnel on foot and operating heavy equipment. Ten days prior to initiating construction, the Contractor shall submit to the City final plans for initial clearing and grubbing of habitat and project construction. At least five days prior to initiating construction (except for impacts resulting from clearing to install temporary fencing), The City shall submit to the CFWO and CDFW for approval, , the final plans for initial clearing and grubbing of habitat and project construction. These final plans shall include photographs that show the fenced and flagged ESA limits and all areas to be impacted or avoided. If work occurs beyond the fenced or demarcated limits of impact, all work shall cease until the problem has been remedied to the satisfaction of the City, the CFWO, and CDFW. Temporary construction fences and markers shall be maintained in good repair by the Contractor and shall be removed upon completion of project construction.					
i) No work activities, materials or equipment storage or access shall be permitted outside the project limits without permission from the City. All parking and equipment storage by the contractor related to the Project shall be confined to the project limits. Undisturbed areas and sensitive habitat outside and adjacent to the project limits shall not be used for parking or equipment storage. Project-related vehicle traffic shall be restricted to the project limits and established roads and construction access points.					
j) Construction activities shall be limited to daylight hours to the extent feasible. If nighttime activities are unavoidable, then workers shall direct all lights for nighttime lighting into the work area and shall minimize the lighting of natural habitat areas adjacent to the work area. The contractor shall use light glare shields to reduce the extent of illumination into sensitive habitats. If the work area is located near surface waters, the lighting shall be shielded such that it does not					

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
shine directly into the water. k) Clearing shall be confined to the minimal area necessary to facilitate construction activities. Cleared vegetation and spoils shall be disposed of daily at a permanent offsite spoils location or at a temporary onsite location that will not create habitat for special-status wildlife species. Spoils and dredged material shall be disposed of at an approved site or facility in accordance with all applicable federal, state, and local regulations. l) Food-related and other garbage shall be disposed of in wildlife-proof containers and shall be removed from the project area daily during the construction period. Vehicles carrying trash shall be required to have loads covered and secured to prevent trash and debris from falling onto roads and adjacent properties. m) All construction equipment used for the Project shall be maintained in accordance with manufacturer's recommendations and requirements and shall be maintained to comply with noise standards (e.g., exhaust mufflers, acoustically attenuating shields, shrouds, or enclosures). n) The Contractor shall implement noise reduction measures (e.g., noise attenuation structures) within habitats occupied by federally and/or state-listed bird species, and shall conduct noise monitoring during the bird breeding season per BIO-4. o) The Contractor shall store all construction-related vehicles and equipment in the designated staging areas. These areas shall not contain native or sensitive vegetation communities and shall not support sensitive plant or wildlife species. p) The Contractor shall avoid wildlife entrapment by completely covering or providing escape ramps for all excavated steep-walled holes or trenches more than 1 foot deep at the end of each construction work day. The qualified biologist shall inspect open trenches and holes and shall remove or release any trapped wildlife found in the trenches or holes prior to					

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
filling by the construction contractor. q) Special-status wildlife can be attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar features; construction equipment; or construction debris left overnight in areas that may be occupied by special-status species that could occupy such structures shall be inspected by a qualified biologist prior to being used for construction. Such inspections shall occur at the beginning of each day's activities for those materials to be used or moved that day. If necessary, and under the direct supervision of the biologist, the structure may be moved up to one time to isolate it from construction activities, until the special-status species has moved from the structure of their own volition, has been captured and relocated, or has otherwise been removed from the structure. r) Capture and relocation of trapped or injured wildlife listed under ESA or CESA can only be performed by personnel with appropriate state and/or federal permits. Any sightings and any incidental take shall be reported to the City via email within one working day of the discovery. A follow-up report shall be sent to the regulatory agencies, including dates, locations, habitat description, and any corrective measures taken to protect special-status species encountered. For each special-status species encountered, the biologist shall submit a completed California Natural Diversity Data Base field survey form (or equivalent) to CDFW no more than 90 days after completing the last field visit to the project site. s) The City shall be notified within one working day of the discovery of, injury to, or mortality of a special-status species that results from project-related construction activities or is observed at the project site. Notification shall include the date, time, and location of the incident or of the discovery of an individual special-status species that is dead or injured. For a special-status species that is injured, general information on the type or extent of injury shall be included. The location of the incident shall be clearly indicated on a					

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
USGS 7.5-minute quadrangle and/or similar map at a scale that will allow others to find the location in the field, or as requested by the City. The biologist is encouraged to include any other pertinent information in the notification.					
t) The spread of dust from work sites to sensitive natural communities or sensitive species habitats on adjacent lands shall be minimized by use of a water truck. Dirt access roads, haul roads, and spoils areas shall be watered at least twice each day when being used during construction dry periods.					
u) The Contractor shall strictly limit their activities, vehicles, equipment, and construction materials to established roads and the project disturbance limits. Posted speed limit signs on local roads and a 15 mile-per-hour speed limit along ingress and egress routes shall be observed. Extra caution shall be used when special-status reptile species may be basking on roads.					
v) To avoid injury or death to wildlife, no firearms shall be allowed on the Project site except for those carried by authorized security personnel or local, state, or federal law enforcement officials.					
w) To prevent harassment, injury, or mortality of sensitive wildlife by dogs or cats, no canine or feline pets shall be permitted in the active construction area.					
x) Plastic monofilament netting or similar material shall not be used for erosion control because smaller wildlife may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackifier hydroseeding compounds. This limitation shall be communicated to the contractor through specifications or special provisions included in the construction bid solicitation package.					
y) Rodenticides and herbicides shall be used in accordance with the manufacturer recommended uses and applications and in such a manner as to prevent primary or secondary poisoning of special-status fish, wildlife, and plant species and depletion of prey populations upon which they depend.					

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
All uses of such compounds shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, the California Department of Pesticide Regulation, and other appropriate state and federal regulations, as well as additional project-related restrictions imposed by the City.					
z) Hazardous materials and equipment stored overnight, including small amounts of fuel to refuel hand-held equipment, shall be stored within secondary containment when within 50 feet of open water to the fullest extent practicable. Secondary containment shall consist of a ring of sand bags around each piece of stored equipment/structure. A plastic tarp/visqueen lining with no seams shall be placed under the equipment and over the edges of the sandbags, or a plastic hazardous materials (HazMat) secondary containment unit shall be used by the Contractor.					
aa) The Contractor shall be required to conduct vehicle refueling in upland areas where fuel cannot enter waters of the U.S. or state and in areas that do not have potential to support federally and/or state-listed species. Any fuel containers, repair materials including creosote-treated wood, and/or stockpiled material that is left onsite overnight shall be secured in secondary containment within the work area and staging/assembly area, and covered with plastic at the end of each work day.					
bb) In the event that no activity is to occur in the work area for the weekend and/or a period of time greater than 48 hours, the Contractor shall ensure that all portable fuel containers are removed from the Project site.					
cc) Equipment and containers will be inspected daily for leaks. Should a leak occur, contaminated soils and surfaces will be cleaned up and disposed of following the guidelines identified in the Stormwater Pollution Prevention Plan (SWPPP), Materials Safety Data Sheets, and any specifications required by other permits issued for the Project.					
dd) The Contractor shall utilize off-site maintenance and repair shops as much as possible for maintenance and repair of					

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
equipment. ee) If maintenance of equipment must occur onsite, fuel/oil pans, absorbent pads, or appropriate containment shall be used to capture spills/leaks within all areas. Where feasible, maintenance of equipment shall occur in upland areas where fuel cannot enter waters of the U.S. or state and in areas that do not have potential to support federally and/or state-listed species.					
CULTURAL RESOURCES					
CULT-1 Construction-Related Vibration. Prior to the issuance of project-specific construction documents for CIP Capacity and Condition Projects (Hardscape Environs), the City Engineer shall determine whether construction activities would occur within 25 feet of a NRHP or CRHR eligible or listed historic structure. For structures that have not been previously evaluated, the City Engineer shall consult with a qualified Architectural Historian approved by the City to conduct an evaluation of the structure. If the structure is determined eligible or already eligible or listed in the NRHP or CRHR, a structural evaluation shall be conducted by a Professional Structural Engineer to identify maximum allowable levels of vibration during construction. If a historic determination is required, the engineer shall provide recommendations on approaches to stabilization in conjunction with vibration monitoring. Permanent stabilization measures shall follow the Secretary of the Interior's guidelines for the treatment of historic properties. If the buildings are temporarily stabilized for the duration of construction activities, when removed, the buildings shall be restored to their pre-construction condition when the stabilization measures are removed.	Prior to and following construction	1, 2	City of Vista Engineering Department	Native American Heritage Commission (NAHC)	

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
CULT-2 - Project-Specific Archaeological Survey. Prior to the issuance of project-specific construction documents for CIP Capacity and Condition Projects (Hardscape and Cross County Environs), Pump Station Rehabilitations, and Out-of-Service Area Projects, a Qualified Archaeologist approved by the City shall contact the NAHC regarding a Sacred Lands File Search for the project area. In addition, the City shall request a written response from the San Luis Rey Band of Mission Indians (SLR Band) (a tribe traditionally and culturally affiliated with the site) regarding whether the site of the 2017 CSMP improvement project may potentially affect Native American resources. If the NAHC and/or the SLR Band confirms potential known resources, a pedestrian survey (i.e., physical walk over) shall first be conducted by the Qualified Archaeologist and a TCA (traditionally and culturally affiliated) Native American Monitor. Should the pedestrian survey identify Native American cultural resources, the Qualified Archeologist shall, in consultation with the TCA Native American monitor and the SLR Band, make an immediate written evaluation of the significance and appropriate treatment of the resource, including any avoidance measures, additional testing and evaluations, or data recovery plans, and Pre-Excavation Agreements with the Tribe. If the SLR Band confirms, in consultation with the Qualified Archaeologist, that there is a potential for unknown resources to be uncovered during construction activities, then Mitigation Measure CULT-3, Archaeological Monitoring, shall be implemented.	Prior to construction	1, 2, 3, 4	City of Vista Engineering Department	NAHC	
CULT-3 Archaeological Monitoring. Cultural resource mitigation monitoring shall be conducted to provide for the identification, evaluation, treatment, and protection of any cultural resources that are affected by or may be discovered during the construction of the proposed project. The monitoring shall consist of the full-time presence of a Qualified Archaeologist and a TCA (traditionally and culturally affiliated) Native American Monitor, and the monitoring activities shall be identified and defined in a Pre-Excavation Agreement between the City's Engineering Department and the San Luis Rey Band. The purpose of this agreement shall be to formalize protocols and procedures for the	During construction	1, 2, 3, 4	City of Vista Engineering Department	NAHC	

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
protection, treatment, and disposition of, but not limited to, such items as Native American human remains, funerary objects, cultural and religious landscapes, ceremonial items, traditional gathering areas and cultural items, located and/or discovered through the cultural resource mitigation monitoring program in conjunction with the construction of the proposed project, including additional archaeological surveys and/or studies, excavations, geotechnical investigations, soil surveys, grading, or any other ground disturbing activities. Other tasks of the monitoring program shall include the following: • The requirement for cultural resource mitigation monitoring shall be noted on all applicable construction documents, including demolition plans, grading plans, etc. • The Qualified Archaeologist and TCA Native American Monitor shall attend all applicable pre-construction meetings with the Contractor and/or associated Subcontractors. • The Qualified Archaeologist shall maintain ongoing collaborative consultation with the TCA Native American Monitor during all ground disturbing or altering activities, as identified above. • The Qualified Archaeologist and/or TCA Native American Monitor may halt ground-disturbing activities if archaeological artifact deposits or cultural features are discovered. In general, ground-disturbing activities shall be directed away from these deposits for a short time to allow a determination of potential significance, the subject of which shall be determined by the Qualified Archaeologist and the TCA Native American Monitor, in consultation with the San Luis Rey Band. Ground disturbing activities shall not resume until the Qualified Archaeologist, in consultation with the TCA Native American Monitor, deems the cultural resource or feature has been appropriately documented and/or protected. At the Qualified Archaeologist's discretion, the location of ground disturbing activities may be relocated elsewhere on the project site to avoid further disturbance of cultural resources.					

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
• The Qualified Archaeologist and/or TCA Native American Monitor may also halt ground disturbing activities around known archaeological artifact deposits or cultural features if, in their respective opinions, there is the possibility that they could be damaged or destroyed. • The avoidance and protection of discovered unknown and significant cultural resources and/or unique archaeological resources is the preferable mitigation for the proposed project. If avoidance is not feasible, a Data Recovery Plan may be authorized by the City as the Lead Agency under CEQA. If data recovery is required, then the San Luis Rey Band shall be notified and consulted in drafting and finalizing any such recovery plan. • Prior to the release of any Bonds associated with the construction of improvements noted in the 2017 CSMP, a Monitoring Report and/or Evaluation Report, which describes the results, analysis and conclusions of the cultural resource mitigation monitoring efforts (such as, but not limited to, a Data Recovery Program) shall be submitted by the Qualified Archaeologist, along with the TCA Native American Monitor's notes and comments, to the City's Director of Community Development for approval.					
CULT-4 Paleontological Monitoring. Monitoring during construction grading or trenching shall be required for all CIP conveyance projects (Hardscape and Cross-Country Environs) that would excavate to a depth of ten feet or more. Prior to the issuance of project specific construction documents, the City Engineer shall retain a Professional Paleontologist to observe all earth-disturbing activities. All fossil materials recovered during mitigation monitoring shall be cleaned, identified, cataloged, and analyzed in accordance with standard professional practices. The results of the field work and laboratory analysis shall be submitted in a technical report and the entire collection transferred to an approved facility.	During constriction	1, 2, 3, 4	City of Vista Engineering Department	NAHC	

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
CULT-5 Disturbance to Human Remains. As specified by California Health and Safety Code Section 7050.5, if human remains are found on the project site during construction or during archaeological work, the person responsible for the excavation, or his or her authorized representative, shall immediately notify the San Diego County Coroner's office by telephone. No further excavation or disturbance of the discovery or any nearby area reasonably suspected to overlie adjacent remains (as determined by the Qualified Archaeologist and/or the TCA (traditionally and culturally affiliated) Native American Monitor) shall occur until the Coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code 5097.98. If such a discovery occurs, a temporary construction exclusion zone shall be established surrounding the area of the discovery so that the area would be protected (as determined by the Qualified Archaeologist and/or the TCA Native American Monitor), and consultation and treatment could occur as prescribed by law. As further defined by State law, the Coroner would determine within two working days of being notified if the remains are subject to his or her authority. If the Coroner recognizes the remains to be Native American, he or she shall contact the Native American Heritage Commission (NAHC) within 24 hours. The NAHC would make a determination as to the Most Likely Descendent. If Native American remains are discovered, the remains shall be kept "in situ" ("in place"), or in a secure location in close proximity to where they were found, and the analysis of the remains shall only occur on-site in the presence of the TCA Native American Monitor.	During construction	1, 2, 3, 4	City of Vista Engineering Department	NAHC, San Diego County	

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
HAZARDS AND HAZARDOUS MATERIALS					
HAZ-1 - Halt Construction Work if Potentially Hazardous Materials are Encountered. All construction contractors shall immediately stop all surface or subsurface activities in the event that potentially hazardous materials are encountered, an odor is identified, or considerably stained soil is visible. Contractors shall follow all applicable local, state, and federal regulations regarding discovery, response, disposal, and remediation for hazardous materials encountered during the construction process. These requirements shall be included in the contractor specifications. If any hazardous materials, waste sites, or vapor intrusion risks are identified prior to or during construction, a qualified professional, in consultation with appropriate regulatory agencies, will develop and implement a plan to remediate the contamination and properly dispose of the contaminated material. If material imports are proposed, the contractor shall furnish the City will appropriate documentation certifying that the imported materials are free of contamination.	During construction	1, 2, 3, 4	City of Vista Engineering Department		
HAZ-2 - Hazardous Materials Surveys. Prior to the issuance of a building permit that includes demolition of on-site structures and prior to commencement of demolition or rehabilitation activities, a Hazardous Materials Assessment (surveys) would be performed to determine the presence or absence of ACMs/LBP located in the structure(s) to be demolished. Suspect materials that would be disturbed by the demolition or rehabilitation activities would be sampled and analyzed for asbestos content, or assumed to be asbestos containing. All lead containing materials scheduled for demolition must comply with applicable regulations for demolition methods and dust suppression. Lead containing materials shall be managed in accordance with applicable regulations. The ACM survey would be conducted by a person certified by the California Division of Occupational Safety and Health (Cal/OSHA). The LBP survey would be conducted by a person certified by the California Department of Health Services. Copies of the surveys would be provided to SDCDEH and SDCAPCD once completed.	Prior to construction	1, 2, 4	City of Vista Engineering Department		

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
HAZ-3 - Keep Construction Area Clear of Combustible Materials. During construction, construction contractors shall ensure that staging areas, welding areas, or areas slated for construction using spark-producing equipment shall be cleared of combustible vegetation or other materials that could serve as fire fuel. All vegetation clearing shall be coordinated with a qualified biologist and any required permits prior to removal. The contractor shall keep these areas clear of combustible materials in order to maintain a firebreak. Any construction equipment that normally includes a spark arrester shall be equipped with an arrester in good working order. This includes, but is not limited to, vehicles, heavy equipment, and chainsaws.	During construction	1, 2, 4	City of Vista Engineering Department		
HAZ-4 - Provide Accessible Fire Suppression Equipment. Work crews shall be required to have sufficient fire suppression equipment readily available to ensure that any fire resulting from construction activities is immediately extinguished. All off-road equipment using internal combustion engines shall be equipped with spark arrestors.	During construction	1, 2, 4	City of Vista Engineering Department		
HYDROLOGY AND WATER QUALITY					
HWQ-1 - Assess Project Risk, Receiving Water Vulnerability, and Implement a Water Quality Protection Strategy. The construction contractor will assess the receiving water vulnerability and develop a SWPPP that complies with the requirements of the NPDES General Construction Permit (Order 2009-0009-DWQ as amended by 2010 0014-DWQ and 2012-006-DWQ) based on the project-specific risk level subject to the City Engineer's approval. The SWPPP shall identify specific actions and BMPs relating to the prevention of stormwater pollution from project-related construction sources by identifying a practical sequence for site restoration, BMP implementation, contingency measures, responsible parties, and agency contacts. The SWPPP shall reflect localized surface hydrological conditions, local jurisdictional requirements. and shall be reviewed and approved by the City Engineer prior to commencement of	Prior to, during, and following construction	1, 2, 3, 4	City of Vista Engineering Department	Cities of Carlsbad, San Marcos, Oceanside; San Diego County; Regional Water Quality Control Board (RWQCB), Region 9	

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
work. The SWPPP shall be prepared by a qualified SWPPP developer with BMPs selected to achieve maximum pollutant removal and that represent the best available technology that is economically achievable. BMPs for soil stabilization and erosion control practices and sediment control practices will also be required. Performance and effectiveness of these BMPs shall be determined either by visual means where applicable (i.e., observation of above-normal sediment release), or by actual water sampling in cases where verification of contaminant reduction or elimination, (e.g., inadvertent petroleum release) is required to determine adequacy of the measure. The SWPPP shall also address other project-specific water quality threats, as required for individual improvements including but not limited to, temporary dewatering, hydrostatic testing, and other resources permits as required under the Federal Clean Water Act, County Grading Ordnance, and State Fish and Game Code, as applicable. Construction and post-construction BMPs will be designed to avoid the creation of standing water and potential mosquito breeding habitat.					
HWQ-2 - Prepare and Implement a Flow Diversion Plan For Construction. The construction contractor shall develop a Flow Diversion Plan(s) for in-channel construction activities. The contractor shall incorporate measures to minimize changes to flood flow elevation(s) during construction, address accumulation of floating debris, provide measures that minimize sedimentation to surface waters, and include contingency measures in the event of substantial rainfall.	Prior to and during construction	1, 4	City of Vista Engineering Department	RWQCB	
NOISE AND VIBRATION					
NV-1 - Construction Noise Reduction Measures. The Construction Contractor shall demonstrate to the satisfaction of the City Engineer that the following noise control techniques are implemented during the clearing, demolition, grading and construction phases of projects identified in the 2017 CSMP	Prior to and during construction	1, 2, 3, 4	City of Vista Engineering Department	Cities of Carlsbad, San Marcos, Oceanside; San Diego County	

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
within 200 feet of noise-sensitive land uses. • Heavy equipment repair and contractor staging shall be conducted at sites as far as practical from nearby residences. • Construction equipment, including vehicles, generators and compressors, shall be maintained in proper operating condition and shall be equipped with manufacturers' standard noise control devices or better (e.g., mufflers, acoustical lagging, and/or engine enclosures). • Temporary sound barriers (or curtains), stockpiles of excavated materials, or other effective shielding or enclosure techniques shall be used where construction noise would exceed 90 dBA within less than 50 feet from a noise sensitive receptor. • Construction work, including on-site equipment maintenance and repair, shall be limited to the hours specified in the noise ordinance of the affected jurisdiction(s). • Electrical power shall be supplied from commercial power supply, wherever feasible, in order to avoid or minimize the use of engine-driven generators. • Electrically powered equipment shall be used instead of pneumatic or internal-combustion powered equipment, where feasible. • Unnecessary idling of internal combustion engines (i.e., in excess of 5 minutes) shall be prohibited. • Operating equipment shall be designed to comply with all applicable local, state, and federal noise regulations. • Construction site and access road speed limits shall be established and enforced during the construction period. • If lighted traffic control devices are to be located within 500 feet of residences, the devices shall be powered by batteries, solar power, or similar sources, and not by an internal combustion engine.					

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
• The use of noise-producing signals, including horns, whistles, alarms, and bells, shall be for safety warning purposes only. • No project-related public address or music system shall be audible at any adjacent sensitive receptor. • The construction contractors shall provide advance notice, between 2 and 4 weeks prior to construction, by mail to all residents or property owners within 200 feet of the alignment. The announcement shall state specifically where and when construction will occur in the area. If construction delays of more than 7 days occur, an additional notice shall be made, either in person or by mail. The City shall publish a notice of impending construction on the City website, stating when and where construction will occur. • The construction contractors shall identify and provide a public liaison person before and during construction to respond to concerns of neighboring residents about noise and other construction disturbance. The construction contractors shall also establish a program for receiving questions or complaints during construction and develop procedures for responding to callers. Procedures for reaching the public liaison officer via telephone or in person shall be included in notices distributed to the public in accordance with the information above.					
TRANSPORTATION AND CIRCULATION					
Mitigation Measure TR-1 - Prepare and Implement a Traffic Control Plan. The construction contractor shall prepare a Traffic Control Plan for roadways and intersections affected by individual 2017 CSMP improvements for approval by the City Engineer. The Traffic Control Plan will comply with local agency requirements (e.g., Vista, Carlsbad, Caltrans, etc.) with jurisdiction over project construction. The Traffic Control Plan will include, but not be limited to, the following elements based on local site and roadway conditions:	Prior to and during construction	1, 2, 4	City of Vista Engineering Department	Cities of Carlsbad, San Marcos, Oceanside; San Diego County	

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
• Provide street layout showing location of construction activity and surrounding streets to be used as detour routes, including "special signage." Post a minimum 72-hour advance warning of construction activities within affected roadways to allow motorists to select alternative routes. • Restrict delivery of construction materials to non-peak travel periods (9 a.m. – 3 p.m.) as appropriate. Weekend and night work shifts will be allowed in non-residential areas only. • Maintain the maximum travel-lane capacity during non-construction periods and provide flagger-control at construction sites to manage traffic control and flows. • Limit the construction work zone in each block to a width that, at a minimum, maintains alternate one-way traffic flow past the construction zone. • Maintain access for driveways and private roads, except for brief periods of construction, in which case property owners will be notified. • Require temporary steel-plate trench crossings, as needed, to maintain reasonable access to homes, businesses, and streets. When required by the applicable encroachment permit, maintain the existing lane configuration during nonworking hours by covering the trench or jack pit with steel plates or by using temporary backfill. • Require appropriate warning signage and safety lighting for construction zones. • Access for emergency vehicles shall be maintained at all times. Police, fire, and emergency services shall be notified of the timing, location, and duration of construction activities that could hinder and/or delay emergency access through the construction period. • Coordinate with NCTD to plan, as needed, for the temporary relocation of bus stops and/or detour of transit routes on affected pipeline alignments.					

Table 1. MMRP Mitigation Measures

Mitigation Measure	Timing	Project Category[1]	Primary Responsible Party	Secondary Responsible Party	Verification
• Identify detours, where available, for bicyclists and pedestrians in areas potentially affected by project construction. • Provide adequate off-street parking locations for workers' vehicles and construction equipment in those areas where on-street parking availability is insufficient. • Repair or restore the roadway ROW to its original condition or better upon completion of work.					

[1] Project categories identified in the CSMP SPEIR include:

Category 1: CIP Capacity and Condition Projects (Hardscape Environs). Tables 3-3 and 3 4 in Chapter 3 identify the near-term and build out CIP capacity-related projects included within this category. Figures 3-7 and 3-8 illustrate the locations of the capacity improvements. Table 1 in Appendix B of this SPEIR includes a list of CIP condition Projects included within this category. Figures 3-9 through 3-17 illustrate the location of the condition relate improvements.

Category 2: CIP Capacity and Condition Projects (Cross-Country Environs). Tables 3-3 and 3-4 identify the near-term and build out CIP capacity-related projects included within this category. Figures 3-7 and 3-8 illustrate the locations of the capacity improvements. Table 2 in Appendix B of this SPEIR includes a list of CIP condition projects included in this category. Figures 3-9 through 3-17 illustrate the location of the condition-relate improvements.

Category 3: O&M Program Operations and Pump Station Rehabilitation. Table 3-5 in Chapter 3 of this SPEIR includes a list of the O&M Program improvements included within this category.

Category 4: Out-of-Service Area Projects. Figures 3-19 and 3-20 illustrate the out-of-service area project(s) improvements included within this category.

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Attachment B1

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IPaC resource list

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

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

Location

San Diego County, California

Local office

Carlsbad Fish And Wildlife Office

(760) 431-9440
(760) 431-5901

2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385

http://www.fws.gov/carlsbad/

Endangered species

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

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

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

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

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

Listed species

[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Pacific Pocket Mouse Perognathus longimembris pacificus No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8080	Endangered
Stephens' Kangaroo Rat Dipodomys stephensi (incl. D. cascus) No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/3495	Endangered

Birds

NAME	STATUS
California Least Tern Sterna antillarum browni No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8104	Endangered
Coastal California Gnatcatcher Polioptila californica californica There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8178	Threatened
Least Bell's Vireo Vireo bellii pusillus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/5945	Endangered
Light-footed Clapper Rail Rallus longirostris levipes No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6035	Endangered
Southwestern Willow Flycatcher Empidonax traillii extimus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/6749	Endangered
Western Snowy Plover Charadrius nivosus nivosus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8035	Threatened

Amphibians

NAME	STATUS
Arroyo (=arroyo Southwestern) Toad *Anaxyrus californicus* There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/3762	Endangered

Fishes

NAME	STATUS
Tidewater Goby *Eucyclogobius newberryi* There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/57	Endangered

Crustaceans

NAME	STATUS
Riverside Fairy Shrimp *Streptocephalus woottoni* There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8148	Endangered
San Diego Fairy Shrimp *Branchinecta sandiegonensis* There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/6945	Endangered
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened

Flowering Plants

NAME	STATUS
Del Mar Manzanita *Arctostaphylos glandulosa ssp. crassifolia* No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7673	Endangered
San Diego Ambrosia *Ambrosia pumila* There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8287	Endangered

San Diego Button-celery Eryngium aristulatum var. parishii No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5937	Endangered
San Diego Thornmint Acanthomintha ilicifolia There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/351	Threatened
Spreading Navarretia Navarretia fossalis There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/1334	Threatened
Thread-leaved Brodiaea Brodiaea filifolia There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/6087	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act

[1] and the Bald and Golden Eagle Protection Act[2].

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

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

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

- Nationwide conservation measures for birds

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

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

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Allen's Hummingbird Selasphorus sasin This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9637	Breeds Feb 1 to Jul 15
Black-chinned Sparrow Spizella atrogularis This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9447	Breeds Apr 15 to Jul 31
Clark's Grebe Aechmophorus clarkii This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Dec 31

Common Yellowthroat Geothlypis trichas sinuosa This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31
Costa's Hummingbird Calypte costae This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9470	Breeds Jan 15 to Jun 10
Golden Eagle Aquila chrysaetos This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Nuttall's Woodpecker Picoides nuttallii This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9410	Breeds Apr 1 to Jul 20
Oak Titmouse Baeolophus inornatus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9656	Breeds Mar 15 to Jul 15
Rufous Hummingbird selasphorus rufus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002	Breeds elsewhere
Song Sparrow Melospiza melodia This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Feb 20 to Sep 5
Spotted Towhee Pipilo maculatus clementae This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/4243	Breeds Apr 15 to Jul 20
Tricolored Blackbird Agelaius tricolor This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3910	Breeds Mar 15 to Aug 10

Wrentit Chamaea fasciata — Breeds Mar 15 to Aug 10

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

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

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

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

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the E-bird Explore Data Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

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

What if I have eagles on my list?

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

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ “What does IPaC use to generate the migratory birds potentially occurring in my specified location”. Please be aware this report provides the “probability of presence” of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the “no data” indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ “Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds” at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

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

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

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

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

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

This location overlaps the following wetlands:

FRESHWATER FORESTED/SHRUB WETLAND

- PFO/SSC
- PSS/EM1C

FRESHWATER POND

- PUBHh

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

Data limitations

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

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

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

Attachment B2

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Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Las Pulgas Canyon (3311734) OR Morro Hill (3311733) OR Bonsall (3311732) OR Oceanside (3311724) OR San Luis Rey (3311723) OR San Marcos (3311722) OR Encinitas (3311713) OR Rancho Santa Fe (3311712))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Abronia villosa var. aurita chaparral sand-verbena	PDNYC010P1	None	None	G5T2?	S2	1B.1
Acanthomintha ilicifolia San Diego thorn-mint	PDLAM01010	Threatened	Endangered	G1	S1	1B.1
Accipiter cooperii Cooper's hawk	ABNKC12040	None	None	G5	S4	WL
Acmispon prostratus Nuttall's acmispon	PDFAB2A0V0	None	None	G1G2	S1	1B.1
Adolphia californica California adolphia	PDRHA01010	None	None	G3	S2	2B.1
Agelaius tricolor tricolored blackbird	ABPBXB0020	None	Threatened	G2G3	S1S2	SSC
Aimophila ruficeps canescens southern California rufous-crowned sparrow	ABPBX91091	None	None	G5T3	S3	WL
Ambrosia pumila San Diego ambrosia	PDAST0C0M0	Endangered	None	G1	S1	1B.1
Anaxyrus californicus arroyo toad	AAABB01230	Endangered	None	G2G3	S2S3	SSC
Anniella stebbinsi southern California legless lizard	ARACC01060	None	None	G3	S3	SSC
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Aquila chrysaetos golden eagle	ABNKC22010	None	None	G5	S3	FP
Arctostaphylos glandulosa ssp. crassifolia Del Mar manzanita	PDERI040E8	Endangered	None	G5T2	S2	1B.1
Arctostaphylos rainbowensis Rainbow manzanita	PDERI042T0	None	None	G2	S2	1B.1
Arizona elegans occidentalis California glossy snake	ARADB01017	None	None	G5T2	S2	SSC
Artemisia palmeri San Diego sagewort	PDAST0S160	None	None	G3?	S3?	4.2
Artemisiospiza belli belli Bell's sage sparrow	ABPBX97021	None	None	G5T2T3	S3	WL
Aspidoscelis hyperythra orange-throated whiptail	ARACJ02060	None	None	G5	S2S3	WL
Aspidoscelis tigris stejnegeri coastal whiptail	ARACJ02143	None	None	G5T5	S3	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Astragalus tener var. titi coastal dunes milk-vetch	PDFAB0F8R2	Endangered	Endangered	G2T1	S1	1B.1
Atriplex coulteri Coulter's saltbush	PDCHE040E0	None	None	G3	S1S2	1B.2
Atriplex pacifica south coast saltscale	PDCHE041C0	None	None	G4	S2	1B.2
Baccharis vanessae Encinitas baccharis	PDAST0W0P0	Threatened	Endangered	G1	S1	1B.1
Bloomeria clevelandii San Diego goldenstar	PMLIL1H010	None	None	G2	S2	1B.1
Bombus crotchii Crotch bumble bee	IIHYM24480	None	None	G3G4	S1S2	
Branchinecta lynchi vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
Branchinecta sandiegonensis San Diego fairy shrimp	ICBRA03060	Endangered	None	G2	S2	
Brodiaea filifolia thread-leaved brodiaea	PMLIL0C050	Threatened	Endangered	G2	S2	1B.1
Brodiaea orcuttii Orcutt's brodiaea	PMLIL0C0B0	None	None	G2	S2	1B.1
Buteo swainsoni Swainson's hawk	ABNKC19070	None	Threatened	G5	S3	
Campylorhynchus brunneicapillus sandiegensis coastal cactus wren	ABPBG02095	None	None	G5T3Q	S3	SSC
Ceanothus verrucosus wart-stemmed ceanothus	PDRHA041J0	None	None	G2	S2?	2B.2
Centromadia parryi ssp. australis southern tarplant	PDAST4R0P4	None	None	G3T2	S2	1B.1
Centromadia pungens ssp. laevis smooth tarplant	PDAST4R0R4	None	None	G3G4T2	S2	1B.1
Chaenactis glabriuscula var. orcuttiana Orcutt's pincushion	PDAST20095	None	None	G5T1T2	S1	1B.1
Chaetodipus californicus femoralis Dulzura pocket mouse	AMAFD05021	None	None	G5T3	S3	SSC
Chaetodipus fallax fallax northwestern San Diego pocket mouse	AMAFD05031	None	None	G5T3T4	S3S4	SSC
Charadrius alexandrinus nivosus western snowy plover	ABNNB03031	Threatened	None	G3T3	S2S3	SSC
Choeronycteris mexicana Mexican long-tongued bat	AMACB02010	None	None	G4	S1	SSC
Chorizanthe orcuttiana Orcutt's spineflower	PDPGN040G0	Endangered	Endangered	G1	S1	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Chorizanthe polygonoides var. longispina long-spined spineflower	PDPGN040K1	None	None	G5T3	S3	1B.2
Cicindela senilis frosti senile tiger beetle	IICOL02121	None	None	G2G3T1T3	S1	
Circus hudsonius northern harrier	ABNKC11011	None	None	G5	S3	SSC
Coastal Brackish Marsh Coastal Brackish Marsh	CTT52200CA	None	None	G2	S2.1	
Coccyzus americanus occidentalis western yellow-billed cuckoo	ABNRB02022	Threatened	Endangered	G5T2T3	S1	
Comarostaphylis diversifolia ssp. diversifolia summer holly	PDERI0B011	None	None	G3T2	S2	1B.2
Corethrogyne filaginifolia var. linifolia Del Mar Mesa sand aster	PDAST2M027	None	None	G4T1Q	S1	1B.1
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G3G4	S2	SSC
Crotalus ruber red-diamond rattlesnake	ARADE02090	None	None	G4	S3	SSC
Cryptantha wigginsii Wiggins' cryptantha	PDBOR0A400	None	None	G2	S1	1B.2
Danaus plexippus pop. 1 monarch - California overwintering population	IILEPP2012	None	None	G4T2T3	S2S3	
Diadophis punctatus similis San Diego ringneck snake	ARADB1001A	None	None	G5T2T3	S2?	
Dipodomys stephensi Stephens' kangaroo rat	AMAFD03100	Endangered	Threatened	G2	S2	
Dudleya blochmaniae ssp. blochmaniae Blochman's dudleya	PDCRA04051	None	None	G3T2	S2	1B.1
Dudleya multicaulis many-stemmed dudleya	PDCRA040H0	None	None	G2	S2	1B.2
Dudleya variegata variegated dudleya	PDCRA040R0	None	None	G2	S2	1B.2
Dudleya viscida sticky dudleya	PDCRA040T0	None	None	G2	S2	1B.2
Elanus leucurus white-tailed kite	ABNKC06010	None	None	G5	S3S4	FP
Empidonax traillii extimus southwestern willow flycatcher	ABPAE33043	Endangered	Endangered	G5T2	S1	
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Eremophila alpestris actia California horned lark	ABPAT02011	None	None	G5T4Q	S4	WL

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Ericameria palmeri var. palmeri Palmer's goldenbush	PDAST3L0C1	None	None	G4T2?	S2	1B.1
Eryngium aristulatum var. parishii San Diego button-celery	PDAPI0Z042	Endangered	Endangered	G5T1	S1	1B.1
Eryngium pendletonense Pendleton button-celery	PDAPI0Z120	None	None	G1	S1	1B.1
Erysimum ammophilum sand-loving wallflower	PDBRA16010	None	None	G2	S2	1B.2
Eucyclogobius newberryi tidewater goby	AFCQN04010	Endangered	None	G3	S3	SSC
Eumops perotis californicus western mastiff bat	AMACD02011	None	None	G5T4	S3S4	SSC
Euphorbia misera cliff spurge	PDEUP0Q1B0	None	None	G5	S2	2B.2
Ferocactus viridescens San Diego barrel cactus	PDCAC08060	None	None	G3?	S2S3	2B.1
Gila orcuttii arroyo chub	AFCJB13120	None	None	G2	S2	SSC
Harpagonella palmeri Palmer's grapplinghook	PDBOR0H010	None	None	G4	S3	4.2
Hazardia orcuttii Orcutt's hazardia	PDAST4H070	None	Threatened	G1	S1	1B.1
Heterotheca sessiliflora ssp. sessiliflora beach goldenaster	PDAST4V0K2	None	None	G4T2T3	S1	1B.1
Horkelia truncata Ramona horkelia	PDROS0W0G0	None	None	G3	S3	1B.3
Icteria virens yellow-breasted chat	ABPBX24010	None	None	G5	S3	SSC
Isocoma menziesii var. decumbens decumbent goldenbush	PDAST57091	None	None	G3G5T2T3	S2	1B.2
Iva hayesiana San Diego marsh-elder	PDAST580A0	None	None	G3	S2	2B.2
Ixobrychus exilis least bittern	ABNGA02010	None	None	G4G5	S2	SSC
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4	
Lasiurus xanthinus western yellow bat	AMACC05070	None	None	G5	S3	SSC
Lasthenia glabrata ssp. coulteri Coulter's goldfields	PDAST5L0A1	None	None	G4T2	S2	1B.1
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3G4T1	S1	FP

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Lepidium virginicum var. robinsonii Robinson's pepper-grass	PDBRA1M114	None	None	G5T3	S3	4.3
Leptonycteris yerbabuenae lesser long-nosed bat	AMACB03030	Delisted	None	G4	S1	SSC
Leptosyne maritima sea dahlia	PDAST2L0L0	None	None	G2	S1S2	2B.2
Lepus californicus bennettii San Diego black-tailed jackrabbit	AMAEB03051	None	None	G5T3T4	S3S4	SSC
Maritime Succulent Scrub Maritime Succulent Scrub	CTT32400CA	None	None	G2	S1.1	
Monardella hypoleuca ssp. lanata felt-leaved monardella	PDLAM180A2	None	None	G4T3	S3	1B.2
Myosurus minimus ssp. apus little mousetail	PDRAN0H031	None	None	G5T2Q	S2	3.1
Myotis yumanensis Yuma myotis	AMACC01020	None	None	G5	S4	
Nama stenocarpa mud nama	PDHYD0A0H0	None	None	G4G5	S1S2	2B.2
Navarretia fossalis spreading navarretia	PDPLM0C080	Threatened	None	G2	S2	1B.1
Nemacaulis denudata var. denudata coast woolly-heads	PDPGN0G011	None	None	G3G4T2	S2	1B.2
Nemacaulis denudata var. gracilis slender cottonheads	PDPGN0G012	None	None	G3G4T3?	S2	2B.2
Neotoma lepida intermedia San Diego desert woodrat	AMAFF08041	None	None	G5T3T4	S3S4	SSC
Nolina cismontana chaparral nolina	PMAGA080E0	None	None	G3	S3	1B.2
Nyctinomops femorosaccus pocketed free-tailed bat	AMACD04010	None	None	G4	S3	SSC
Orcuttia californica California Orcutt grass	PMPOA4G010	Endangered	Endangered	G1	S1	1B.1
Orobanche parishii ssp. brachyloba short-lobed broomrape	PDORO040A2	None	None	G4?T4	S3	4.2
Passerculus sandwichensis beldingi Belding's savannah sparrow	ABPBX99015	None	Endangered	G5T3	S3	
Perognathus longimembris pacificus Pacific pocket mouse	AMAFD01042	Endangered	None	G5T1	S1	SSC
Phacelia stellaris Brand's star phacelia	PDHYD0C510	None	None	G1	S1	1B.1
Phrynosoma blainvillii coast horned lizard	ARACF12100	None	None	G3G4	S3S4	SSC

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Plegadis chihi white-faced ibis	ABNGE02020	None	None	G5	S3S4	WL
Plestiodon skiltonianus interparietalis Coronado skink	ARACH01114	None	None	G5T5	S2S3	WL
Pogogyne abramsii San Diego mesa mint	PDLAM1K010	Endangered	Endangered	G1	S1	1B.1
Polioptila californica californica coastal California gnatcatcher	ABPBJ08081	Threatened	None	G4G5T2Q	S2	SSC
Pseudognaphalium leucocephalum white rabbit-tobacco	PDAST440C0	None	None	G4	S2	2B.2
Quercus dumosa Nuttall's scrub oak	PDFAG050D0	None	None	G3	S3	1B.1
Rallus obsoletus levipes light-footed Ridgway's rail	ABNME05014	Endangered	Endangered	G5T1T2	S1	FP
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Salvadora hexalepis virgultea coast patch-nosed snake	ARADB30033	None	None	G5T4	S2S3	SSC
Salvia munzii Munz's sage	PDLAM1S140	None	None	G2	S2	2B.2
San Diego Mesa Claypan Vernal Pool San Diego Mesa Claypan Vernal Pool	CTT44322CA	None	None	G2	S2.1	
San Diego Mesa Hardpan Vernal Pool San Diego Mesa Hardpan Vernal Pool	CTT44321CA	None	None	G2	S2.1	
Senecio aphanactis chaparral ragwort	PDAST8H060	None	None	G3	S2	2B.2
Setophaga petechia yellow warbler	ABPBX03010	None	None	G5	S3S4	SSC
Sidalcea neomexicana salt spring checkerbloom	PDMAL110J0	None	None	G4	S2	2B.2
Southern Coastal Salt Marsh Southern Coastal Salt Marsh	CTT52120CA	None	None	G2	S2.1	
Southern Cottonwood Willow Riparian Forest Southern Cottonwood Willow Riparian Forest	CTT61330CA	None	None	G3	S3.2	
Southern Maritime Chaparral Southern Maritime Chaparral	CTT37C30CA	None	None	G1	S1.1	
Southern Riparian Forest Southern Riparian Forest	CTT61300CA	None	None	G4	S4	
Southern Riparian Scrub Southern Riparian Scrub	CTT63300CA	None	None	G3	S3.2	
Southern Sycamore Alder Riparian Woodland Southern Sycamore Alder Riparian Woodland	CTT62400CA	None	None	G4	S4	

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Southern Willow Scrub	CTT63320CA	None	None	G3	S2.1	
Southern Willow Scrub						
Spea hammondii	AAABF02020	None	None	G3	S3	SSC
western spadefoot						
Stemodia durantifolia	PDSCR1U010	None	None	G5	S2	2B.1
purple stemodia						
Sternula antillarum browni	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2	FP
California least tern						
Streptocephalus woottoni	ICBRA07010	Endangered	None	G1G2	S1S2	
Riverside fairy shrimp						
Suaeda esteroa	PDCHE0P0D0	None	None	G3	S2	1B.2
estuary seablite						
Taxidea taxus	AMAJF04010	None	None	G5	S3	SSC
American badger						
Tetracoccus dioicus	PDEUP1C010	None	None	G2G3	S2	1B.2
Parry's tetracoccus						
Thamnophis hammondii	ARADB36160	None	None	G4	S3S4	SSC
two-striped gartersnake						
Thamnophis sirtalis pop. 1	ARADB3613F	None	None	G5T1T2	S1S2	SSC
south coast gartersnake						
Tryonia imitator	IMGASJ7040	None	None	G2	S2	
mimic tryonia (=California brackishwater snail)						
Vireo bellii pusillus	ABPBW01114	Endangered	Endangered	G5T2	S2	
least Bell's vireo						

Record Count: 136

Attachment B3

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CNPS California Native Plant Society

Inventory of Rare and Endangered Plants

Plant List

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

Search Criteria

California Rare Plant Rank is one of [1B, 2B, 3, 4], FESA is one of [Endangered, Threatened, Candidate, Not Listed], CESA is one of [Endangered, Threatened, Rare, Not Listed], Found in Quads 3311734, 3311733, 3311732, 3311724, 3311723, 3311722, 3311713 and 3311712; Elevation is above 0 or below 930 feet

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

Scientific Name	Common Name	Family	Lifeform	Blooming Period	Federal Listing Status	State Listing Status	CA Rare Plant Rank	Habitats	Lowest Elevation	Highest Elevation
Abronia maritima	red sand-verbena	Nyctaginaceae	perennial herb	Feb-Nov			4.2	• Coastal dunes	0 m	100 m
Abronia villosa var. aurita	chaparral sand-verbena	Nyctaginaceae	annual herb	(Jan)Mar-Sep			1B.1	• Chaparral • Coastal scrub • Desert dunes	75 m	1600 m
Acanthomintha ilicifolia	San Diego thorn-mint	Lamiaceae	annual herb	Apr-Jun	FT	CE	1B.1	• Chaparral • Coastal scrub • Valley and foothill grassland • Vernal pools	10 m	960 m
Acmispon prostratus	Nuttall's acmispon	Fabaceae	annual herb	Mar-Jun(Jul)			1B.1	• Coastal dunes • Coastal scrub (sandy)	0 m	10 m
Adolphia californica	California adolphia	Rhamnaceae	perennial deciduous shrub	Dec-May			2B.1	• Chaparral • Coastal scrub • Valley and foothill grassland	10 m	740 m
Ambrosia pumila	San Diego ambrosia	Asteraceae	perennial rhizomatous herb	Apr-Oct	FE		1B.1	• Chaparral • Coastal scrub • Valley and foothill grassland • Vernal pools	20 m	415 m
Arctostaphylos glandulosa ssp. crassifolia	Del Mar manzanita	Ericaceae	perennial evergreen shrub	Dec-Jun	FE		1B.1	• Chaparral (maritime, sandy)	0 m	365 m
Arctostaphylos rainbowensis	Rainbow manzanita	Ericaceae	perennial evergreen shrub	Dec-Mar			1B.1	• Chaparral	205 m	670 m
Artemisia palmeri	San Diego sagewort	Asteraceae	perennial deciduous shrub	(Feb)May-Sep			4.2	• Chaparral • Coastal scrub • Riparian forest • Riparian scrub • Riparian woodland	15 m	915 m
		Aspleniaceae		Feb-Jun			4.2		180 m	1000 m

Asplenium vespertinum	western spleenwort		perennial rhizomatous herb					• Chaparral • Cismontane woodland • Coastal scrub		
Astragalus tener var. titi	coastal dunes milk-vetch	Fabaceae	annual herb	Mar-May	FE	CE	1B.1	• Coastal bluff scrub (sandy) • Coastal dunes • Coastal prairie (mesic)	1 m	50 m
Atriplex coulteri	Coulter's saltbush	Chenopodiaceae	perennial herb	Mar-Oct			1B.2	• Coastal bluff scrub • Coastal dunes • Coastal scrub • Valley and foothill grassland	3 m	460 m
Atriplex pacifica	South Coast saltscale	Chenopodiaceae	annual herb	Mar-Oct			1B.2	• Coastal bluff scrub • Coastal dunes • Coastal scrub • Playas	0 m	140 m
Atriplex parishii	Parish's brittlescale	Chenopodiaceae	annual herb	Jun-Oct			1B.1	• Chenopod scrub • Playas • Vernal pools	25 m	1900 m
Baccharis vanessae	Encinitas baccharis	Asteraceae	perennial deciduous shrub	Aug,Oct,Nov	FT	CE	1B.1	• Chaparral (maritime) • Cismontane woodland	60 m	720 m
Bloomeria clevelandii	San Diego goldenstar	Themidaceae	perennial bulbiferous herb	Apr-May			1B.1	• Chaparral • Coastal scrub • Valley and foothill grassland • Vernal pools	50 m	465 m
Brodiaea filifolia	thread-leaved brodiaea	Themidaceae	perennial bulbiferous herb	Mar-Jun	FT	CE	1B.1	• Chaparral (openings) • Cismontane woodland • Coastal scrub • Playas • Valley and foothill grassland • Vernal pools	25 m	1120 m
Brodiaea orcuttii	Orcutt's brodiaea	Themidaceae	perennial bulbiferous herb	May-Jul			1B.1	• Closed-cone coniferous forest • Chaparral • Cismontane woodland • Meadows and seeps • Valley and foothill grassland • Vernal pools	30 m	1692 m

Camissoniopsis lewisii	Lewis' evening-primrose	Onagraceae	annual herb	Mar-May(Jun)			3	• Coastal bluff scrub • Cismontane woodland • Coastal dunes • Coastal scrub • Valley and foothill grassland	0 m	300 m
Caulanthus simulans	Payson's jewelflower	Brassicaceae	annual herb	(Feb)Mar-May(Jun)			4.2	• Chaparral • Coastal scrub	90 m	2200 m
Ceanothus verrucosus	wart-stemmed ceanothus	Rhamnaceae	perennial evergreen shrub	Dec-May			2B.2	• Chaparral	1 m	380 m
Centromadia parryi ssp. australis	southern tarplant	Asteraceae	annual herb	May-Nov			1B.1	• Marshes and swamps (margins) • Valley and foothill grassland (vernally mesic) • Vernal pools	0 m	480 m
Centromadia pungens ssp. laevis	smooth tarplant	Asteraceae	annual herb	Apr-Sep			1B.1	• Chenopod scrub • Meadows and seeps • Playas • Riparian woodland • Valley and foothill grassland	0 m	640 m
Chaenactis glabriuscula var. orcuttiana	Orcutt's pincushion	Asteraceae	annual herb	Jan-Aug			1B.1	• Coastal bluff scrub (sandy) • Coastal dunes	0 m	100 m
Chorizanthe orcuttiana	Orcutt's spineflower	Polygonaceae	annual herb	Mar-May	FE	CE	1B.1	• Closed-cone coniferous forest • Chaparral (maritime) • Coastal scrub	3 m	125 m
Chorizanthe polygonoides var. longispina	long-spined spineflower	Polygonaceae	annual herb	Apr-Jul			1B.2	• Chaparral • Coastal scrub • Meadows and seeps • Valley and foothill grassland • Vernal pools	30 m	1530 m
Cistanthe maritima	seaside cistanthe	Montiaceae	annual herb	(Feb)Mar-Jun(Aug)			4.2	• Coastal bluff scrub • Coastal scrub • Valley and foothill grassland	5 m	300 m
Clarkia delicata	delicate clarkia	Onagraceae	annual herb	Apr-Jun			1B.2	• Chaparral • Cismontane woodland	235 m	1000 m
Comarostaphylis diversifolia ssp. diversifolia	summer holly	Ericaceae	perennial evergreen shrub	Apr-Jun			1B.2	• Chaparral •	30 m	790 m

							Cismontane woodland		
Convolvulus simulans	small-flowered morning-glory	Convolvulaceae	annual herb	Mar-Jul	4.2	• Chaparral (openings) • Coastal scrub • Valley and foothill grassland	30 m	740 m
Corethrogyne filaginifolia var. incana	San Diego sand aster	Asteraceae	perennial herb	Jun-Sep	1B.1	• Coastal bluff scrub • Chaparral • Coastal scrub	3 m	115 m
Corethrogyne filaginifolia var. linifolia	Del Mar Mesa sand aster	Asteraceae	perennial herb	May,Jul,Aug,Sep	1B.1	• Coastal bluff scrub • Chaparral (maritime, openings) • Coastal scrub	15 m	150 m
Cryptantha wigginsii	Wiggins' cryptantha	Boraginaceae	annual herb	Feb-Jun	1B.2	• Coastal scrub	20 m	275 m
Deinandra paniculata	paniculate tarplant	Asteraceae	annual herb	(Mar)Apr-Nov(Dec)	4.2	• Coastal scrub • Valley and foothill grassland • Vernal pools	25 m	940 m
Dichondra occidentalis	western dichondra	Convolvulaceae	perennial rhizomatous herb	(Jan)Mar-Jul	4.2	• Chaparral • Cismontane woodland • Coastal scrub • Valley and foothill grassland	50 m	500 m
Dudleya blochmaniae ssp. blochmaniae	Blochman's dudleya	Crassulaceae	perennial herb	Apr-Jun	1B.1	• Coastal bluff scrub • Chaparral • Coastal scrub • Valley and foothill grassland	5 m	450 m
Dudleya multicaulis	many-stemmed dudleya	Crassulaceae	perennial herb	Apr-Jul	1B.2	• Chaparral • Coastal scrub • Valley and foothill grassland	15 m	790 m
Dudleya variegata	variegated dudleya	Crassulaceae	perennial herb	Apr-Jun	1B.2	• Chaparral • Cismontane woodland • Coastal scrub • Valley and foothill grassland • Vernal pools	3 m	580 m
Dudleya viscida	sticky dudleya	Crassulaceae	perennial herb	May-Jun	1B.2	• Coastal bluff scrub • Chaparral • Cismontane woodland • Coastal scrub	10 m	550 m
Ericameria palmeri var. palmeri	Palmer's goldenbush	Asteraceae		(Jul)Sep-Nov	1B.1		30 m	600 m

			perennial evergreen shrub					• Chaparral • Coastal scrub		
Eryngium aristulatum var. parishii	San Diego button-celery	Apiaceae	annual / perennial herb	Apr-Jun	FE	CE	1B.1	• Coastal scrub • Valley and foothill grassland • Vernal pools	20 m	620 m
Eryngium pendletonense	Pendleton button-celery	Apiaceae	perennial herb	Apr-Jun(Jul)			1B.1	• Coastal bluff scrub • Valley and foothill grassland • Vernal pools	15 m	110 m
Erysimum ammophilum	sand-loving wallflower	Brassicaceae	perennial herb	Feb-Jun			1B.2	• Chaparral (maritime) • Coastal dunes • Coastal scrub	0 m	60 m
Euphorbia misera	cliff spurge	Euphorbiaceae	perennial shrub	Dec-Aug(Oct)			2B.2	• Coastal bluff scrub • Coastal scrub • Mojavean desert scrub	10 m	500 m
Ferocactus viridescens	San Diego barrel cactus	Cactaceae	perennial stem succulent	May-Jun			2B.1	• Chaparral • Coastal scrub • Valley and foothill grassland • Vernal pools	3 m	450 m
Harpagonella palmeri	Palmer's grapplinghook	Boraginaceae	annual herb	Mar-May			4.2	• Chaparral • Coastal scrub • Valley and foothill grassland	20 m	955 m
Hazardia orcuttii	Orcutt's hazardia	Asteraceae	perennial evergreen shrub	Aug-Oct		CT	1B.1	• Chaparral (maritime) • Coastal scrub	80 m	85 m
Heterotheca sessiliflora ssp. sessiliflora	beach goldenaster	Asteraceae	perennial herb	Mar-Dec			1B.1	• Chaparral (coastal) • Coastal dunes • Coastal scrub	0 m	1225 m
Holocarpha virgata ssp. elongata	graceful tarplant	Asteraceae	annual herb	May-Nov			4.2	• Chaparral • Cismontane woodland • Coastal scrub • Valley and foothill grassland	60 m	1100 m
Hordeum intercedens	vernal barley	Poaceae	annual herb	Mar-Jun			3.2	• Coastal dunes • Coastal scrub • Valley and foothill grassland (saline flats and depressions) • Vernal pools	5 m	1000 m
		Asteraceae		Apr-Nov			1B.2		10 m	135 m

Isocoma menziesii var. decumbens	decumbent goldenbush		perennial shrub				• Chaparral • Coastal scrub (sandy, often in disturbed areas)		
Iva hayesiana	San Diego marsh-elder	Asteraceae	perennial herb	Apr-Oct		2B.2	• Marshes and swamps • Playas	10 m	500 m
Juncus acutus ssp. leopoldii	southwestern spiny rush	Juncaceae	perennial rhizomatous herb	(Mar)May-Jun		4.2	• Coastal dunes (mesic) • Meadows and seeps (alkaline seeps) • Marshes and swamps (coastal salt)	3 m	900 m
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	Asteraceae	annual herb	Feb-Jun		1B.1	• Marshes and swamps (coastal salt) • Playas • Vernal pools	1 m	1220 m
Lepidium virginicum var. robinsonii	Robinson's pepper-grass	Brassicaceae	annual herb	Jan-Jul		4.3	• Chaparral • Coastal scrub	1 m	885 m
Leptosyne maritima	sea dahlia	Asteraceae	perennial herb	Mar-May		2B.2	• Coastal bluff scrub • Coastal scrub	5 m	150 m
Lycium californicum	California box-thorn	Solanaceae	perennial shrub	(Dec)Mar,Jun,Jul,Aug		4.2	• Coastal bluff scrub • Coastal scrub	5 m	150 m
Microseris douglasii ssp. platycarpha	small-flowered microseris	Asteraceae	annual herb	Mar-May		4.2	• Cismontane woodland • Coastal scrub • Valley and foothill grassland • Vernal pools	15 m	1070 m
Myosurus minimus ssp. apus	little mousetail	Ranunculaceae	annual herb	Mar-Jun		3.1	• Valley and foothill grassland • Vernal pools (alkaline)	20 m	640 m
Nama stenocarpa	mud nama	Namaceae	annual / perennial herb	Jan-Jul		2B.2	• Marshes and swamps (lake margins, riverbanks)	5 m	500 m
Navarretia fossalis	spreading navarretia	Polemoniaceae	annual herb	Apr-Jun	FT	1B.1	• Chenopod scrub • Marshes and swamps (assorted shallow freshwater) • Playas • Vernal pools	30 m	655 m
Nemacaulis denudata var. denudata	coast woolly-heads	Polygonaceae	annual herb	Apr-Sep		1B.2	• Coastal dunes	0 m	100 m
Nemacaulis denudata var. gracilis	slender cottonheads	Polygonaceae	annual herb	(Mar)Apr-May		2B.2	• Coastal dunes • Desert	-50 m	400 m

								dunes • Sonoran desert scrub		
Nolina cismontana	chaparral nolina	Ruscaceae	perennial evergreen shrub	(Mar)May-Jul			1B.2	• Chaparral • Coastal scrub	140 m	1275 m
Orcuttia californica	California Orcutt grass	Poaceae	annual herb	Apr-Aug	FE	CE	1B.1	• Vernal pools	15 m	660 m
Orobanche parishii ssp. brachyloba	short-lobed broomrape	Orobanchaceae	perennial herb (parasitic)	Apr-Oct			4.2	• Coastal bluff scrub • Coastal dunes • Coastal scrub	3 m	305 m
Pentachaeta aurea ssp. aurea	golden-rayed pentachaeta	Asteraceae	annual herb	Mar-Jul			4.2	• Chaparral • Cismontane woodland • Coastal scrub • Lower montane coniferous forest • Riparian woodland • Valley and foothill grassland	80 m	1850 m
Phacelia ramosissima var. austrolitoralis	south coast branching phacelia	Hydrophyllaceae	perennial herb	Mar-Aug			3.2	• Chaparral • Coastal dunes • Coastal scrub • Marshes and swamps (coastal salt)	5 m	300 m
Phacelia stellaris	Brand's star phacelia	Hydrophyllaceae	annual herb	Mar-Jun			1B.1	• Coastal dunes • Coastal scrub	1 m	400 m
Pinus torreyana ssp. torreyana	Torrey pine	Pinaceae	perennial evergreen tree				1B.2	• Closed-cone coniferous forest • Chaparral	30 m	160 m
Pogogyne abramsii	San Diego mesa mint	Lamiaceae	annual herb	Mar-Jul	FE	CE	1B.1	• Vernal pools	90 m	200 m
Polygala cornuta var. fishiae	Fish's milkwort	Polygalaceae	perennial deciduous shrub	May-Aug			4.3	• Chaparral • Cismontane woodland • Riparian woodland	100 m	1000 m
Pseudognaphalium leucocephalum	white rabbit-tobacco	Asteraceae	perennial herb	(Jul)Aug-Nov(Dec)			2B.2	• Chaparral • Cismontane woodland • Coastal scrub • Riparian woodland	0 m	2100 m
Psilocarphus brevissimus var. multiflorus	Delta woolly-marbles	Asteraceae	annual herb	May-Jun			4.2	• Vernal pools	10 m	500 m
Quercus dumosa	Nuttall's scrub oak	Fagaceae	perennial evergreen shrub	Feb-Apr(May-Aug)			1B.1	• Closed-cone coniferous forest • Chaparral • Coastal scrub	15 m	400 m
		Fagaceae		Mar-Jun			4.2		50 m	1300 m

Quercus engelmannii	Engelmann oak		perennial deciduous tree			• Chaparral • Cismontane woodland • Riparian woodland • Valley and foothill grassland		
Salvia munzii	Munz's sage	Lamiaceae	perennial evergreen shrub	Feb-Apr	2B.2	• Chaparral • Coastal scrub	115 m	1065 m
Selaginella cinerascens	ashy spike-moss	Selaginellaceae	perennial rhizomatous herb		4.1	• Chaparral • Coastal scrub	20 m	640 m
Senecio aphanactis	chaparral ragwort	Asteraceae	annual herb	Jan-Apr(May)	2B.2	• Chaparral • Cismontane woodland • Coastal scrub	15 m	800 m
Sidalcea neomexicana	salt spring checkerbloom	Malvaceae	perennial herb	Mar-Jun	2B.2	• Chaparral • Coastal scrub • Lower montane coniferous forest • Mojavean desert scrub • Playas	15 m	1530 m
Stemodia durantifolia	purple stemodia	Plantaginaceae	perennial herb	(Jan) Apr,Jun,Aug,Sep,Oct,Dec	2B.1	• Sonoran desert scrub (often mesic, sandy)	180 m	300 m
Stipa diegoensis	San Diego County needle grass	Poaceae	perennial herb	Feb-Jun	4.2	• Chaparral • Coastal scrub	10 m	800 m
Suaeda esteroa	estuary seablite	Chenopodiaceae	perennial herb	(May)Jul-Oct(Jan)	1B.2	• Marshes and swamps (coastal salt)	0 m	5 m
Tetracoccus dioicus	Parry's tetracoccus	Picrodendraceae	perennial deciduous shrub	Apr-May	1B.2	• Chaparral • Coastal scrub	165 m	1000 m
Viguiera laciniata	San Diego County viguiera	Asteraceae	perennial shrub	Feb-Jun(Aug)	4.3	• Chaparral • Coastal scrub	60 m	750 m

Suggested Citation

California Native Plant Society, Rare Plant Program. 2019. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 06 March 2019].

Attachment C

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Table 4.2-1. Potential of Special Status Plant Species to Occur Within Study Area

Scientific Name	Common Name	Federal Status	Species Summary	2008 SMPU Inclusion	2017 CSMP Occurrence
APIACEAE (Carrot Family)					
Eryngium aristulatum var. *parishii*	San Diego buttoncelery	Federal: FE State: SE CRPR: 1B.1	Annual/perennial herb. Mesic soils in coastal scrub, valley and foothill grassland, and vernal pools from 66-2,034 ft. (20-620 m) AMSL. Blooms April-June.	Yes	Moderate Potential
Eryngium pendletonense	Pendleton button-celery	Federal: None State: None CRPR: 1B.1	Perennial herb. Occurs in clay, vernally mesic soils in coastal bluff scrub, valley and foothill grassland, and vernal pools from 49 to 360 ft. (15 to 110 m) AMSL. Blooms April-July.	No	Moderate Potential
ASTERACEAE (Sunflower Family)					
Ambrosia pumila	San Diego ambrosia	Federal: FE State: None CRPR: 1B.1	Perennial rhizomatous herb. Occurs in sandy loam or clay, often in disturbed areas, sometimes alkaline in chaparral, coastal scrub, valley and foothill grassland, and vernal pools from 65-1,361ft. (20 to 415 m) AMSL. Blooms from April-October.	Yes	Moderate potential
Baccharis vanessae	Encinitas baccharis	Federal: FT State: SE CRPR: 1B.1	Perennial deciduous shrub. Sandstone soils in chaparral (maritime) and cismontane woodland from 197-2,362 ft. (60-720 m) AMSL. Blooms August-November.	Yes	Moderate Potential in southern Maritime Chaparral only
Centromadia parryi ssp. *australis*	southern tarplant	Federal: None State: None CRPR: 1B.1	Annual herb. Margins of salt marshes, in vernally mesic grasslands, and vernal pools below 1,575 ft. (480 m) AMSL. Blooms May-November.	Yes	Moderate Potential (lagoon and drainage areas only)
Centromadia pungens ssp. *laevis*	smooth tarplant	Federal: None State: None CRPR: 1B.1	Annual herb. Per the MSHCP, suitable habitat for smooth tarplant includes alkali scrub, alkali playas, and grasslands with alkaline affinities below 2,099 ft. (640 m) AMSL. Blooms April-November.	Yes	Moderate Potential (drainage areas only)
Chaenactis glabriuscula var. *orcuttiana*	Orcutt's pincushion	Federal: None State: None CRPR: 1B.1	Annual herb. Occurs in sandy coastal bluff scrub and coastal dunes below 328 ft. (100 m) AMSL. Blooms January-August.	No	Low Potential based on lack of suitable habitat

Table 4.2-1. Potential of Special Status Plant Species to Occur Within Study Area

Scientific Name	Common Name	Federal Status	Species Summary	2008 SMPU Inclusion	2017 CSMP Occurrence
Corethrogyne filaginifolia var. *incana*	San Diego sand aster	Federal: None State: None CRPR: 1B.1	Perennial herb. Occurs in coastal bluff scrub, chaparral, and coastal scrub from 9 to 377 ft. (3 to 115 m) AMSL. Blooms June-September.	No	Moderate Potential
Corethrogyne filaginifolia var. *linifolia*	Del Mar Mesa sand aster	Federal: None State: None CRPR: 1B.1	Perennial herb. Occurs sandy soils in coastal bluff scrub, chaparral (maritime, openings), and coastal scrub from 49 to 492 ft. (15 to 150 m) AMSL. Blooms May-September.	Yes	Moderate Potential
Ericameria palmeri var. *palmeri*	Palmer's goldenbush	Federal: None State: None CRPR: 1B.1	Perennial evergreen shrub. Occurs in mesic soils in chaparral and coastal scrub from 98 to 1,968 ft. (30 to 600 m) AMSL. Blooms July-November.	No	Moderate Potential
Hazardia orcuttii	Orcutt's hazardia	Federal: None State: ST CRPR: 1B.1	Perennial evergreen shrub. Occurs in clay soils in maritime chaparral and coastal scrub from 262 to 279 ft. (80 to 85 m). Blooms August- October.	Yes	Moderate Potential
Heterotheca sessiliflora ssp. *sessiliflora*	beach goldenaster	Federal: None State: None CRPR: 1B.1	Perennial herb. Occurs in chaparral (coastal), coastal dunes, and coastal scrub below 4,019 ft. (1,225 m) AMSL. Blooms March-December.	No	Moderate Potential
Isocoma menziesii var. *decumbens*	Decumbent goldenbush	Federal: None State: None CNPS: 1B.2	Shrub. Occurs in sandy soils, often in disturbed areas in coastal scrub and chaparral from 30 to 440 ft. (10 to 135 m) AMSL. Blooms April-November.	Yes	Known to occur in Study Area
Iva hayesiana	San Diego marsh-elder	Federal: None State: None CNPS: 2B.2	Perennial herb. Occurs in marshes and playas from 30 to 1,600 ft. (10 to 500 m) AMSL. Blooms April-October.	Yes	Moderate Potential (drainage areas only)
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	Federal: None State: None CNPS: 1B.1	Annual herb. Occurs in alkaline soils in marshes, playas, vernal pools, and valley and foothill grasslands below 4,600 ft. (1,400 m) AMSL. Blooms February-June.	Yes	Moderate Potential (drainage areas only)

Table 4.2-1. Potential of Special Status Plant Species to Occur Within Study Area

Scientific Name	Common Name	Federal Status	Species Summary	2008 SMPU Inclusion	2017 CSMP Occurrence
Leptosyne maritima	sea dahlia	Federal: None State: None CNPS: 2B.2	Occurs in a variety of soil types, including sandstone, within coastal scrub and coastal bluff scrub from coastal San Diego County and Baja California from 15 to 500 ft. (5 to 150 m) AMSL. Blooms March-May.	No	Moderate Potential
Pseudognaphalium leucocephalum	white rabbit-tobacco	Federal: None State: None CRPR: 2B.2	Perennial herb. Occurs in sandy and gravelly soils in chaparral, cismontane woodland, coastal scrub, and riparian woodland below 6,889 ft. (below 2,100 m) AMSL. Blooms July- December.	No	Low Potential – based on known distribution of species
BORAGINACEAE (Borage Family)					
Cryptantha wigginsii	Wiggins' cryptantha	Federal: None State: None CRPR: 1B.2	Annual herb. Often occurs in clay soils in coastal scrub from 65 to 902 ft. (20 to 275 m) AMSL. Blooms February-June.	No	Moderate Potential
Nama stenocarpa	mud nama	Federal: None State: None CRPR: 2B.2	Annual/perennial herb. Occurs in marshes and swamps along lake margins, riverbanks and seasonal ponds from 16 to 1,640 ft. (5 to 500 m) AMSL. Blooms January-July.	No	Moderate Potential
CACTACEAE (Cactus Family)					
Ferocactus viridescens	San Diego barrel cactus	Federal: None State: None CRPR: 2B.1	Perennial stem succulent. Often on exposed, level or south-facing slopes within chaparral, coastal scrub, and grasslands below 1,500 ft. (460 m) AMSL. Blooms May- June.	Yes	Moderate Potential (common in sage scrub)
CHENOPODIACEAE (Goosefoot Family)					
Atriplex coulteri	Coulter's saltbush	Federal: None State: None CRPR: 1B.2	Perennial herb. Occurs in alkaline or clay soils in open sites, coastal bluff scrub, coastal scrub, and valley and foothill grassland from 10 to 1,509 ft. (3 to 460 m) AMSL. Blooms March-October.	No	Moderate Potential

Table 4.2-1. Potential of Special Status Plant Species to Occur Within Study Area

Scientific Name	Common Name	Federal Status	Species Summary	2008 SMPU Inclusion	2017 CSMP Occurrence
Atriplex pacifica	south coast saltscale	Federal: None State: None CRPR: 1B.2	Annual herb. Occurs in alkaline soils in coastal sage scrub, playas, coastal bluff scrub, coastal dunes, and chenopod scrub from 600 to 1,400 ft. (200 to 430 m) AMSL. Blooms March-October.	Yes	Moderate Potential
Atriplex parishii	Parish's brittlescale	Federal: None State: None CRPR: 1B.1	Annual herb. Occurs in alkaline or clay soils in chenopod scrub, playas, and vernal pools from 82 to 6,232 ft. (25 to 1,900 m) AMSL. Blooms June-October.	No	Low Potential – based on known distribution of species
Suaeda esteroa	estuary seablite	Federal: None State: None CRPR: 1B.2	Perennial herb. Occurs in coastal salt marshes and swamps below 16 ft. (5 m) AMSL. Blooms May-January.	No	Low Potential – based on lack of suitable habitat
CRASSULACEAE (Stonecrop Family)					
Dudleya blochmaniae ssp. *blochmaniae*	Blochman's dudleya	Federal: None State: None CRPR: 1B.1	Perennial herb. Occurs in dry rocky places, often on clay or serpentine soils, in chaparral, coastal sage scrub, or grassland below 1,500 ft. (450 m) AMSL. Blooms May- June.	Yes	Known to occur in Study Area
Dudleya multicaulis	Many stemmed dudleya	Federal: None State: None CRPR: 1B.2	Perennial herb. Occurs in heavy often clay soils around granitic outcrops in chaparral, coastal sage scrub and grasslands below 2,600 ft. (790 m) AMSL. Blooms April- July.	Yes	Moderate Potential
Dudleya variegate	variegated dudleya	Federal: None State: None CRPR: 1B.2	Perennial herb. Occurs in clay soils in chaparral, coastal scrub, vernal pools, valley and foothill grassland and cismontane woodlands from 10 to 1903 ft. (3 to 580 m) AMSL. Blooms April- June.	Yes	Moderate Potential
Dudleya viscida	sticky dudleya	Federal: None State: None CRPR: 1B.2	Perennial herb. Occurs in rocky soils in coastal bluff scrub, chaparral, cismontane woodland, and coastal scrub from 32 to 1,804 ft. (10 to 550 m) AMSL. Blooms May – June.	Yes	Known to occur in Study Area

Table 4.2-1. Potential of Special Status Plant Species to Occur Within Study Area

Scientific Name	Common Name	Federal Status	Species Summary	2008 SMPU Inclusion	2017 CSMP Occurrence
ERICACEAE (Heath Family)					
Arctostaphylos glandulosa ssp. *crassifolia*	Del Mar manzanita	Federal: FE State: None CRPR: 1B.1	Perennial evergreen shrub. Occurs in sandy areas in maritime chaparral and coniferous forest, typically on coastal mesas and ocean bluffs below 1,200 ft. (365 m) AMSL. Blooms December-June.	Yes	Known to occur in Study Area
Arctostaphylos rainbowensis	rainbow manzanita	Federal: None State: None CRPR: 1B.1	Perennial evergreen shrub. Occurs in chaparral from 672 to 2,198 ft. (205 to 670 m) AMSL. Blooms December-March.	No	Moderate Potential
Comarostaphylis diversifolia ssp. *diversifolia*	summer holly	Federal: None State: None CRPR: 1B.2	Perennial evergreen. Occurs in chaparral and cismontane woodland from 98 to 2,591 ft. (30 to 790 m) AMSL. Blooms April-June.	Yes	Known to occur in Study Area
EUPHORBIACEAE (Spurge Family)					
Euphorbia misera	cliff spurge	Federal: None State: None CRPR: 2B.2	Perennial shrub. Occurs in rocky soils in coastal bluff scrub, coastal scrub, and Mojavean desert scrub from 32 to 1,640 ft. (10 to 500 m) AMSL. Blooms December-October.	Yes	Known to occur in Study Area
FABACEAE (Pea Family)					
Acmispon prostratus	Nuttall's acmispon	Federal: None State: None CRPR: 1B.1	Annual herb. Occurs in coastal dunes and sandy coastal scrub below 32 ft. (10m) AMSL. Blooms March-July.	No	Not expected. No suitable habitat below 32 ft in elevation
FAGACEAE (Oak and Beech Family)					
Quercus dumosa	Nuttall's scrub oak	Federal: None State: None CRPR: 1B.1	Perennial evergreen shrub. Sandy and clay load soils in closed-cone coniferous forest, chaparral, and coastal scrub from 45 to 1,312 ft. (15 to 400 m) AMSL. Blooms January-April.	Yes	Known to occur in Study Area

Table 4.2-1. Potential of Special Status Plant Species to Occur Within Study Area

Scientific Name	Common Name	Federal Status	Species Summary	2008 SMPU Inclusion	2017 CSMP Occurrence
LAMIACEAE (Mint Family)					
Acanthomintha ilicifolia	San Diego thorn-mint	Federal: FT State: SE CRPR: 1B.1	Annual herb. Occurs is vertisol clay soils of mesas and valleys within grasslands, chaparral, coastal scrub and vernal pool communities from 20 to 3,200 ft. (10 to 960 m) AMSL. Blooms April- June.	Yes	Known to occur in Study Area
Lepechinia cardiophylla	heart-leaved pitcher sage	Federal: None State: None CRPR: 1B.2	Perennial herb. Occurs in closed-cone coniferous forest, chaparral, and cismontane woodland from 1,706 to 4,494 ft. (520 to 1,370 m) AMSL. Blooms April-July.	No	Low Potential – Based on elevation range of the Study Area
Monardella hypoleuca ssp. *intermedia*	intermediate monardella		Perennial rhizomatous herb. Occurs in the understory of chaparral, cismontane woodland, and lower montane coniferous forest from 1,312 to 4,101 ft. (400 to 1,250 m) AMSL. Blooms April-September.	No	Low Potential – based on known distribution of the species
Monardella hypoleuca ssp. *lanata*	Felt-leaved monardella	Federal: None State: None CRPR: 1B.2	Occurs in chaparral and cismontane woodlands from 1,000 to 5,200 ft. (300 to 1,575 m) AMSL. Blooms June- August.	Yes	Known to occur in Study Area
Salvia munzii	Munz's sage	Federal: None State: None CRPR: 2B.2	Perennial evergreen shrub. Occurs in chaparral and coastal scrub from 377 to 3,494 ft. (115 to 1,065 m) AMSL. Blooms February-April.	No	Moderate Potential
LILIACEAE (Lily Family)					
Calochortus dunnii	Dunn's mariposa lily	Federal: None State: None CRPR: 1B.2	Perennial bulbiferous herb. Occurs in gabbroic, metavolcanic, and rocky soils in closed-cone coniferous forest, chaparral, and valley and foothill grasslands from 606 to 6,003 ft. (185 to 1,830 m) AMSL. Blooms February-June.	No	Low Potential – based on known distribution of species

Table 4.2-1. Potential of Special Status Plant Species to Occur Within Study Area

Scientific Name	Common Name	Federal Status	Species Summary	2008 SMPU Inclusion	2017 CSMP Occurrence
MALVACEAE (Mallow Family)					
Sidalcea neomexicana	salt spring checkbloom	Federal: None State: None CRPR: 2B.2	Perennial herb. Occurs in alkaline and mesic soils in chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub, and playas from 49 to 5,019 ft. (15 to 1,530 m) AMSL. Blooms March-June.	No	Moderate Potential in wet areas with alkaline soil
NYCTAGINACEAE (Four o'clock Family)					
Abronia villosa var. *aurita*	chaparral sand-verbena	Federal: None State: None CRPR: 1B.1	Annual herb. Occurs in sandy areas typically with flats and benches along washes in chaparral and coastal sage scrub, and improbably in desert dunes or other sandy areas below 5,300 ft. (1,600 m) AMSL. Blooms March-August.	Yes	Moderate Potential (adjacent to lagoon areas only)
ONAGRACEAE (Willowherb Family)					
Clarkia delicate	delicate clarkia	Federal: None State: None CRPR: 1B.2		Yes	Low Potential – based on known distribution of the species
PICRODENDRACEAE					
Tetracoccus dioicus	Parry's tetracoccus	Federal: None State: None CRPR: 1B.2	Perennial deciduous shrub. Occurs in chaparral and coastal scrub from 541 to 3,281 ft. (165 to 1,000 m) AMSL. Blooms April-May.	Yes	Known to occur in the Study Area
PLANTAGINACEAE (Plantain Family)					
Stemodia durantifolia	purple stemodia	Federal: None State: None CRPR: 2B.1	Perennial herb. Occurs in Sonoran desert scrub (often mesic, sandy soils) from 590 to 984 ft. (180 to 300 m) AMSL. Blooms January-December.	No	Low Potential – based on lack of suitable habitat

Table 4.2-1. Potential of Special Status Plant Species to Occur Within Study Area

Scientific Name	Common Name	Federal Status	Species Summary	2008 SMPU Inclusion	2017 CSMP Occurrence
POACEAE (Grass Family)					
Orcuttia californica	California Orcutt's grass	Federal: FE State: FE CRPR: 1B.1	Annual grass. Occurs in vernal pools from 50 to 2,200 ft. (15 to 660 m) AMSL. Blooms April- August.	Yes	Moderate Potential
POLEMONIACEAE (Jacob's-ladder or Phlox Family)					
Navarretia fossalis	Spreading navarretia	Federal: FT State: None CRPR: 1B.1	Annual herb. Occurs in vernal pools, playas, shallow freshwater marshes and similar areas from 100 to 4,300 ft. (30 to 1,310 m) AMSL. Blooms April- June.	Yes	Moderate Potential
POLYGONACEAE (Buckwheat Family)					
Chorizanthe orcuttiana	Orcutt's spineflower	Federal: None State: None CRPR: 1B.1	Annual herb. Occurs in sandy soils in coastal scrub, chaparral, and closed-cone coniferous forests from 10 to 410 ft. (3 to 125 m) AMSL. Blooms March- May.	Yes	Moderate Potential
Chorizanthe polygonoides var. *longispina*	Long-spined spineflower	Federal: None State: None CRPR: 1B.2	Annual herb. Occurs in clay soils in chaparral, coastal scrub, or woodlands from 100 to 5,600 ft. (40 to 1,705 m) AMSL. Blooms April- July.	Yes	Moderate Potential
Nemacaulis denudata var. *denudate*	Coast woolly-heads	Federal: None State: None CRPR: 1B.2	Annual herb. Occurs in sandy places such as coastal dunes below 300 ft. (100 m) AMSL. Blooms April-September.	Yes	Low Potential – based on lack of suitable habitat
Nemacaulis denudata var. *gracilis*	slender cottonheads	Federal: None State: None CRPR: 2B.2	Annual herb. Occurs in coastal dunes, desert dunes, and Sonoran desert scrub from -164 to 1,312 ft. (-50 to 400 m) AMSL. Blooms March-May.	No	Low Potential – based on lack of suitable habitat
RANUNCULACEAE (Buttlecup or Crowfoot Family)					
Myosurus minimus ssp. *apus*	Little mousetail	Federal: None State: None CRPR: 3.1	Annual herb. Occurs in alkaline areas in vernal pools from 70 to 2,100 ft. (20 to 640 m) AMSL. Blooms March- June.	Yes	Moderate Potential

Table 4.2-1. Potential of Special Status Plant Species to Occur Within Study Area

Scientific Name	Common Name	Federal Status	Species Summary	2008 SMPU Inclusion	2017 CSMP Occurrence
RHAMNACEAE (Buckthorn Family)					
Adolphia californica	California adolphia	Federal: None State: None CRPR: 2B.1	Perennial deciduous shrub. Occurs in clay soils in grasslands, coastal sage scrub, and chaparral communities from 33 to 2,400 ft. (10 to 740 m) AMSL. Blooms December- May.	Yes	Known to occur in Study Area
Ceanothus verrucosus	wart-stemmed ceanothus	Federal: None State: None CRPR: 2B.2	Shrub. Occurs in chaparral below 1,250 ft. (380 m) AMSL. Blooms December- May.	Yes	Known to occur in Study Area
ROSACEAE (Rose Family)					
Horkelia cuneata ssp. *puberula*	Mesa horkelia	Federal: None State: None CRPR: 1B.1	Perennial herb. Occurs typically in sandy and gravelly soils in chaparral and rarely in cismontane woodland or coastal scrub from 200 to 2,700 ft. (70 to 825 m) AMSL. Blooms February-July occasionally till September.	Yes	Low Potential
Horkelia truncata	Ramona horkelia	Federal: None State: None CRPR: 1B.3	Occurs in clay soils in chaparral and woodland from 1,000 to 4,900 ft. (300 to 1,500 m) AMSL. Blooms May-June.	Yes	Moderate Potential
RUSCACEAE (Butcher's Broom Family)					
Nolina cismontana	Chaparral nolina	Federal: None State: None CRPR: 1B.2	Perennial shrub. Occurs in sandstone or gabbro soils in chaparral and coastal sage scrub from 1,150 to 5,600 ft. (350 to 1,700 m) AMSL. Blooms May- July.	Yes	Moderate Potential
THEMIDACEAE (Brodiaea Family)					
Bloomeria clevelandii	San Diego goldenstar	Federal: None State: None CRPR: 1B.1	Perennial bulbiferous herb. Occurs in clay soils in chaparral, coastal scrub, valley and foothill grassland, and vernal pools from 164 to 1,525 ft. (50 to 465 m) AMSL. Blooms April-May.	No	Known to occur in Study Area

Table 4.2-1. Potential of Special Status Plant Species to Occur Within Study Area

Scientific Name	Common Name	Federal Status	Species Summary	2008 SMPU Inclusion	2017 CSMP Occurrence
Brodiaea filifolia	thread-leaved brodiaea	Federal: FT State: SE CRPR: 1B.1	Perennial herb. Occurs on clay soils associated with vernal pools or alkaline flats. Occasionally in vernally moist sites in fine soils including clay loam, silt loam, fine sandy loam, loam, loamy fine sand. Typically associated with needlegrass or alkali grassland or vernal pools from 80 to 3,700 ft. (25 to 1,120 m) AMSL. Blooms March- June.	Yes	Known to occur in Study Area
Brodiaea orcuttii	Orcutt's brodiaea	Federal: None State: None CRPR: 1B.1	Perennial herb. Clay and some serpentine soils, usually associated with streams and vernal pools from 100 to 5,600 ft. (30 to 1,700 m) AMSL. Blooms May- July.	Yes	Known to occur in Study Area

Source: CNDDB 2017; USFWS 2017

FE = Federally Endangered.

FT = Federally Threatened

SE = State Endangered

ST = State Threatened

CRPR = California Rare Plant Ranking

List 1B = Plants rare, threatened or endangered in California and elsewhere.

List 2B = Plants rare, threatened or endangered in California but more common elsewhere.

List 3 = more information needed about this plant (Review List)

List 4 = Plants of limited distribution (Watch List)

0.1 Seriously endangered in California

0.2 Fairly endangered in California

0.3 Not very endangered in California

[1] CNPS, Rare Plant Program. 2017. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society, Sacramento, CA. Website http://www.rareplants.cnps.org [accessed 8 March 2017].

[2] Calflora: Information on California plants for education, research and conservation, with data contributed by public and private institutions and individuals, including the Consortium of California Herbaria. [web application]. 2016. Berkeley, California: The Calflora Database [a non-profit organization]. Available: http://www.calflora.org/ (accessed: March 8, 2017).

Table 4.2-2. Potential of Special Status Wildlife Species to Occur on Project Site

Scientific Name	Common Name	Status	Species Summary	2008 SMPU Inclusion	Potential to Occur
INVERTEBRATES					
Branchinecta lynchi	vernal pool fairy shrimp	Federal: FT State: None	Vernal pools and swales in grassland areas. Known from the Central Valley, the central coast and south coast mountains as far south as Ventura County, and from the Santa Rosa Plateau, Skunk Hollow, and the Stowe Road vernal pool near Salt Creek just west of Hemet in Riverside County.	No	Known to occur in the Study Area
Branchinecta sandiegonensis	San Diego fairy shrimp	Federal: FE State: None	Vernal pools; cool water seasonal pools with low to moderate dissolved solids.	Yes	Moderate Potential
Streptocephalus wootoni	Riverside fairy shrimp	Federal: FE State: None	Vernal pools; deep cool water seasonal pools. Pools with low to moderate dissolved solids.	Yes	Low Potential – project site south of known range for the species
FISH					
Eucyclogobius newberryi	tidewater goby	Federal: FE State: SSC	Endemic to California inhabits coastal lagoons, estuaries, and marshes. Generally found in brackish water in shallow lagoons and in lower stream reaches where water is still but not stagnant. They prefer a sandy substrate for breeding. Favors sparse vegetation containing submerged or emergent aquatic plants such as widgeongrass (Ruppia maritima), bullrushes (Scirpus sp.), and pondweed (Potamogeton sp.).Historically found from the mouth of the Smith River, Del Norte County to Agua Hedionda Lagoon in Northern San Diego County.	No	Low Potential based on lack of suitable brackish habitat (critical habitat located west of the Study Area)
Gila orcuttii	arroyo chub	Federal: None State: SSC	Perennial streams or intermittent streams with permanent pools; slow water sections of streams with mud or sand substrates; spawning occurs in pools. Native to Los Angeles, San Gabriel, San Luis Rey, Santa Ana, and Santa Margarita River systems; introduced in Santa Ynez, Santa Maria, Cuyama, and Mojave River systems and smaller coastal streams.	No	Moderate Potential

Table 4.2-2. Potential of Special Status Wildlife Species to Occur on Project Site

Scientific Name	Common Name	Status	Species Summary	2008 SMPU Inclusion	Potential to Occur
AMPHIBIANS & REPTILES					
Anaxyrus californicus	arroyo toad	Federal: FE State: SSC	Inhabits washes, arroyos, sandy riverbanks, riparian areas with willow, sycamores, oaks, and cottonwoods. Requires exposed sandy streamsides with stable terraces for burrowing with scattered vegetation for shelter, and areas of quiet water or pools free of predatory fishes with sandy or gravel bottoms without silt for breeding. Coastal and a few desert streams from Santa Barbara County to Baja California.	Yes	Moderate Potential
Spea hammondii	western spadefoot	Federal: None State: SSC	Found in grasslands, but occasionally populations also occur in valley-foothill hardwood woodlands. Some populations persist in orchard or vineyard habitats. Occurs in the Central valley and adjacent foothills. In the Coast Ranges, it is found from Santa Barbara County south to the Mexican border. Elevation from sea level to 1,363m (4,460 ft) in the southern Sierra foothills.	Yes	Moderate Potential (suitable habitat is located in the Study Area)
Arizona elegans occidentalis	California glossy snake	Federal: None State: SSC	Inhabits arid scrub, rocky washes, grasslands, and chaparral. Nocturnal. In underground burrows in daytime. Lays eggs in June and July, juveniles hatch in late summer and early fall. Found from eastern part of the San Francisco Bay area south to northwestern Baja California.	Yes	Moderate Potential (suitable habitat is located in the Study Area)
Aspidoscelis hyperythra	orange-throated whiptail	Federal: None State: SSC	Inhabits semi-arid brushy areas typically with loose soils and rock, including washes, streamsides, rocky hillsides, coastal scrub, chamise-redshank chaparral, mixed chaparral, coastal chaparral, and valley-foothill hardwood habitats. Occurs in Orange, riverside, and San Diego Counties west of the crest of the Peninsular Ranges. Also in southwestern San Bernardino County near Colton. Elevation ranges from sea level to 3410 ft. (1040 m).	Yes	Known to occur in Study Area

Table 4.2-2. Potential of Special Status Wildlife Species to Occur on Project Site

Scientific Name	Common Name	Status	Species Summary	2008 SMPU Inclusion	Potential to Occur
Aspidoscelis tigris stejnegeri	Coastal whiptail	Federal: None State: SSC	Wide variety of ecosystems, primarily hot and dry open areas with sparse foliage, including coastal sage scrub, sparse grassland, and riparian woodland; coastal and inland valleys and foothills; Ventura County to Baja California.	Yes	Moderate Potential (suitable habitat is located in the Study Area)
Crotalus ruber	red-diamond rattlesnake	Federal: None State: SSC	Inhabits arid scrub, coastal chaparral, oak and pine woodlands, rocky grassland, and cultivated areas. On the desert slopes of mountains, it ranges into rocky desert flats. From Morongo Valley west to the coast and south along the peninsular ranges to mid Baja California.	Yes	Moderate Potential (suitable habitat is located in the Study Area)
Emys marmorata	western pond turtle	Federal: None State: SSC	Inhabits permanent or nearly permanent water, in ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches with abundant vegetation, and either rocky or muddy bottoms, in woodland, forest, and grassland. In streams, prefers pools to shallower areas. Logs, rocks, cattail mats, and exposed banks are required for basking. May enter brackish water and even seawater. San Francisco Bay south to Baja California, including Mojave River.	Yes	Moderate Potential
Phrynosoma blainvillii	coast horned lizard	Federal: None State: SSC	Inhabits open areas of sandy soils and low vegetation in valleys, foothills, and semiarid mountains. Found in grasslands, coniferous forests, woodlands, and chaparral, with open areas and patches of loose soil. Often found in lowlands along sandy washes with scattered shrubs and along dirt roads, and frequently found near ant hills. Along Pacific coast from Baja California border west of the deserts and the Sierra Nevada, north to the Bay Area, and inland as far north as Shasta Reservoir, and south into Baja California.	Yes	Known to occur in the Study Area

Table 4.2-2. Potential of Special Status Wildlife Species to Occur on Project Site

Scientific Name	Common Name	Status	Species Summary	2008 SMPU Inclusion	Potential to Occur
Salvadora hexalepis virgultea	Coast patch-nosed snake	Federal: None State: SSC	Inhabits semi-arid brushy areas and chaparral in canyons, rocky hillsides, and plains. Widely distributed throughout lowlands, up to 2,130 meters (7,000 feet) elevation. Ranges from San Luis Obispo County, south through coastal zone, south and west of the deserts, into coastal northern Baja California.	Yes	Moderate Potential (suitable habitat is located in the Study Area)
Thamnophis hammondii	two-striped gartersnake	Federal: None State: SSC	Highly aquatic. Found around pools, creeks, cattle tanks, and other water sources, often in rocky areas in oak woodland, chaparral, brushland, and coniferous forest. From Monterey County to northwest Baja California.	Yes	Moderate Potential (suitable habitat is located in the Study Area)
Thamnophis sirtalis ssp. *infernalis*	south coast gartersnake	Federal: None State: SSC	Inhabits forests, mixed woodlands, grassland, chaparral, farmlands, and often near ponds, marshes, or streams. Active during daylight and often escapes into water when threatened. Endemic to California, ranging from Humboldt County south along the coast ranges into San Diego County.	Yes	Moderate Potential (suitable habitat is located in the Study Area)
BIRDS					
Agelaius tricolor	tricolored blackbird	Federal: None State: CE	Forages in agricultural areas, particularly where livestock are present and grass is short. Breeds in freshwater marshes with tall emergent vegetation, in upland habitats (especially thickets of non-native blackberry), and in silage fields. Breeds April-July, in large congregations.	Yes	Moderate Potential (suitable habitat is located in the Study Area)
Aquila chrysaetos	golden eagle	Federal: None State: Protected	Open and semi-open country featuring native vegetation. Found primarily in mountains up to 12,000 feet, canyonlands, rimrock terrain, and riverside cliffs and bluffs. Nests on cliffs and steep escarpments in grassland, chaparral, shrubland, forest, and other vegetated areas.	Yes	Low Potential based on lack of suitable breeding habitat

Table 4.2-2. Potential of Special Status Wildlife Species to Occur on Project Site

Scientific Name	Common Name	Status	Species Summary	2008 SMPU Inclusion	Potential to Occur
Buteo swainsoni	Swainson's hawk	Federal: None State: ST	Favor open habitats such as native prairie and grassland habitats, will forage in agricultural fields, pastures, grain crops, and row crops. Nests in scattered stands of trees near agricultural fields and grasslands for nesting.	Yes	Moderate Potential for foraging/ Low Potential for breeding
Campylorhynchus brunneicapillus sandiegensis	San Diego cactus wren	Federal: None State: SSC	Resident in arid and semi-arid regions from southern California, Baja California, Utah, Nevada, New Mexico, Texas, and Mexico. Favors coastal lowlands and coastal sage scrub with thickets of chollas or prickly-pear cacti tall enough to support and protect the birds' nests. Can nest in relict stands of cactus or even spiny ornamental garden plants.	Yes	Moderate Potential
Charadrius alexandrinus nivosus	western snowy plover	Federal: FT State: SSC	Barren to sparsely vegetated sand beaches, dry salt flats in lagoons, dredge spoils deposited on beach or dune habitat, levees and flats at salt-evaporation ponds, river bars, along alkaline or saline lakes, reservoirs, and ponds. Breeds from Washington state south to Baja California, Mexico.	Yes	Moderate Potential (lagoon areas only)
Circus cyaneus	northern harrier	Federal: None State: SCC	Common in large, undisturbed tracts of wetlands and grasslands with low, thick vegetation. Breed in freshwater and brackish marshes, lightly grazed meadows, old fields, tundra, dry upland prairies, drained marshlands, high-desert shrubsteppe, and riverside woodlands.	Yes	Moderate Potential (suitable foraging habitat is located in the Study Area)
Coccyzus americanus occidentalis	western yellow-billed cuckoo	Federal: FT State: SE	Nests in extensive stands of low to moderate elevation native forests such as dense cottonwood/willow riparian forests and require relatively large (>20 hectares) of contiguous patches of multilayered riparian habitat. Also know to nest in early to mid-successional native riparian habitat.	No	Moderate Potential (suitable habitat is located in the Study Area)

Table 4.2-2. Potential of Special Status Wildlife Species to Occur on Project Site

Scientific Name	Common Name	Status	Species Summary	2008 SMPU Inclusion	Potential to Occur
Elanus leucurus	White-tailed kite	Federal: None State: Protected	Found in open groves, river valleys, marshes, grasslands, oak grasslands, desert grasslands, and farm country. Often nests in live oaks with open ground and high populations of rodents.	Yes	Known to occur in the Study Area
Empidonax traillii extimus	southwestern willow flycatcher	Federal: FE State: SE	Breeds in southern California, Arizona, New Mexico, Nevada, Utah, and Texas in relatively dense riparian tree and shrub communities associated with rivers, swamps, and other wetlands including lakes and reservoirs. The dense vegetation occurs within the first 10 to 13 feet above the ground. Habitat patches must be at least 0.25 ac in size and at least 30 feet wide. Prefers nesting in native vegetation but will use thickets dominated by non-native tamarisk or mixed native non-native stands.	Yes	Known to occur in the Study Area
Icteria virens	yellow–breasted chat	Federal: None State: SCC	Nests in areas of dense shrubbery such as brushy tangles, briars, stream thickets, and willow thickets often along streams and at the edges of swamps or ponds. Sometimes in dry overgrown pastures and upland thickets along margins of woods. Migrates to Mexico and central America.	Yes	Known to occur in the Study Area
Ixobrychius exilis	least bittern	Federal: None State: SCC	Nest and forages in dense tall emergent freshwater or brackish marsh vegetation. May be over fairly deep water, it mostly climbs in reeds rather than wading. Southern California populations are non-migratory.	Yes	Low Potential

Table 4.2-2. Potential of Special Status Wildlife Species to Occur on Project Site

Scientific Name	Common Name	Status	Species Summary	2008 SMPU Inclusion	Potential to Occur
Laterallus jamaicensis coturniculus	California black rail	Federal: None State: ST	Requires fresh, brackish, and pickleweed-dominated salt marshes. Appear to prefer tidal salt marshes with a heavy canopy of pickleweed and an open structure below the canopy for nesting and accessibility. Known from coastal California, San Francisco Bay south to Baja California, Colorado River, and isolated populations in the Sierra foothills. Begins nesting in February, in stands of pickleweed and tall grasses, near the upper limits of tidal flooding zone.	Yes	Low Potential based on lack of suitable habitat
Passerculus sandwichensis beldingi	Belding's savannah sparrow	Federal: None State: SE	Resident in coastal salt marshes from Santa barbara County south to Mexico. Nests in pickleweed from January to August. Also found in mudflats, sandflats, and rock jetties.	Yes	Low Potential based on lack of suitable habitat
Polioptila californica californica	Coastal California gnatcatcher	Federal: FT State: SSC	Prefers open sage scrub with California sagebrush as a dominant or co-dominant species. More abundant near sage scrub-grassland interface than where sage scrub grades into chaparral.	Yes	Known to occur in the Study Area
Rallus obsoletus levipes	light-footed clapper rail	Federal: FE State: SE	Inhabits coastal marshes and lagoons in southern California south to northern Baja California. Require shallow water and mudlfats for foraging, with adjacent higher vegetation for cover during high water. Prefers tidal marshes dominated by cordgrass.	Yes	Low Potential based on the lack of suitable habitat
Riparia riparia	bank swallow	Federal: None State: ST	Found near water in fields, marshes, streams, and lakes. Typically seen feeding in flight over water at all seasons. Nests in colonies in vertical banks of dirt or sand, usually along rivers or ponds, seldom away from water.	No	Moderate Potential (suitable habitat is located in the Study Area)
Setophaga petechia	yellow warbler	Federal: None State: SSC	Nests in riparian and wetland habitats, thickets, and other disturbed or regrowing habitats. Three subspecies breed in California: morcomi, brewsteri, and sonorana. (Sonoran yellow warbler nests along the Colorado River.)	No	Known to occur in the Study Area

Table 4.2-2. Potential of Special Status Wildlife Species to Occur on Project Site

Scientific Name	Common Name	Status	Species Summary	2008 SMPU Inclusion	Potential to Occur
Sternula antillarum browni	California least tern	Federal: FE State: SE	Found on sea costs, beaches, bays, estuaries, lagoons, lakes, and rivers. Nests on sandy or gravelly beaches and banks of rivers or lakes.	Yes	Low Potential for nesting based on lack of suitable habitat; may forage in areas of open water
Vireo bellii pusillus	Least Bell's vireo	Federal: FE State: SE	Inhabits lowland riparian forests and willow thickets. Also found in foothill streams and scattered location in the Mojave Desert. Ranges from Santa Barbara south to San Diego County.	Yes	Known to occur in the Study Area
MAMMALS					
Antrozous pallidus	Pallid bat	Federal: None State: SSC	Inhabits a wide variety of habitats including grasslands, shrublands, woodlands, and forests from sea level up through mixed conifer forests. Most common in open, dry habitats with rocky areas for roosting. Breeds October -February, young born April-June, juveniles independent July-August	Yes	Moderate Potential (suitable habitat is located in the Study Area)
Chaetodipus californicus femoralis	Dulzura pocket mouse	Federal: None State: SSC	Inhabits Diegan and Riversidean upland sage scrub, alluvial fan sage scrub, sagescrub/grassland ecotones, chaparral, and desert scrubs below 2,600 feet. Found in Orange, Riverside, San Diego, Tulare, and Ventura Counties.	Yes	Moderate Potential (suitable habitat is located in the Study Area)
Chaetodipus fallax fallax	Northwestern San Diego pocket mouse	Federal: None State: SSC	Inhabits coastal scrub, chamise-redshank chaparral, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon-juniper, and annual grassland. Found in San Diego, Riverside, and San Bernardino Counties below 4,500 feet. Favors rocky, gravelly, or sandy ground.	Yes	Moderate Potential (suitable habitat is located in the Study Area)
Choeronycteris mexicana	Mexican long-tongued bat	Federal: None State: SSC	Known to only occur in San Diego county in California as a summer resident. Occupies caves, mines, buildings, desert and montane riparian, desert succulent shrub, and pinyon-juniper habitats. Primarily nectar feeder.	Yes	Low Potential based on lack of suitable habitat

Table 4.2-2. Potential of Special Status Wildlife Species to Occur on Project Site

Scientific Name	Common Name	Status	Species Summary	2008 SMPU Inclusion	Potential to Occur
Corynorhinus townsendii	Townsend's big-eared bat	Federal: None State: SSC	Found throughout California in all but subalpine and alpine habitats, and any season throughout its range. Most abundant in mesic habitats. Requires caves, mines, tunnels, buildings, or other human-made structures for roosting. May use separate sites for night, day, hibernation, or maternity roosts. Roosting sites are the most important limiting resource. Feeds primarily on small moths, beetles, and a variety of soft-bodied insects.	Yes	Moderate Potential (suitable habitat is located in the Study Area)
Dipodomys stephensi	Stephens' kangaroo rat	Federal: FE State: ST	Inhabits annual and perennial grassland habitats but may occur in coastal scrub or sagebrush with sparse canopy cover, or in disturbed areas such as abandoned agricultural fields. Preferred perennials are buckwheat and chamise, preferred annuals are brome grass and filaree. Found in San Jacinto valley, southwestern San Bernardino County, and northern San Diego between 55 and 1,250 meters elevation.	Yes	Moderate Potential
Eumops perotis californicus	western mastiff bat	Federal: None State: SCC	Occurs near significant rock features offering suitable roosting habitat. Found in a variety of habitats including desert scrub, chaparral, oak woodland, dry desert washes, flood plains, coastal sage scrub, grasslands, agricultural areas, and ponderosa pine. Primarily a crevice dwelling species, often found under large exfoliating slabs of granite, sandstone slabs or in columnar basalt, on cliff faces or in large boulders. Rossts are generally high above the ground with a clear vertical drop. Primarily feeds on moths, but also includes beetles and crickets.	Yes	Moderate Potential (suitable habitat is located in the Study Area)

Table 4.2-2. Potential of Special Status Wildlife Species to Occur on Project Site

Scientific Name	Common Name	Status	Species Summary	2008 SMPU Inclusion	Potential to Occur
Lasiurus xanthinus	Western yellow bat	Federal: None State: SSC	Found in Los Angeles and San Bernardino Counties, south to the Mexican border. Inhabits foothill riparian, desert riparian, desert wash, and palm oasis habitats below 2000'. Roosts in trees, including palm trees. Feeds on flying insects, forages over water and among trees.	No	Known to occur in the Study Area
Leptonycteris curasoae yerbabuenae	lesser long-nosed bat	Federal: FE State: None	Occurs in the Sonoran desert with columnar cacti and agaves. Requires columnar cacti and agaves for roosting and food. Day roosts include caves, mines, rock crevices, trees and shrubs, and occasionally abandoned buildings. Very sensitive to human disturbance. Requires columnar cactus flowers and fruits; agave flowers represent the core diet. Also important are nectar, pollen, and fruit produced by a variety of columnar cacti.	No	Low Potential – Study Area not within typical range for species
Lepus californicus bennettii	San Diego black-tailed jackrabbit	Federal: None State: SSC	Inhabits a variety of open and semi-open habitats, primarily grasslands, Riversidean sage scrub, Riversidean alluvial fan sage scrub, Great Basin sagebrush, desert scrub, agricultural fields, and juniper and oak woodlands.	Yes	Moderate Potential (suitable habitat is located in the Study Area)
Neotoma lepida intermedia	San Diego desert woodrat	Federal: None State: SSC	Found in desert scrub and coastal sage scrub habitat, especially in association with cactus patches. Builds stick nests around cacti, or on rocky crevices. Occurs along the Pacific slope from San Luis Obispo County to northwest Baja California.	Yes	Moderate Potential (suitable habitat is located in the Study Area)
Nyctinomops femorosaccus	pocketed free-tailed bat	Federal: None State: SSC	Found in Riverside, San Diego, and Imperial Counties in pinyon-juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oasis. Feeds on flying insects, primarily large moths. Roosts in rock crevices in cliffs, rock outcrops, caverns, or buildings.	Yes	Moderate Potential (suitable habitat is located in the Study Area)

Table 4.2-2. Potential of Special Status Wildlife Species to Occur on Project Site

Scientific Name	Common Name	Status	Species Summary	2008 SMPU Inclusion	Potential to Occur
Nyctinomops macrotis	big free-tailed bat	Federal: None State: SSC	Inhabits crevices in high cliffs, rock outcrops, and other rugged rocky terrain below 2,500 m in elevation. Roosts in buildings, caves, and occasionally in holes in trees.	Yes	Low Potential – based on lack of suitable roosting habitat
Perognathus longimembris pacificus	Pacific pocket mouse	Federal: FE State: SSC	Inhabits shrublands with firm sandy soils. Fine-grain, sandy substrates in the immediate vicinity of the ocean; coastal dunes, river alluvium, and coastal sage scrub growing on marine terraces. Has been found on flats, often submerged by high tides at the mouth of the Tijuana River.	Yes	Low Potential – based on lack of suitable habitat
Taxidea taxus	American badger	Federal: None State: SSC	Inhabits drier open stages of most shrub, forest, and herbaceous habitats with friable soils. Burrows dug in relatively dry, often sandy soils, usually in areas with sparse overstory cover. Frequently reuse old burrows.	Yes	Known to occur in the Study Area

Source: CNDDB 2017; USFWS 2017

FE = Federally Endangered.

FT = Federally Threatened

SE = State Endangered

ST = State Threatened

SSC = Species of special concern

Attachment D

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Species	Common Name	Special-Status	Wetland Rank	Weed Rank
MAGNOLIIDS				
SAURURACEAE – LIZARD'S–TAIL FAMILY				
Anemopsis californica	yerba mansa		OBL	
EUDICOTS				
AIZOACEAE – FIG–MARIGOLD FAMILY				
*Carpobrotus edulis**	freeway iceplant			
*Mesembryanthemum crystallinum**	crystalline iceplant		FACU	
ANACARDIACEAE – SUMAC FAMILY				
Malosma laurina	laurel sumac			
Rhus integrifolia	lemonade berry			
Toxicodendron diversilobum	western poison oak		FACU	
APIACEAE – CARROT FAMILY				
*Conium maculatum**	poison hemlock		FACW	
Daucus pusillus	small wild carrot			
*Foeniculum vulgare**	fennel			
*Torilis arvensis**	tall sock-destroyer			
APOCYNACEAE – DOGBANE FAMILY				
Asclepias sp.	milkweed			
*Vinca major**	greater periwinkle			
ASTERACEAE – SUNFLOWER FAMILY				
Ambrosia psilostachya	western ragweed		FACU	
Artemisia californica	California sagebrush			
Artemisia douglasiana	mugwort		FAC	
Baccharis pilularis ssp. consanguinea	coyote brush			
Baccharis salicifolia ssp. salicifolia	mule fat		FAC	
*Carduus pycnocephalus ssp. pycnocephalus**	Italian thistle			B
*Centaurea melitensis**	Maltese star-thistle			C
*Cirsium vulgare**	bull thistle		FACU	C
*Cynara cardunculus**	artichoke			B
Deinandra fasciculata	fascicled tarplant		FACU	
Encelia californica	California encelia			
*Erigeron bonariensis**	flax-leaved horseweed		FACU	
Erigeron canadensis	horseweed		FACU	
*Glebionis coronaria**	crown daisy			
Gnaphalium cf. palustre	marsh cudweed		FACW	
*Helminthotheca echioides**	bristly ox-tongue		FAC	
Heterotheca grandiflora	telegraph weed			

Species	Common Name	Special-Status	Wetland Rank	Weed Rank
*Hypochaeris glabra**	smooth cat's-ear			
Isocoma menziesii	coastal goldenbush		FAC	
*Lactuca serriola**	prickly lettuce		FACU	
*Logfia gallica**	daggerleaf cottonrose			
*Matricaria discoidea**	pineapple weed		FACU	
Pseudognaphalium californicum	California cudweed			
Pseudognaphalium stramineum	straw-colored cudweed		FAC	
*Senecio vulgaris**	common groundsel		FACU	
*Silybum marianum**	blessed milk thistle			
*Sonchus oleraceus**	common sow thistle			
BORAGINACEAE – BORAGE FAMILY				
Amsinckia menziesii	common fiddleneck			
Cryptantha cf intermedia var. intermedia	intermediate cryptantha			
Cryptantha sp.	cryptantha			
Heliotropium curassavicum var. oculatum	seaside heliotrope		FACU	
Pectocarya linearis ssp. ferocula	narrow-toothed pectocarya			
Plagiobothrys cf collinus var. gracilis	San Diego popcornflower			
BRASSICACEAE – MUSTARD FAMILY				
*Brassica nigra**	black mustard			
*Brassica rapa**	field mustard		FACU	
*Hirschfeldia incana**	shortpod mustard			
Lepidium sp.	peppergrass			
*Lobularia maritima**	sweet alyssum			
Nasturtium officinale	water cress		OBL	
*Raphanus sativus**	radish			
*Sinapis arvensis**	charlock			
CACTACEAE – CACTUS FAMILY				
*Opuntia ficus-indica**	mission prickly-pear			
Opuntia littoralis	coast prickly-pear			
CARYOPHYLLACEAE – PINK FAMILY				
*Polycarpon tetraphyllum var. tetraphyllum**	four-leaved allseed			
*Silene gallica**	small-flower catchfly			
CHENOPODIACEAE – GOOSEFOOT FAMILY				
*Atriplex semibaccata**	Australian saltbush		FAC	
*Chenopodium album**	lamb's quarters		FACU	
*Salsola tragus**	Russian thistle		FACU	C
CRASSULACEAE – STONECROP FAMILY				
Crassula connata	joint leaved pygmy-weed		FAC	

Species	Common Name	Special-Status	Wetland Rank	Weed Rank
CUCURBITACEAE – GOURD FAMILY				
Cucurbita foetidissima	buffalo gourd			
EUPHORBIACEAE – SPURGE FAMILY				
*Euphorbia peplus**	petty spurge			
*Ricinus communis**	castor bean		FACU	
FABACEAE – LEGUME FAMILY				
*Acacia pycnantha**	golden wattle			
Acmispon micranthus	small-flowered deervetch			
Acmispon sp.	deervetch			
Lupinus succulentus	arroyo lupine			
*Medicago polymorpha**	variable burclover		FACU	
*Melilotus indicus**	Indian sweetclover		FACU	
*Trifolium fragiferum**	strawberry clover		FAC	
FAGACEAE – OAK FAMILY				
Quercus agrifolia	coast live oak			
GERANIACEAE – GERANIUM FAMILY				
*Erodium moschatum**	greenstem filaree			
Geranium carolinianum	Carolina geranium			
*Geranium dissectum**	dissected geranium			
JUGLANDACEAE – WALNUT FAMILY				
Juglans californica	southern California black walnut	CRPR 4.2	FAC	
LAMIACEAE – MINT FAMILY				
*Lamium amplexicaule**	henbit			
*Marrubium vulgare**	common horehound		FACU	
Salvia mellifera	black sage			
*Salvia sp. (ornamental)**	Ornamental sage			
LYTHRACEAE – LOOSESTRIFE FAMILY				
*Lythrum hyssopifolia**	hyssop-leaf loosestrife		OBL	
MALVACEAE – MALLOW FAMILY				
Malvella leprosa	alkali-mallow		FACU	
MELIACEAE – MAHOGANY FAMILY				
*Melia azedarach**	china berry			
MORACEAE – MULBERRY FAMILY				
*Ficus carica**	edible fig		FACU	
MYRSINACEAE – MYRSINE FAMILY				
*Lysimachia arvensis**	scarlet pimpernel		FAC	
MYRTACEAE – MYRTLE FAMILY				
*Eucalyptus polyanthemos**	silver dollar gum			
*Eucalyptus sp.**	gum tree			

Species	Common Name	Special-Status	Wetland Rank	Weed Rank
OLEACEAE – OLIVE FAMILY				
*Fraxinus uhdei**	shamel ash			
ONAGRACEAE – EVENING PRIMROSE FAMILY				
Camissoniopsis bistorta	California sun cup			
Epilobium ciliatum ssp. ciliatum	fringed willowherb		FACW	
Oenothera elata ssp. hirsutissima	hairy tall evening primrose		FACW	
OXALIDACEAE – OXALIS FAMILY				
*Oxalis pes-caprae**	bermuda buttercup			
PAPAVERACEAE – POPPY FAMILY				
*Papaver somniferum**	opium poppy			
PLANTAGINACEAE – PLANTAIN FAMILY				
Plantago erecta	erect plantain			
PLATANACEAE – SYCAMORE FAMILY				
Platanus racemosa	western sycamore		FAC	
PLUMBAGINACEAE – LEADWORT FAMILY				
*Limonium ramosissimum**	branched sea-lavendar		FACW	
*Limonium sinuatum**	wavy-leaved sea-lavendar		FACW	
POLYGONACEAE – BUCKWHEAT FAMILY				
Eriogonum fasciculatum	California buckwheat			
*Rumex crispus**	curly dock		FAC	
ROSACEAE – ROSE FAMILY				
Rosa californica	California rose		FAC	
Rubus ursinus	California blackberry		FAC	
RUBIACEAE – COFFEE FAMILY				
Galium aparine	goose grass		FACU	
SALICACEAE – WILLOW FAMILY				
Populus fremontii ssp. fremontii	Fremont's cottonwood		FAC	
Salix exigua	weak willow		FACW	
Salix gooddingii	Goodding's black willow		FACW	
Salix laevigata	red willow		FACW	
Salix lasiolepis	arroyo willow		FACW	
SCROPHULARIACEAE – FIGWORT FAMILY				
*Buddleja davidii**	David's butterfly bush		FACU	
SOLANACEAE – NIGHTSHADE FAMILY				
Datura wrightii	Wright's jimsonweed			
*Nicotiana glauca**	tree tobacco		FAC	
Solanum sp.	nightshade			
TROPAEOLACEAE – NASTURTIUM FAMILY				
*Tropaeolum majus**	garden nasturtium			

Species	Common Name	Special-Status	Wetland Rank	Weed Rank
URTICACEAE – NETTLE FAMILY				
Urtica dioica ssp. holosericea	hoary nettle		FAC	
*Urtica urens**	dwarf nettle			
VERBENACEAE – VERVAIN FAMILY				
Verbena lasiostachys var. lasiostachys	woolly-flowered vervain		FAC	
MONOCOTS				
AGAVACEAE – AGAVE FAMILY				
Yucca sp. (ornamental)	Spanish bayonet			
ARECACEAE – PALM FAMILY				
*Washingtonia robusta**	Mexican fan palm		FACW	
ASPHODELACEAE – ASPHODEL FAMILY				
*Asphodelus fistulosus**	hollow asphodel			W
CYPERACEAE – SEDGE FAMILY				
Cyperus eragrostis	lovegrass flatsedge		FACW	
Cyperus cf. erythrorhizos	red-rooted flatsedge		OBL	
Cyperus sp.	flatsedge			
JUNCACEAE – RUSH FAMILY				
Juncus acutus ssp. leopoldii	southwestern spiny rush	CRPR 4.2	FACW	
Juncus mexicanus	Mexican rush		FACW	
POACEAE – GRASS FAMILY				
*Agrostis stolonifera**	creeping bent grass		FACW	
*Avena sp.**	oat			
*Bromus diandrus**	ripgut grass			
*Bromus hordeaceus**	soft chess		FACU	
*Bromus madritensis ssp. rubens**	red brome			
Distichlis spicata	salt grass		FAC	
Elymus condensatus	giant wild-rye		FACU	
*Festuca myuros**	rattail sixweeks grass		FACU	
*Festuca perennis**	rye grass		FAC	
*Lamarckia aurea**	goldentop		FACU	
*Paspalum dilatatum**	dallis grass		FAC	
*Pennisetum setaceum**	crimson fountain grass			
*Polypogon monspeliensis**	annual beard grass		FACW	
*Stipa miliacea var. miliacea**	smilo grass			
THEMIDACEAE – BRODIAEA FAMILY				
Muilla maritima	common muilla			

Legend

Symbols:

* Non-native species
^ Seed mix species
+ Volunteer species
cf. confer: This designation is used when a species or infraspecific taxon cannot be confirmed, but is believed to be the selected species of infraspecific taxon based on available anatomy

Federal Designations:

U.S. Fish and Wildlife Service:

FE Endangered
FT Threatened
FC Candidate Species

U.S. Forest Service:

FSS Forest Service Sensitive
WL Watch List

U.S. Army Corps of Engineers Wetland Rank:

OBL Wetland-dependent plants that require standing water or seasonally saturated soils near the surface.
FACW Plants dependent on and predominantly occur with hydric soils, standing water, or seasonally high water tables in wet habitats.
FAC These plants can occur in wetlands or non-wetlands. They can grow in hydric, mesic, or xeric habitats.
FACU Plants that are not wetland dependent. They are non-wetland plants by habitat preference.
None Plants are upland plants and do not occur in wetlands.

Other Designations:

California Invasive Plant Council Rank:

High These species have severe ecological impacts on the surrounding habitat. They have moderate to high rates of dispersal and establishment, and most are widely distributed.
Moderate These species have substantial and apparent—but generally not severe—ecological impacts on the surrounding habitat. They have moderate to high rates of dispersal. Distribution may range from limited to widespread.
Limited These species are invasive, but their ecological impacts are minor on a statewide level. They have low to moderate rates of colonization. Although their distribution is generally limited, these species may be locally persistent and problematic.
Watch List These species are predicted to become invasive if no further actions are taken. Distribution may range from limited to widespread in specific regions.

State of California Designations:

California Department of Fish and Wildlife:

SE Endangered
ST Threatened
SR Rare

California Rare Plant Rank:

1A Plants presumed extirpated in California and either rare or extinct elsewhere
1B Plants Rare, Threatened, or Endangered in California and elsewhere
2A Plants presumed extirpated in California, but more common elsewhere
2B Plants Rare, Threatened, or Endangered in California, but more common elsewhere
3 Plants about which we need more information - review list
4 Plants of limited distribution - watch list

Threat Code Extensions:

None Plants lacking any threat information
.1 Seriously threatened in California (over 80% of occurrences threatened; high degree and immediacy of threat)
.2 Moderately threatened in California (20–80% of occurrences threatened; moderate degree and immediacy of threat)
.3 Not very threatened in California (<20% of occurrences threatened; low degree and immediacy of threat or no current threats known)

California Department of Food and Agriculture Weed Rank:

A eradication, containment, rejection, or other holding action at the state-County level is mandated
B eradication, containment, control, or other holding action is at the discretion of the commissioner
C no state action is required except to retard the speed of spreading
D no state action is required
W this plant is included in CCR Section 4500 list of state noxious weeds

Attachment E

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California Coastal Gnatcatcher

Buena Vista Creek Ecological Reserve HCA-Carlsbad, California

0 0.05 0.1 0.2
Kilometers

Center for Natural Lands Management

N

Least Bell's Vireo

Buena Vista Creek Ecological Reserve HCA-Carlsbad, California

0 0.05 0.1 0.2
Kilometers

Center for Natural Lands Management

N

Attachment F

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Scientific Name	Common Name	Special Statu
AMPHIBIANS		
HYLIDAE - NEW WORLD TREE FROG FAMILY		
Pseudacris regilla	Pacific Treefrog	
RANIDAE - TRUE FROG FAMILY		
Lithobates catesbeianus	American Bullfrog	
REPTILES		
ANGUIDAE - ALLIGATOR LIZARD FAMILY		
Elgaria multicarinata	Southern Alligator Lizard	
COLUBRIDAE - TYPICAL SNAKE FAMILY		
Diadophis punctatus	Ring-necked Snake	
IGUANIDAE - IGUANA FAMILY		
Sceloporus occidentalis	Western Fence Lizard	
VIPERIDAE - PIT VIPER FAMILY		
Crotalus oreganus	Western Rattlesnake	
BIRDS		
ACCIPITRIDAE - RAPTOR FAMILY		
Buteo jamaicensis	Red-tailed Hawk	
Buteo lineatus	Red-shouldered Hawk	
Elanus leucurus	White-tailed Kite	
AEGITHALIDAE - BUSHTIT FAMILY		
Psaltriparus minimus	Bushtit	
CARDINALIDAE - CARDINAL FAMILY		
Passerina caerulea	Blue Grosbeak	
Pheucticus melanocephalus	Black-headed Grosbeak	
CATHARTIDAE - VULTURE FAMILY		
Cathartes aura	Turkey Vulture	
COLUMBIDAE - PIGEON FAMILY		
Zenaida macroura	Mourning Dove	
CORVIDAE - CROW FAMILY		
Aphelocoma californica	California Scrub-Jay	
Corvus brachyrhynchos	American Crow	

Scientific Name	Common Name	Special Statu
FRINGILLIDAE - NEW WORLD FINCH FAMILY		
Spinus psaltria	Lesser Goldfinch	
HIRUNDINIDAE - SWALLOW FAMILY		
Stelgidopteryx serripennis	Northern Rough-winged Swallow	
MIMIDAE - THRASHER FAMILY		
Toxostoma redivivum	California Thrasher	
PARULIDAE - WARBLER FAMILY		
Geothlypis trichas	Common Yellowthroat	
Setophaga coronata	Yellow-rumped Warbler	
PASSERELLIDAE - NEW WORLD SPARROW F		
Pipilo maculatus	Spotted Towhee	
POLIOPTILIDAE - GNATCATCHER FAMILY		
Polioptila californica californica	Coastal California Gnatcatcher	FT
TYRANNIDAE - TYRANT FLYCATCHER FAMIL		
Sayornis saya	Say's Phoebe	
VIREONIDAE - VIREO FAMILY		
Vireo bellii pusillus	Least Bell's Vireo	FE
MAMMALS		
CRICETIDAE - NEW WORLD RODENT FAMILY		
Neotoma fuscipes	Dusky-footed Woodrat	

LEGEND

Federal (USFWS):

BGEPA=Bald and Golden Eagle Protection Act

FE=Endangered

FT=Threatened

FCE=Federal Candidate Endangered

FCT= Federal Candidate Threatened

FPD=Proposed for delisting

FC=Candidate

Attachment G

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Table 11
Mitigation Ratios for Impacts to HMP Habitats

Habitat Group and Type	Mitigation Ratio/Requirement by Type of Impacted Habitat
A. Coastal salt marsh, alkali marsh, freshwater marsh, estuarine, salt pan/mudflats, riparian forest, riparian woodland, riparian scrub, vernal pools, disturbed wetlands, flood channel, fresh water Engelmann oak woodland, coast live oak woodland (1)	No net loss goal (mitigation ratio varies by type of replacement habitat)
B. Beach, southern coastal bluff scrub, maritime succulent scrub, southern maritime chaparral, native grass	3:1 (2)
C. Gnatcatcher - Occupied coastal sage scrub	2:1 (3)
D. Unoccupied coastal sage scrub, coastal sage/chaparral mix, chaparral (excluding southern maritime chaparral)	1:1 (4)
E. Annual (non-native) grassland	0.5:1 (4)
F. Disturbed lands, eucalyptus, agricultural lands	Mitigation Fee (4)

Footnotes:

1. Group A habitats are associated with wetlands. Impacts to these habitat types are subject to review under Section 404 of the federal Clean Water Act or Section 1600 of the California Fish and Game Code.

2. It is assumed that all habitat types in Group B will be included in the proposed preserve system. Small, isolated patches of low quality southern maritime chaparral may be located outside a preserve area and maximum avoidance and onsite conservation is preferred.

3. Maximum avoidance and onsite conservation of Group C habitat is encouraged.

4. Offsite mitigation for habitat in this group which is not conserved or mitigated onsite, shall pay a per acre in lieu mitigation fee in an amount to be determined by the City Council. This fee is discussed in more detail in Section E of the Plan.

5. City projects that impact Type D, E, and F habitats will not pay the fee and will mitigate at the Lake Calavera Mitigation Bank. These projects may mitigate out-of-kind because the objective is to build the preserve system by combining small mitigation requirements into a larger, contiguous area. City projects that impact Type A, B, and C habitats must mitigate in-kind at the ratios stated above

Attachment H

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6. Measures to Minimize Impact on HMP Species and Mitigation Requirements

The primary mitigation for impacts to HMP Species under the Plan is the conservation and management of habitat for the species in the preserve system. In addition, in compliance with the ESA requirements that the impacts of incidental take be minimized and mitigated to the maximum extent practicable, measures to avoid and reduce impacts will apply citywide on a project level basis. These measures are applicable to projects both within and outside the preserve system boundaries.

Conservation goals and measures to avoid, minimize, and mitigate impacts to HMP species on a project basis are summarized in Table 9. These measures will be applied citywide to all public and private projects regardless of whether the project is located within or outside of the preserve system. Detailed information about the measures for HMP Species is included in Appendix C, together with an analysis of the effects of take and plan implementation on the HMP species.

Narrow Endemic Species

In addition to the requirements that apply to Types A-F, projects that would affect lands occupied by narrow endemic species must meet the following conservation standards. If the land is within the proposed preserve system, 100% conservation of the narrow endemic population(s) is required. If the land is outside the proposed preserve system, at least 80% conservation of the narrow endemic population(s) is required. As defined herein, narrow endemic species are populations of native species that 1) have restricted geographic distribution, soil affinities, and/or habitats, 2) occur in the City, and 3) the substantial loss of which might jeopardize the long-term survival of the species. The conservation goals and measures for such species within the City are indicated in Table 9; a composite list of the Narrow Endemics covered by this Plan is provided in Table 10.

All future projects, including public projects, shall also mitigate impacts to habitat based on the mitigation requirements provided in Table 11. Again, these mitigation ratios apply whether a project is located inside or outside the preserve system. Projects which conserve at least 67% of habitat onsite shall not be subject to offsite mitigation. Habitat conserved onsite shall be credited toward mitigation. After determining the amount of acreage needed for mitigation based on the mitigation ratios, the acres of onsite conserved habitat shall be subtracted from the required acres of mitigation. Mitigation shall occur within the City principally in the focus planning areas unless the City Council authorizes mitigation outside the City. For habitat Groups D, E and F as identified on Table 11, a mitigation fee shall be paid to the City in lieu of offsite mitigation in an amount to be determined by the City Council. The amount of the fee shall be adequate to cover the cost of any acquisition of land in the MHCP core area which is the responsibility of the City of Carlsbad and for which funding has not previously been provided for. The fee may also be used to provide for overall management and maintenance of the preserve system. This fee is discussed in more detail in Section E of the HMP document. City public facility and improvement projects shall provide mitigation based on the ratios shown in Table 11. Mitigation banks may be approved by the City and the wildlife agencies, subject to the issuance by the City of a conditional use permit as required by the Carlsbad Municipal Code. City projects will mitigate at the same ratios as private projects. However, City projects will use the Lake Calavera Mitigation Bank for impacts to unoccupied coastal sage scrub, mixed chaparral, and annual (non-native) grasslands.

Analysis of proposed impacts to wetlands shall consist of a three-step process. The first step involves determining whether the impacts are avoidable or unavoidable. Secondly, for unavoidable impacts, the allowable amount of encroachment must be determined. The final step involves determining the mitigation for unavoidable impacts.

All projects that would affect Type A Habitats (riparian and wetland habitats, including vernal pools) must demonstrate that the impacts: 1) cannot be avoided by a feasible alternative, 2) have been minimized to maximum extent possible, and 3) will be mitigated in ways that assure no net loss of habitat value or function. This demonstration will occur as part of the CEQA review for the project, will require documentation and analysis of impacts and alternatives, and must include an evaluation of the

value and function of the affected habitat. The evaluation of habitat function and value will consider the rarity of the habitat type, presence of listed and sensitive species, proportion of native to exotic vegetation, existing levels of habitat disturbance, connection to or isolation from natural habitats and preserves, groundwater and water quality issues, potential for restoration, feasibility of long-term management, and other relevant ecological factors. Road or utility projects that must cross a wetland must demonstrate that the crossing will occur at the narrowest and/or least sensitive location and that all feasible minimization measures have been employed. In making this determination, alignment planning must consider whether avoidance of wetland impacts would result in more significant upland impacts. Private projects that would impact a wetland must demonstrate that the impact is essential to the feasibility of the project and that no feasible alternative would eliminate or minimize the impact. For all projects affecting Type A Habitat, habitat replacement ratios and the specific location of mitigation lands will be determined in consultation with the Service, Corps, and Department as appropriate in accordance with the requirements of the federal Clean Water Act, federal wetland policies, and the California Fish and Game Code. All mitigation lands for impacts to vernal pools, riparian and wetland habitats will be in the City or MHCP plan area.

In addition to the above, the following species-specific measures will be required of any project that may impact the habitat of those species:

A) **LEAST BELL'S VIREO (LBV)**

1) Survey by qualified biologist using approved survey protocol all areas containing suitable habitat. Surveys shall occur prior to any proposed impact as part of the project review process (e.g., CEQA process) both within and outside of the FPA. Surveys shall be conducted when impacts could occur as a result of indirect impacts by placement of the project in or adjacent to occupied habitat or through creation of suitable conditions for brown-headed cowbirds (e.g., agricultural fields, livestock presence, woodland parks, roadsides).

2) Any take both inside and outside of the FPA shall be consistent with the conditions outlined herein.

3) Projects having direct or indirect impacts to the LBV within the HMP shall adhere to the following measures to avoid or reduce impacts:

a) The removal of native vegetation and habitat shall be avoided and minimized to the maximum extent practicable. Determination of adequate avoidance and minimization of impacts shall be consistent with Section D-6 of the HMP. Deviations from these guidelines shall require written concurrence of USFWS and CDFG. For temporary impacts, the work site shall be returned to pre-existing contours and revegetation with appropriate native species. All revegetation for temporary and permanent impacts shall occur at the ratios specified in applicable permits (e.g., 404 or 1603). Revegetation specifications shall ensure creation and restoration of riparian woodland vegetation to vireo quality. All revegetation plans shall be prepared and implemented consistent with Section F-2 (Habitat Restoration and Revegatation) and shall require written concurrence of USFWS and CDFG. If written objections are not provided by the wildlife agencies within 30 days of receipt of written request for concurrence by the local jurisdiction, then the deviation may proceed as approved by the local agency. The wildlife agencies shall provide written comments specifying wildlife agency concerns.

b) Projects shall be carried out consistent with the - Standard Best Management Practices, provided at the end of this section.

c) Projects shall to the maximum extent practicable avoid impacts during the breeding season of the LBV (generally March 15 - September 15). Projects that cannot be conducted without placing equipment or personnel in or adjacent to sensitive habitats

shall be timed to ensure that habitat is removed prior to the initiation of the breeding season (generally before March 15).

d) Construction noise levels at the riparian canopy edge shall be kept below 60 dBA Leq (Measured as Equivalent Sound Level) from 5 a.m. to 11 a.m. during the peak nesting period of March 15 to July 15. For the balance of the day/season, the noise levels shall not exceed 60 decibels, averaged over a one-hour period on an A-weighted decibel (dBA)(i.e., 1 hour Leq/dBA). Noise levels shall be monitored and monitoring reports shall be provided to the jurisdictional city, USFWS, and CDFG. Noise levels in excess of this threshold shall require written concurrence from USFWS and CDFG and may require additional minimization/mitigation measures.

e) Brown-headed cowbirds and other exotic species which prey upon LBV shall be removed from the site. For new developments adjacent to preserve areas that create conditions attractive to brown-headed cowbirds, jurisdictions shall require monitoring and control of cowbirds.

f) Biological buffers of at least 100 feet shall be maintained adjacent to occupied LBV habitat, measured from the outer edge of riparian vegetation. Within this 100-foot buffer, no new development shall be allowed, and the area shall be managed for natural biological values as part of the preserve system. Buffers less than 100 feet shall require written concurrence of the USFWS and CDFG within 30 days of receipt of written request for concurrence by the local jurisdiction.

4. LBV populations within the FPA shall be managed consistent with Conservation Goals of the Species Evaluation for this species (Appendix C). Projects shall include measures to provide appropriate successional habitat, cowbird control, and protection against detrimental edge effects. Projects that impact LBV populations outside the FPA shall be required to ensure sufficient management to maintain these populations.

5. Suitable unoccupied habitat preserved within the FPA shall be managed to maintain or mimic effects of natural fluvial processes (e.g., periodic substrate scouring and deposition).

6. Natural riparian connections with upstream riparian habitat shall be maintained to ensure linkage to suitable occupied and unoccupied habitat within the County MSCP North Segment and City of San Diego MSCP Subarea Plan.

B) SOUTHWESTERN WILLOW FLYCATCHER

1. Survey by qualified biologist using approved survey protocol all areas containing suitable habitat (riparian woodlands and forests). Surveys shall occur prior to any proposed impact as part of the project review process (e.g., CEQA process) both within and outside of the FPA. Surveys shall be conducted when impacts could occur as a result of indirect impacts by placement of the project in or adjacent to occupied habitat or through creation of suitable conditions for brown-headed cowbirds (e.g., agricultural fields, livestock presence, woodland parks, roadsides),

2. Nesting Southwestern Willow Flycatchers shall be treated consistent with the Critical Population Policy. Wintering localities and confirmed vagrants shall be treated consistent with the Narrow Endemics Policy - Section D-6.

3. Occupied habitat within the FPA shall be managed consistent with Conservation Goals of the Species Evaluation for this species (Appendix C). Area-specific management directives shall include measures to provide appropriate successional habitat, cowbird control, and specific measures to protect against detrimental edge effects. Projects that

impact Flycatcher populations outside the FPA shall be required to ensure sufficient management to maintain these populations.

4. Projects having direct or indirect impacts to the Southwestern Willow Flycatcher shall adhere to the following measures to avoid or reduce impacts:

   a) The removal of native vegetation and habitat shall be avoided and minimized to the maximum extent practicable. Determination of adequate avoidance and minimization of impacts shall be consistent with, Section D-6 of the HMP. Deviations from these guidelines shall require written concurrence of USFWS and CDFG. For temporary impacts, the work site shall be returned to pre-existing contours and revegetated with appropriate native species. All revegetation for temporary and permanent impacts shall occur at the rations specified in applicable permits. (e.g., 404 or 1603). Revegetation specifications shall ensure creation and restoration of riparian woodland vegetation to vireo quality. All revegetation plans shall be prepared and implemented consistent with Section F-2 (Habitat Restoration and Revegetation) and shall require written concurrence of USFWS and CDFG. If written objections are not provided by the wildlife agencies within 30 days of receipt of written request for concurrence by the local jurisdiction, then the deviation may proceed as approved by the local agency. The wildlife agencies shall provide written comments specifying wildlife agency concerns.

   b) Projects shall be carried out consistent with the Standard Best Management Practices, provided at the end of this section.

   c) Projects shall to the maximum extent practicable avoid impacts during the breeding season of the Flycatcher (May 1 to August 31). Projects that cannot be conducted without placing equipment or personnel in or adjacent to sensitive habitats shall be timed to ensure that habitat is removed prior to the initiation of the breeding season.

   d) Construction noise levels at the riparian canopy edge shall be kept below 60 dBA Leq (measured as Equivalent Sound Level) from 5 a.m. to 11 a.m. during the peak nesting period of March 15 to July 15. For the balance of the day/season, the noise levels shall not exceed 60 decibels, averaged over a 1-hour period on an A-weighted decibel (dBA) (i.e., 1 hour Leq/dBA). Noise levels shall be monitored, and monitoring reports shall be provided to the jurisdictional city, USFWS, and CDFG. Noise levels in excess of this threshold shall require written concurrence from USFWS and CDFG within 30 days of receipt of request for written concurrence from the local jurisdiction and may require additional minimization/mitigation measures.

   e) Brown-headed cowbirds and other exotic species which prey upon the flycatcher shall be removed from the site. For new developments adjacent to preserve areas that create conditions attractive to brown-headed cowbirds, jurisdictions shall require monitoring and control of cowbirds.

   f) Biological buffers of at least 1oo feet shall be maintained adjacent to occupied Flycatcher habitat, measured from the outer edge of riparian vegetation. Within this 100-foot buffer, no new development shall be allowed, and the area shall be managed for natural biological values as part of the preserve system. Buffers less than 100 feet shall require written concurrence of the USFWS and CDFG within 30 days of receipt of request for written concurrence from the local jurisdiction.

5. Suitable unoccupied habitat preserved within the FPA shall be managed to maintain or mimic effects of natural fluvial processes (e.g., periodic substrate scouring and depositions).

6. Natural riparian connections with upstream riparian habitat shall be maintained to ensure linkage to suitable occupied and unoccupied habitat within the County MSCP North Segment and City of San Diego MSCP Subarea Plan.

C) HARBISON'S DUN SKIPPER BUTTERFLY

1. Survey by qualified biologist using approved survey techniques all areas containing suitable habitat ()oak woodlands and riparian areas, especially those supporting Carex spissa). Surveys should occur prior to any proposed impact as part of the project review process (e.g., CEQA process) both within and outside of the FPA.

2. Projects within the FPA shall ensure conservation consistent with the Subarea Plan including restricting activities that could degrade Harbison's dun skipper habitat by modifying stream flow, degrading water quality, or introducing nonnative plants into riparian systems.

3. Projects having direct or indirect impacts to the Harbison's Dun Skipper butterfly shall adhere to the following measures to avoid or reduce impacts:

   a) The removal of native vegetation and habitat shall be avoided and minimized to the maximum extent practicable. Determination of adequate avoidance and minimization of impacts shall be consistent with Section D-6 of the HMP. Deviations from these guidelines shall require written concurrence of USFWS and CDFG. For temporary impacts, the work site shall be returned to pre-existing contours and revegetated with appropriate native species. All revegetation shall occur at the ratios specified in applicable permits (e.g., 404 or 1603). All revegetation plans shall be prepared and implemented consistent with Section F-2 (Habitat Restoration and Revegetation) and shall require written concurrence of USFWS and CDFG. If written objections are not provided by the wildlife agencies within 30 days of receipt of written request for concurrence by the local jurisdiction, then the deviation may proceed as approved by the local agency. The wildlife agencies shall provide written comments specifying wildlife agency concerns.

   b) Projects shall be carried out consistent with the Standard Best Management Practices, provided below.

   c) Biological buffers of at least 100 feet shall be maintained adjacent to occupied Harbison's dun skipper habitat, measured from the outer edge of oak woodland or riparian vegetation. Within this 100-foot buffer, no new development shall be allowed, and the area shall be managed for natural biological values as part of the preserve system. Buffers less than 100 feet shall require written concurrence of the USFWS and CDFG within 30 days of receipt of request for written concurrence from the local jurisdiction.

4. Suitable unoccupied habitat preserved within the FPA shall be managed to maintain or mimic effects of natural fluvial processes (e.g., periodic substrate scouring and deposition).

5. Natural riparian connections with upstream riparian habitat shall be maintained to ensure linkage to suitable occupied and unoccupied habitat within the County MSCP North Segment and City of San Diego MSCP Subarea Plan.

Standard Best Management Practices

- Do not allow land uses within 200 ft. of estuarine areas that would contribute to degraded water quality, changes in surface water or groundwater hydrology, or increased runoff, erosion, and sedimentation.

- Require that "best management practices" (BMP) be used to prevent pollution generated by agricultural and urban development activities from entering surface and groundwater. BMPs should also ensure that non-stormwater discharges (e.g. sewage, industrial wastes) are not discharged into stormwater drainage systems. BMPs may include:

  a. Regulatory measures such as erosion control ordinances and floodplain restrictions

  b. Structural measures such as detention or retention basins, filters, weirs, check dams, or drainage diversions

  c. Vegetative controls that reduce runoff volume and accomplish pollutant removal by a combination of filtration, sedimentation, and biological uptake

  d. Maintenance of pump stations, sewer lines and stormwater conveyance systems

  e. Cultural practices such as restrictions on pesticide and fertilizer applications, storage or disposal of toxic chemicals, or washing of vehicles or equipment in areas that can drain to the estuary

  f. Public education programs that educate residents about proper disposal of oil or chemicals and that provide opportunities (e.g. designated locations) for residents to properly dispose of contaminants.

- For clearing, grading, and other construction activities with the watershed, ensure that proper irrigation and stormwater runoff mitigation measures are employed to reduce sediment loads and to prevent contamination from pesticides, fertilizers, petroleum products, and other toxic substances.

- Restrict or limit recreational or other activities within 200 ft. of important foraging, breeding, and roosting areas.

- Require attenuation measures for activities that generate noise levels greater than 60 dB if occurring within 200 ft. of important breeding habitat during the nesting season.

The HMP does not anticipate that any substantial areas of vernal pool habitat occur in Carlsbad in addition to those known and documented herein. However, should additional vernal pools be discovered, there would be a strong priority given to preservation (avoidance), followed by mitigation for any unavoidable impacts. Any loss of vernal pool habitat would need to receive the concurrence of the wildlife agencies and would be subject to the Federal Clean Water Act Section 404 permit process. Impacts to highly degraded vernal pool habitat lacking sensitive species may be acceptable if the pools are isolated from other vernal pool complexes, lack sensitive vernal pool sensitive species, exhibit low native vernal pool species diversity, have low restoration potential, or would be infeasible to manage effectively. In these cases mitigation would need to provide no-net-loss of vernal pool area and vernal pool habitat value, and mitigation would need to occur in the City of Carlsbad.

Appendix C. Cultural Resources Letter Report

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July 25, 2019

Elmer Alex, Sewer Engineering Division Manager
200 Civic Center Drive
Vista, CA 92084

Reference: Cultural Resources Study for the Vista-Carlsbad Trunk Sewer Access, Reach 1 (VC1), Carlsbad, California (Confidential)

Introduction

This letter report provides the results of cultural resources study for the proposed access improvements to Reach 1 of the Vista-Carlsbad Trunk Sewer (VC1 or project) as proposed by the City of Vista (City) in the City of Carlsbad, California. The proposed project is subject to compliance with the California Environmental Quality Act (CEQA), as amended through 2019 and Section 106 of the National Historic Preservation Act (NHPA). Therefore, cultural resources management work was conducted in compliance with the CEQA and NHPA Statutes and Guidelines.

The cultural resources study was conducted in support of the implementation of the VC1 project, which is covered under the City's 2017 Comprehensive Sewer Master Plan (CSMP) and Supplemental Program EIR (SPEIR). Mitigation Measure CULT-2 in the City's Mitigation Monitoring and Reporting Program (MMRP) requires the preparation of a project specific archaeological survey prior to project implementation to reduce potentially significant impacts identified for CSMP Categories 1, 2, 3, and 4. According to the SPEIR, the project is identified as a Category 4 project and is subject to the requirements of Mitigation Measure CULT-2.

This cultural resources assessment encompassed background and archival record searches and a thorough pedestrian survey of the project area of potential effect (APE). The APE encompasses an area on the north side of Buena Vista Creek and south of CA Hwy 78 and between the eastern terminus of Haymar Drive (west of College Boulevard) and the western terminus of Haymar Drive (east of El Camino Real) (Figure 1 and Figure 2). The majority of the project site is within the Buena Vista Creek Ecological Reserve. The proposed action within the APE consists of the rehabilitation and improvement of the existing VC1 access road. Planned activities would include vegetation removal or trimming, grading, limited excavation, soil stockpiling, and roadway compaction. Ground disturbance would include excavation of up to six feet in depth for the road cut in the eastern half of the APE and excavation of up to 2 feet in depth for the road cut in the western half of the APE. Construction would require a temporary easement of up to 50 feet in width. HDR archaeologists Dan Leard and Dan Leonard conducted the survey of the entire APE on April 19, 2019.

Figure 1. Project area shown on the USGS 7.5' quadrangle

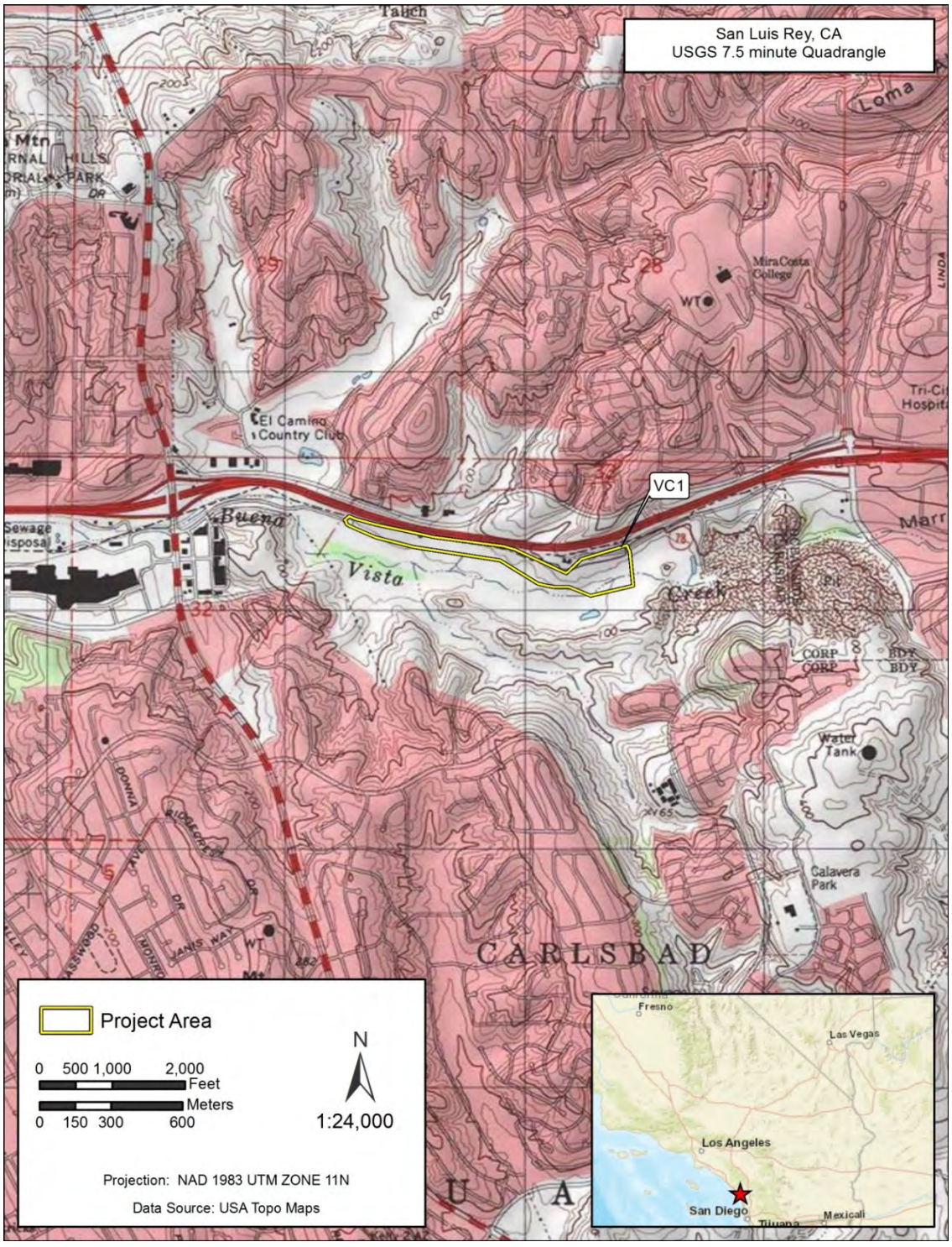


Figure 2. Aerial overview of the Project Area of Potential Effect

Background Studies

As part of the study, HDR conducted a background and archival records search of the project area that included a search of the cultural resources databases housed with the South Coastal Information Center (SCIC), the Sacred Lands File (SLF) kept with the Native American Heritage Commission (NAHC), and any available historic documentation and aerial imagery for the area. On February 21, 2019 a request was submitted to the SCIC for a record search of all archaeological and historical resources within ½ mile of the APE. The record search identified 53 cultural resource projects and 22 cultural resources. On April 3, 2019 a letter was sent to the NAHC requesting a review of the SLF for any registered cultural resources, traditional cultural properties, or areas of heritage sensitivity within the vicinity of the project area. The results of the SLF were negative.

Previous Cultural Resource Studies

The record search identified 53 cultural resource survey, excavation, and monitoring projects within a half mile of the APE. The entirety of the project area has been previously surveyed between 1977 and 2017.

Table 1. Previous cultural resources studies within 1/2 mile of the project area

Report Number	Author	Date	Affiliation	Title	Report Type
SD-00291	Carrico, Richard and Lesley Mc Coy	1977	WESTEC Services, Inc.	Archaeological Investigations of the Master Plan 300 Acres Project Oceanside, California.	Archaeological, Field study
SD-00675	Gallegos, Dennis and Richard Carrico	1984	WESTEC Services, Inc.	Cultural Resource Survey and Assessment and Archaeological Testing of Site Sdi-9967 (W-3492) for South Coast Asphalt Products Company Carlsbad, California	Archaeological, Field study
SD-01033	Gallegos, Dennis and Richard Carrico	1985	WESTEC Services, Inc.	Cultural Resource Survey and Assessment for Epoch/Pacific Capital Project Oceanside, California	Archaeological, Field study
SD-01154	Laylander, Don	1988	CALTRANS	An Archaeological Survey Report for a Widening of State Route 78 (I-5 to East of College Boulevard) Oceanside, California.	Archaeological, Field study
SD-01328	Pigniolo, Andrew and Dennis Gallegos	1989	ERC Environmental and Energy Services Company	Cultural Resource Survey of Improvements to Melrose Drive and North Santa Fe Avenue Vista, California.	Archaeological, Field study

Table 1. Previous cultural resources studies within 1/2 mile of the project area

Report Number	Author	Date	Affiliation	Title	Report Type
SD-01579	Wade, Sue A. and Susan M. Hector Ph.D.	1986	RECON	Archaeological Monitoring of the Encina Gas Pipline Project Profiles of Subsistence Patterns Along the South Shore of Agua Hedionda Lagoon	Archaeological, Field study
SD-01643	Wlodarski, Robert J. and Gwen R. Romani	1981	Pence Archaeological Consulting	An Evaluation of the Impacts Upon Cultural Resources Located on 95 Acres, Buena Vista Creek, City of Carlsbad, County of San Diego, California	Archaeological, Field study
SD-01662	Wade, Sue A.	1987	RECON	Archaeological Excavations at SDi-4926/SDM-W-2131 Oak Riparian Park City of Oceanside, California	Archaeological, Excavation
SD-01664	Wade, Sue A.	1985	RECON	Archaeological Mitigation of SDi-9898, Del Oro Hills Oceanside, California	Archaeological, Excavation, Field study
SD-02598	Wade, Sue	1992	RECON	Archaeological Evaluations At Calavera Hills SDI-5416, Archaeological Testing At SDI-12470, SDI-12471. Carlsbad	Archaeological, Evaluation, Excavation, Field study, Management/planning
SD-04111	Larry Seeman	1982	Larry Seeman	Draft Environmental Impact Report Revised Parks and Recreation Element, Carlsbad, California	Other research
SD-04124	Richard Carrico	1977	WESTEC	Fairbanks Ranch, San Diego County	Archaeological, Field study
SD-04229	Bull, Charles	1977	Charles S. Bull	An Archaeological Reconnaissance Of The Lake Calvera Hills Plan Area	Archaeological, Evaluation
SD-04833	Caltrans	1982	Caltrans	Final Report For An Archaeological Test Excavation At Site Ca-SDI-9473, Carlsbad, Ca.	Archaeological, Field study
SD-04835	Corum, Joyce	1982	Joyce Corum	Summary Report For An Archaeological Test Excavation At Site Ca-SDI-9473, Oceanside, Ca. 11-SD-78 P.M. O.O/3.1	Archaeological, Field study
SD-05403	Gallegos, Dennis	2000	Gallegos & Assoc.	Historic Property Survey Report Rancho Del Oro/SR 78 Interchange Volume 1 Of 2 Oceanside, California	Other research

Table 1. Previous cultural resources studies within 1/2 mile of the project area

Report Number	Author	Date	Affiliation	Title	Report Type
SD-05404	Kyle, Carolyn, Roxana Phillips, and Dennis Gallegos	2002	Gallegos & Assoc.	Cultural Resources Survey For The Proposed State Route 78/Rancho Del Oro Interchange Project-City Of Oceanside, California	Archaeological, Field study
SD-05845	Laylander, Don	1988	Don Laylander	Historic Property Survey Report For A Widening Of State Route 78	Other research
SD-06195	Robbins-Wade, Mary and Timothy G Gross	1989	Affinis	Cultural Resources Inventory: College Fair, Oceanside, California	Archaeological, Evaluation
SD-07858	Robbins-Wade, Mary	1989	Affinis	Cultural Resources Inventory: College Fair Oceanside, Ca	Archaeological, Evaluation
SD-08484	Rosen, Martin D.	2003	Martin D. Rosen	Final Historic Property Survey Report	Other research
SD-08748	Harley, Geoff	1983	Geoff Harley	An Archaeological Survey Of The Tri-City Plaza Shopping Center Property	Archaeological, Evaluation
SD-08883	Murray, Matt and Mary Robbins-Wade	2003	Affinis	Via Las Rosas Archaeology	Archaeological, Evaluation
SD-09003	Rosen, Martin D.	2004		Positive Historic Property Survey Report	Other research
SD-09079	Kyle, Carolyn	2002	Kyle Consulting	Cultural Resource Assessment For Cingular Wireless Facility Sd741-01, City Of Oceanside, County Of San Diego, California	Literature search
SD-09136	Gallegos, Dennis and Ivan Strudwick	1991	Gallegos And Associates	Historical/Archaeological Survey Report For Larwin Park, Carlsbad, California	Other research
SD-09366	Rosen, Martin D.	2005	State of California - BTHA	Historic Property Survey Report - Rancho del Oro	Architectural/Historical
SD-09571	Guerrero, Monica C and Dennis R. Gallegos	2003	Gallegos & Associates	City Of Carlsbad Water And Sewer Master Plans Cultural Resource Background Study City Of Carlsbad, California	Archaeological, Evaluation, Management/planning
SD-09745	Robbins-Wade, Mary and Andrew Giletti	2005	Affinis Environmental Services	Del Oro Heights Tentative Map-Archaeology (Affinis Job No. 2073)	Archaeological, Evaluation, Other research

Table 1. Previous cultural resources studies within 1/2 mile of the project area

Report Number	Author	Date	Affiliation	Title	Report Type
SD-09884	Carrico, Richard	1973	Richard Carrico	Environmental Impact Report Archaeological Survey	Archaeological, Evaluation, Other research
SD-10155	Robbins-Wade, Mary	2006	Affinis Environmental Services	Beaumaris Properties Vista Way/Rancho del Oro Parcel - Archaeological (Affinis Job No. 2115)	Archaeological, Evaluation, Other research
SD-10551	Arrington, Cindy	2006	SWCA Environmental Consultants	Cultural Resources Final Report Of Monitoring And Findings For The Qwest Network Construction Project, State Of California	Archaeological, Evaluation, Field study, Monitoring, Other research
SD-11778	Robbins-Wade, Mary	2008	Affinis	"Panhandle" Property Archaeological Survey	Archaeological, Evaluation, Other research
SD-11786	Robbins-Wade, Mary	2008	Affinis	Cultural Resources Study, Former South Coast Material Quarry Amended Reclamation Plan, Oceanside, San Diego County, California	Archaeological, Evaluation, Other research
SD-12412	Clowery-Moreno, Sara And Brian F. Smith	2008	Brian F. Smith & Associates	A Phase I Archaeological Assessment Of The College Boulevard Widening Project	Archaeological, Evaluation, Other research
SD-12422	Ni Ghabhlain, Sinead and Drew Pallette	2001	ASM Affiliates, Inc.	A Cultural Resources Inventory For The Route Realignment Of The Proposed Pf. Net / AT&T Fiber Optics Conduit Oceanside To San Diego, California	Archaeological, Evaluation, Other research
SD-12872	Rosen, Martin D.	2003	Caltrans	Rancho Del Oro Drive/ State Route 78 Interchange, San Diego County, California	Archaeological, Evaluation, Other research
SD-13626	Morgan, Nichole B.	2011	HDR	TCM Access Road Grading Project, Cultural Resources Inventory Report	Archaeological, Evaluation, Other research
SD-13844	Robbins-Wade, Mary and G. Timothy Gross	1989	Affinis	Cultural Resources Inventory: College Fair Oceanside, California	Archaeological, Evaluation, Other research
SD-13948	Robbins-Wade, Mary	2003	Affinis	Via Las Rosas Archaeology	Archaeological, Evaluation, Other research

Table 1. Previous cultural resources studies within 1/2 mile of the project area

Report Number	Author	Date	Affiliation	Title	Report Type
SD-14039	Ni Ghabhlain, Sinead, Mark Becker, Adam Giacinto, and Tony Quach	2012	ASM Affiliates, Inc.	A Cultural And Historical Resources Survey And Evaluation For The Quarry Creek Project EIR, City Of Carlsbad, California	Archaeological, Evaluation, Other research
SD-14069	Ni Ghabhlain, Sinead	2011	ASM Affiliates, Inc.	Cultural And Historical Resource Study For The City Of Oceanside General Plan- Circulation Element Update Program Environmental Impact Report (PEIR)	Archaeological, Evaluation, Other research
SD-14157	Robbins-Wade, Mary and Andrew Giletti	2013	Affinis	Archaeological Monitoring For The Former South Coast Material Quarry Amended Reclamation Plan, Carlsbad, San Diego County, California	Archaeological, Evaluation, Other research
SD-14564	Baksh, Michael	1996	Tierra Environmental Services	Cultural Resource Survey For The Proposed College Boulevard Widening Project In Oceanside, California	Archaeological, Evaluation, Other research
SD-14800	Stropes, Tracy A. and Smith, Brian F.	2014	Brian F. Smith And Associates, Inc.	A Phase I Archaeological Assessment Update For The College Boulevard Widening Project City Of Oceanside	Archaeological, Evaluation, Literature search, Other research
SD-15503	Susan M. Hector and Joshua A. Tansey	2015	NWB Environmental Services, LLC	Archaeological Survey for the SDG&E Quarry Creek Overhead Conversion, San Diego County, California (SDG&E eTS #29953)	Archaeological, Monitoring
SD-16174	Roger D. Mason	2015	ECORP Consulting	Cultural Resources Survey Report For The Art/Music Storage Buildings And Theatre/Dance Building Project Mira Costa College Oceanside, San Diego County	Archaeological, Field study
SD-16406	Davis, Shannon	2014	ASM Affiliates	Visual Effects Assessment On The Marron-Hayes Adobes Historic District For The Quarry Creek Master Plan Environmental Impact Report, Carlsbad, California	Architectural/Historical

Table 1. Previous cultural resources studies within 1/2 mile of the project area

Report Number	Author	Date	Affiliation	Title	Report Type
SD-16407	Ni Ghabhlain, Sinead	2014	ASM Affiliates	A Cultural And Historical Resources Survey And Evaluation For The Quarry Creek Project, City Of Carlsbad, California	Archaeological, Architectural/Historical
SD-16484	Perez, Don C.	2014	EBI Consulting	Cultural Resources Survey Mira Costa College / ENSITE #18547 (270195) 2 Barnard Drive, Oceanside, San Diego County, California 92058 NW1/4 SE1/4 S28 T11S R4W, EBI Project No. 61142765	Archaeological, Evaluation
SD-16613	Stringer-Bowsher, Sarah	2014	ASM Affiliates	Historic American Buildings Survey Marron-Hayes Adobes Historic District	Architectural/Historical
SD-17210	Castells, Shelby Gunderman	2017	ASM Affiliates, Inc.	Archaeological Monitoring For The Quarry Creek Project, City Of Carlsbad, San Diego County, California	Archaeological, Excavation, Monitoring
SD-17342	Robbins-Wade, Mary and Nicole Falvey	2017	Helix Environmental Planning	Vista Pacific Project - Cultural Resources Study	Archaeological, Field study

Archaeological Resources

The record search identified 22 previously recorded archaeological resources within a half mile radius of the APE. The previously recorded resources include 15 prehistoric habitation sites, one possible prehistoric village site, one isolated bedrock milling station**,** one prehistoric lithic isolate, two multicomponent historic and prehistoric habitation sites, one historic habitation site, and one multicomponent site with a historic adobe structure and prehistoric habitation. Of the 22 resources, four are within the APE (Figure 3). These include P-37-005652, P-37-009472, P-37-009473, and P-37-009474.

P-37-005652 (CA-SDI-5652) was originally recorded by James Edwards in 1977. The site includes the restored Marrón/Hayes adobe residence and pump house, a historic artifact scatter, a prehistoric artifact scatter, and prehistoric shell midden. The artifact assemblage included historic stone, leather, and a brass button, and prehistoric lithics, including choppers, scrapers, hammerstones, a mano fragment, and two projectile points. In 1998, Gallegos & Associates updated the site and performed subsurface testing of the prehistoric loci.

P-37-009472 (CA-SDI-9472) and P-37-009473 (CA-SDI-9473) were originally recorded by Dennis Quillen in 1982 and described as *Chione* sp., *Pecten* sp., and *Mytilus* sp. shell

remains and basalt flakes present in rodent den mounds. Possible fire-cracked rock was also observed at CA-SDI-9473. The sites were recorded on two separate small ridges on the south side of Hwy 78 and north of Buena Vista Creek. Construction of Hwy 78 may have impacted the sites.

P-37-009474 (CA-SDI-9474) was originally recorded by Dennis Quillen in 1982 and described as a historic habitation with two privy features and scattered historic debris consisting of historic bottle glass, ceramic sherds, brick, and hand-forged iron fragments all dating to the 1920s. The site is likely the remnants of a historic building that appears at this location on historic quadrangle maps. Two looter pits were observed at the site.

Table 2. Previously recorded resources within ½ mile of the project area

Primary Number	Trinomial Number	Property Type	Resource Attributes	Description	Date	Eligibility
P-37-000631	CA-SDI-631	Site	AP2	Prehistoric lithic artifact scatter, reported as likely destroyed	1958	Unevaluated
P-37-000632	CA-SDI-632	Site	AP2	Mano fragment and possible midden deposit	1958	Unevaluated
P-37-000633	CA-SDI-633	Site	AP4	Prehistoric campsite with bedrock metate	1958	Unevaluated
P-37-000634	CA-SDI-634	Site	AP2	Prehistoric campsite with lithic scatter	1958	Unevaluated
P-37-005601	CA-SDI-5601	Site	AP2	Large prehistoric site with four concentrations of lithic artifacts and shell	1977	Unevaluated
P-37-005651	CA-SDI-5651	Site	AP2	Extensive lithic and shell artifact scatter – considered eligible for the NRHP	1977	Recommended eligible
P-37-005652	CA-SDI-5652	Site	AP2, AH4, HP2, AP15	Restored Spanish style adobe house with historic and prehistoric artifact scatter and buried shell midden deposit. Approximately 3,000 artifacts and ecofacts were recovered during testing.	1977	Eligible
P-37-006139	CA-SDI-6139	Site	AP2, AP15, AH4	Possible prehistoric village site with prehistoric and historic artifact scatter and midden deposit	1978	Unevaluated
P-37-008913	CA-SDI-8913	Site	AP2	Light prehistoric lithic scatter with groundstone and shell	1981	Unevaluated
P-37-008914	CA-SDI-8914	Site	AP2	Light prehistoric lithic scatter with shell	1981	Unevaluated
P-37-009472	CA-SDI-9472	Site	AP2	Light scatter of prehistoric lithic debitage and shell	1982	Unevaluated
P-37-009473	CA-SDI-9473	Site	AP2	Light scatter of prehistoric lithic debitage, shell, and possible FCR	1982	Recommended ineligible

Table 2. Previously recorded resources within ½ mile of the project area

Primary Number	Trinomial Number	Property Type	Resource Attributes	Description	Date	Eligibility
P-37-009474	CA-SDI-9474	Site	AH2, AH4	Building remnants, two privies, and historic trash scatter	1982	Recommended Eligible
P-37-009967	CA-SDI-9967	Site	AH2, AH4, AP2, AP15	Prehistoric habitation with shell and lithic scatter; historic house foundation and refuse	1984	Recommended ineligible
P-37-010235	CA-SDI-10235	Site	AP2	Small lithic scatter	1985	Unevaluated
P-37-010236	CA-SDI-10236	Site	AP2	Small lithic scatter	1985	Unevaluated
P-37-015016		Isolate	AP2	Mano fragment	1991	Unevaluated
P-37-018878	CA-SDI-15732	Site	AP2, AP15	Prehistoric campsite with shell midden, lithic scatter, and groundstone	2000	Unevaluated
P-37-027329	CA-SDI-17863	Site	AP16	Small shell scatter	2006	Unevaluated
P-37-027330	CA-SDI-17864	Site	AP16	Shell scatter with 1 flake	2006	Unevaluated
P-37-032876	CA-SDI-20776	Site	AP2, AP15	Small prehistoric scatter	2011	Unevaluated
P-37-032877	CA-SDI-20777	Site	AP2, AP15	Small prehistoric scatter	2011	Unevaluated

Figure 3. Previously recorded resources within ½ mile of the project area (Confidential)

Map Confidential
Not for Public Distribution

Survey Methods

HDR cultural resources specialists conducted a thorough pedestrian surface inspection of the entire project footprint. The pedestrian survey was consistent with the Secretary of the Interior's (SOI) Standards and Guidelines for Archaeology and Historic Preservation (48FR 44716, September 29, 1983) with the intent to locate and record all cultural resources. Survey methods conformed to prevailing State of California and the SOI's Standards and Guidelines. HDR pedestrian survey transect intervals did not exceed 15 meters. All cultural resources encountered were fully documented and photographed and all spatial data was recorded using a Trimble GeoXT handheld GPS unit with sub-meter accuracy. Field sketches, field artifact inventories, and detailed field notes were employed to document cultural resources.

Survey Results

The VC1 project area extends along a narrow valley on the south side of California Highway 78 and on the north side of Buena Vista Creek (Photograph 1). The terrain includes steep to moderate south-facing side slopes in the eastern half and flat valley floor across the western half. As a result of the survey, four previously recorded archaeological sites were relocated and updated. These include CA-SDI-5652, CA-SDI-9472, CA-SDI-9473, and CA-SDI-9474. No new cultural resources were identified during the survey.

Photograph 1. Overview of the VC1 project area, facing west

CA-SDI-5652

CA-SDI-5652 was originally recorded by James Edwards in 1977. The site includes the restored Marrón-Hayes Adobe residence and pump house, historic artifact scatters, and prehistoric artifact scatters. The artifact assemblage included historic stone, leather, and a brass button, and prehistoric lithics, including choppers, scrapers, hammerstones, a mano fragment, and two projectile points.

In 1998, Gallegos & Associates updated the site and identified two concentrated areas of prehistoric material in the southern half of the site, designated Locus A and Locus B (Kyle, Phillips, and Gallegos, 2002). Gallegos & Associates implemented a subsurface testing program of the prehistoric component that consisted of excavation of 30 shovel test pits (STP) and six 1 x 1 meter test units. Subsurface testing identified two separate shell midden features and a sparse scatter of shell and artifacts over the remainder of the site. Cultural material recovered during testing included 2,800 pieces of debitage, 4 bifaces, 8 flake tools, 11 core/cobble tools, 1 core, 16 manos, 2 metate fragments, 1 stone bowl fragment, 29 ground stone fragments, 38 ceramic sherds, 2 olivella shell beads, 1 bone bead, 1 punched *Argopecten* sp. shell, 10 otoliths, 1 antler fragment, faunal remains, shell, and historic debris. Radiocarbon analysis from small charcoal and shell samples yielded dates from 1330 to 1970 years B.P. Based on the results of the testing, CA-SDI-5652/H was recommended eligible for inclusion in the NRHP and the CRHR.

In 2015, ASM Affiliates completed a HABS documentation and National Register nomination for the Marrón-Hayes Historic Adobes District (Stringer-Bowsher et al 2015). The Marrón-Hayes Adobe, along with the no longer extent Hayes Adobe (CA-SDI-9474H), comprises the Marrón-Hayes Historic Adobes District. It was constructed ca. 1854 and altered in 1947. The Marrón-Hayes Adobes Historic District was once part of a much larger 362-acre ranch and is significant for its association with Silvestre Marrón, one of the first non-Indian settlers of the present-day Oceanside-Carlsbad area, and John Chauncey Hayes, an influential late 19th c. and early 20th c. lawyer, judge, newspaper man, farmer, real estate developer, and one of the founders of Oceanside. The extant Marrón-Hayes Adobe is significant as a rare and intact example of a late Mexican-style adobe in San Diego County (1850-1906), as well as an excellent example of mid-20th c. (1947) Mission Revival architecture.

Photograph 2. Overview of CA-SDI-5652 from Locus A, facing west

Most of the southern half of the site is within the current study area. This portion of the site is on a gentle south facing slope on the north side of Buena Vista Creek. Most of the site is covered with dense coastal sage scrub and annual grasses (Photograph 2). Both of the previous site recorders noted that this area has been used for agriculture. Currently, this area is part of the Buena Vista Creek Ecological Reserve.

Despite poor ground visibility, both Loci A and B were easily relocated. Locus A covers the southeast corner of the site and consists of a dense surface scatter of crushed shell. Shell midden deposit and fire-cracked rock (FCR) are exposed on the surface of an intersection of dirt/gravel roads that cut through Locus A (Photograph 3). Buried midden soil is visible in erosional ruts at the road intersection. These ruts extend down to depths of at least 20 cm below surface level and show dense shell deposit (Photographs 4 and 5). One lithic tool was identified within Locus A (Artifact 1). Artifact 1 is a double-sided chopper of metavolcanic material. As a result of the survey, the boundaries of CA-SDI-5652 were expanded to cover the full extent of Locus A.

Photograph 3. Overview of CA-SDI-5652 Locus A, facing northwest

Photograph 4. Shell and midden soil exposed in the road at Locus A

Photograph 5. Shell and midden soil exposed in the road at Locus A

Locus B covers part of the southwest portion of the site and consists of moderate to dense shell scatter with some FCR and midden soil mostly visible in area of rodent burrowing (Photograph 6).

Photograph 6. Overview of CA-SDI-5652 Locus B, facing south

Two possible historic features were also identified at the site. Feature 1 is a water pump with a rectangular concrete base and a rusted metal pump mechanism (Photograph 7). Tags on the mechanism read “Serial Number S27 Model 9R1” and “A PEERLESS PUMP DIVISION/ FOOD MACHINERY AND CHEMICAL CORPORATION/ LOS ANGELES, CA/ INDIANAPOLIS, IND,” with an “fmc” logo. The pump likely dates to the mid-20th Century. It is unclear if this is related to the historic pump house noted by Edwards in 1977. Feature 2 is a large eucalyptus tree on the northeast edge of Locus B. The tree was likely planted during the historic occupation of the site.

Photograph 7. Overview of CA-SDI-5652 water pump feature, facing east

Previous excavations of the prehistoric portions of the site have yielded information important to the prehistory of the area. The site also likely contains additional subsurface deposits that have the potential to yield further information. Therefore, the prehistoric component of the site should be considered eligible for the California Register of Historic Resources (CRHR) under Criterion 4 and for the National Register of Historic Places (NRHP) under Criterion D. The historic Marrón-Hayes Adobe structure is eligible under Criteria B and C. Additionally, the site boundary is within the National Register nomination boundaries of the Marrón-Hayes Historic Adobes District as drawn by Stringer-Bowsher et al (2015).

CA-SDI-9472

CA-SDI-9472 was originally recorded by Dennis Quillen in 1982 and described as *Chione* sp., *Pecten* sp., and *Mytilus* sp. shell remains and basalt flakes present in rodent den mounds. The site measured 30 m x 25 m and was recorded on a small ridge on the south side of Hwy 78 and north of Buena Vista Creek (Quillen 1982a).

The site was relocated on top of low, broad ridge extending between Hwy 78 and Buena Vista Creek adjacent to the west of the previously recorded location (Photograph 8). A diffuse scatter of *Chione* sp., *Argopecten* sp., and *Donax* sp. shell remains was observed scattered over an area measuring 73 x 39 m. One basalt tertiary flake was observed on the surface. Vegetation on the site consists of coastal sage, sweet fennel, and other grasses. Approximately 50 percent of the surface has been disturbed by vehicular use. The site likely extended further to the north prior to the construction of Hwy 78. The site may also extend further south to the creek; however, due to dense riparian vegetation ground visibility to the south is effectively zero. CA-SDI-9472 has not been tested or evaluated for eligibility to the CRHR or the NRHP. Subsurface testing would be necessary to assess the site's significance and potential to yield important information.

Photograph 8. Overview of CA-SDI-9472, facing southeast

CA-SDI-9473

CA-SDI-9473 was originally recorded by Dennis Quillen in 1982 and described as a surface scatter of *Chione* sp., *Pecten* sp., and *Mytilus* sp. shell remains, possible FCR, and basalt flakes visible in rodent den mounds. The site measured 35 m x 25 m and was recorded on a small ridge on the south side of Hwy 78 and north of Buena Vista Creek (Quillen 1982b). Caltrans archaeologists tested the site in 1982 to assess its eligibility for inclusion in the NRHP (Corum and White 1982). Testing included excavation of twelve 1 x 1 m test units, power auguring of ten 30 cm diamter test probes, and hand excavation of one 30 cm x 30 cm test probe. Artifacts recovered from the site included debitage, flaked lithic tools, ground stone, one projectile point, ceramics, and fire-affected rocks. Caltrans determined that the site was not eligible for inclusion on the NRHP due to extensive disturbance (Corum and White 1982).

The site was relocated on top of low, narrow ridge extending between Hwy 78 and Buena Vista Creek approximately 90 m the west of the previously recorded location (Photograph 9). A dense surface scatter of *Chione* sp., *Argopecten* sp., and *Donax* sp. shell remains was observed scattered over an area measuring 58 m x 33 m (Photograph 10). Two basalt flakes and several small fragments of possible FCR were observed on the surface. Vegetation on the site consists of dense coastal sage, sweet fennel, and other grasses. Other than the dirt road which bisects the site, no obvious ground disturbances were observed. The site may have extended further to the north prior to the construction of Hwy 78, and also may have extended further south to the creek; however, due to dense riparian vegetation ground visibility to the south is effectively zero.

Photograph 9. Overview of CA-SDI-9473, facing southwest

Photograph 10. Shell varieties at CA-SDI-9473

CA-SDI-9474

CA-SDI-9474H was originally recorded by Dennis Quillen in 1982 and described as a historic habitation measuring 50 x 30 m with two privy features and scattered historic debris consisting of historic bottle glass, ceramic sherds, brick, cattle bone and hand-forged iron fragments dating to the 1920s. The larger of the privies was measured at 1.5 m across at the top by 2 m in depth. The site is likely the remnants of a historic building that appears at this location on the 1906 historic quadrangle maps. Two looter pits were observed at the site (Quillen 1982c).

Based on historical research, Gallegos & Associates identified the location of CA-SDI-9474H as the site of the Hayes Adobe, an adobe house built for John Chauncey Hayes and Felipa E. Marrón. The Hayes Adobe was constructed ca. 1875 and reported to be in disuse by the 1930s and “almost entirely in ruins” by 1965 (Stringer-Bowsher et al 2015). Gallegos & Associates conducted additional archaeological fieldwork at CA-SDI-9474H in 1998 that included a surface collection of cultural materials, excavation of STPs, a ground penetrating radar (GPR) study, and backhoe trenching (Kyle, Phillips, and Gallegos, 2002). At the time of their investigations, no evidence of the structure could be seen on the surface. GPR was used to determine the presence of subsurface remnants of the adobe structure, privies, and/or trash dumps. The surface collection and excavation produced a variety of cultural materials including ceramics, glass, metal, and faunal remains. The GPR study identified a linear anomaly that corresponded with the documented orientation of the Hayes Adobe and was interpreted as potential wall remnants. Based on the results of the investigations, Gallegos & Associates recommended the site eligible for listing on the NRHP under Criterion A for association with the pioneer settlement of the Oceanside/Carlsbad area; Criterion B for association with the Hayes and Marrón families; and Criterion D on the basis that it may likely yield information important in history. Additionally, the site considered a contributing element

to the proposed Marrón-Hayes National Register Historic District that also includes CA-SDI-5652H.

Photograph 11. Overview of CA-SDI-9474, facing south

The site was relocated at the previously recorded location on the edge of a flat knoll above and north of Buena Vista Creek (Photograph 11). A wire fence borders the site on the east and the Hwy 78 ROW borders the site on the north. The west and south edges of the site are truncated by sewer infrastructure. Resurvey of the area identified a sparse surface scatter consisting of 3 fragments of whiteware ceramics, 1 piece of porcelain ceramic, 3 fragments of lightly solarized amethyst glass, 2 fragments of aquamarine bottle glass, 1 adobe brick fragment, several pieces of mortar or cement, 1 possible sandstone mano fragment (Photograph 12), 1 basalt secondary flake, and a thin scatter of shell fragments. With the exception of the lithics, the artifacts appear to date to the early 20th century and match the assemblage recorded by Quillen. The shell scatter includes *Chione* sp., *Tivela* sp., and *Haliotis* sp.

One historic feature was identified at the site. Feature 1 consists of a rectangular rock alignment measuring approximately 6 ft x 5.5 ft (Photograph 13). The feature is made of granitic rock cobbles with a piece of 2 x 4 inch wood plank in the southeast corner. It is possible that this is the remnants of one of the privy features recorded by Quillen. If so, the feature has since been filled in.

Photograph 12. Mano fragment

Photograph 13. Overview of Feature 1

CA-SDI-9474 has been recommended eligible for listing on the CRHR or NRHP. Based on a surface examination of the site, it appears that all structural elements of the historic habitation have been destroyed. The current surface assemblage is sparse and lacks any diagnostic artifacts that might yield further information about the historic or prehistoric occupation. However, subsurface testing would be necessary to evaluate the impacts of construction on the significance of the site.

Impact Evaluation

As defined in Appendix G of the 2019 CEQA Statute & Guidelines, project impacts to cultural resources would be considered significant if the project was determined to:

a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines;
b) Cause a substantial adverse change in the significance of an archaeological resource as defined in Section 15064.5 of the CEQA Guidelines;
c) Disturb any human remains, including those interred outside of formal cemeteries; or
d) Cause a substantial adverse change in the significance of a Tribal Cultural Resource as defined in Public Resources Code §21074?

The following evaluation considers the potential impacts to the cultural resources identified within the APE project improvements identified in Figure 4 and Figure 5.

a) Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines?

   As provided in Section 4.3 of the SPEIR, project construction activities could include the use of equipment that could generate high levels of vibration. The highest vibration levels for construction identified in the SPEIR was that associated with the operation of a vibratory roller (0.210 peak particle velocity [PPV] at 25 feet). This assumption would remain accurate for the project in that no blasting is proposed to facilitate realignment of the roadway as proposed.

   Based on criteria presented in the Federal Transit Administration's (FTA) Noise and Vibration Manual (2006), "fragile buildings" are subject to damage when vibration exceeds 0.20 PPV. As provided in the SPEIR, historic structures are often considered in this category due to their age of construction and the building codes enacted at the time of construction. As a result, construction activities within 25 feet of fragile structures could result in damaging vibration levels for historic structures, where present and eligible for the NRHP or CRHR. As provided in the SPEIR, the CRHR eligible Rancho Buena Vista adobe ranch house is located in close proximity to the project with actual work proposed at approximately 100 feet of the onsite structure. However, it is possible that one or more contributing elements could be located in closer proximity and therefore be subject to potentially significant vibration-related impacts. Mitigation Measure CULT-1 is proposed to minimize construction-related vibration impacts to historic structures to a level of less than significant.

Figure 4. Proposed Access Road (West)

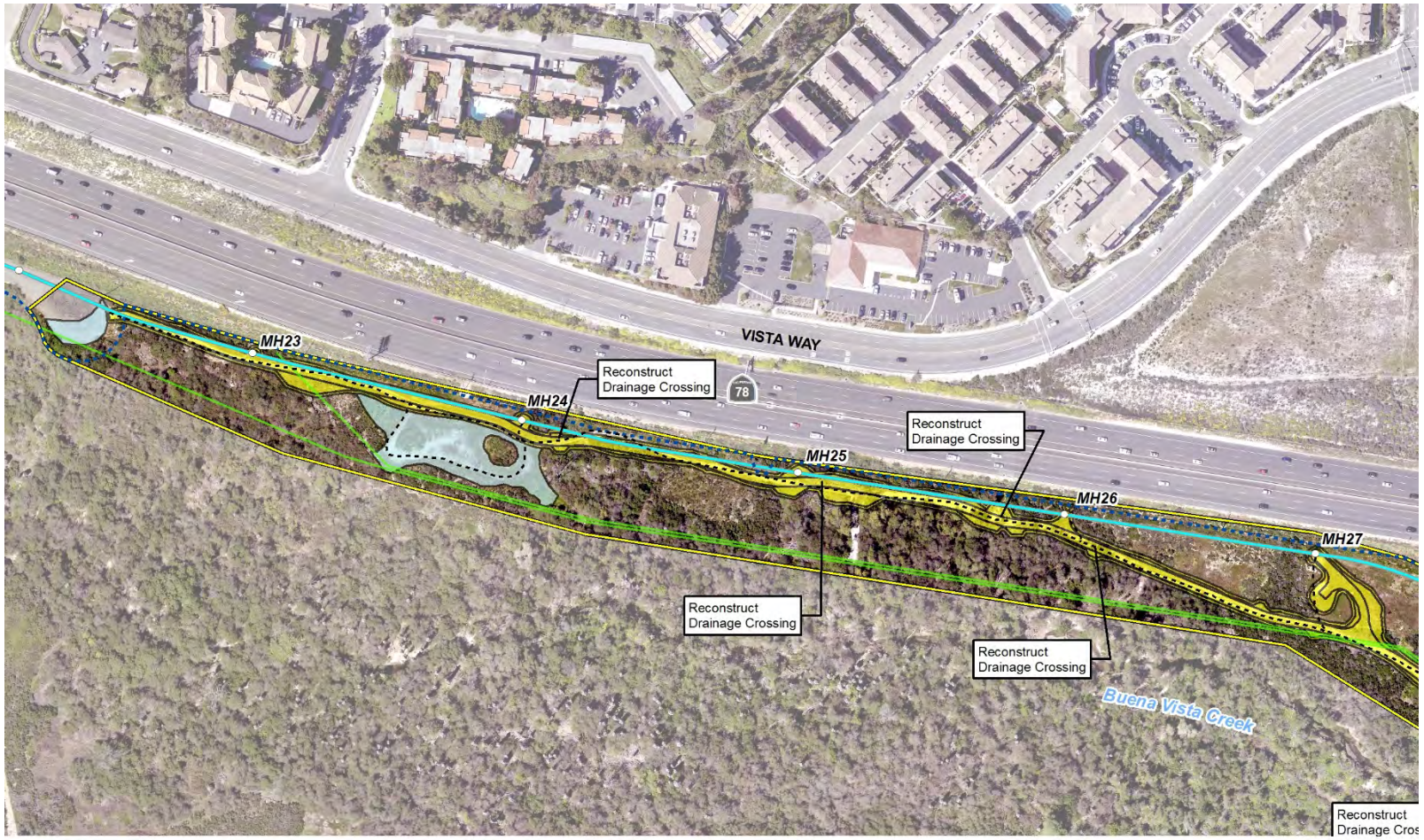
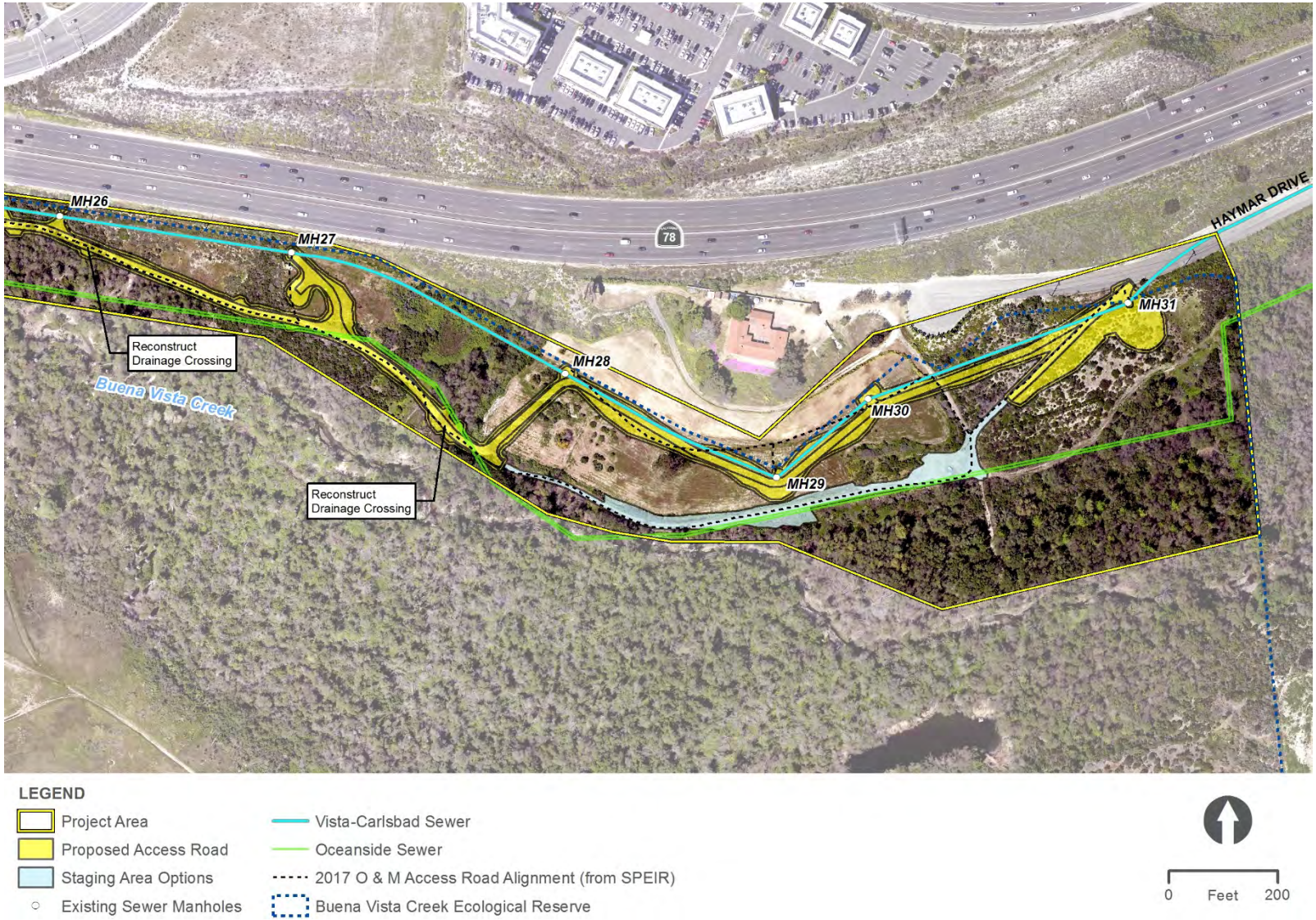


Figure 5. Proposed Access Road (East)



b) Would the project cause a substantial adverse change in the significance of an archaeological resource as defined in Section 15064.5 of the CEQA Guidelines?

As described in Section 4.3 of the SPEIR, the City applied probable work limits for construction for the Category 4 improvements, including the project. This included approximating the area of direct impact for construction, adjacent staging areas, and/or other temporary work areas and averages 50 feet in width. These areas are now defined in Figure 4 and Figure 5 for VC1 at the project level.

Based on the project APE, four previously recorded sites were identified within the area of direct impact. CA-SDI-5652 is a multi-component site consisting of the Marrón-Hayes Adobe, historic and prehistoric artifact scatter, and prehistoric shell midden deposit. A subsurface testing program implemented by Gallegos and Associates in 1998 confirmed the presence of buried shell midden deposit within the study area. The Marrón-Hayes Adobes Historic District was nominated by ASM Affiliates to the NRHP in 2015. The Marrón-Hayes Adobe is a contributing historic resource to the historic district and is itself eligible for the CRHR and NRHP under Criteria A, B, and C. The structure is within 500 feet of the APE. Additionally, the prehistoric component of the site should be treated as eligible for the CRHR and the NRHP under Criterion D. Construction of the access road will have a direct adverse effect on the site. Any ground disturbing activity within the vicinity of the site may encounter additional buried archaeological deposits. Prior to any ground disturbing activities a protection plan should be implemented to mitigate adverse effects on buried cultural resources. HDR also recommends that Mitigation Measure CULT-3, Archaeological Monitoring, be implemented for all activities within the historic district. In addition, HDR recommends that the City comply with Carlsbad's Tribal Cultural Resources Procedures as defined in Section 8 of Carlsbad's Tribal, Cultural, and Paleontological Resources Guidelines (2017).

CA-SDI-9474 is a multi-component site consisting of possible remnants of the Hayes Adobe, historic artifact scatter, and prehistoric artifact and shell scatter. A subsurface testing program and GPR study implemented by Gallegos and Associates confirmed the presence of buried cultural material and found evidence of subsurface structural remnants. The Hayes Adobe is a contributing historic resource to the Marrón-Hayes Adobes Historic District and the site is recommended eligible for the CRHR and NRHP under Criteria A, B, and D. Construction of the access road may have a direct adverse effect on the site. Any ground disturbing activity within the vicinity of the site may encounter additional buried archaeological deposits. Prior to any ground disturbing activities a protection plan should be implemented to mitigate adverse effects on buried cultural resources. HDR also recommends that Mitigation Measure CULT-3, Archaeological Monitoring, be implemented for all activities within the historic district. In addition, HDR recommends that the City comply with Carlsbad's Tribal Cultural Resources Procedures as defined in Section 8 of Carlsbad's Tribal, Cultural, and Paleontological Resources Guidelines (2017).

CA-SDI-9472 contains a prehistoric surface scatter consisting of lithic artifacts and shell debris. The significance of the site has not been evaluated. Subsurface testing would be necessary to determine the significance and eligibility under Criterion D. Unless

demonstrated to be otherwise, this site should be treated as potentially eligible. HDR therefore recommends subsurface testing and evaluation of the site. HDR also recommends that Mitigation Measure CULT-3, Archaeological Monitoring, be implemented for all ground disturbing activities within the vicinity of these sites.

CA-SDI-9473 also contains a prehistoric surface scatter consisting of lithic artifacts and shell debris. CA-SDI-9473 has been extensively tested and recommended ineligible for inclusion on the CRHR and the NRHP due to extensive disturbance. Assuming SHPO concurrence, no further testing or evaluation is necessary.

- To remain consistent with the prior SPEIR analysis and based on the results of the archaeological survey, the project has potential to cause significant impacts to cultural resources eligible for listing on the CRHR and NRHP. Project related excavation within the archaeological resources may cause the destruction, relocation, or alteration of buried archaeological deposits that may be likely to yield information important to prehistory or history. Thus, construction related to improvements to the VC1 access road has the potential to cause substantial adverse change in the significance of archaeological resources CA-SDI-5652, CA-SDI-9472, CA-SDI-9473, and CA-SDI-9474. This is considered a potentially significant impact and Mitigation Measure CULT-3 is required.

c) Would the project disturb any human remains, including those interred outside of formal cemeteries?

As provided in Section 4.3 of the SPEIR, construction of the improvements proposed under the 2017 CSMP, including the project, would occur at the vicinity of existing facility locations. However, during the construction of these facilities, the potential for the unexpected discovery of interred human remains, either prehistoric or historic, is a possibility. The potential then increases in areas that have supported prehistoric and historic settlements, including the project area. These direct impacts could be significant. Mitigation Measure CULT-5 is proposed to reduce these potential impacts to the unexpected discovery of interred human remains.

d) Would the project cause a substantial adverse change in the significance of a Tribal Cultural Resource as defined in Public Resources Code §21074?

As provided in (b), the project would result in direct impacts to CA-SDI-5652, which is a multi-component site consisting of the Marrón-Hayes Adobes Historic District, and includes historic and prehistoric artifact scatter. This impact could include a substantial adverse change in the significance of a Tribal Cultural Resource pending further consultation with interested tribes. Implementation of Mitigation Measure CULT-2 is required.

Project-Level Mitigation Recommendations

The cultural resources study was conducted as part of the implementation of Mitigation Measure CULT-2 (Project Specific Archaeological Survey). This mitigation measure, along with Mitigation Measures CULT-1 and CULT-3 are designed to reduce potentially significant impacts identified for CSMP Categories 1, 2, 3, and 4, including the project. Based on the implementation of Mitigation Measure CULT-2, the project would result in a direct impact on cultural resources. As provided in Section 4.3 of the SPEIR, with the implementation of the following mitigation measures in combination with adherence to Carlsbad's Tribal, Cultural, and Paleontological Procedures (2017), these impacts would be reduced to a less than significant level.

CULT-1 **Construction-Related Vibration.** Prior to the issuance of project-specific construction documents for CIP Capacity and Condition Projects (Hardscape Environs), the City Engineer shall determine whether construction activities would occur within 25 feet of a NRHP or CRHR eligible or listed historic structure. For structures that have not been previously evaluated, the City Engineer shall consult with a qualified Architectural Historian approved by the City to conduct an evaluation of the structure.

If the structure is determined eligible or already eligible or listed in the NRHP or CRHR, a structural evaluation shall be conducted by a Professional Structural Engineer to identify maximum allowable levels of vibration during construction. If a historic determination is required, the engineer shall provide recommendations on approaches to stabilization in conjunction with vibration monitoring. Permanent stabilization measures shall follow the Secretary of the Interior's guidelines for the treatment of historic properties. If the buildings are temporarily stabilized for the duration of construction activities, when removed, the buildings shall be restored to their pre-construction condition when the stabilization measures are removed.

CULT-2 **Project-Specific Archaeological Survey.** Prior to the issuance of project-specific construction documents for CIP Capacity and Condition Projects (Hardscape and Cross-County Environs), Pump Station Rehabilitations, and Out-of-Service Area Projects, a Qualified Archaeologist approved by the City shall contact the NAHC regarding a Sacred Lands File Search for the project area. In addition, the City shall request a written response from the San Luis Rey Band of Mission Indians (SLR Band) (a tribe traditionally and culturally affiliated with the site) regarding whether the site of the 2017 CSMP improvement project may potentially affect Native American resources. If the NAHC and/or the SLR Band confirms potential known resources, a pedestrian survey (i.e., physical walk over) shall first be conducted by the Qualified Archaeologist and a TCA (traditionally and culturally affiliated) Native American Monitor. Should the pedestrian survey identify Native American cultural resources, the Qualified Archeologist shall, in consultation with the TCA Native American monitor and the SLR Band, make an immediate written evaluation of the significance and appropriate treatment of the resource, including any avoidance measures, additional testing and evaluations, or data recovery plans, and Pre-Excavation Agreements with the Tribe. If the SLR Band confirms, in consultation with

the Qualified Archaeologist, that there is a potential for unknown resources to be uncovered during construction activities, then Mitigation Measure CULT-3, Archaeological Monitoring, shall be implemented (City of Vista 2017).

CULT-3 **Archaeological Monitoring.** Cultural resource mitigation monitoring shall be conducted to provide for the identification, evaluation, treatment, and protection of any cultural resources that are affected by or may be discovered during the construction of the proposed project. The monitoring shall consist of the full-time presence of a Qualified Archaeologist and a TCA (traditionally and culturally affiliated) Native American Monitor, and the monitoring activities shall be identified and defined in a Pre-Excavation Agreement between the City's Engineering Department and the San Luis Rey Band. The purpose of this agreement shall be to formalize protocols and procedures for the protection, treatment, and disposition of, but not limited to, such items as Native American human remains, funerary objects, cultural and religious landscapes, ceremonial items, traditional gathering areas and cultural items, located and/or discovered through the cultural resource mitigation monitoring program in conjunction with the construction of the proposed project, including additional archaeological surveys and/or studies, excavations, geotechnical investigations, soil surveys, grading, or any other ground disturbing activities. Other tasks of the monitoring program shall include the following:

- The requirement for cultural resource mitigation monitoring shall be noted on all applicable construction documents, including demolition plans, grading plans, etc.
- The Qualified Archaeologist and TCA Native American Monitor shall attend all applicable pre-construction meetings with the Contractor and/or associated Subcontractors.
- The Qualified Archaeologist shall maintain ongoing collaborative consultation with the TCA Native American Monitor during all ground disturbing or altering activities, as identified above.
- The Qualified Archaeologist and/or TCA Native American Monitor may halt ground-disturbing activities if archaeological artifact deposits or cultural features are discovered. In general, ground-disturbing activities shall be directed away from these deposits for a short time to allow a determination of potential significance, the subject of which shall be determined by the Qualified Archaeologist and the TCA Native American Monitor, in consultation with the San Luis Rey Band. Ground- disturbing activities shall not resume until the Qualified Archaeologist, in consultation with the TCA Native American Monitor, deems the cultural resource or feature has been appropriately documented and/or protected. At the Qualified Archaeologist's discretion, the location of ground disturbing activities may be relocated elsewhere on the project site to avoid further disturbance of cultural resources.
- The Qualified Archaeologist and/or TCA Native American Monitor may also halt ground disturbing activities around known archaeological artifact deposits or cultural features if, in their respective opinions, there is the possibility that they could be damaged or destroyed.

- The avoidance and protection of discovered unknown and significant cultural resources and/or unique archaeological resources is the preferable mitigation for the proposed project. If avoidance is not feasible, a Data Recovery Plan may be authorized by the City as the Lead Agency under CEQA. If data recovery is required, then the San Luis Rey Band shall be notified and consulted in drafting and finalizing any such recovery plan.
- Prior to the release of any Bonds associated with the construction of improvements noted in the 2017 CSMP, a Monitoring Report and/or Evaluation Report, which describes the results, analysis and conclusions of the cultural resource mitigation monitoring efforts (such as, but not limited to, a Data Recovery Program) shall be submitted by the Qualified Archaeologist, along with the TCA Native American Monitor's notes and comments, to the City's Director of Community Development for approval.
- Implementation of the following mitigation measure would reduce significant impacts identified for 2017 CSMP Categories 1, 2, 3 and 4 as identified under Impact 4.3-4 to less than significant levels. The proposed mitigation would replace the mitigation measures adopted in the 2008 PEIR for potential impacts to human remains.

CULT-5 **Disturbance to Human Remains.** As specified by California Health and Safety Code Section 7050.5, if human remains are found on the project site during construction or during archaeological work, the person responsible for the excavation, or his or her authorized representative, shall immediately notify the San Diego County Coroner's office by telephone. No further excavation or disturbance of the discovery or any nearby area reasonably suspected to overlie adjacent remains (as determined by the Qualified Archaeologist and/or the TCA (traditionally and culturally affiliated) Native American Monitor) shall occur until the Coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code 5097.98. If such a discovery occurs, a temporary construction exclusion zone shall be established surrounding the area of the discovery so that the area would be protected (as determined by the Qualified Archaeologist and/or the TCA Native American Monitor), and consultation and treatment could occur as prescribed by law. As further defined by State law, the Coroner would determine within two working days of being notified if the remains are subject to his or her authority. If the Coroner recognizes the remains to be Native American, he or she shall contact the Native American Heritage Commission (NAHC) within 24 hours. The NAHC would make a determination as to the Most Likely Descendent. If Native American remains are discovered, the remains shall be kept "in situ" ("in place"), or in a secure location in close proximity to where they were found, and the analysis of the remains shall only occur on-site in the presence of the TCA Native American Monitor.

Thank you for the opportunity to work on this project. If there are any questions regarding the information provided in this letter or if additional information is needed, please contact me at the HDR San Diego office (858) 712-8273.

Sincerely,

Daniel Leard
Staff Archaeologist

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