

Los Osos Wastewater Project Environmental Report

Two Discs Included: Draft EIR (11/14/2008) and Final EIR (3/30/2009)

Prepared for:



Pete Yribarren, Community Programs Specialist
3530 West Orchard Court
Visalia, CA 93277-7360

Prepared by:



San Luis Obispo County
Department of Public Works
Environmental Programs Division

1050 Osos Street, Room 207
San Luis Obispo, CA 93408
p (805) 781-5252 f (805) 781-1229

April 2010

TABLE OF CONTENTS

1 PURPOSE AND NEED OF THE PROPOSAL..... 9

1.1 PROJECT DESCRIPTION (PROPOSED ACTION) 9

1.2 PURPOSE AND NEED OF THE PROPOSAL 13

2 ALTERNATIVES TO THE PROPOSED ACTION 17

2.1 ALTERNATIVE DESCRIPTIONS 19

2.2 ALTERNATIVE SCREENING CRITERIA 20

2.3 ALTERNATIVES DISCUSSION 22

 2.3.1 *In-Town Treatment Plant* 22

 2.3.2 *Full In-Town Recycled Water Reuse* 23

 2.3.3 *Out of Town Constraints* 24

 2.3.4 *Disposal and Reuse Options* 25

2.4 CONCLUSIONS 27

3 AFFECTED ENVIRONMENT / ENVIRONMENTAL CONSEQUENCES 31

3.1 USDA DESIGNATED IMPORTANT FARMLAND 31

 3.1.1 *Affected Environment* 31

 3.1.2 *Environmental Consequences* 32

 3.1.2.1 *Secondary Effects on Farmland – Growth & Development* 32

 3.1.3 *Mitigation* 33

3.2 FLOODPLAINS 33

 3.2.1 *Affected Environment* 34

 3.2.2 *Environmental Consequences* 35

 3.2.3 *Mitigation* 36

3.3 WETLANDS 36

 3.3.1 *Affected Environment* 37

 3.3.2 *Environmental Consequences* 37

 3.3.3 *Mitigation* 38

3.4 HISTORIC PROPERTIES 38

 3.4.1 *Affected Environment* 39

 3.4.2 *Environmental Consequences* 43

 3.4.2.1 *Archaeological Resources and Human Remains* 43

 3.4.2.2 *Paleontological Resources* 44

 3.4.2.3 *Historic Resources* 44

 3.4.3 *Mitigation* 44

3.5 BIOLOGICAL RESOURCES INFORMATION 46

 3.5.1 *Federally Threatened and Endangered Species* 46

 3.5.1.1 *Affected Environment* 46

 3.5.1.2 *Environmental Consequences* 50

 3.5.1.3 *Mitigation* 53

3.6 WATER QUALITY ISSUES 64

 3.6.1 *Affected Environment* 64

 3.6.1.1 *Regional and Local Water Quality* 65

 3.6.1.2 *Ground Water and Aquifers* 65

 3.6.1.3 *Drainage* 66

 3.6.1.4 *Watershed Management Plans* 66

 3.6.2 *Environmental Consequences* 67

 3.6.2.1 *Impacts to Surface Water or Ground Water/Aquifers* 68

 3.6.2.2 *Potential for Increased Surface Runoff and Erosion During and After Construction* 68

 3.6.2.3 *Impacts to Existing Water Supply* 69

 3.6.3 *Mitigation* 70

3.7 COASTAL RESOURCES 70

 3.7.1 *Affected Environment* 70

3.7.2 *Federal Consistency*..... 71

3.8 SOCIO-ECONOMIC ISSUES/ENVIRONMENTAL JUSTICE..... 72

3.8.1 *Affected Environment*..... 72

3.8.1.1 Socio-Economic Issues 72

3.8.1.2 Environmental Justice 73

3.8.1.3 Public Health and Safety 73

3.8.2 *Environmental Consequences* 74

3.8.2.1 Socio-Economic Issues 74

3.8.2.2 Environmental Justice 75

3.8.2.3 Public Health and Safety 76

3.8.2.4 Public Outreach 77

3.8.3 *Mitigation*..... 78

3.9 AIR QUALITY 78

3.9.1 *Affected Environment*..... 78

3.9.2 *Environmental Consequences* 79

3.9.3 *Mitigation*..... 81

3.10 LOCATION TO OTHER FORMALLY CLASSIFIED LANDS 84

3.11 MISCELLANEOUS ISSUES 84

3.11.1 *Energy*..... 84

3.12 CUMULATIVE EFFECTS 85

3.12.1 *Past, Present and Reasonably Foreseeable Future External Actions*..... 86

3.12.2 *Cumulative Effects on the Physical Environment* 87

3.12.3 *Cumulative Effects on the Biological Environment* 88

3.12.4 *Cumulative Effects on the Human Environment* 90

4 LIST OF PREPARERS 93

5 REFERENCES..... 95

APPENDICES

- Appendix A** Exhibits
- Appendix B** Summary of Mitigation
- Appendix C** Correspondence
- Appendix D** Eight-Step Decision Making Process
- Appendix E** Cultural Resources Information (Confidential, Under Separate Cover)

LIST OF TABLES

TABLE 2-1 VIABLE PROJECT COMPONENT ALTERNATIVES 17

TABLE 2-2 PROJECT ALTERNATIVES 18

TABLE 2-3 ALTERNATIVE SCREENING CRITERIA..... 20

TABLE 2-4 SUMMARY OF OUT OF TOWN CONSTRAINTS..... 24

TABLE 3.3-1 WETLANDS REGULATIONS AND POLICIES 36

TABLE 3.4-1 CULTURAL RESOURCE DOCUMENTS PREPARED FOR THE LOWWP..... 40

TABLE 3.8-1 DEMOGRAPHIC INFORMATION FOR THE COMMUNITY OF LOS OSOS..... 72

TABLE 3.8-2 DEMOGRAPHIC INFORMATION FOR TREATMENT PLANT SITE..... 74

TABLE 3.8-3 DEMOGRAPHIC INFORMATION FOR BRODERSON LEACH FIELD SITE..... 74

TABLE 3.9-1 AMBIENT AIR QUALITY STANDARDS AND ATTAINMENT STATUS..... 79

TABLE 3.9-2 PROJECT CONSTRUCTION AND OPERATIONAL EMISSIONS 81

TABLE 12-1 LOS OSOS WASTEWATER PROJECT-CUMULATIVE PROJECTS 86

**LIST OF EXHIBITS
(APPENDIX A)**

- Exhibit 1-1** Project Vicinity
- Exhibit 1-2** Overall Project Site Plan
- Exhibit 1-3** Treatment Plant Site Plan
- Exhibit 1-4** Service Area Map
- Exhibit 2-1** Wastewater Treatment Plant Site Alternatives
- Exhibit 2-2** Recycled Water Reuse Location Options
- Exhibit 2-3** Alternative 1
- Exhibit 2-4** Alternative 2
- Exhibit 2-5** Alternative 3
- Exhibit 2-6** Alternative 4
- Exhibit 2-7** Alternative 5
- Exhibit 3.2-1** Overall Project Site Plan with FEMA Flood Zones
- Exhibit 3.3-1** Federal Wetlands and Other Waters
- Exhibit 3.6-1** Los Osos Surface Water Features
- Exhibit 12-1** Cumulative Projects Location Map

LIST OF ABBREVIATED TERMS

AF	acre-feet
AB	Assembly Bill
BP	before present
BMP	best management practice
BO	Biological Opinion
CCC	California Coastal Commission
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
NAHC	California Native American Heritage Commission
CNPS	California Native Plant Society
SWRCB	California State Water Resources Control Board
CO	carbon monoxide
CDPF	catalyzed diesel particulate filter
RWQCB	Central Coast Regional Water Quality Control Board
CWA	Clean Water Act
CDP	Coastal Development Permit
CZLUO	Coastal Zone Land Use Ordinance
CFR	Code of Federal Regulations
CNG	Compressed Natural Gas
CSLOHD	County of San Luis Obispo Health Department
DTSC	Department of Toxic Substance Control
EIR	Environmental Impact Report
EPA	United States Environmental Protection Agency
ESHA	Environmentally Sensitive Habitat Area
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
gpd	gallons per day
GHG	greenhouse gas
LNG	liquefied natural gas
LCP	Local Coastal Plan
LOCSO	Los Osos Community Services District
LOVR	Los Osos Valley Road
LOWWP	Los Osos Wastewater Project
mgd	million gallons per day
NRHP	National Register of Historic Places
NAAQS	National Ambient Air Quality Standards
NMFS	United States National Marine Fisheries Service
lbs	pounds
PZ	Prohibition Zone
RWQCB	California Central Coast Regional Water Quality Control Board
ROW	rights-of-way

SLO	San Luis Obispo
APCD	San Luis Obispo Air Pollution Control District
SRA	Sensitive Resource Area
STEG	Septic Tank Effluent Gravity
STEP	Septic Tank Effluent Pumps
SRF	State Revolving Fund
SWRCB	State Water Resources Control Board
SWMP	Stormwater Management Plan
SWPPP	Stormwater Pollution Prevention Plan
SO ₂	sulfur dioxide
USFWS	United States Fish and Wildlife Service
USACE	United States Army Corps of Engineers
WDR	Waste Discharge Requirements

This page blank

1 PURPOSE AND NEED OF THE PROPOSAL

1.1 Project Description (Proposed Action)

Los Osos is an unincorporated coastal community of approximately 15,000 residents located in San Luis Obispo County at the south end of Morro Bay, approximately twelve miles west of the City of San Luis Obispo, California. The community is bound by Morro Bay, the Morro Bay National Estuary, and Morro Bay State Park to the north, Montana de Oro State Park to the west and southwest, rural open space to the southeast and active production agricultural lands to the east. The City of Morro Bay lies approximately two miles to the north, beyond the Bay and estuary (Exhibit 1-1).

The Los Osos Wastewater Project (LOWWP) is a proposal by the County of San Luis Obispo to develop a wastewater collection, treatment and recycled water reuse system to serve the majority of the community of Los Osos (Exhibit 1-2).

The key objectives of the LOWWP are:

1. Develop a community wastewater project that will comply with California Central Coast Regional Water Quality Control Board (RWQCB) Waste Discharge Requirements (WDR).
2. Alleviate groundwater contamination—primarily nitrates—that has occurred at least partially because of the use of septic systems throughout the community.

Other Objectives Include:

- a) Environmental Impacts. Incorporate measures to minimize potential environmental impacts on the Los Osos community and surrounding areas (including, but not limited to, habitat conservation, endangered species and habitat, air and water quality, greenhouse gas (GHG) emissions, social and economic sustainability, wetlands and estuary preservation or enhancement, cultural resources protection, and agricultural land enhancements).
- b) Project Costs. Meet the project water quality requirements while minimizing lifecycle costs and mitigating affordability impacts on the community.
- c) Regulatory Compliance. Comply with applicable local, state, and federal permits, land uses, and other requirements including the Local Coastal Plan (LCP), Environmentally Sensitive Habitat Area (ESHAs) standards, State Marine Reserve, and archeological concerns.
- d) Water Resources. Address water resource issues by mitigating the Project's impacts on saltwater intrusion. Furthermore, the wastewater project will maintain the widest possible options for beneficial reuse of recycled water.

Facilities proposed by the project include:

1. Treatment Plant Facility

The location for the wastewater treatment plant facility is known locally as the Giacomazzi site. The Giacomazzi site is a rectangular 38.2-acre portion of a larger 100-acre parcel north of Los Osos Valley Road (LOVR) and west of Clark Valley Road. The lower (western) 62 acres of the parcel consists of prime soils and has a long history of production agriculture (irrigated row crops). These 62 acres are currently contract farmed with a mix of high value vegetable crops, and are not part of the current proposal. The upper 38.2 acres of the site, identified for the wastewater treatment plant facility, slopes gently downward toward the north and east toward an ephemeral drainage. This drainage extends along the easterly portion of the site to Warden Lake and supports a small oak woodland along its northerly reaches. The former farmhouse complex stands at the western side of the upper 38.2 acres. All of the original farm buildings have been removed and replaced with a modular residence; numerous tall Eucalyptus and Cypress trees border the old farmhouse site. The County proposal would create a 30-acre rectangular Public Lot around the treatment facility, leaving the existing modular on the old farmhouse site as part of the larger 70-acre parcel. This would allow the row crop operation to continue in private ownership with a buildable area located outside of prime soils. The 38.2-acre upper area was historically farmed, however, crop production ceased sometime in the last 20 years. Cultivation occurs regularly for weed control, but no crop has been produced. Local information indicates that a combination of soil pests, difficult irrigation requirements due to underlying clay layers, and proximity to higher value soils have combined to make farming the upper 38 acres unattractive. The Giacomazzi site contains both prime soils and soils of statewide importance.

The wastewater treatment plant facility is expected to occupy approximately 22 acres of the site, with the balance of the new 30-acre public lot in sensitive habitat open space (Exhibit 1-3). The location is outside of the urban core, roughly 0.5 miles east of the Urban Reserve Line (although the overall parcel abuts the Urban Reserve Line on its west end). The treatment facility would consist of an extended aeration wastewater treatment system with tertiary filtration. Extended aeration relies primarily on the acceleration of natural biodegradation of waste by aerobic bacteria to treat collected wastewater. The abundance of oxygen and carbon in the secondary process afforded by extended aeration also results in denitrification of the waste. This proven wastewater treatment technology is employed in hundreds of locations worldwide. These types of treatment plants have demonstrated the ability to remove nitrate from wastewater to the levels required by the RWQCB for the community of Los Osos.

Treatment components include:

- Headworks - to screen out inorganics, de-grit, and measure the wastewater inflow. A small septage receiving station will be included to accept septage from that portion of the community that is not included in the wastewater collection area and will remain on septic systems

- Extended aeration - to treat the wastewater to secondary treatment levels.
- Secondary Clarification - to settle out the suspended solids in the treated wastewater.
- Tertiary Treatment - to provide Disinfected Tertiary Recycled Water as defined at Section 60301.230 of Title 22 of the California Code of Regulations for unrestricted reuse.
- Biosolids management - to process and dispose of biosolids removed from the treated wastewater on an ongoing basis.
- Odor control system - to control odors by using an inorganic media system to trap and scrub foul air from within the buildings enclosing the headworks and the biosolids dewatering equipment.

The treatment plant facility will be designed with a capacity to treat a maximum average annual dry weather flow of approximately 1.1 million gallons per day (mgd) that takes into account the implementation of a water conservation program that is expected to conserve between 150,000 and 330,000 gallons per day (gpd) for the buildout population of 18,428 residents within the collection zone. At current indoor water use rates 14,428 persons would generate wastewater flows of 1.25 mgd; the project has a goal of reducing indoor water use to below 50 gpd per person which would equate to 0.92 mgd wastewater flows at buildout. If this goal is met or exceeded, the project will operate at a higher level of redundancy.

2. Collection System

The collection system consists of the installation of about 235,000 feet of pipe (195,000 ft of gravity pipe, 26,000 feet of force mains, and 14,000 feet of conveyance line to Giacomazzi from Mid-town). Within the collection area all of the septic tanks would be abandoned or repurposed for rainwater storage, and all wastewater would be collected through a series of gravity and pressurized pipelines that would convey wastewater to the treatment plant. The collection system would serve a buildout population of 18,428 within the service area (Exhibit 1-4). Collection system components include main lines, piping connections to the property line, laterals to connect the building to the system, pumps, force mains, and back-up power generators.

Nine pump stations and 13 pocket pump stations would be needed. Pump stations provide continuous pressure in the force mains to enable the transfer of wastewater to the treatment plant from areas at lower elevations. Pump stations would be located on vacant lots purchased by the project or within public rights-of-way (ROW). These stations will generally be required in low-lying areas and where pipeline depths approach 11 feet in depth. The stations will use electrically driven submersible pumps set in precast concrete vaults with two to four pumps per station. Also mounted close to the pump station will be a weather proof and vandal resistant electrical control panel to control the operation of the pumps. Dedicated standby power facilities will be located at the Lupine, East Ysabel, East Paso, Sunny Oaks, and Mid-town pump stations. The standby power facility for the Mountain View pump station will be located at the nearby Los Osos

Community Services District (LOCSD) well site at the intersection of South Bay Boulevard and Nipomo Avenue. A single standby power facility located at the LOCSD Eighth and El Moro Avenue Water Operations Maintenance Yard will serve both the West Paso and Baywood pump stations.

3. Recycled Water Reuse

The project will reuse recycled water in a number of ways. Recycled water will be returned directly to the upper aquifer at two leach field sites: the Broderon property and at the existing Bayridge leach field. The Broderon property consists of an approximately 81-acre rectangular shaped parcel located south of Highland Drive. Approximately 8 acres of the site would be used to construct a conventional leach field; the remainder of the site would be placed in permanent open space and added to the greenbelt surrounding the community. The existing Bayridge leach field currently serves the Bayridge neighborhood with common septic tanks and a leach field. The tanks would be abandoned or repurposed to collect rainwater and the leach field would be used for recycled water instead of septic tank leachate.

In addition, the project includes a suite of reuse options aimed at optimizing sea water intrusion mitigation. These reuse options include agriculture and urban reuse, as well as environmental reservations to handle the remainder of the recycled water depending on the season. Due to its key role in reducing seawater intrusion, the Broderon site is the primary recycled water reuse element. Approximately 40% of the recycled water (up to 448 acre feet on an average annual basis) would be placed at the Broderon site, primarily during the wet winter months. During the summer, the majority of recycled water would be directed to urban and agricultural reuse (irrigation). Urban reuse is focused on existing turf areas at four schools, the community park, and the golf course. Agricultural reuse is focused on existing irrigated lands which draw from the Los Osos groundwater aquifer.

The Bayridge leach field would provide subsurface flows to Willow Creek to support existing willow riparian stands. Although Willow Creek is outside of the wastewater service area, so existing septic tanks and leach fields would remain, the Bayridge leach field would offset any losses of flow from nearby newly collected areas. A system of new monitoring wells will be installed down-gradient of the Broderon site. These, along with other existing wells in the community, will be used to track the movement and behavior of percolated water to maximize the efficiency of the site.

4. Water Conservation

The project will implement a comprehensive water conservation program designed to reduce flows into the wastewater treatment plant as well as reduce the community's contribution to seawater intrusion currently occurring in the Los Osos Groundwater Basin. Because of the reduction and eventual halt of construction in the wastewater service area beginning in the 1980's, many of the homes and businesses in the community were built before current water conservation requirements. Consequently, the per capita indoor water use rate is considered moderately high for the area. The latest calculations from the two

water companies serving the wastewater service area indicate indoor water use rates near 66 gpd. Experience in other California central coast communities indicates that indoor use rates below 50 gpd per capita are achievable with the use of modern technology, including low flush toilets, low-flow showerheads, and under sink hot-water circulators. Retrofit to low flow plumbing fixtures prior to hook-up to the project will be required.

A portion of project costs are proposed to be funded through the United States Department of Agriculture's Rural Utilities Program using federal stimulus funds provided by the American Reinvestment and Recovery Act. The Project's eligibility to apply was made possible by a Congressional waiver. The County is also anticipating participation in the State Water Resources Control Board's (SWRCB) State Revolving Fund (SRF) Program, and may receive additional Federal funds through the Water Resources Development Act.

1.2 Purpose and Need of the Proposal

The physical development of Los Osos began with subdivisions in the later nineteenth century, leading to a community of vacation homes by the early 1960s. Drawn by the scenic bay-front setting and affordable land costs, the community's permanent population grew steadily during the 1970s and into the mid-1980s, spurred in part by the construction and operation of Diablo Canyon Nuclear Power plant and by the expansion of the California Polytechnic State University at San Luis Obispo.

The development pattern in much of Los Osos consists of long, narrow (25 to 50 feet by 125 feet) residential lots located on wide (40 to 80 feet) streets arranged generally in a grid. The majority of the community was constructed on the ancient dune system formed by centuries of wind-blown beach sand deposited along the south end of Morro Bay. As a result, the terrain consists of gently rolling hills and sandy soils. Current wastewater treatment for the community consists of individual septic systems serving each developed property, or in some cases multiple properties.

The RWQCB determined in 1983 that contamination in excess of State standards had occurred in the groundwater basin (upper aquifer) at least partially due to use of septic systems throughout the community. RWQCB Resolution 83-13 states that "a Regional Board staff report finds beneficial uses of Los Osos ground and surface waters are adversely affected by individual sewage disposal system discharges, there appears to be a trend of increasing degradation, and public health is jeopardized by occurrences of surfacing effluent." At that time, the RWQCB concluded that the "continuation of this method of waste disposal could result in health hazards to the community and the continued degradation of groundwater quality in violation of the Porter-Cologne Act." Therefore, in January 1988, the SWRCB approved an amendment to the Water Quality Control Plan, Central Coastal Basin. The amendment contained the discharge moratorium established by the RWQCB for a portion of the Los Osos area known as the RWQCB Groundwater Prohibition Zone (PZ). By prohibiting discharge from additional individual wastewater disposal systems, the moratorium effectively halted new construction or major expansions of existing development until a solution to the water pollution problem is developed and implemented.

Since these injunctions, there have been many attempts to rectify the situation through construction and operation of a wastewater project. In the late 1980s the County developed a wastewater collection and treatment project and prepared an Environmental Impact Report (EIR) (1987). After preparing a Supplemental EIR (1988), the County embarked on the detailed design process. In the mid 1990s, the project was modified to relocate the proposed wastewater treatment facility out of the rural area northeast of the community, (the Turri Road site), to a site within the partially developed area; this site change necessitated preparation of a second supplemental EIR (1997).

In 1998, the community voted to establish a community services district with wastewater authority. The LOCS D developed a wastewater collection and treatment project with the treatment facilities located in the west-central portion of the community. (This site, originally known as the Tri-W Site, is referred to as the Mid-town site in this document.) The LOCS D prepared an EIR for the project and certified the EIR on March 1, 2001. After receipt of a Coastal Development Permit (CDP) from the California Coastal Commission (CCC), project construction started in 2005. In the fall of 2005, voters recalled three of the LOCS D board members in a special election; the new board immediately suspended construction on the wastewater project. In August 2006, the LOCS D rescinded certification of the 2001 EIR and filed for federal bankruptcy protection.

On September 20, 2006, California Governor Arnold Schwarzenegger signed Assembly Bill (AB) 2701, which authorizes transfer of wastewater authority from the LOCS D to the County. Based on the state legislated policies and project strategies established by the San Luis Obispo County Board of Supervisors in June 2006, the County embarked on a process to develop a community wastewater collection and treatment system in Los Osos. That process produced a Rough Screening Report and a Fine Screening Report, which focused on identifying a set of viable project alternatives that were the basis for the project cost estimates used to support a Proposition 218 assessment election (Proposition 218 amended the California Constitution in 1996 to require local government to have a vote of the affected property owners for any proposed new or increased assessment before it could be levied.) In October 2006 affected property owners in Los Osos approved an assessment by an 80 to 20 percent margin.

Following the successful assessment vote, the County of San Luis Obispo has embarked on a detailed process to develop a wastewater project in Los Osos. Beginning in June of 2006, the County has produced the following key documents:

- March 2007, Potential Viable Project Alternatives Rough Screening Report
- August 2007, Viable Project Alternatives Fine Screening Analysis
- May 2008, Onsite Treatment Technical Memorandum
- June 2008, Greenhouse Gas Technical Memorandum
- July 2008, Imported Water Technical Memorandum
- July 2008, Effluent Reuse and Disposal Technical Memorandum
- July 2008, Facultative Ponds Technical Memorandum
- July 2008, Out of Town Conveyance Technical Memorandum
- July 2008, Low Pressure Collection Technical Memorandum
- August 2008, Solids Handling Technical Memorandum
- August 2008, Septage Receiving Station Technical Memorandum
- August 2008, Regional Treatment Technical Memorandum
- October 2008, Decentralized Treatment Technical Memorandum

- October 2008, National Water Research Institute Peer Review
- November 2008, Flows and Loads Technical Memorandum
- November 2008, Draft Environmental Impact Report
- March 2009, Final Environmental Impact Report

These documents were used to analyze the environmental, economic, and engineering costs and benefits of various project approaches and develop a set of viable project alternatives that could meet the project objectives. After considering the viable alternatives at a series of ten public hearings in 2009, the San Luis Obispo County Planning Commission identified the proposed project as the environmentally superior alternative, as required by the County's Certified LCP. That determination was affirmed by the San Luis Obispo County Board of Supervisors on September 29, 2009.

This page blank

2 ALTERNATIVES TO THE PROPOSED ACTION

The National Environmental Policy Act and the California Environmental Quality Act (CEQA) require the evaluation of a range of project alternatives. In addition, the Certified LCP for San Luis Obispo County requires an evaluation of alternatives for public utility projects. The focus of each of these processes is to identify an alternative that satisfies the project’s purpose and need while minimizing negative environmental effects.

Since the mid 1980’s, the LOWWP has had several proposed project predecessors that included a range of methods for providing a wastewater system for Los Osos. Beginning in 2006 the County performed technical and environmental analysis in order to develop viable project alternatives that could then be reviewed in the Project’s EIR and this Environmental Report. A “viable project alternative” is an assemblage of wastewater treatment project components (collection, treatment process, recycled water reuse, solids handling and treatment facility siting) designed as a complete and functioning wastewater project.

Exhibit 2-1 shows the wastewater treatment plant site alternatives. Exhibit 2-2 shows the recycled water reuse location options. Table 2-1 presents the project components and treatment plant sites that were considered in the development of viable project alternatives.

Table 2-1 Viable Project Component Alternatives

Collection System	Treatment Processes	Recycled Water Reuse	Solids Handling	Treatment Facility Siting
<ul style="list-style-type: none"> ▪ Conventional Gravity ▪ STEP/STEG ▪ Vacuum ▪ Low Pressure ▪ Combined (Gravity/Vacuum/ Low Pressure) 	<ul style="list-style-type: none"> ▪ Extended Aeration MLE ▪ Membrane Bio-Reactor(MBR) ▪ BIOLAC® ▪ Sequencing Batch Reactor ▪ Oxidation Ditch ▪ Trickling Filters ▪ Rotating Biological Contactors ▪ Packed bed Filters ▪ Pons Systems 	<ul style="list-style-type: none"> ▪ Unrestricted reuse – Urban ▪ Unrestricted reuse - Agriculture ▪ Percolation Pond ▪ Leachfield ▪ Sprayfield ▪ Creek Discharge ▪ Constructed Wetlands ▪ Direct groundwater injection 	<ul style="list-style-type: none"> ▪ Sub-Class B Biosolids ▪ Digested Class B Biosolids ▪ Heat dried Class B Biosolids ▪ Composted Class B Biosolids ▪ Composted Class A Biosolids ▪ Digested/ Composted Class A Biosolids 	<ul style="list-style-type: none"> ▪ Cemetery ▪ Giacomazzi ▪ Andre 2 ▪ Morosin/FEA ▪ Branin ▪ Gorby ▪ Robbins 1 ▪ Robbins 2 ▪ Tonini Ranch ▪ Mid-Town

Viable project component alternatives were assembled into five complete project alternatives that each satisfied the project goals and objectives; five through the EIR process and a sixth developed through the County Planning Commission Public Hearing process. The “sixth” alternative is essentially a version of EIR alternative 2, with full reuse of recycled water. Table 2-2 describes the range of viable project alternatives that were fully analyzed in the EIR:

Table 2-2 Project Alternatives

Alternative	Treatment Plant Site	Collection System	Conveyance Systems		Treatment Process	Storage Location	Recycled Water Reuse
			Raw Wastewater	Recycled Water			
Proposed Project (Alt 6)	Giacomazzi	Gravity	Mid-town pump station to Giacomazzi	Giacomazzi to Broderson Bayridge Urban Reuse Ag reuse	Extended Aeration with tertiary filtration	Giacomazzi	Broderson Leach field Bayridge Leach field Urban Reuse Ag reuse
Alt 1	Cemetery Giacomazzi Branin	STEP/STEG	Mid-town central point to Giacomazzi	Giacomazzi to Broderson and Tonini	Facultative Ponds (secondary treatment)	Cemetery Giacomazzi Branin	Broderson Leach field Tonini Spray Fields
Alt 2	Giacomazzi	Gravity	Mid-town pump station to Giacomazzi	Giacomazzi to Broderson and Tonini	Extended Aeration (secondary treatment)	Tonini	Broderson Leach field Tonini Spray Fields
Alt 3	Giacomazzi Branin	Gravity	Mid-town pump station to Giacomazzi	Giacomazzi to Broderson and Tonini	Extended Aeration (secondary treatment)	Giacomazzi	Broderson Leach field Tonini Spray Fields
Alt 4	Tonini	Gravity	Mid-town pump station to Tonini	Tonini to Broderson and Tonini	Facultative Ponds (secondary treatment)	Tonini	Broderson Leach field Tonini Spray Fields
Alt 5	Tonini	Gravity	Mid-town pump station to Tonini	Tonini to Broderson and Tonini	Extended Aeration (secondary treatment)	Tonini	Broderson Leach field Tonini Spray Fields
No-Project	On-site and neighborhood septic systems, leach fields & leach pits	Gravity in some existing areas	None	None	Primary	None	Leach fields

2.1 Alternative Descriptions

Alternative 1 includes a combination STEP/STEG (Septic Tank Effluent Pump/Septic Tank Effluent Gravity) collection system and a facultative pond wastewater treatment facility that provides secondary level treatment. The wastewater conveyance system carries collected wastewater from the Mid-town central collection point to the combined Cemetery/Giacomazzi/Branin wastewater treatment plant site (the portion of the Cemetery site proposed for use is the part not currently occupied by the Memorial Park). Recycled water can be stored in the seasonal storage pond on the combined Cemetery/Giacomazzi/Branin site or sent directly through the recycled water conveyance system to the Broderson leach field and/or the Tonini spray fields. (Exhibit 2-3)

Alternative 2 includes a gravity collection system and an extended aeration wastewater treatment facility that provides secondary level treatment. The wastewater conveyance system carries collected wastewater from the Mid-town pump station to the Giacomazzi wastewater treatment plant site. Recycled water can be sent directly through the recycled water conveyance system to the Broderson leach field. Alternatively, some or all of the recycled water can be sent through the eastern end of the recycled water conveyance system to the Tonini spray fields or the seasonal storage pond(s) on the Tonini site. (Exhibit 2-4)

Alternative 3 includes a gravity collection system and an extended aeration wastewater treatment facility that provides secondary level treatment. The wastewater conveyance system carries the collected wastewater from the Mid-town pump station to the combined Giacomazzi/Branin wastewater treatment plant and spray field site. Recycled water can be stored in the seasonal storage pond on the combined Giacomazzi/Branin site or sent directly through the recycled water conveyance system to the Broderson leach field and/or the Tonini spray fields. (Exhibit 2-5)

Alternative 4 includes a gravity collection system and a facultative pond wastewater treatment facility that provides secondary level treatment. The wastewater conveyance system carries the collected wastewater from the Mid-town pump station to the combined Tonini wastewater treatment plant site. Recycled water can be sent directly through the recycled water conveyance system to the Broderson leach field. Alternatively, some or all of the recycled water can be sent to the nearby Tonini spray fields and or seasonal storage pond on the Tonini site. (Exhibit 2-6)

Alternative 5 is described as the “Preferred Project” in the Final EIR, this alternative consists of an extended aeration treatment system, treatment plant appurtenances, recycled water storage, biosolids treatment, and a recycled water spray field at the Tonini Site, with urban recycled water reuse at the Broderson Site (non-ag) (Exhibit 2-7).

The no-project alternative continues the existing system of on-lot and small neighborhood septic systems with recycled water reuse via leach fields and leach pits. No construction would occur; each individual landowner/discharger would be responsible for complying with the RWQCB’s discharge prohibitions without benefit of any central wastewater treatment facilities. Resolution of existing seawater intrusion would need to be accomplished without benefit of a substantial source of recycled water.

2.2 Alternative Screening Criteria

The alternatives screening criteria used to assess the alternatives were derived from the project goals and objectives described in Section 1. The screening criteria, summarized in Table 2-3, build upon the current and past screening efforts, engineering analyses, past environmental investigations and responses to the EIR Notice of Preparation.

Table 2-3 Alternative Screening Criteria.

Baseline Criteria	Sub-criteria	Comments
RWQCB Waste Discharge Requirements	Meet RWQCB requirements for WDR (discharge limits)	Project must be effective in meeting effluent discharge levels for: Biological Oxygen Demand, total suspended solids, nitrogen, viruses, and bacteria.
	Address emerging contaminants: pharmaceutical and other constituents	Project is required to be consistent with EPA standards for emerging contaminants.
Groundwater Quality	Meet RWQCB requirements for elimination of pollution to groundwater	Project must mitigate potential effects of effluent discharge on domestic water wells.
	Environmental Risk	Project should provide maximum system control and minimize environmental risk of system failure.
Water Resources	Salinity Management	Project must contribute to mitigation of seawater intrusion into lower aquifer.
	Groundwater Management	Project must contribute to restoring groundwater resources in lower aquifer.
	Create options for water supply improvement	Project should create options for future cooperative projects with water purveyors to enhance local water supplies
Energy	Contribute to air quality improvements	Project should minimize particulate emissions and minimize release of airborne pathogens and exposure to vectors.
	Promote sustainability	Project should optimize energy efficiency and reduce overall use of natural resources.
	Reduce GHG emissions	Project should minimize carbon footprint.
Costs	Life Cycle Costs	Project should make efficient use of funds for capital improvements with the lowest feasible and practical operations and maintenance costs necessary to meet WDR discharge limits.
	Staffing Requirements	Project should minimize number of required management and staff positions.

Baseline Criteria	Sub-criteria	Comments
	Community Acceptance	Project selection should consider affordability, private property values and aesthetics.
Permitability	California Coastal Act	Project must comply with California Coastal Act provisions regarding LCP consistency, limiting improvements in ESHAs, drainage and sedimentation control, and CCC review.
	Environmental	Project must comply with permitting requirements: Endangered Species Act Historic Resources Preservation Act Sensitive species/habitat State Marine Reserve CWA Section 404 CWA Section 401 CA Fish and Game Code Sec 1602 CZMA
	Engineering	Engineering Project design should consider: • Health and Safety • Drainage • Noise • Odor • Traffic Trips • Operational Dependability

While all of the alternatives would meet the basic project objectives, a key criterion is the alternative’s compliance with the regulatory requirements established by the California Coastal Act, as embodied in San Luis Obispo County’s Certified LCP. The LCP contains policies and standards related to a project’s impacts on developed sites, as well as on coastal groundwater basins. The entirety of the community of Los Osos overlies a coastal groundwater basin fed in part by septic tank effluent discharges. On the surface, all of the wastewater project service area is classified as Environmentally Sensitive Habitat (ESHA), owing to the unique habitats created by the soils, which are themselves derived from ancient wind blown sand. Available lands outside the community to the east are all within the Agriculture Land Use Category, and subject to a number of coastal policies and standards designed to protect and enhance agricultural land uses. Therefore, the alternative that best protects the groundwater basin and produces the least impacts to sensitive habitats and agriculture is the only alternative that can be permitted in the coastal zone.

The key coastal standard relative to facility location is found at section 23.08.288(d) of the County’s Coastal Zone Land Use Ordinance (CZLUO):

“d. Limitation on use, sensitive environmental areas. Uses shall not be allowed in sensitive areas such as on prime agricultural soils, Sensitive Resource Areas, Environmentally Sensitive Habitats, or Hazard Areas, unless a finding is made by the applicable approval body that there is no other feasible location on or offsite the property. Applications for Public Utility Facilities in the above sensitive areas shall include a feasibility study, prepared by a qualified professional approved by the

Environmental Coordinator. The feasibility study shall include a constraints analysis, and analyze alternative locations.”

This standard requires the project to demonstrate, through an alternatives analysis, that there is no feasible alternative to locating the project components on prime agricultural soils, Sensitive Resource Areas (SRAs), Environmentally Sensitive Habitats, or Hazard Areas. “Feasible” is defined in section 23.11.030 of the LCP as “Capable of being accomplished in a successful manner within reasonable period of time, taking into account economic, environmental, social and technological factors.” No alternative site that does not contain prime agricultural soils, SRAs, and/or Environmentally Sensitive Habitats exists in the Los Osos area. Consequently, the site with the least impacts would satisfy the requirements of the LCP.

2.3 Alternatives Discussion

Two major elements of the project require consideration of alternative locations: the wastewater treatment plant and the method and location for the reuse of recycled water. The third major component of the project, the collection system, is by definition required to be located within the community where the wastewater is being generated. The EIR evaluates both a gravity collection system and a STEP/STEG collection system.

2.3.1 In-Town Treatment Plant

In January of 2005 the CCC issued a CDP to the LOCSO for a wastewater project in Los Osos that located both the treatment facility and the recycled water reuse system within the Urban Reserve Line. Although the project directly impacted over 20 acres of Environmentally Sensitive Habitat Area, findings were made that no feasible alternatives to locating the project on ESHAs existed. The County’s analysis demonstrates that feasible alternatives do exist, and, based on new information relative to social and economic impacts, both the treatment plant and recycled water reuse method approved for the previous project are infeasible.

The 2005 LOCSO project utilized a Membrane Bio-Reactor wastewater treatment plant located at the “Tri-W” site (referred to as Mid-Town in the current project). Both the cost and location of the treatment plant became highly controversial, so much so that in 2005 a majority of the LOCSO Board of Directors was recalled in an election that also included “Measure B”. Although subsequently determined to be invalid by the courts, Measure B was essentially a referendum on the location of the treatment plant. Following the recall, the new Community Services District Board halted work on the Mid-Town treatment plant. The Membrane Bio-Reactor technology proposed in 2005 is appropriate for any in-town location because of its smaller size, which allowed the project to minimize its impact on ESHAs and contain potential odor, noise, and aesthetic impacts that could otherwise affect a large number of residents. However, these mitigation efforts result in substantial additional expenses; the project cost estimates show that an in-town treatment plant would likely cost \$35 million dollars more than a treatment technology that is appropriate for an out-of-town location. In addition, the out of town technologies have lower operational costs. When acknowledging the increased costs of an out of town location (land, pipelines, wastewater and recycled water pumping) an out of town location remains 20-25 million dollars cheaper than any in-town location. Considering

these economic and social factors, the County determined that an in-town location is not feasible as defined in the LCP.

2.3.2 Full In-Town Recycled Water Reuse

The 2005 Community Services District project proposed to dispose of recycled water through subsurface infiltration primarily at the Broderson site (800,000 gpd average annual rate) and eleven other locations throughout the community. During the dry season, the 2005 project proposed to direct up to 200,000 gpd to irrigate playing fields and adjacent landscaping. The hydrogeologic investigations for the project document that recycled discharged in the eastern portion of the community will not contribute to seawater intrusion mitigation as the geology in that area will direct the recycled water towards the Bay and out of the groundwater basin. In addition, the volume of water being disposed of to groundwater under the community had the potential to raise the groundwater level in parts of the community, requiring up to 400,000 gpd to be pumped from the shallow groundwater basin and discharged to Morro Bay. Through the regulatory review process discharge to Morro Bay was prohibited and the project was approved without the ability to dispose of the potential build-out flow generated by the community. The shortfall in capacity was deferred to a future project to solve. Therefore, the previous project's recycled water reuse approach is not fully feasible because it was 1) incomplete, 2) discharged recycled water in areas of the community that would not contribute to seawater intrusion, incurring no potential return on the capital, operations and maintenance expenditures, and 3) discharged recycled water in an amount that could result in additional impacts related to rising groundwater.

2.3.3 Out of Town Constraints

Because an in-town treatment plant location is infeasible, out-of-town locations required analysis. The key constraints to an out-of-town location are illustrated in table 2-4:

Table 2-4 Summary of Out of Town Constraints.

	Regulatory	Environmental	Technological	Social	Economic
CZLUO section 23.11.030(b)					
Avoid Prime Agricultural Soils	X	X			
Avoid SRAs	X	X			
Morros SRA	X	X			
Irish Hills SRA	X	X			
Coastal Streams	X	X			
Avoid Environmentally Sensitive Habitats	X	X			
Warden Lake Wetlands	X	X			
Avoid Hazard Areas	X	X	X		X
Flood Hazard Areas	X	X	X		X
Geologic Study Areas	X		X		X
Los Osos Fault	X		X		X
Avoid Williamson Act Lands	X	X			
Less than 10% Slope (Treatment)			X		X
Less than 20% Slope (Sprayfield)			X		
Moderate to High Percolation Rate (Percolation Basins or leach fields)			X		
Avoid Residential Conflicts (Noise, aesthetics)		X		X	
Avoid Major Cultural Facilities	X	X		X	
Avoid Historic/Prehistoric Sites	X	X		X	
Avoid Los Osos Valley Road Scenic Corridor	X	X		X	

2.3.4 Disposal and Reuse Options

The need to dispose of or reuse recycled water generated eight potential approaches: 1) creek discharge; 2) constructed wetlands; 3), urban reuse; 4) agricultural reuse; 5) leachfields; 6) sprayfields; 7) percolation ponds; and 8) direct groundwater injection.

Surface Water Discharges

Early consultation with the RWQCB and the CCC, along with the Commission's response to the 2005 project regarding the discharge of harvest water into Morro Bay, clearly showed no regulatory agency support for surface water discharges. As experienced by the California Men's Colony and City of San Luis Obispo wastewater treatment plants, surface water discharges require high levels of more costly treatment and result in a host of environmental consequences. Discharge of water into surface streams alters the pH, temperature, salinity and volume of the creek. Providing water during the dry season can promote the proliferation of non-native species that would not otherwise be present, and that could compete with native aquatic species. Discharges to surface waters have consequently been ruled out.

Constructed Wetlands

Constructed wetlands, or the enhancement of existing wetlands, is primarily a recycled water storage method as opposed to a disposal method. In order to maintain any wetland, losses to percolation and downstream flows must be minimized in order to support the wetland; natural wetlands develop as a result of these conditions. Downstream flows out of the wetland would be considered a surface water discharge and subject to the same regulatory issues discussed above. However, the County intends to reserve at least 10% of the recycled water for environmental enhancement uses. This element of the project has been included as a condition of approval in the Project's CDP.

Urban Reuse

Urban reuse opportunities in the out of town area are limited to irrigating land at the cemetery and treatment plant sites. Within the community, schools, parks and the golf course provide the greatest opportunity for reuse. "Purple pipe" to individual residences poses economic impacts that are beyond the capability of the project, as well as being prohibited by California regulations. The two out of town sites combined could accommodate up to 70 acre feet of recycled water irrigation per year. Within the community, the parks, schools and golf course could accommodate an additional 63 acre feet of recycled water per year.

Agricultural Reuse

Using historic cropping patterns on high value lands, up to 460 acre feet of recycled water could be used for agricultural irrigation. If cropping patterns were revised to focus on crops that use greater amounts of water, up to 690 acre feet of water could be used for agricultural irrigation. In addition, other agricultural lands, further east from the community which have historically limited water supplies could also potentially utilize recycled water.

Leach Fields

Utilization of subsurface leach fields outside of the urban area presents several issues which combine to eliminate this method. An examination of Natural Resource Conservation Service Soil Surveys for the Los Osos Valley shows that the majority of the soils present show low to very low percolation rates. Geotechnical studies performed for the Tonini site show that subsurface soils have very low percolation rates. Given that the Tonini site is representative of much of the geology and soils in the valley, it is clear that percolating large volumes of water in the area east and north of Warden Lake is not feasible. This conclusion is supported by the extent of wetlands in the lower valley area (west of Turri Road), and seasonally saturated soils throughout the valley floor.

The “Preliminary Geotechnical Report, LOWWP, Los Osos Mortuary, Giacomazzi, and Branin Properties” prepared by Fugro Engineers (July 17, 2007) examined the geology and soils of the Cemetery, Giacomazzi and Branin sites. Several tests on the site encountered stiff clay and hard clay layers at depths of approximately 20 to 30 feet below the ground surface, with dense to very dense clayey sand with interbeds of hard silt and clay below those layers. These results indicate that while some surface areas could accept a lower volume of wastewater, the site as whole could not be expected to accommodate the volume of recycled water expected to be produced. Consequently, percolation as a method of recycled water reuse has been reserved for the Broderson and Bayridge sites where adequate percolation rates exist and where the water contributes to the long-term beneficial use of mitigating seawater intrusion.

Sprayfields

Reuse of recycled water through sprayfields is an alternative disposal method, as opposed to beneficial reuse methods proposed by the project. This method of disposal is technically feasible, provides operational flexibility (that is, it can work in conjunction with any other method of disposal or reuse, whether implemented with the project or at a later date), and is financially achievable by the project. However, because of the low percolation rates in the area, sprayfields would require several hundred acres of agricultural land, placing this approach in conflict with Coastal policies regarding the protection and enhancement of agricultural resources. In addition, sprayfield disposal would not address seawater intrusion in the Los Osos Wastewater basin, placing this method in conflict with Coastal Plan policies regarding the protection and enhancement of groundwater aquifers.

Percolation Ponds

Similar to the utilization of subsurface leach fields outside of the urban area, percolation ponds also present several issues which combine to eliminate this method. An examination of Natural Resource Conservation Service Soil Surveys for the Los Osos Valley shows that the majority of the soils present show low to very low percolation rates. Geotechnical studies performed for the Tonini site show that subsurface soils have very low percolation rates. Given that the Tonini site is representative of much of the geology and soils in the valley, it is clear that percolating large volumes of water in the area east and north of Warden Lake is not feasible. This conclusion is supported by the extent of wetlands in the lower valley area (west of Turri Road), and seasonally saturated soils throughout the valley floor.

The "Preliminary Geotechnical Report, LOWWP, Los Osos Mortuary, Giacomazzi, and Branin Properties" prepared by Fugro Engineers (July 17, 2007) examined the geology and soils of the Cemetery, Giacomazzi and Branin sites. Several tests on the site encountered stiff clay and hard clay layers at depths of approximately 20 to 30 feet below the ground surface, with dense to very dense clayey sand with interbeds of hard silt and clay below those layers. These results indicate that while some surface areas could accept a lower volume of wastewater, the site as whole could not be expected to accommodate the volume of recycled water expected to be produced.

Percolation within the urban area of Los Osos is technically feasible because of the presence of sandy soils. However, these same soils are not suitable for constructing basins and embankments. Further, the key locations for the placement of recycled water (Broderon and Bayridge) do not lend themselves to pond construction because of slope, limited area (Bayridge) and proximity to residences (Bayridge). Therefore, percolation basins as a method of recycled water reuse has been rejected.

Direct Groundwater Injection

Direct injection of recycled water was considered as a means to address salt water intrusion in the lower groundwater basin. However, two factors combine to eliminate direct injection as a means of disposal/reuse. In order to comply with California regulations, a higher level of treatment would be required. Together with the need to pressurize the injection wells, the higher level of treatment increases ongoing energy costs. In addition, the higher treatment level would involve reverse osmosis. This method results in approximately 20% of the volume of recycled water being "lost" as a brine solution. A 20% reduction in recycled water would have negative effects on the project goals of addressing seawater intrusion. In addition, financially feasible, permissible, and reliable method of disposing of the concentrated brine solution is available to the community.

2.4 Conclusions

Treatment Plant Locations

Identification of an appropriate location to site a wastewater treatment plant in the Los Osos Valley requires one or more areas totaling at least 20 acres that avoids the constraints listed in the table above and meets the basic criteria of less than 10% slope. Because the treatment plant involves the placement of structural elements on the site (buildings, treatment basins, and storage ponds) constraints related to geologic hazards and aesthetic impacts are heightened. A review of resource maps that illustrate constraints and restrictions posed by soils, geology, land use, floodplains, viewsheds, and topography shows those areas south of LOVR, from Los Osos Creek eastward, are constrained by intensive farming, significant areas under Williamson Act Contract, residential and urban development, smaller agricultural parcels developed with residential uses, and viewshed requirements in the LCP. In addition, the Los Osos Fault Zone lies at the base of the Irish Hills along the south side of the Valley, presenting an unacceptable risk to treatment plant infrastructure, such as treatment basins and storage ponds. The central area of the Los Osos Valley consists primarily of high value farmland on both sides of Warden Creek, stretching eastward from the Warden Lake wetlands. Between Warden Lake and the area east of Turri Road, Warden Creek creates a broad floodplain; soils on both sides of the creek are noted to be periodically flooded. Large tracts of this area consist of prime soils that are currently under production. This area is

also highly visible from LOVR. Consequently, the process narrowed the potential treatment facility sites to the three parcels north of the existing cemetery, identified as the Cemetery/Giacomazzi/Branin sites.

Five other locations were examined in the alternatives analysis, all within $\frac{3}{4}$ mile of the cemetery, and determined to be more highly constrained than the Cemetery/Giacomazzi/Branin sites. All of these sites, plus locations considered in the four previous EIRs prepared for the project since 1987, were considered in the EIR for this project. In response to constraints identified at the Cemetery/Giacomazzi/Branin sites (including prehistoric cultural resources, proximity to the Warden Lake wetlands SRA, proximity to a residential neighborhood, and proximity and within the viewshed of the Cemetery), a location within the sprayfield area at the Tonini property was added. These four properties then formed the alternative locations for the five project alternatives that were evaluated in the draft and final EIR.

After considering the alternative treatment plant sites at a series of ten public hearings in 2009, the San Luis Obispo County Planning Commission identified the Giacomazzi site as the environmentally superior alternative, as required by the County's Certified LCP. Constructing the treatment plant at the Giacomazzi site will limit the project's impacts to prime agricultural soils, SRAs, Environmentally Sensitive Habitats, or Hazard Areas to the greatest degree feasible and required by the LCP, when compared to other viable locations.

Collection system

The project proposes to construct a gravity-hybrid collection system, meaning that the majority of the collection system will be gravity, with select areas served by low-pressure individual on-lot grinder pumps. The key environmental factors for selecting the gravity system as environmentally superior are the greater flexibility of gravity lateral connections to avoid cultural resources over the larger STEP tank excavation, and the lower levels of GHGs generated by the gravity collection system. From a financial perspective, the gravity system poses lesser on-lot costs to individuals as the STEP system will require electrical hook-ups (which may in themselves require extensive modifications to older residential electrical systems) and yard restoration costs. From a social perspective, STEP systems would require the dedication of a public utility easement with use restrictions and unlimited agency access in the front yard of each system connection. It is also important to recognize that the results of a community survey indicate that the community prefers the gravity system over STEP.

Recycled Water Reuse

As adopted as an objective of the current project, mitigating the project's impact on seawater intrusion rates in the lower aquifer is a required element of any alternative. Collecting and removing the flows from septic tanks would increase seawater intrusion by 90 acre feet per year in the lower aquifer. Reuse of recycled water at the Broderson site will reduce the inflow of seawater intrusion by a factor of .20, that is, 20% of the water discharged at the Broderson site will percolate to the lower aquifer. Discharging 448 acre feet of recycled water at the Broderson site will fully mitigate the project's seawater intrusion effects ($448 \times .2 = 89.6$). In addition, the conservation program included with the current proposal will also more than fully mitigate the project's seawater intrusion impacts. Therefore, the current project proposes to mitigate its seawater intrusion impact by discharging the maximum feasible amount of recycled

water to the Broderson site, that is, the maximum amount that can be discharged without incurring other environmental effects (rising ground waters beneath the community) and avoiding the environmental, economic and technological issues related to treating and disposing of harvest water. The remaining recycled water is then directed to the Bayridge site to benefit the underflow of Willow Creek, and urban and agricultural reuse to further reduce seawater intrusion effects, as required by Coastal Plan Policies.

This page blank

3 AFFECTED ENVIRONMENT / ENVIRONMENTAL CONSEQUENCES

This section describes the project area, the environmental resources within the project area, and the environmental effects or consequences of the project. Proposed mitigation measures to avoid or minimize any adverse effects caused by the project are also identified.

3.1 USDA Designated Important Farmland

According to the U.S. Department of Agriculture's Farmland Conversion Impact Rating form prepared for this project (108 points, Appendix C, p. C-2), the impacts to agricultural resources are not substantial, and no mitigation measures are required. The following discussion supports this determination. A thorough discussion of the project's effects to CEQA level important farmlands can be found in Section 5.11 – Agricultural Resources of the attached EIR.

3.1.1 Affected Environment

The Los Osos urban area lies at the westerly end of the agriculturally productive Los Osos Valley. The Valley and the community of Los Osos are located within San Luis Obispo County's "Estero" Planning Area, which encompasses the central coastal area of San Luis Obispo County from Point Estero on the north to Point Buchon on the south, and extends from the coast inland as much as seven miles. The boundary is coincident with the Coastal Zone boundary established by the California Coastal Commission between Point Estero and Point Buchon. The planning area occupies 45,760 acres or 71.5 square miles.

Approximately 77 percent of the Estero Planning Area is designated for Agriculture and of that, an estimated 65 percent is in agricultural preserves and subject to land conservation contracts. Mixed irrigated and dry farm croplands occupy most of the valley lowlands, while grazing use predominates in the extensive hilly and mountainous areas. These uses are largely interrelated because much of the farmland produces irrigated and dry farm grain and hay for supplemental livestock feed. Substantial acreage of row crops, orchards, and garbanzo beans also occur in the area.

The Giacomazzi Site for the treatment plant location includes the following CEQA-level Important Farmlands:

- Prime - 6.48;
- State Important - 28.16; and
- Unique - 3.38

The Giacomazzi parcel is a rectangular, 38.2-acre parcel north of LOVR and west of Clark Valley Road. The site slopes gently downward to the north and east toward an ephemeral drainage that extends along the easterly portion of the site to Warden Lake and supports a small oak woodland along its northerly reaches. All of the original farm buildings have been removed and replaced with a modular residence; numerous tall Eucalyptus and Cypress trees border the old farmhouse site. The level areas of the site have been cultivated with crops during the past. The parcel is currently designated Agriculture.

The Broderson Site for leach field construction is located at the south end of Broderson Avenue within the Urban Village Reserve Area. The site is designated Single Family Residential, is not in a Williamson Act contract and is not in agricultural use. A leach field would be constructed on approximately 8-acres of the 81-acre parcel and would not result in impacts to farmlands.

3.1.2 Environmental Consequences

The EIR prepared for the project pursuant to the CEQA concluded that the project would have “significant unavoidable impacts to agricultural resources” based on the conversion of approximately 22 acres of farmland to non-agricultural uses (the treatment plant). These findings were based on the application of policies and standards contained in the San Luis Obispo County General Plan. These local land use policies reflect a local perspective that assigns multiple values to agricultural land, including viewsheds, natural open space and community separators. Therefore, the results of the local review process conducted pursuant to the CEQA include a range of issues that extend beyond the direct and indirect impacts to agricultural resources.

The criteria for the Federal evaluation of impacts to farmland differ considerably. Central to the Federal evaluation is the process established by the Federal Farmland Protection Policy Act through the Farmland Conversion Impact Rating conducted by the Natural Resources Conservation Service. This process considers the capability of the soils on the site, the site’s farming potential, farming history and size relative to other farms in the area, and the amount of land to be converted compared to the amount of land in the local jurisdiction. The Farmland Conversion Impact Rating process is the basis for the farmland impact analysis in this document.

The Project will directly convert 10 acres to treatment facilities and 12 acres to storage ponds for a total of 22 acres of Important Farmland impacted for the treatment plant location. Eight acres of the 30-acre site will be preserved as sensitive habitat and open space. No acreage would be converted for reuse of recycled water. Of the Alternatives considered, the LOWWP will have the least amount of acreage converted and offers a substantial reduction from most of the other alternatives. Since the actual treatment plant and seasonal storage ponds would be constructed on land identified as Prime Agricultural land or Farmland of Statewide Importance, there would be an impact to these resources. Using the U.S. Department of Agriculture’s Farmland Conversion Impact Rating form (Appendix C, p. C-2), a score of 108 points was obtained. Since the site received a total score of less than 160 points, the impacts to agricultural resources are not substantial and no additional sites need to be evaluated (7 Code of Federal Regulations [CFR] Part 685.4).

3.1.2.1 Secondary Effects on Farmland – Growth & Development

The proposed LOWWP will allow housing and population growth within the wastewater service area (Exhibit 1-2). This increase in housing and population would occur within areas of the urban area that are vacant or underdeveloped. The project could not induce growth that is outside of the service area because:

- Specific legislation, AB 2701 (Government Code Section 25825.5), limits wastewater services to the confines of the existing Los Osos Community

Services District service area, which is conterminous with the urban reserve line (Exhibit 1-2). Expansion of the service area would require amendments to the legislation along with numerous other regulatory steps.

- The area served by the project is established by Coastal Development Permit conditions. Expansion of the treatment plant capacity or expansions in the wastewater service area to include agricultural properties would require amendments to the permit or issuance of a new permit, and would necessarily violate agricultural protections built into the Local Coastal Plan
- The area served by the project is limited by treatment plant capacity, thus limiting capabilities to serve any areas out of town. Adding capacity, or reducing redundancy, would require amendments to the Coastal Development Permit, addressing financing issues, and amendments to land use planning and coastal plan documents.
- Ongoing greenbelt and open space designations further limit expansion of the community within the proposed service area. The aggressive establishment of greenbelt areas has clearly defined the future limits of the community of Los Osos; growth beyond the greenbelt is highly unlikely.
- Agricultural land mitigation in the form of agricultural easements over existing vacant properties will further limit the potential for growth east of the community. These agricultural easements generally will follow pipeline routes and further restrict properties from extending service lines to connect to the wastewater system.

3.1.3 Mitigation

The project effects to Important Farmland are not substantial; therefore, no mitigation is required. Several mitigation measures were proposed in the EIR to minimize effects to important farmland under CEQA. Please refer to section 5.11 – Agricultural Resources of the CEQA document for additional information.

3.2 Floodplains

The LOWWP would not place within a 100-year flood hazard area structures which would impede or redirect flood flows. Based on a review of Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) for Los Osos, areas subject to flooding during 100-year events are limited to areas immediately adjacent to creek channels, as well as the Morro Bay estuary. The FIRMs identify areas near Los Osos Creek within and adjacent to the community of Los Osos as being inundated during a 100-year storm.

The LOWWP would not place any subsurface pump stations within the 100-year floodplain. Four subsurface pump stations would be within the 500-year floodplain. The stand-by power station structures for two of the pump stations within the 500-year floodplain will be on-site. The other two floodplain pump stations will share a remote power supply outside floodplains.

Executive Order 11988, "Floodplain Management" requires federal agencies to avoid actions, to the extent practicable, which will result in the location of facilities in floodplains and/or affect floodplain values. Facilities located in a floodplain may be damaged or destroyed by a flood or may change the flood-handling capability of the floodplain or the pattern or magnitude of the flood flow.

The floodplain management guidelines require federal agencies to apply the 0.2 percent or 500-year flood occurrence standard to the location of "critical actions," which are defined as facilities whose loss would disrupt utility services to large areas for a considerable period of time or would disrupt utility services to critical facilities such as hospitals, police or fire stations, or care homes. The four floodplain pump stations do not serve critical facilities.

USDA Rural Development's eight-step decision making process for floodplain impact assessment has been applied to the LOWWP, and is documented in Appendix D. The Standard Flood Hazard Determination Form, prepared by USDA, is attached in Appendix C, page C-4.

3.2.1 Affected Environment

Collection System

According to FEMA FIRM Number 06079C1028F and 06079C1029F Panels (FEMA online version, 2008) the Los Osos Creek drainage defines a portion of, and lies within, the 100-year flood hazard area. The conveyance pipelines running parallel to LOVR would pass across an approximately 230 foot wide cross sectional region of Los Osos Creek that is within this 100-year flood hazard area. These pipelines will not affect the natural and beneficial floodplain values. Four subsurface pump stations (Baywood, West Paso, Lupine and Solano) will be within the 500-year floodplain. The stand-by power station structures for the Lupine and Solano pump stations within the 500-year floodplain will be on-site. The other two floodplain pump stations (Baywood and West Paso) will share a remote stand-by power station structure located outside floodplains. There are no above-ground facilities within the 100-year floodplain. Floodplain areas in the vicinity of the LOWWP are shown on Exhibit 3.2-1.

Treatment Plant Site

According to FEMA FIRM Number 06079C1045F Panel (FEMA online version, 2008), no part of the treatment plant is within the 100- or 500-year flood hazard area.

Recycled Water Reuse Sites

According to FEMA FIRM Number 06079C1028F and 06079C1029F Panels (FEMA online version, 2008), the alignment of the conveyance system from the treatment site to the Broderon leach field crosses an approximately 230 foot wide cross section of Los Osos Creek that is within the 100-year flood hazard area. This pipeline will not impact the natural and beneficial floodplain values.

3.2.2 Environmental Consequences

Collection System

Collection lines will be placed underground, resulting in no fill added to floodplains. Therefore the collection system would not impede or redirect flood flows. The four pump stations in floodplains, if inundated, may not be able to keep up with flood waters infiltrating through other flooded structures, may have their electrical components damaged by salt water, may become clogged by sand or other debris, or they may be shut down to reduce the amount of damage. Inundation and/or cessation of pumping could result in wastewater surfacing at the affected pump stations within the first hour of flooding. Depending on the extent of maintenance required after water levels recede, portable pumps and power supplies could be used until maintenance crews could bring the units back into service. In a catastrophic flood, sand and other debris could clog collection lines and pump station vaults such that more extensive maintenance would be required before wastewater service could resume.

If the four pump stations were out of service due to flooding, critical emergency facilities would not be affected because none of these facilities are served by the floodplain pump stations. However, public exposure to wastewater could occur in the unlikely event the pump stations were overwhelmed during a 500 year flood.

A discussion of CZLUO requirements is presented in the Final EIR for the LOWWP (Michael Brandman Associates 2009).

Treatment Plant Site

The treatment plant site structures and facilities would all be outside of the 100- and 500-year flood hazard areas. Therefore, no impacts to floodplains are expected.

Recycled Water Reuse Sites

Raw and treated wastewater pipelines would be attached to the LOVR Bridge over Los Osos Creek using conventional pipe hangers. These installations would not impede or redirect flood flows. All construction activities related to crossings of drainages would take place during the dry season to minimize the potential for flooding.

Combined Project Effects

Although the LOWWP could facilitate an increase in population and housing within the service area, any increase must comply with the planned growth identified in the Local Coastal Plan. The LOWWP would not facilitate development in the 100-year floodplain at all, and will not facilitate development in the 500-year floodplain to any greater degree than in non-floodplain areas of the community. No development of critical facilities (hospitals, emergency services, fire stations, etc.) within the 500-year floodplain served by the project is anticipated by existing land regulations and community plans. Any new development within floodplains would be required to comply with applicable ordinances and building codes.

Except for pipelines that would cross areas that are within a 100-year flood hazard area, the facilities associated with the LOWWP would be located outside of the 100-year flood hazard area. As for the pipelines, construction activities would take place during the dry season to minimize the potential for flooding. In addition, during operational activities

the pipelines that cross the 100-year flood hazard areas would be located below ground and would not be affected by a 100-year flood.

Collection system pipelines serving areas of the community within the 500-year floodplain, as well as the West Paso, Lupine, Baywood, and Solano pump stations will be within the 500-year floodplain.

3.2.3 Mitigation

Because the LOWWP facilities will not impede or redirect flood flows, no mitigation measures are necessary.

3.3 Wetlands

Wetlands generally have high wildlife habitat value because of the presence of a complex vegetative overstory and understory, and water. The LOWWP will not have a substantial impact on wetlands or waterways.

Wetland delineations were conducted for the LOCSD’s 2001 project and for the LOWWP (Morro Group, 2004; Morro Group, 2004b; Morro Group 2005; Michael Brandman Associates 2008). These delineations identified wetlands and waters as defined by the U.S. Army Corps of Engineers (USACE) and the California Coastal Act within the Project area (Exhibit 3.3-1). However, all wetlands will be avoided by construction activities.

Impacts to natural drainage features and wetland areas are regulated by the USACE, RWQCB, California Department of Fish and Game (CDFG) and the California Coastal Act (via the Local Coastal Program) based upon the policies and regulations summarized in Table 3.3-1 below.

Table 3.3-1 Wetlands Regulations and Policies

Regulation	Summary Description
Executive Order 11990, "Protection of Wetlands"	To avoid the long and short-term adverse impacts associated with the destruction or modifications of wetlands
USDA DR 9500-3, "Land Use Policy"	Discourages the unwarranted alteration of wetlands
Federal Clean Water Act - §404	Regulates the discharge of dredge and fill material into waters of the U.S.
Federal Clean Water Act - §401	Determination of consistency with state water quality standards
California Fish and Game Code §1600-1607	Requires that the Department of Fish and Game be formally notified of a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake.
Local Coastal Program CZLUO	Strongly discourages, and in some cases prohibits the alteration of wetlands and waters

Wetlands are defined by the USACE as areas that under normal circumstances have hydrophytic vegetation, hydric soils, and wetland hydrology. The Coastal Act is more inclusive, as only one of the above criteria need be present for a site to meet the definition of a wetland.

3.3.1 Affected Environment

Collection System

The LOWWP will not directly impact any wetlands or waters of the U.S. within the collection system area. The conveyance pipelines will cross Los Osos Creek on the LOVR Bridge. Using the classification scheme of Cowardin et al. (1979), Los Osos Creek can be classified as a riverine, lower perennial stream with an unconsolidated bottom streambed substrate composed of sand, gravel and silt. The Los Osos Creek bed at LOVR is generally dry every summer and fall.

Treatment Plant Site

The headwaters portions of two drainages on the Giacomazzi site will be affected. The Project's wetland delineation classified the drainages as ephemeral non-"relatively permanent waters" that originate on the cemetery property and on the Giacomazzi site, then flow north into Warden Creek. The reaches of these drainages that will be directly affected by the LOWWP do not support wetlands, but wetland conditions do exist downstream. A site visit was made on December 21, 2009 by USACE biologist Bruce Henderson and Public Works Department biologists to determine the status of these drainages. Mr. Henderson determined that the portions of the drainages that will be directly affected by the LOWWP are erosional features of the landscape without high water marks, and therefore not within USACE jurisdiction. Formal documentation of this determination was received on April 12, 2010 (Appendix C, p. C-12).

Furthermore, the portions of the drainages that will be directly affected by the Project are not wetlands pursuant to the California Coastal Act because they do not exhibit any of the three parameters (i.e. hydrophytic vegetation, hydric soils, or wetland hydrology).

Recycled Water Reuse Sites

There are no wetlands or waters of the U.S. within the Broderson or Bayridge Estates leach field areas. The urban reuse areas consist of managed turf areas that are outside of wetlands, while the agricultural re-use areas are under cultivation and subject to irrigation, depending on the crop.

3.3.2 Environmental Consequences

Collection System

The conveyance pipelines will cross Los Osos Creek on the LOVR Bridge. The crossing will be made by securing the pipelines to the existing bridge structure. The raw wastewater pipeline will be secured to the north edge of the existing bridge using conventional pipe hangers. The recycled water pipeline will cross the creek on its south side through existing voids within the bridge abutments. It will be necessary to support the pipeline during installation; this could be accomplished from above with an excavator or similar equipment, from below with a small backhoe/loader, or with hand-built falsework. If equipment is used in the creek bed, it would be lowered into place and

retrieved with a crane. Therefore, no access ramp would be required. Work will be conducted when the creek is dry.

Treatment Plant Site

Wetlands as defined by the USACE and the Coastal Act, or “other waters” will not be directly affected. Currently cultivated drainages below the Project’s impact area will be biologically enhanced by planting native vegetation.

Recycled Water Reuse Sites

All urban reuse sites are fully developed; the only physical change is the conversion of irrigation systems to recycled water use. Any excavation needed to physically make plumbing connections will occur in areas already fully developed and previously disturbed.

All agricultural reuse sites are currently developed with agricultural uses. The primary physical change is the conversion of irrigation systems to recycled water use. Any excavation needed to physically make plumbing connections will occur in areas previously disturbed by agricultural operations.

3.3.3 Mitigation

The project will not have a substantial effect on federal wetlands, and no mitigation measures are required.

3.4 Historic Properties

This section provides an analysis of cultural resources, including Historic Resources (buildings and structures), Archaeological Resources (prehistoric and historic archaeological sites), Paleontological Resources, and Human Remains (Native American burials). Analysis of historic and cultural resources affected by the LOWWP utilized recent research conducted by JRP Historical Consulting and Far Western Anthropological Research Group, Inc. A complete literature search documenting previously recorded sites and surveys was acquired from the Central Coast Information Center, University of California Santa Barbara. Field surveys were conducted on the proposed project sites and information from previous studies was also used. The Native American Heritage Commission (NAHC) was contacted regarding human remains and sacred lands, and provided a list of Native American contacts for the project (Appendix E).

The National Historic Preservation Act (NHPA) of 1966, as amended (16 U.S.C. § 470 *et seq.*) and the Advisory Council on Historic Preservation’s implementing regulations, 36 CFR Part 800 (Section 106 regulations), requires federal agencies to take into account the effect their actions may have on historic properties that are in a proposal’s “area of potential effect.” The Section 106 process is currently underway, with a recently prepared *Historic Properties Evaluation and Treatment Plan for the Los Osos Wastewater Project* (Jones *et al.* 2010) and the Draft *Memorandum of Agreement Among the California State Water Resources Control Board, United States Department of Agriculture, and the California State Historic Preservation Officer Regarding the Los Osos Wastewater Project, San Luis Obispo County, California* (State Water Resources Control Board,

2010). The State Historic Preservation Officer (SHPO) has agreed that the project will adversely affect historic properties (Appendix C, C-21). Coordination with the SHPO to approve a project Memorandum of Agreement (MOA) is on-going.

The National Register of Historic Places (NRHP) was reviewed and no formally listed properties are within the APE. However, sites within the project APE are considered eligible for listing in the NRHP.

Through implementation of the LOWWP MOA and the mitigation measures proposed at the end of this section, project effects will be reduced to less than substantial levels.

3.4.1 Affected Environment

Cultural Setting

Archaeological research conducted in the Central California coastal region, including the current community of Los Osos, has identified a 10,000-year span of occupation by Native American people. These hunter-gatherers exhibited shifts in adaptive strategies over time that are reflected in the cultural/artifactual materials left behind. With these data, archaeologists have developed a regional chronological sequence for San Luis Obispo County. It begins with a little known Paleoindian Period extending from 10,000-11,000 years BP (before present) followed by a well-dated Millingstone Period (10,000–5500 BP). Introduction of the mortar/pestle technology highlights the subsequent Early Period (5500-3000 BP) and, along with an abundance of hunting gear, signals an adaptive economic shift to a reliance on acorn gathering, and hunting of both terrestrial and marine mammals. The Middle Period (3000-1000 BP) saw a decrease in shellfish exploitation, increased use of the mortar and pestle and small schooling fish, and development of trade systems (e.g., obsidian and sea otter pelts). Finally, during the Late Period (700 BP to Historic Contact) settlement outside the estuary zone continued to be limited to smaller, seasonally occupied, special-use sites.

The Native American groups inhabiting the Morro Bay region during the ethnographic, or contact, period were speakers of the Obispeño language of the Chumash language family. These people apparently shared a greater number of cultural traits with their Salinan neighbors to the north than with their Chumash language-group relatives of the Santa Barbara Channel region to the south. Obispeño Chumash hunter-gatherers made a variety of stone, bone, and shell tools and used vegetal materials such as tule balsa for canoes, and various grasses and thatch for construction of houses and sweat-lodges. Population densities for the Morro Bay area were apparently relatively low, with native settlements consisting of seasonal settlement shifts from temporary camps to more centralized hamlets or villages. During the Mission Period, Native Americans from 19 coastal villages within a 20-mile radius of Morro Bay were relocated to the more interior Mission San Luis Obispo established in 1772.

The early history of the community of Los Osos began in 1769-1772 with Spanish exploration of the region conducted by the Gaspar de Portola and Pedro Fages expeditions and culminating in the founding of Mission San Luis Obispo by Father Junipero Serra. During the succeeding Mexican Period, large ranchos were granted to private individuals. In the 1910s and 1920s, the focus on dairy products shifted to raising beef cattle and planting a variety of crops such as sugar peas, oats, and hay. This transition resulted from state health and safety regulations that brought about strict

sanitation standards and physical improvements that many local dairymen could not accommodate. Along with ranching and farming, Los Osos underwent a period of land speculation in the late 1880s which initially failed. This effort to develop and sell town-lots in the community was reinitiated in the 1920s by Walter Redfield, and with the continued efforts of Richard Otto, development of Los Osos continued into the 1960s.

Cultural Studies

The preliminary archaeological work undertaken by Far Western from 2001 to 2005 for the previously proposed Los Osos Wastewater Facilities Project included an archaeological records search, field survey, probe program, preconstruction test excavations, and construction monitoring. Far Western conducted this work under contract to the LOCSO. Due to the October 2005 halt-work order issued by the LOCSO, complete processing and analysis of the project collections, and write-up of a report fully documenting study methods, findings, results, and site record updating, could not be completed.

Additional cultural studies were conducted for the portions of the current proposal's footprint beyond the LOCSO project (LOVR and Giacomazzi property). A new records search, surface survey of new project areas, and geoarchaeological trenching were undertaken. Table 3.4-1 summarizes all of the cultural documents prepared for the project since 2001. Relevant cultural resources documents, including a summary of Native American consultation, are provided under separate cover as Appendix E (confidential).

Table 3.4-1 Cultural Resource Documents Prepared for the LOWWP

Date	Document Title	Prepared by/Signatories
2001	<i>Memorandum of Agreement Between the California SWRCB and the California State Historic Preservation Officer Regarding the Los Osos Wastewater Facilities Project, San Luis Obispo County, California</i>	Far Western, SHPO, SWRCB, LOCSO
2001	<i>Cultural Resources Treatment Plan for the Wastewater Facilities Project, Los Osos, California.</i>	Far Western
2003	<i>Proposal for Los Osos Phase I Survey and Extended Phase I Geoprobes</i>	Far Western
2003, 2008	Records Search at the Central Coast Information Center, UCSB.	UCSB
2003	<i>Inventory and Evaluation of Historic Architectural Resources in Los Osos, California</i>	JRP Historical Consulting
2004	<i>Memorandum of Agreement for the Treatment and Disposition of Human Remains and Associated Burial Items Identified during the Los Osos Wastewater Treatment Facilities Project</i>	Far Western, Albion Environmental, Northern Chumash Council, LOCSO, SWRCB
2005	<i>Cultural Resources Treatment Plan for Lateral Installation for the Wastewater Treatment Project, Los Osos</i>	Far Western

2008	<i>Archaeological Survey Report and Sensitivity Study for Proposed Projects and Alternatives for the LOWWP, San Luis Obispo County, California</i>	Far Western
2008	<i>Historical Resources Inventory and Evaluation Report, Los Osos Wastewater Treatment Facility, San Luis Obispo County, CA</i>	JRP Historical Consulting
2008	<i>Native America Participation Plan (Draft)</i>	Albion Environmental
2008	<i>Memorandum of Agreement for the Treatment and Disposition of Human Remains and Associated Burial Items Identified during the Los Osos Wastewater Treatment Facilities Project (Revised)</i>	Albion Environmental
2009	<i>Draft Supplemental Archaeological Report for the Preferred Project Evaluation – LOWWP, San Luis Obispo County, California.</i>	Far Western
2010	<i>Archaeological Supplemental Survey of Portions of the Andre Parcels (APN 067-031-008 and 067-031-011) for the Proposed LOWWP.</i>	Far Western
2010	<i>Historic Properties Evaluation and Treatment Plan for the Los Osos Wastewater Project</i>	Far Western
2010	<i>Draft Memorandum of Agreement Among the California State Water Resources Control Board, United States Department of Agriculture, and the California State Historic Preservation Officer Regarding the Los Osos Wastewater Project, San Luis Obispo County, California</i>	State Water Board

Native American Consultation

There are no designated Tribal Lands in or around the project area. The nearest federally-recognized tribe listed on the NAHC consultation list is the Santa Ynez Band of Mission Indians. The County consulted with the Santa Ynez Band, who deferred project involvement to the more local people of Chumash descent (see Appendix E).

Consultation with the Native American community (beyond the federally recognized tribe) regarding the LOWWP began with the originally proposed project in 2003, with initial inquiries to the NAHC. The Wastewater Project had been the subject of some interest and concern to the Native American community because of the known and suspected cultural resources present within the Los Osos community. Therefore there was considerable interest in the LOWWP when consultation began.

The NAHC suggested contacting a long list of potential Native American respondents representing the full Northern (Obispeño) Chumash and Salinan communities, totaling 24 potential contacts. Each was sent an information package and a request for comments and concerns about the area and the LOWWP. Several responses were received; however, these were primarily from representatives of the communities in the immediate vicinity of Los Osos (e.g., San Luis Obispo, Morro Bay, Atascadero, and

Grover Beach).

As discussions proceeded, the NAHC reconsidered its recommendation based on a review of evidence of traditional affiliation with the Project vicinity. On January 14, 2003, the NAHC identified five individuals as satisfying the criteria of association. The NAHC also indicated that these five individuals would serve as Most Likely Descendants in the event ancestral remains were discovered on the Project (letter, Larry Meyers, Executive Secretary to Chief Mark Vigil, San Luis Obispo County Chumash Council). The NAHC's rationale was that these individuals, Lei Lynn Odom, Peggy Odom, Mona Tucker, Mathew (Tucker) Goldman, and Mary Trejo, had demonstrated ties to ancestral village sites within 12 miles of the Project location.

Following this finding, the LOCSD negotiated a pre-construction agreement defining the treatment of ancestral remains and associated materials, and the roles of the Most Likely Descendants identified by the NAHC (*Memorandum of Agreement for the Treatment and Disposition of Human Remains and Associated Burial Items Identified During the LOWWP*, January 2004). The Memorandum and potential Most Likely Descendant assignments were the subject of a public meeting in January 2004 where some members of the Native American community not identified by the NAHC expressed displeasure with the Memorandum. The LOCSD considered these objections but proceeded with implementation, and procedures in the Memorandum were used when ancestral remains were discovered during archaeological excavations in the summer of 2005.

Consultation for the current LOWWP led by the County began with new queries to the NAHC on April 23, 2008. The NAHC responded with a short list of potential Chumash respondents, and verbal confirmation that the Most Likely Descendants assigned in 2003 would retain their status (one of the descendants, Mary Trejo, passed away in 2004) (Appendix C, p. C-14). An information package was sent to each individual/group on the list on May 28, 2008. In early June 2008, John Burch, Traditional Leader of the Salinan Tribe, contacted the NAHC about the Project. Subsequently, the NAHC asked that the County provide the Salinan Tribe and Mr. Burch with additional information about the project (email, Katy Sanchez, NAHC Staff to Clinton Blount, June 13, 2008). An information package was sent to the Salinan Tribe on June 16, 2008.

On October 16, 2008, the County held a project information meeting for all interested Native Americans. An invitation to the meeting, as well as a draft Native American Participation Plan, was provided to all contacts from the NAHC's 2008 list, as well as to John Burch, the Santa Ynez Band of Mission Indians, and to Dr. Kote Lotah. The meeting was attended by Peggi Odom and Lei Lynn Odom (Northern Chumash), John Burch (Salinan Tribe), and Fred Collins (Northern Chumash Tribal Council). These individuals have remained involved throughout the project's development.

A meeting to discuss revisions to the *Memorandum of Agreement for the Treatment and Disposition of Human Remains and Associated Burial Items Identified During the LOWWP* occurred on November 6, 2008 with the four identified Most Likely Descendants.

The NAHC subsequently withdrew their designation of project MLDs and have stated that until the project encounters human remains, no MLD will be assigned to this project (personal communication, Katy Sanchez to Kate Ballantyne, 2/4/2010).

Additional meetings, phone communications, and electronic communications have occurred with the Salinan Tribe, and with Fred Collins of the Northern Chumash Tribal Council throughout 2009. A project update letter was provided to the entire NAHC's respondent list on September 17, 2009. Copies of relevant correspondence can be found in Appendix E.

3.4.2 Environmental Consequences

Without mitigation, various aspects of the LOWWP have the potential to substantially affect archaeological and human remains. However, through implementation of the mitigation listed in section 3.4.3, effects will be reduced to less than substantial levels. The project will not substantially affect historic properties or paleontological resources.

3.4.2.1 Archaeological Resources and Human Remains

Collection System

The collection system within the community extends across areas of high archaeological sensitivity where trenching would impact the dense midden deposits rimming the bay. For the purposes of this project, all of the sites in the project APE are considered eligible for listing on the NRHP. It is possible that during installation of collection lines modifications to avoid cultural resources as they are encountered can be made. Furthermore, the footprint of the lateral line into each house could be modified to reduce any potential impacts to archaeological resources. The raw wastewater and recycled water pipelines along LOVR to and from the Giacomazzi parcel would skirt five recorded sites: SLO-2569, SLO-4, SLO25, SLO-462, and SLO-1512. Further analysis has shown that the pipe alignments can avoid all five of these sites by keeping construction to the previously disturbed roadway and meandering away from the edge of each site. A portion of LOVR from Los Osos Creek eastward to the cemetery parcel was determined to have high sensitivity for buried archaeological sites. The County conducted geoarchaeological trenching in these sensitive locations and found no evidence of buried cultural resources (Jones and Mikkelsen 2009).

The collection system would disturb human remains within the previously identified sensitive areas of the community of Los Osos. Human remains have been identified during data recovery excavations undertaken for the previously proposed wastewater project (Far Western Anthropological Group, Inc. n.d.). These were located around the bay and Sweet Springs; proposed collection lines and pump stations are within these areas. For the prior project, burials were left in place, to be avoided by construction, and isolated human remains were placed with the burials; new alignments were cleared for human remains during data recovery. Although the current proposal will utilize the information collected during pre-excavation and construction, additional human remains could potentially be disturbed during the proposed project. With implementation of the mitigation measures proposed in this section, impacts to prehistoric cultural resources and human remains will be reduced to less than substantial levels.

Treatment Plant Site

The treatment plant site (Giacomazzi parcel) contains two mapped cultural sites: the prehistoric and historic-era archaeological site (CA-SLO-2569) and a prehistoric-only site

(CA-SLO-2570) (Jones and Mikkelsen 2008). The treatment plant has been designed to avoid both cultural sites, and to also allow a 100-foot buffer between plant features and edges of mapped sites. A proposed serpentine lot split will isolate site SLO-2569 on property the County will not acquire. Permanent fencing will also be erected around the treatment plant site, reducing the potential for inadvertent effects to cultural resources during routine plant operations and maintenance. There will be no effect to archaeological resources at the treatment plant site.

Broderson Leach Field and Recycled Water Reuse

The Broderson leach field has been surveyed, and no prehistoric cultural resources are found on the property. All of the primary pipelines associated with the reuse of recycled water within the urban area lie within ROWs that have been surveyed for the installation of collection system pipelines. All sites proposed to receive recycled water are already being irrigated; therefore no new irrigation systems will be required. The primary recycled water line for agricultural reuse of recycled water lies within the LOVR ROW, and has been surveyed for the presence of prehistoric cultural resources. The pipeline has been routed to avoid all impacts to identified resources. Sites proposing to utilize recycled water for agriculture are required to avoid all impacts to cultural resources by the terms of the project's Coastal Development Permit.

3.4.2.2 Paleontological Resources

The entire collection system within the community extends across areas of recent aeolian and alluvial deposits and has an extremely low potential to contain fossils. The project would not have a substantial impact to paleontological resources.

3.4.2.3 Historic Resources

None of the resources evaluated for the LOWWP appear to be eligible for listing in the NRHP. JRP Historical Consulting prepared a report to evaluate historical resources within the Los Osos Wastewater Treatment Facility's APE and to assess the potential of the proposed project to affect buildings and structures that are eligible for listing in the NRHP (2003, 2008). Because none of the historic-era resources appear to meet the eligibility criteria for the NRHP, the project will have no impact on historic resources.

3.4.3 Mitigation

Avoidance is the paramount mitigation measure to protect cultural resources potentially impacted during project development and construction. Several other measures will also lessen the LOWWP's effects to less than substantial levels.

3.4-1 Prior to the approval of the expenditure of any Federal funds on the undertaking or prior to the issuance of any license, the Section 106 process will be completed. This process will include the finalization of the Historic Properties Evaluation and Treatment Plan and the acceptance of the project's Memorandum of Agreement by the appropriate federal signatories.

3.4-2 An Historic Properties Evaluation and Treatment Plan has been prepared for the LOWWP, and details the extensive scope of the proposed project; establishes site types with corresponding levels of effort for mitigation, and details data recovery and monitoring

plans for the extent of the proposed project. This Treatment Plan will be executed in full throughout the course of the project.

3.4-3 [5.6-B4] As detailed in the Treatment Plan, if avoidance of recorded archaeological sites within any portion of the approved project design is not possible through project redesign, a phased program of site testing will be undertaken to establish boundaries and evaluate the resources' potential eligibility to the California Register of Historical Resources or the National Register of Historic Places. If a site is determined ineligible, no further work is required. If a site is determined eligible, data recovery excavations will be required to mitigate adverse effects incurred from project development.

3.4-4 [5.6-B6] Preconstruction monitoring will occur in areas ranked as high in sensitivity for buried deposits. Mechanical backhoe trenching will be conducted within the sensitive areas where any construction impacts will occur and will be monitored by a qualified geoarchaeologist. Any identified intact deposits will be evaluated, and any deposits determined to be eligible to the California Register and/or National Register will require project redesign to avoid impacts, or data recovery to mitigate unavoidable impacts.

3.4-5 [5.6-B7] While prior survey, excavation, and monitoring have been conducted for the majority of the collection system in the community of Los Osos, redesign in the placement of pipelines and location of pump stations and other facilities requires additional consideration. Areas of high archaeological sensitivity, including the locations of human burials, have been identified. Continued avoidance or additional testing, monitoring, and/or data recovery will be required to reduce impacts to a less-than-substantial level.

3.4-6 [5.6-B8] Full analysis, processing, documentation, curation, and reporting of the project collections was not achieved because of the stop-work order on the 2005 wastewater project. These tasks will be completed by qualified archaeologists as an important mitigation effort for overall project impacts and to fulfill requirements associated with past Section 106 consultations. Study findings will be made available to the general public and local Native Americans, as well as to the scientific community.

3.4-7 [5.6-D1] A draft Memorandum of Agreement has been prepared for the treatment and disposition of human remains and associated burial items. Although not required by law, this document lays out the procedures agreed upon by interested local Native Americans and stipulated under State law, including proper and respectful handling of remains, identification of reburial areas, acceptable analyses, and resolution of conflicts. It includes a list of Most Likely Descendants approved by the NAHC; these individuals would be signatories on the Agreement.

3.4-8 [5.6-D2] For sites with known human remains or which have a potential for human remains, pre-construction excavations will take place within the direct impact areas to insure that no human remains are present.

3.4-9 [5.6-D3] If human remains are encountered within the project area, the County will be responsible for complying with provisions of Public Resources Code Sections 5097.98 and 5097.99, and 7050.5 of the California Health and Safety Code, as amended by AB 2641. Restrictions or procedures for excavation, treatment, or handling of human remains will be established in consultation with the individuals designated by the NAHC as the Most Likely Descendants.

3.5 Biological Resources Information

The biological resources discussed in this section focus on federally threatened and endangered species. General information about Los Osos wildlife and habitats, as well as State and CNPS-listed species can be found in the project EIR. The descriptions provided below are based on multiple site visits by qualified biologists, published and unpublished reports, contact with resource agencies, and numerous references including:

- Expanded Biological Resources Analysis Prepared for the Draft EIR, County of San Luis Obispo, LOWWP (Michael Brandman Associates, November 14, 2008)
- Biological Assessments for the LOWWP (County of San Luis Obispo, January, 2010)
- Biological Opinions (BO) for the LOCSD Wastewater Facilities Project (US Fish and Wildlife Service (USFWS), 2003, 2005 and 2010)

With the inclusion of mitigation from section 3.5.1.3 and from the project's Biological Opinion, the project is not likely to jeopardize the continued existence of any federally-listed species or destroy or adversely modify critical habitat. Impacts will be mitigated to less than substantial levels.

3.5.1 Federally Threatened and Endangered Species

The Los Osos area, with its variety of natural habitats (streams, wetlands, coastal scrub), provides habitat for several threatened and endangered species. These species are discussed in detail below.

3.5.1.1 Affected Environment

California red-legged frog (*Rana aurora draytonii*)

The California red-legged frog is a federally-threatened species and California State species of special concern. The abdomen and hind legs of adults are largely red; the back is characterized by small black flecks and larger irregular dark blotches with indistinct outlines on a brown, gray, olive, or reddish background color. A characteristic feature is its dorsolateral fold which is visible on both sides of the frog and extends from the eye to the upper leg/hip region.

California red-legged frog populations are typically associated with deep pools or lakes with overhanging woody vegetation, usually willows and an intermixed fringe of cattails (*Typha latifolia*). However, California red-legged frogs frequently breed in ephemeral creeks and drainages and in ponds that may or may not have riparian vegetation. During summer and fall months this species may disperse upstream and downstream of breeding sites to forage and seek sheltering habitat. Such shelter may include all aquatic, riparian, and upland areas within the range of the species and any landscape features that provide cover, such as small mammal burrows, rocks piles, organic debris (e.g., downed trees or logs), leaf litter, or industrial debris. Accessibility to sheltering habitat is essential for the survival of California red-legged frog populations and can be

an important factor that limits their survival. During winter rain events, juvenile and adult California red-legged frogs have been documented to travel as far as 2.2 miles from non-breeding to breeding habitats (Bulger et al. 2003).

This species is known to occupy Warden Creek year-round and Los Osos Creek approximately one mile upstream of LOVR. They may also seasonally occupy Los Osos Creek at the LOVR Bridge. California red-legged frog is not known to occur in any other areas to be affected by the LOWWP.

South-central California coast steelhead (*Oncorhynchus mykiss*)

The south-central California coast evolutionarily significant unit of the southern steelhead (S-CCC steelhead) is a federally threatened species and California State species of special concern that is historically known to inhabit coastal streams in central and southern California during portions of their life stage. S-CCC steelhead are similar to other Pacific salmon species in their ecological requirements. Generally, they are hatched and reared in freshwater as alevins and fry, migrate to estuaries and the ocean as juvenile smolts, spend 1 to 5 years in the ocean as juveniles and subadults, and then return to freshwater to spawn as adults (NMFS 2005, Moyle 2002). Generally, coastal streams used by this species must contain spawning gravels of certain size and free of sediment, and cool, clean, and well-oxygenated water to allow egg incubation and development. Juveniles require an abundance of food sources for growth, and natural cover and refuge for predator evasion, high flows, and warm summer temperatures. Returning adult southern steelhead require adequate staging and passage areas with cool waters that are adequate in water quality and quantity during specific spawning run times (NMFS 2005). Spawning typically occurs during late winter and early spring. To complete their life cycle, steelhead require accessible rearing and migration corridors that contain the important habitat.

The primary constituent elements for this species habitat that are relevant to the LOWWP include: spawning sites with adequate water quantity and quality conditions and suitable substrate; rearing sites with adequate water quantity and floodplain connectivity to support and maintain juvenile development, and natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rock and boulders, side channels, and undercut banks to support juvenile mobility and survival; and freshwater migration corridors free of obstruction with adequate water quantity and quality conditions, and natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rock and boulders, side channels, and undercut banks to support juvenile and adult mobility and survival. Within the LOWWP area, only Los Osos Creek is known to support S-CCC steelhead.

Morro shoulderband snail (*Helminthoglypta walkeriana*)

The Morro shoulderband snail is a federally endangered species that is endemic to the western portion of San Luis Obispo County and specifically, south of Morro Bay, west of Los Osos Creek, and north of Hazard Canyon. Critical habitat for the Morro shoulderband snail was designated on February 7, 2001 that includes 2,566-acres of land within three critical habitat units that occur within and around the community of Los Osos (USFWS 2001). The primary constituent elements (those habitat components that are essential for the primary biological needs of foraging, sheltering, reproduction, and dispersal) of critical habitat for the Morro shoulderband snail consists of sand or sandy

soils for reproduction, a slope no greater than 10 percent to facilitate movement of individuals, and the presence of, or capacity to develop, native coastal dune scrub vegetation (USFWS 2001, 2003).

The species typically inhabits accumulated litter and the undersides of low shrub branches in coastal dune scrub vegetation, particularly mock heather (*Ericameria ericoides*), golden yarrow (*Eriophyllum staechadifolium*), deerweed (*Lotus scoparius*), dune almond (*Prunus fasciculata* var. *punctata*), buckwheat (*Eriogonum* spp.), and coyote brush (*Baccharis pilularis*) (USFWS 1998, 2003, LOCSD 2005, CNDDDB 2008). Surveys conducted by the USFWS and CDFG also determined that snails may occur on California sage-black sage, dune lupine-goldenbush, Morro manzanita-California sagebrush, and several other maritime chaparral and coastal sage scrub plant communities (LOCSD 2005). While the species has most often been found in mock heather associated with native dune scrub habitats, it has also been found within introduced ice plant (*Mesembryanthemum* spp. and *Conicosia* spp.) and fig-marigold (*Carpobrotus edulis*) at suitable locations (LOCSD 2005). Other key features of this species habitat in coastal areas include areas with dense veldt grass, thick leaf litter under shrub canopies, rocks, debris piles, downed wood, woody debris, and at the base of fence posts in moist pockets (USFWS 1998, 2003).

The Morro shoulderband snail is known to occur in the LOWWP area west of Los Osos Creek. The CNDDDB (2009) has several records of known occurrence for the Morro shoulderband snail in the LOWWP area. Even though Baywood Park and much of central Los Osos has experienced substantial human disturbance and a grid-like street pattern for over 50 years, the snail has persisted in these heavily disturbed areas.

Dense populations of the Morro shoulderband snail are known to occur within the Broderson leach field area (USFWS 2005) and County biologists noted more than 20 empty shells during recent plant surveys on the parcel. Consulting biologists found 28 live snails over 0.25 acre on the Broderson site during an intensive survey (USFWS 2005).

The treatment plant site on the Giacomazzi property and the access road through the neighboring Andre property do not appear to have suitable habitat for the Morro shoulderband snail. With the exception of two drainages, the Giacomazzi site is seasonally plowed such that vegetation does not accumulate. Cover in the form of shrubs, downed woody debris, leaf litter, and trash is completely absent. The site has loam and clay soils (no Baywood fine sand with which the species is typically associated).

Morro Bay kangaroo rat (*Dipodomys heermanni morroensis*)

The Morro Bay kangaroo rat is a federally-endangered and California State-endangered species whose historical range is highly restricted to areas within the community of Los Osos and within Montana de Oro State Park (LOCSD 2005, USFWS 2005, USFWS 1999). In 2000, the USFWS released the Draft Revised Recovery Plan for this species that detailed its current status and distribution, and conservation objectives for the recovery and delisting of this species from endangered levels (USFWS 1999). USFWS has designated critical habitat for this species within areas along the coast in the northwestern portion of Montana De Oro State Park (USFWS 1999). This species' optimum habitat consists of early successional coastal sage scrub habitat supported by old, stabilized dune terraces mapped with Baywood fine sandy soils. Optimum

vegetation includes herbaceous annuals with scattered native woody perennial shrubs no more than 2 feet in height.

The Morro bay kangaroo rat has not been detected despite numerous survey efforts since the early 1990s (CNDDDB 2008, LOCSO 2005, USFWS 2005). In 1990, Morro Bay kangaroo rats were last documented in the wild when diagnostic sign was detected within what is known as the Bayview property in the community of Los Osos, south of Highland Drive and between Broderson Avenue and Baywood Drive (USFWS 2005). Other recorded occurrences are from 1985 or earlier, and many include areas outside of the community of Los Osos within Montana De Oro State Park (CNDDDB 2008, LOCSO 2005, USFWS 2005).

In 1997 and 2000, visual surveys for Morro bay kangaroo rat were conducted within a 12-acre portion of the Broderson property, including land that is currently proposed for leach fields; however, no evidence of this species was observed (USFWS 2005). Repeated surveys of the adjacent Bayview property were also conducted for this species in 2000, 2001, and 2002 that yielded negative results (USFWS 2005). This included surveys in 2002 according to USFWS and CDFG protocol. After reviewing the findings of collective survey efforts, the USFWS in their BO for the LOWWP dated April 20, 2005 stated that the project, which had included an 8-acre leach field development on the Broderson property, is not likely to adversely affect the Morro Bay kangaroo rat or its critical habitat (USFWS 2005). As a mitigation measure and condition for the previous wastewater project, preconstruction surveys for this species were conducted on the Broderson and Mid-Town properties at the proposed leach fields and treatment facility locations. No sign of Morro Bay kangaroo rats were detected at either property during pedestrian survey efforts in April and June 2004, or June 2005, and habitat within these areas at that time were determined to be unsuitable due to lack of appropriate vegetation characteristics (Villablanca 2004, 2005).

Many previous survey efforts and determinations made by the USFWS in their BO in 2005 indicate that this species is not likely to occur within any portions of the impact area for the LOWWP. In 2008 protocol surveys for MBKR were conducted within the historic range of the Morro Bay kangaroo rat (Villablanca 2009). Data from these surveys led to the conclusion that there is suitable habitat on both the Branin property (immediately north of the Giacomazzi site) and the adjoining Tonini property: sandy soil, grazed introduced grasses, and coastal sage scrub extend east from the Branin parcel to the Tonini parcel. In 2008 there was no distinct ecological boundary detected at the property line. Therefore, in 2008 all suitable habitat on both parcels was searched for signs of MBKR. No definitive sign of Morro Bay kangaroo rats was located. Areas with possible sign of Morro Bay kangaroo rat were only discovered on the Branin parcel, and those areas were live-trapped. No Morro Bay kangaroo rats were captured.

Least Bell's Vireo (*Vireo bellii pusillus*)

The federally and state-endangered least Bell's vireo is a riparian nesting bird considered highly unlikely to occur within the LOWWP area. Suitable breeding habitat does not exist within the action area. The raw and treated wastewater pipelines will cross Los Osos Creek on the LOVR Bridge. This location supports woody riparian vegetation but the vegetation structure does not appear to have the least Bell's vireo's essential habitat features. All other locations within the action area are clearly unsuitable habitat. There are no CNDDDB-reported least Bell's vireo breeding sites in

San Luis Obispo County (CNDDDB, 2009). In addition, the LOWWP area is not within the historical breeding range of least Bell's vireo (USFWS 1998b).

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

The federally and state-endangered southwestern willow flycatcher is considered highly unlikely to occur within the action area. Based on the known distribution of the southwestern willow flycatcher detailed in the final recovery plan for this species, the project site is beyond the ordinary breeding range of this species (USFWS 2002). Suitable breeding habitat does not exist within the action area. The raw and treated wastewater pipelines will cross Los Osos Creek on the LOVR Bridge. This location supports woody riparian vegetation but the vegetation structure does not appear to have the southwestern willow flycatcher essential habitat features. All other locations within the LOWWP area are clearly unsuitable habitat.

Indian Knob mountain balm (*Eriodictyon altissimum*)

The federally-endangered Indian Knob mountain balm is a chaparral shrub which occurs within the Los Osos area, but not within the LOWWP area. The CNDDDB (2009) has four records of known occurrence for this shrub within the Los Osos area. These are: west of Broderson Ave. and east of bend in Travis Dr.; on a north-facing slope between Broderson Ave. and Bayview, just above Highland Dr.; at the extension of Bayview Heights Drive at Calle Cordoniz, 50 yards southwest of the road; and Hazard Canyon in Montana de Oro State Park.

Within San Luis Obispo County, Calflora reports 6 specimens, 8 documented occurrences and 1 in existing literature. Most of these occurrences are within the Los Osos area and Montana de Oro State Park. December 2008 botanical surveys by County biologists have not revealed Indian Knob mountain balm within the LOWWP area.

Morro Manzanita (*Arctostaphylos morroensis*)

The federally-threatened Morro manzanita occurs on the southern portion of the Broderson site, south of the LOWWP disturbance area. A December 2008 botanical survey by County biologists confirmed that no individuals of this shrub occur within the LOWWP area of the Broderson site. The remainder of the LOWWP area is outside of the species distribution.

3.5.1.2 Environmental Consequences

California red-legged frog (*Rana aurora draytonii*)

Development of the treatment plant site has a low potential to result in direct and indirect impacts to the California red-legged frog. Although it would not result in the disturbance of suitable breeding habitat, it is proposed near aquatic features known to be occupied by this species (Warden Creek and Warden Lake). The periodic tilling that occurs for weed control removes most features that would be conducive to foraging and sheltering. Due to the low likelihood of presence on the treatment plant site, it is unlikely that construction activities would result in the incidental mortality of individuals using areas adjacent to breeding sites during dispersal and aestivation.

LOWWP conveyance lines will cross Los Osos Creek on the bridge over the creek.

There should be no need for dewatering as work to install the lines can be done from the bridges or by lowering equipment into the channel when it is dry, resulting in no direct impacts to CRLF. The USFWS BO issued for the project concludes that with the incorporation of mitigation measures, the project would not likely adversely affect the CRLF (Appendix C, C-73).

South-central California coast steelhead (*Oncorhynchus mykiss*)

The LOWWP wastewater and recycled water conveyance pipelines will cross Los Osos Creek, which supports S-CCC steelhead and designated critical habitat. Los Osos Creek is expected to be dry at the time of construction.

The crossing of Los Osos Creek at LOVR will be made by securing the pipelines to the existing bridge structure. The raw wastewater pipeline will be secured to the north edge of the existing bridge using conventional pipe hangers. The recycled water pipeline will cross the creek on its south side through existing voids within the bridge abutments. It will be necessary to support the pipeline during installation; this could be accomplished from above with an excavator or similar equipment, from below with a small backhoe/loader, or with hand-built falsework. If equipment is used in the creek bed, it would be lowered into place and retrieved with a crane. Therefore, no access ramp would be required.

The following potential impacts to S-CCC steelhead and critical habitat may result from securing the conveyance pipelines to the existing bridge over Los Osos Creek:

- injury or mortality as a result of the accidental spill of hazardous materials or careless fueling or oiling of vehicles or equipment near sensitive upland or aquatic habitats;
- temporary destruction of steelhead habitat through alterations of the stream substrate, downstream sedimentation, and the temporary loss of riparian vegetation and stream function as fishery habitat.

There will be no direct effects to steelhead, and with the implementation of mitigation listed below, there will not be a substantial indirect effect to steelhead. The National Marine Fisheries Service has agreed the implementation of the LOWWP would not likely adversely affect steelhead or its critical habitat (Appendix C, C-73).

Morro shoulderband snail (*Helminthoglypta walkeriana*)

Activities on the project sites will result in different levels of disturbance to the existing vegetation and habitats considered suitable for Morro shoulderband snail.

The majority of the collection system will be constructed within the street ROW that are made up of ruderal habitat that is generally highly disturbed. A few of the pump stations are on private lands that contain agriculture activities and/or coastal sage scrub and grassland communities. Some habitat present in these areas is suitable for Morro shoulderband snail. We anticipate approximately 0.5 acre of impacts to coastal dune scrub. This habitat will be completely removed for the construction of the collection system.

The Mid-town pump station site is made up of scattered coastal dune scrub interspersed with disturbed grassland. This site was graded in 2005 and some native plant regeneration has occurred. The 0.25 acre pump station site is situated on parts of the parcel where plant regeneration has been lowest; with about 10-15% cover by small individuals of native species including: deerweed (*Lotus scoparius*), beach bush lupine (*Lupinus chamissonis*), and California croton (*Croton californicus*). Approximately 70% is bare soil, and the remainder is iceplant and veldt grass. The 0.10 acre stand-by power site is on a part of the parcel that has had more robust regeneration, with about 50% cover by deerweed, veldt grass and beach bush lupine, with lesser amounts of other native and non-native plants. Because of the young age of the coastal dune scrub plant community, there is little duff under the plants to provide habitat for the Morro shoulderband snail. The likelihood of occurrence is low in this area, but a few Morro shoulderband snails may be present.

The conveyance pipelines will disturb a very limited amount of Morro shoulderband snail habitat. Most of the length of the pipelines will be along LOVR.

The portion of the Giacomazzi site to be disturbed by the LOWWP lacks appropriate habitat; therefore no snails will be affected by construction and operations at this site.

The largest population of Morro shoulderband snail that will be impacted is at the Broderson leach field. The construction of the leach field will result in temporary loss of this habitat and the proposed activities may result in direct mortality of some Morro shoulderband snails.

The primary constituent elements of critical habitat at the Broderson leach field would be replaced as the County proposes to revegetate the leach field upon installation of the leach lines with coastal dune scrub species salvaged from the site prior to construction. This area would have to be excavated again as the pores beneath the leach field become clogged over time. This could occur in five, 10 or 20 years, depending on how long it takes for the pores to clog. Revegetation would occur after each reconstruction of the leach field. Suitable Morro shoulderband snail habitat surrounds the leach field site; therefore, upon revegetation, snails would easily be able to colonize the reestablished habitat.

The existing Bayridge leach field site has been graded and is covered by non-native vegetation, with iceplant the dominant species present. The leach field currently serves the Bayridge neighborhood with common septic tanks and a leach field. The tanks would be abandoned or repurposed to collect rainwater and the leach field would be used for recycled water instead of septic tank leachate. This leach field is expected to function in its present condition, so no disturbance is anticipated.

The Paso Robles staging site was graded in 2005 and the small amount of habitat (0.1 acre) was removed. This staging area no longer provides habitat. The Paso Robles site is within Critical Habitat Unit 3, but no longer contains the primary constituent elements to support Morro shoulderband snail.

Harassment of Morro shoulderband snails is expected to occur during the proposed activities as a result of capture and transport of individuals to suitable habitat during portions of construction. However, these effects will be greatly reduced by minimizing handling time of individuals and by employing only persons experienced in handling the

species and who are familiar with their habitat needs when relocation is required.

The USFWS biological opinion for the project determines that the LOWWP is not likely to jeopardize the continued existence of Morro shoulderband snail or destroy or adversely modify critical habitat for the Morro shoulderband snail (Appendix C, C-73).

Morro Bay kangaroo rat (*Dipodomys heermanni morroensis*)

Because the presence of this species has been determined to be highly unlikely, the LOWWP is not expected to result in any effects.

Least Bell's Vireo (*Vireo bellii pusillus*)

Because the presence of this species has been determined to be highly unlikely, the LOWWP is not expected to result in any effects.

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

Because the presence of this species has been determined to be highly unlikely, the LOWWP is not expected to result in any effects.

Indian Knob mountain balm (*Eriodictyon altissimum*)

Botanical surveys by qualified biologists have not revealed Indian Knob mountain balm within the action area, therefore the LOWWP is not expected to affect this species.

Morro Manzanita (*Arctostaphylos morroensis*)

Because the presence of this species has been determined to be highly unlikely, the LOWWP is not expected to result in any effects.

3.5.1.3 Mitigation

California red-legged frog (*Rana aurora draytonii*)

To minimize project effects on red-legged frogs, the following minimization measures will be implemented prior to and during construction at Los Osos Creek. Implementing these measures will substantially reduce the risk of incidental "take" of California red-legged frog. LOWWP design features and standard conditions relating to water quality discussed in section 3.6 (Water Quality) would further reduce potential impacts.

Mitigation measures from April 14, 2010 *Biological Opinion – USFWS* (Appendix C, p. C-73):

3.5-1 All staging areas, as well as those areas where fueling and maintenance of vehicles and other equipment would occur, will be located at least 20 meters from riparian habitat or water bodies. The contractor or County will ensure that contamination of habitat does not occur during such operations.

3.5-2 Prior to the onset of work near any riparian habitat, the USDA will ensure that the contractor or County has prepared a plan to allow a prompt and effective response to any accidental spills.

3.5-3 To avoid potential timing conflicts between construction and the breeding season for the California red-legged frog, work activities adjacent to Los Osos Creek will only commence after March 31 and be completed by October 31, annually.

3.5-4 Night-time illumination at the treatment plant site will meet the following requirements of the County's Estero Area Plan in order to be shielded from riparian areas and creeks: "all lighting fixtures will be shielded so that neither the lamp nor the related reflector interior surface is visible from adjacent properties. Light hoods will be dark-colored." No night lighting will be used unless necessary for active maintenance activities at the plant, or under emergency conditions.

3.5-5 Tributaries to Warden Creek on the Giacomazzi property will be restored to provide improved habitat for the California red-legged frog. Drainages currently devoid of riparian vegetation will be revegetated with native riparian canopy and emergent species to provide additional shade, cover, and breeding habitat. The current practice of removing all vegetation within and adjacent to Los Osos Creek and tributaries to Warden Creek will cease.

Mitigation measures from LOWWP Final EIR/CDP:

3.5-6 [5.5-A3] A worker education program and clearly defined operations procedures will be prepared prior to project construction. The worker education program and operations procedures will be implemented by the County throughout the duration of construction. A biologist approved by the USFWS will be retained to provide construction personnel specific instruction on general detection and avoidance of sensitive resources during construction. The worker education program will include: descriptions and pictures of listed species; the provisions of the Endangered Species Act; those specific measures being implemented to avoid and minimize take or impacts to listed or otherwise sensitive species (e.g. conserve listed and sensitive species as they relate to the project); and the project boundaries within which the work will occur.

3.5-7 [5.5-A8] Prior to project construction, the County will retain a qualified biologist to conduct pre-construction surveys for the California red-legged frog according to protocol approved by the USFWS. Surveys will be conducted within all areas that are determined to contain suitable habitat for this species and that occur within 100 feet of proposed construction, or at a distance determined through USFWS consultation.

To avoid potential timing conflicts with the California red-legged frog-breeding period, construction activities in the vicinity of California red-legged frog habitat will be completed between April 1 and November 1. This measure will apply to construction activities at the LOVR Bridge and Los Osos Creek crossing, and all other areas determined during pre-construction surveys to contain suitable habitat for the species, including areas that occur within 100 feet of proposed construction, or at a distance determined through USFWS consultation.

Prior to construction, the County will retain a USFWS - approved biologist to permanently remove any individuals of exotic species, such as bullfrogs, crayfish, and centrarchid fishes from the project area, to the maximum extent possible. The USFWS - approved biologist will be responsible for ensuring his or her activities are in compliance with the California Fish and Game Code.

Prior to construction, the County will retain a USFWS-approved biologist to conduct a training session for all construction personnel. At a minimum, the training will include a description of the California red-legged frog and its habitat, the importance of the California red-legged frog and its habitat, the general measures that are being implemented to conserve the California red-legged frog as they relate to the project, and the boundaries within which the project may be accomplished.

Prior to construction, the County will retain a USFWS-approved biologist responsible for monitoring construction activities. Ground disturbance will not be authorized to begin until written approval is received from the USFWS that the biologist is qualified to conduct the work. Only USFWS-approved biologists will participate in activities associated with the capture, handling, and monitoring of California red-legged frog. To ensure that diseases are not conveyed between work sites by the USFWS-approved biologist, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force will be followed at all times. A USFWS-approved biologist will be present at the active work sites until such time that the initial survey for California red-legged frogs, instruction of workers, and (upland) habitat disturbance have been completed. After this time, the contractor or permittee will designate a qualified person to monitor on-site compliance with all minimization measures. The USFWS-approved biologist will ensure that this individual receives appropriate training as to the identification of frogs, potential hazards to the species, inappropriate and allowable work activities, and appropriate contacts for immediate, professional biological support.

During work activities, all trash that may attract predators will be properly contained, removed from the work site and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

All fueling and maintenance of vehicles and other equipment and staging areas will occur a minimum of 100 feet from all open water, stream, wetland, and riparian habitat. The permittee will ensure that contamination of habitat does not occur during such operations. Prior to the onset of work, the United States Environmental Protection Agency (EPA) will ensure that the permittee has prepared a plan to allow a prompt and effective response to any accidental spills.

Recycled water storage ponds will be maintained as to not attract bullfrogs. This will include allowing the ponds to go dry during the summer to disrupt any breeding activity by bullfrogs. The County will monitor recycled water storage ponds for bullfrog activity.

South-central California coast steelhead (*Oncorhynchus mykiss*)

To minimize project effects on S-CCC steelhead, the following minimization measures will be implemented prior to and during construction at Los Osos Creek and tributaries to Warden Creek. Implementing these measures will substantially reduce the risk of incidental "take" of S-CCC steelhead:

Mitigation measures from January 2010 *Biological Assessment – Fisheries*:

3.5-8 All construction activities across Los Osos Creek will occur when the channel is dry.

3.5-9 Silt fencing will be installed in all areas where construction occurs within 100 feet

of known or potential steelhead habitat.

3.5-10 Spoil sites will be located so they do not drain directly into Los Osos Creek. If a spoil site drains into a water body, catch basins will be constructed to intercept sediment before it reaches the channel. Spoil sites will be graded to reduce the potential for erosion.

3.5-11 A spill prevention plan for potentially hazardous materials will be prepared and implemented. The plan will include the proper handling and storage of all potentially hazardous materials, as well as the proper procedures for cleaning up and reporting of any spills. If necessary, containment berms will be constructed to prevent spilled materials from reaching the creek channel.

3.5-12 Equipment and materials will be stored at least 50 feet from Los Osos Creek. No debris such as trash and spoils will be deposited within 100 feet of waterways. Staging and storage areas for equipment, materials, fuels, lubricants and solvents, will be located outside of the stream channel and banks. Stationary equipment such as motors, pumps, generators, compressors and welders, located within or adjacent to the stream will be positioned over drip pans. Any equipment or vehicles driven and/or operated within or adjacent to the stream will be checked and maintained daily, to prevent leaks of materials that if introduced to water could be deleterious to aquatic life. Vehicles will be moved away from the stream prior to refueling and lubrication.

3.5-13 Proper and timely maintenance for vehicles and equipment used during construction will be provided to reduce the potential for mechanical breakdowns leading to a spill of materials into or around the creek. Maintenance and fueling will be conducted in an area that meets the criteria set forth in the spill prevention plan (i.e., away from the creek).

3.5-14 A qualified biological monitor will be on site during all stream crossing activities. The biological monitor will be authorized to halt construction if impacts to steelhead habitat are evident.

3.5-15 Project sites will be restored to pre-construction channel conditions, including streambed composition, compaction, and gradient.

3.5-16 Project sites, if disturbed, will be revegetated with an appropriate assemblage of native upland vegetation, and if necessary, riparian vegetation, suitable for the area. A plan describing pre-project conditions, restoration and monitoring success criteria will be prepared prior to construction.

Mitigation measures from LOWWP Final EIR/CDP:

3.5-17 [5.5-A6] All construction activities across Los Osos Creek will be restricted to low-flow periods of June 15 through November 1. If the channel is dry, construction can occur as early as June 1. Restricting construction activities to this work window will minimize impacts to migrating adult and smolt steelhead, if present.

Prior to construction, the County will retain a qualified biological monitor to be on site during all stream crossing activities associate with Los Osos Creek. The biological monitor will be authorized to halt construction if impacts to steelhead are evident.

Prior to construction, a spill prevention plan for potentially hazardous materials will be prepared and implemented. The plan will include the proper handling and storage of all potentially hazardous materials, as well as the proper procedures for cleaning up and reporting of any spills. If necessary, containment berms will be constructed to prevent spilled materials from reaching the creek channel.

Prior to construction, silt fencing will be installed in all areas where construction occurs within 100 feet of known or potential steelhead habitat. All silt fencing, erosion control and landscaping specifications will only include natural-fiber, biodegradable products for meshes and coir rolls to minimize impacts to species and the environment during use.

During construction, spoil sites will be restricted to upland locations so they do not drain directly into Los Osos Creek. If a spoil site drains into a water body, catch basins will be constructed to intercept sediment before it reaches the channels. If required, spoil sites will be graded to reduce the potential for erosion.

During construction, equipment and materials will be stored at least 50 feet from Los Osos Creek. No debris such as trash and spoils will be deposited within 100 feet of waterways. Staging and storage areas for equipment, materials, fuels, lubricants and solvents, will be restricted to locations outside of the stream channel and banks. Stationary equipment such as motors, pumps, generators, compressors and welders, located within or adjacent to the stream will be positioned over drip pans at all times. Any equipment or vehicles driven and/or operated within or adjacent to the stream will be checked and maintained daily to prevent leaks of materials that if introduced to water could be deleterious to aquatic life. Vehicles will be moved away from the stream prior to refueling and lubrication.

During construction, proper and timely maintenance for all vehicles and equipment used will be provided to reduce the potential for mechanical breakdowns leading to a spill of materials into or around the creek. Maintenance and fueling will be restricted to safe areas away from Los Osos Creek that meet the criteria set forth in the spill prevention plan.

Immediately following construction, all construction work areas will be restored to pre-construction channel conditions, including streambed composition, compaction, and gradient. If required, channel banks will be returned to original grade slope and appropriate bank stabilization techniques will be implemented to reduce the potential for erosion and sedimentation. A plan describing pre-project conditions and restoration methods will be prepared prior to construction.

Immediately following construction, all appropriate construction work areas will be revegetated with an appropriate assemblage of native upland vegetation, and if necessary, riparian vegetation, suitable for the area. A plan describing pre-project conditions, restoration and monitoring success criteria will be prepared prior to construction.

3.5-18 [5.5-A7 Revised] Maintenance activities associated with pipe suspension that may result in activity within the streambed of Los Osos Creek should be restricted to periods when the streambed is dry and does not support any flowing water or pooling water in the proposed maintenance area.

Morro shoulderband snail (*Helminthoglypta walkeriana*)

To minimize project effects on Morro shoulderband snails, the following measures will be implemented prior to and during construction:

Mitigation measures from April 14, 2010 *Biological Opinion - USFWS* (Appendix C, p. C-73):

3.5-19 A Service-authorized biologist will conduct training sessions for all project-related personnel immediately prior to the start of vegetation removal, grading, and ground-disturbing construction-related activities.

3.5-20 Construction areas will be clearly marked with high visibility flagging or barrier fencing. Construction equipment and personnel will be restricted to the marked areas.

3.5-21 A Service-authorized biologist will be retained to monitor all vegetation removal, grading, and ground-disturbing construction-related activities that will take place within habitat suitable for the Morro shoulderband snail. Monitoring activities will be required daily until completion of initial disturbance at each location and for ensuring appropriate minimization measures are implemented during construction. The monitor will be granted full authority to stop work at his or her discretion and will stop work if project-related activities occur outside the demarcated boundaries of the construction footprint. The monitoring biologist will stop work if any Morro shoulderband snails are detected within the proposed construction footprint and will implement measures to relocate them to suitable habitat out of harm's way prior to construction activities resuming. If no suitable habitat opportunities are available in the immediate vicinity of the construction footprint, salvaged and relocated specimens may also be transported to an off-site location approved by the Service.

3.5-22 Prior to the initiation of project-related activities that would result in vegetation removal, soil disruption, or construction, the approximately 73 acres of the Broderson property that will not be used for the proposed leach fields will be secured and granted, in perpetuity, to an appropriate agency or conservation organization who will assume the responsibility for its management. A long-term management and monitoring program will be prepared and approved by the Service and the Department. The County will be responsible for the allocation of appropriate funding necessary to implement the management and monitoring of the conserved lands.

3.5-23 The existing degraded coastal dune scrub at the Broderson property will be restored and maintained to promote its function as habitat for Morro shoulderband snail and sensitive plants and wildlife species that are local or endemic to the area. Restoration activities will be conducted by qualified personnel with expertise in restoration ecology and knowledge of sensitive plant and wildlife species in the area. Restoration activities will be conducted in accordance with a Restoration Plan specifically prepared for the effort and approved by the Service, and the Department. Similarly, habitat restoration and maintenance will be implemented according to a Habitat Mitigation and Monitoring Plan that will evaluate the progress of the restoration effort.

3.5-24 Habitat restoration activities will include measures for the removal and eradication of competitive, invasive, non-native plant species known to occur in the local area,

including veldt grass (*Ehrharta calycina*) and pampas grass (*Cortaderia* spp.). Activities that involve the removal of invasive species will not result in unnecessary trampling or removal of native species, and techniques employed for the removal of non-native plant species will be those that will result in the least damage to native species. Any disturbed portions of the acquired 73 acres of the Broderson parcel should be evaluated for their potential to be restored as coastal dune scrub habitat that would have the potential to support the functions and values necessary for the Morro shoulderband snail, the Morro Bay kangaroo rat, and other coastal dune scrub species.

3.5-25 The restoration effort will include the implementation of a seed collection program to gather seeds to be used during restoration from native sources. The seed collection program will be prepared for approval by the County, Service, and Department prior to the commencement of vegetation removal, soil disruption, grading or other construction-related activities and focus on those native plant species that will be affected by project implementation. Collection will be conducted by personnel with demonstrated expertise in seed collection and storage and occur during the appropriate time of year for seed production and harvesting.

3.5-26 The County will provide annual reports to the USDA and Service documenting the results of all restoration and monitoring activities. Annual reports will be provided for a minimum of five years or until it is determined that the requisite performance criteria have been met. The County will provide a written report to the USDA and Service within 90 days following the completion of the proposed project. The report must document the number of Morro shoulderband snails removed and relocated from project areas, the locations of all Morro shoulderband snail relocations, and the number of Morro shoulderband snails known to be killed or injured. The report will contain a brief discussion of any problems encountered in implementing minimization measures, results of biological surveys, observations, and any other pertinent information such as the acreages affected and restored, or undergoing restoration, of each habitat type.

3.5-27 A final report would be submitted by the County to the USDA and VFWO within 60 days of the end of project activities. This report would summarize the Annual Reports and include a discussion regarding Project activities, compensation activities, and minimization and avoidance measures implemented.

3.5-28 Worker education programs and clearly-defined operational procedures must be implemented by the USDA and County.

3.5-29 Only Service-authorized biologists may survey for, monitor, handle, and/or relocate Morro shoulderband snails.

3.5-30 Service-authorized biologists must have the authority to stop work if project-related activities occur outside the demarcated boundaries of the construction footprint.

3.5-31 The USDA must ensure that the level of incidental take that occurs is commensurate with the analysis contained within this biological opinion.

3.5-32 The worker education program must include descriptions and pictures of the Morro shoulderband snail, relevant provisions of the Endangered Species Act, specific measures being implemented to conserve the Morro shoulderband snail as they relate to the project and the project boundaries within which the work will occur.

3.5-33 The USDA and the County must minimize the removal of, or damage to, native vegetation during project activities to the maximum extent possible.

3.5-34 Only Service-authorized biologists may survey for, monitor, capture, handle, or relocate Morro shoulderband snails. Eric Wier, Kate Ballantyne, and John Farhar are hereby authorized to independently conduct these activities as described in this biological opinion. Katie Drexhage, Kelly Sypolt, and Trevis Warner are authorized to conduct such activities only under the direct supervision of Eric Wier, Kate Ballantyne, and/or John Farhar. The USDA, in conjunction with the County, must request the Service's authorization of any other biologists it wishes to employ to conduct these activities relative to the proposed project. This request must be in writing and received by the Service at least 30 days prior to the intended start date.

3.5-35 A Service-authorized biologist must monitor the proposed project area(s) daily during work activities, for up to two weeks or until completion of initial site disturbance at each project site, and have the authority to stop project activities that occur outside the demarcated boundaries of the construction footprint and access road and to relocate Morro shoulderband snails to suitable habitat out of harm's way.

3.5-36 If more than 28 Morro shoulderband snails are found dead or injured during implementation of the project, the USDA or County must contact the VFWO immediately so we can review the project activities to determine if additional protective measures are needed.

Mitigation measures from the LOWWP Final EIR/CDP:

3.5-37 [5.5-A1] The project may adversely affect federally listed species and their habitat. Prior to project approval, the lead Federal agency (EPA through SWRCB) will enter into formal consultation with the USFWS and/or U.S. National Marine Fisheries Service (NMFS). A BO will be prepared by the USFWS and/or NMFS for any action which may result in take of a listed species and its habitat. Pending the determinations made by the USFWS and/or NMFS in a forthcoming BO, the project will be required to fulfill all mitigation obligations and conservation measures conditioned in the BO regarding federally listed species and their habitat.

3.5-38 [5.5-A4] Prior to the onset of construction activities, a biologist authorized by the USFWS will conduct intensive surveys to identify and relocate all snail specimens within the impact area on the Broderson and Mid-Town properties, and all suitable habitat areas within the collection system. Only USFWS authorized biologists will survey for, monitor, handle, or relocate Morro shoulderband snails.

A biologist authorized by the USFWS will be retained to monitor all construction activities that will take place within suitable habitat for the Morro shoulderband snail. Monitoring activities will be required daily until completion of initial disturbance at each construction area. The monitoring biologist will be granted full authority to stop work at his or her discretion. The monitoring biologist will be responsible for implementing avoidance and minimization measures during construction. The monitoring biologist will stop work if project-related activities occur outside the demarcated boundaries of the construction footprint. The monitoring biologist will stop work if any Morro shoulderband snails are detected within the construction footprint, and will relocate them to suitable habitat out of

harm's way prior to construction activities resuming. If no suitable habitat exists in the immediate vicinity of the construction footprint, salvaged specimens may also be transported to an offsite location approved by the USFWS.

The County will provide a written report to the USFWS within 90 days following the completion of the project. The report must document the number of Morro shoulderband snails removed and relocated from project areas, the locations of all Morro shoulderband snails' relocations, and the number of Morro shoulderband snails known to be killed or injured. The report will contain a brief discussion of any problems encountered in implementing minimization measures, results of biological surveys, observations, and any other pertinent information such as the acreages affected and restored, or undergoing restoration, of each habitat type.

3.5-39 [5.5-A15] Prior to project construction, land containing coastal sage scrub habitat and/or other habitat will be acquired on the Broderson property that is sufficient to compensate the loss of habitat for the Morro shoulderband snail, the Morro Bay kangaroo rat, and other sensitive species on the Broderson and Mid-Town properties, and areas in the community of Los Osos that will be served by the collection system. Mitigation lands for the project will be acquired within the remaining acres of land on the Broderson property that will not be impacted by the leach fields.

Mitigation lands within the Broderson property will include land that is designated as Critical Habitat for the Morro shoulderband snail; contiguous with existing preservation lands within the Morro Dunes Ecological Reserve and areas studied for the Greenbelt Program by the Land Conservancy; currently supports appropriate soils to accept native plantings for restoration; is capable of being cleared of unfavorable debris and structures; supports primarily windblown sand deposits that are in a stabilized condition (i.e. not mobile dune habitat); is characterized by habitat types with an open canopy; contains appropriate slopes to accommodate snail mobility to and from adjacent lands; and is of appropriate aspect and meteorological conditions.

Within two years of project operation all mitigation land will be preserved in perpetuity and granted to an appropriate agency or conservation organization with the responsibility of management and monitoring the preserve, as determined during agreements between the USFWS, CDFG, and the County. A long-term management and monitoring program will be prepared. The County will be responsible for the allocation of appropriate funding for the long-term management and monitoring of the mitigation land, as determined through agreements between the USFWS, CDFG, and the County.

3.5-40 [5.5-A16] Immediately following construction of the leach fields within the Broderson property, the disturbance area and all existing and unaffected coastal sage scrub (or coastal dune scrub) within the property will be restored, enhanced, and maintained to promote the land's function and value as suitable habitat for sensitive plants and wildlife that are local or endemic to the area. Restoration and enhancement efforts, including at minimum, seeding with native plant species and eradication of exotic non-native plant species, will be repeated immediately following all long-term maintenance activities resulting in temporary disturbance of the leach fields. This will be applied to the ripping and backfilling activities that may be required every 5 to 10 years to maintain the leach field function.

Restoration activities will be conducted according to a Restoration Plan or similar plan specifically prepared for the effort and approved by the USFWS, CDFG, and/or the California Native Plant Society (CNPS). The Restoration Plan will require at minimum, a description of the prescribed restoration and methodology, feasibility and likelihood for success, and a schedule and program for maintenance, monitoring and reporting the progress of the restoration effort. All restoration activities will be conducted by qualified personnel with expertise in restoration ecology and knowledge of sensitive plant and wildlife species in the area.

The restoration effort will include the implementation of a seed collection program to gather seeds to be used during restoration from native sources. The seed collection program will be prepared for approval by the County prior to project construction activities. The seed collection program will include the use of native plants that will be removed as a result of the project, including but not limited to: mock heather (*Ericameria ericoides*), silver dune lupine (*Lupinus chamissonis*), California sagebrush (*Artemisia californica*), black sage (*Salvia mellifera*), bush monkey flower (*Mimulus aurantiacus*), and deerweed (*Lotus scoparius*). Collection will take place by qualified personnel with expertise in botanical resources during the appropriate time of year for seed production and harvesting.

Unless otherwise determined during consultation with the USFWS, the restoration effort will be monitored against permanence standards for a minimum of five years, or until the first ripping event for the restored areas within the leach field area, after which the maintenance and monitoring of the restored areas will be covered within specific management directives contained within a Resource Management Plan. The performance standards will include, at minimum, at least 80 percent native plant species coverage and no greater than 1 percent coverage of invasive non-native plant species (e.g. pampass grass, veldt grass). At minimum, the restored areas must demonstrate a continued ability to support the functions and values necessary to sustain the Morro shoulderband snail. Quarterly monitoring will be conducted for the first two years of the restoration effort, with annual monitoring efforts to follow for the remaining three years. All monitoring and maintenance of restoration areas will be conducted by qualified personnel with expertise in botanical resources and knowledge of sensitive species that occur in the local area, including the Morro shoulderband snail, Morro Bay kangaroo rat, and Morro blue butterfly.

The County will provide annual reports to the USFWS documenting the results of all restoration and monitoring activities. Annual reports will be provided to the USFWS for a minimum of five years or until it is determined by the USFWS that requisite performance criteria have been met. These reports should include any noted changes in the plant community structure or composition or surface hydrology down-slope of the Broderson leach fields, in addition to other requirements as determined through USFWS consultation and stipulated within permit conditions.

All on-going and long-term restoration, enhancement, and maintenance of preserve lands on the Broderson property will be implemented according to a Resource Management Plan or similar mitigation and monitoring plan that may be developed during consultation with the USFWS. The Resource Management Plan will include management directives that are specific to the preserve and the resources present. The Resource Management Plan will include measures for the removal and eradication of invasive exotic plant species known to occur in the local area, including veldt grass and pampas grass. Activities that involve the removal of invasive species should not result in unnecessary trampling or removal of native species, and techniques for invasive removal will be least damaging to native species.

Mitigation lands within the Broderson property will include land that is designated as Critical Habitat for the Morro shoulderband snail; contiguous with existing preservation lands within the Morro Dunes Ecological Reserve and areas studied for the Greenbelt Program by the Land Conservancy; currently supports appropriate soils to accept native plantings for restoration; is capable of being cleared of unfavorable debris and structures; supports primarily windblown sand deposits that are in a stabilized condition (i.e. not mobile dune habitat); is characterized by habitat types with an open canopy; contains appropriate slopes to accommodate snail mobility to and from adjacent lands; and is of appropriate aspect and meteorological conditions.

Within two years of project operation all mitigation land will be preserved in perpetuity and granted to an appropriate agency or conservation organization with the responsibility of management and monitoring the preserve, as determined during agreements between the USFWS, CDFG, and the County. A long-term management and monitoring program will be prepared. The County will be responsible for the allocation of appropriate funding for the long-term management and monitoring of the mitigation land, as determined through agreements between the USFWS, CDFG, and the County.

Morro Bay kangaroo rat (*Dipodomys heermannii morroensis*)

Because the presence of this species has been determined to be highly unlikely, the LOWWP is not expected to result in any effects. However, in order to eliminate any potential project effects to Morro Bay kangaroo rat, the following measure from the *Biological Opinion – USFWS* will be implemented prior to and during construction:

Mitigation measure from April 14, 2010 *Biological Opinion - USFWS* (Appendix C, p. C-73):

3.5-41 Prior to the initiation of any vegetation clearing, revegetation/habitat restoration, soil disruption, grading, and/or ground-disturbing construction-related activities within the leach field area on the Broderson parcel or any other location within the action area that has potential for occurrence of the species (as determined in coordination with the Service and Department), the County will work with the Service and Department to develop and implement a "no take" strategy for the Morro Bay kangaroo rat. This strategy will include specific take avoidance measures and provide a survey, monitoring, and contingency plan should required periodic maintenance of the leach field area create suitable habitat for the species. Prior to its implementation, the strategy will be reviewed and approved by the Service and the Department and made part of a formal agreement to be signed by all parties.

Least Bell's Vireo (*Vireo bellii pusillus*)

Because the presence of this species has been determined to be highly unlikely, the LOWWP is not expected to result in any effects. However, in order to eliminate any potential project effects to least Bell's vireo, the following measures from the *Biological Opinion – USFWS* will be implemented prior to and during construction:

Mitigation measures from April 14, 2010 *Biological Opinion – USFWS* (Appendix C, p. C-73):

3.5-42 Construction in and around riparian habitat associated with Los Osos Creek will occur only between September 15 and October 31. If surveys are conducted by a Service-authorized biologist from March 15 through June 15 and least Bell's vireo breeding activity is not detected, this construction window may be expanded to include the months of July and August.

3.5-43 Annual Biological Monitoring Reports would be submitted by the County to USDA and the VFWO Office by January 31 of each year. Reports would be submitted for the duration of project construction. These reports would discuss the status and progress of compensation measures implemented. Photographs of mitigation/compensation sites would be included to document progress. If monitoring results indicate that additional measures are necessary to meet the goals set in the biological opinion, additional recommendations would be made and next steps would be agreed upon with appropriate agencies.

3.6 Water Quality Issues

The proposed LOWWP is a comprehensive effort to attain compliance with the RWQCB directives to alleviate groundwater basin contamination stemming from the use of septic systems. The primary purpose of the LOWWP is development of infrastructure for a wastewater collection, treatment and reuse of recycled water system to serve the community of Los Osos in the designated wastewater service area. Three primary benefits of the LOWWP are:

- Compliance with the WDRs of the RWQCB;
- Alleviating groundwater contamination, primarily nitrates, which have occurred by the use of septic systems throughout the community of Los Osos; and
- Reducing seawater intrusion into the drinking water aquifer.

3.6.1 Affected Environment

The planned treatment facility is expected to occupy approximately 22 acres of the 38.2 acre portion of the Giacomazzi property, located 2 miles east of the community core and behind the Los Osos cemetery. Recycled wastewater will be reused within the community or surrounding agricultural land overlying the groundwater basin (see Section 3.6.2.1). The LOWWP consists of three main components: wastewater collection; wastewater treatment, which includes solids processing, and reuse of recycled water.

3.6.1.1 Regional and Local Water Quality

The 2006 CWA Section 303(d) List of Water Quality Limited Segments indicates that thirteen of the 114 impaired water bodies in the RWQCB region are located within the Estero Bay Sub-Hydrologic Unit, ten of which are impaired due to pathogens. The source of pathogens within Morro Bay is identified as upland range grazing, reuse of recycled water, and urban runoff. Although livestock can be a source of pathogens, the RWQCB principally describes the sources as unidentified.

The natural quality of groundwater in the Los Osos Basin has been of a sufficiently high quality to satisfy all overlying beneficial land uses. Since the beginning of land development, two primary sources have contributed to degradation of water quality: (1) seawater intrusion that has invaded the lower aquifer system as a result of over pumping, and (2) increasing nitrate concentrations that have resulted from the overlying land uses (i.e., septic system return flows, landscape fertilization, and domestic animal waste).

The Giacomazzi site is, or historically has been, used for agricultural activities. Because these activities typically rely heavily on chemical fertilizers, herbicides, and pesticides, it is reasonable to assume that these substances have been applied on these properties for several years. Stormwater runoff from the Giacomazzi site generally flows north and east into nearby Warden Creek and Warden Creek wetlands.

3.6.1.2 Ground Water and Aquifers

The project area is not over an EPA designated "sole source" aquifer. The onshore portion of the Los Osos Basin covers approximately 10 square miles, of which approximately 3.3 square miles underlie the bay and sand spit, and 6.7 square miles underlie Los Osos, Baywood Park, and the Los Osos Creek Valley. The groundwater basin is bounded to the north, east, and south by relatively impermeable bedrock formations and to the west where the aquifers outcrop on the ocean floor. Historical pumping patterns have created a head differential between the upper and lower system which has resulted in leakage from the upper aquifer becoming a substantial source of water in the lower aquifer system.

The Los Osos Basin groundwater system has been identified as a source of contribution to surface water features that include springs, streams, lakes, and marshes. Natural groundwater discharges to these features have been observed but remain largely unquantified by historical monitoring programs. These features are also believed to be in part supported by groundwater that is provided from rainfall runoff which is retained on-site and percolated into the groundwater system by recent developments.

When groundwater is extracted from the lower aquifers, four potential water sources are available for replenishment. These sources are: (1) subsurface inflow from underlying bedrock, (2) the Los Osos Creek Valley, (3) leakage through the regional aquitard from the upper aquifer, and (4) seawater.

The majority of the water in the Los Osos Basin is derived from the following elements:

- Direct percolation of precipitation;

- Return flow from irrigation and septic system discharges;
- Stream seepage from Los Osos Creek; and
- Subsurface inflow across basin boundaries.

3.6.1.3 Drainage

Los Osos/Baywood Park is located within the Central California Coastal Watershed in San Luis Obispo County. Within this watershed, Los Osos Creek is located within the Estero Bay Sub-Hydrologic Unit. Creeks within and immediately surrounding the community of Los Osos either flow generally southwest from the Santa Lucia Mountains (these include hills that comprise Park Ridge, such as Hollister Peak), or northward from the Irish Hills. The two principal waterways that drain the community of Los Osos are Los Osos Creek and Warden Creek. Los Osos Creek and Warden Creek drainages form a confluence at a wetland less than a mile southeast of Morro Bay, within the Los Osos Valley. Groundwater in the perched aquifer rises in Willow Creek and reportedly emerges as seeps in the Oaks Preserve and along the banks in the lower reach of Los Osos Creek. See Exhibit 3.6-1, Los Osos Surface Water Features.

Drainage which does not flow into Morro Bay and which does not evaporate is left to infiltrate into underlying aquifers. Near Morro Bay, these include a shallower aquifer located from approximately 30 feet to 200 feet below ground level, and a deeper aquifer located approximately 500 feet below the earth's surface. The most recent study concluded that the upper aquifer fresh water/salt water interface is relatively stable and located beneath the Morro Bay sand spit, with a potential for active intrusion during extended drought periods.

3.6.1.4 Watershed Management Plans

Morro Bay National Estuary Program

Morro Bay is located within the Estero Bay Sub-Hydrologic Unit of the Central California Coastal Watershed. An organization made up of local citizens, local government, non-profits, agencies, and landowners have collaborated to protect and restore the physical, biological, economic, and recreational values of the Morro Bay Estuary under the Morro Bay National Estuary Program (MBNEP). The MBNEP implements many projects in the watershed including stream restoration, land acquisition and conservation easements, revegetation projects and more (Morro Bay National Estuary Program 2009).

Water Quality Control Plan

The most recent update of the Water Quality Control Plan for the Central Coast Region was adopted by the RWQCB in September 1994. The Basin Plan establishes beneficial uses and water quality objectives for surface and ground water sources within the basin. To be consistent with this plan, the LOWWP must comply with the water quality objectives described in RWQCB Order No. 97-8, WDR for San Luis Obispo County Services Area 9.

Estero Area Plan

The Community of Los Osos is governed by the goals and policies set forth in the Estero Area Plan. The Estero Area Plan was adopted in 1980 and updated as the

LCP in 1988. Subsequently, the Area Plan was last updated in November 2004 and amended in July 2006. The Estero Area Plan encompasses approximately 71.5 square miles, and the plan area is consistent with the California Coastal Zone Boundary established by the California Coastal Act of 1976. In general, the plan area extends from Point Estero to the north (approximately 16.5 miles north of Los Osos) and Point Buchon to the south (approximately 3.3 miles south of Los Osos). The following are the two programs related to groundwater that are applicable to the LOWWP:

1. **Water Management.** Based on community initiation, the county Public Works Department should work with communities, property owners and the RWQCB to develop and implement a basin-wide water management program for Los Osos which addresses population levels in relation to water availability, groundwater quality, and the need for alternative reuse of recycled water plans.
2. **Alternative Water Sources.** Supplementary water such as reuse of recycled water and water from existing impoundments should be used to prevent overdraft of groundwater. New impoundments for recharging underground basins should be carefully considered along with other alternatives.

Local Coastal Plan

San Luis Obispo County has special tools available to implement the Local Coastal Program. The County adopted a Land Use Element and Land Use Ordinance system that has replaced typical general plan designations and zoning districts. The Coastal Plan Policies document states the policy commitment of San Luis Obispo County to implement the mandates of the Coastal Act. This policy document of the LCP is part of the Land Use Element of the County General Plan. Following is the groundwater policy under Policies for Coastal Watersheds that is applicable to the LOWWP.

Policy 1: Preservation of Groundwater Basins

The long-term integrity of groundwater basins within the coastal zone shall be protected. The safe yield of the groundwater basin, including return and retained water shall not be exceeded except as part of a conjunctive use or resource management program which assures the biological productivity of aquatic habitats are not substantially adversely impacted.

3.6.2 Environmental Consequences

Whether each septic tank is abandoned on site, or excavated and removed, the activity would not affect beneficial uses of any waters identified in the RWQCB Basin Plan, and a WDR permit would not need to be applied for and obtained from the RWQCB. Implementation of Best Management Practices (BMPs) and adherence to County requirements for septic tank removal and abandonment would result in the LOWWP not violating any water quality standards or WDR.

The LOWWP would require the burial of 235,000 linear feet of wastewater pipe. Once buried, these conveyances would not violate water quality standards or WDR except in the case of an inadvertent system malfunction such as a leak or spillage. Specific actions to address any such non-routine event would be outlined in a long-term operation and maintenance plan for the system, prepared in accordance with guidelines

and requirements of the San Luis Obispo County Storm Water Management Plan (SWMP).

Construction of 9 pump stations and 13 pocket pump stations would add approximately 0.75 acres of impermeable surface area. This would not result in the violation of water quality standards or WDR.

3.6.2.1 Impacts to Surface Water or Ground Water/Aquifers

With the implementation of the LOWWP, wastewater would no longer leach from the existing septic systems into the Los Osos groundwater basin. Additionally, recycled wastewater will be reused within the community or surrounding agricultural land overlying the groundwater basin. It will either be discharged through leach fields or directly reused for urban or agricultural irrigation. The reuse program will consist of the following:

- 50 acre-feet (AF) of storage at the treatment plant site;
- A recycled water main running from the treatment plant site, through the adjacent agricultural area, to reuse sites within the community;
- 8 acres of leach fields at the Broderson site, with an annual capacity of 450 AF;
- One acre of leachfields in the Bayridge Estates sub-division with an annual capacity of 33 AF;
- Recycled water service to schools, parks, golf course, and cemetery; and
- Recycled water main turn-outs to adjacent farmlands.

Recycled water will be returned directly to the upper aquifer at two leach field sites: the Broderson property and at the existing Bayridge leach field. The existing septic tanks in the Bayridge neighborhood would be abandoned or repurposed to collect rainwater and the leach field would be used for recycled water reuse instead of septic tank leachate. In addition, the County approved a suite of reuse options aimed at optimizing sea water intrusion mitigation. These reuse options include agriculture and urban re-use, as well as environmental reservations to handle the remainder of the recycled water depending on the season. Because of its key role in reducing seawater intrusion, the Broderson leach field is the primary recycled water reuse element. This treated recycled water flow projection also assumes that the County implements water conservation measures (refer to Section 3.6.2.3).

Approximately 1/3 of the recycled water would be placed at the Broderson site, primarily during the wet winter. During the summer, the majority of recycled water would be directed to urban and agricultural reuse (irrigation). Agricultural reuse is focused on existing irrigated lands that draw from the Los Osos groundwater aquifer. The Bayridge leach field would provide subsurface flows to Willow Creek to support existing willow riparian stands. New monitoring wells along with existing wells in the community will be used to track the movement and behavior of percolated water to maximize the efficiency of the site.

3.6.2.2 Potential for Increased Surface Runoff and Erosion During and After Construction

The LOWWP is subject to the provisions of the state General Permit for Discharges of

Storm Water Associated with Construction Activity (Construction General Permit 99-08-DWQ). Construction projects of greater than 1 acre require a National Pollutant Discharge Elimination System permit. This permit will require the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) for the LOWWP, and would serve to further minimize the chance of a substantial decrease in water quality as a result of construction activities. Construction activities must also comply with the stormwater control requirements outlined in a project specific Sedimentation and Erosion Control Plan, and must adhere to general guidelines outlined in the SWMP.

During construction of this system, BMPs would be implemented as required by the SWPPP and the Sedimentation and Erosion Control Plan to control storm water quality. To address runoff and erosion during and after construction, the Sedimentation and Erosion Control Plan includes the following measures:

- Incorporation of onsite runoff collection systems which includes energy dissipation, berms, temporary settling basins, and/or a silt/hydrocarbon separator for the collection and removal of hazardous materials and sediments.
- Incorporation of onsite drainage systems to collect runoff from all impervious onsite surfaces, including parking spaces, roads, and buildings. Discharges of greater than five feet per second may be attenuated for by being released through an energy dissipater or outlet.
- Collection of surface runoff at curbs, gutters, and drainage swales will be conveyed to an appropriate point of disposal.
- Possible incorporation of sub-surface drains to intercept seepage and convey it to an acceptable point of disposal.
- Revegetating portions of the site exclusive of paved areas as soon as reasonable after grading.
- Incorporating rain gutters and downspouts for buildings.
- Grading surfaces adjacent to buildings so that runoff is conveyed away from foundations and onto paved surfaces or underground collection pipes.

3.6.2.3 Impacts to Existing Water Supply

The annual groundwater outflow from the Los Osos area will be reduced by the LOWWP. Septic tanks in the wastewater service area currently discharge 1,237 acre feet of septage to the shallow groundwater annually. This represents approximately 28% of the flow into the groundwater under the service area. However, because it is discharged near the surface, approximately 90% of the septage flows out of the groundwater system and into Morro Bay and the ocean. Therefore, the current method of wastewater treatment and disposal results in the annual loss of 1,113 acre feet of groundwater. The LOWWP will collect the wastewater and return the recycled water to the groundwater system through the Broderson and Bayridge leachfields, and through replacing groundwater pumped for irrigation. Together with the water conservation program, the LOWWP reduces the annual groundwater outflow lost as a result of wastewater treatment to 339 acre feet (the volume of discharges at Broderson and Bayridge that does not percolate to the lower aquifers). This results in a net annual

benefit of 774 acre feet to the existing water supply. The 339 acre feet “lost” to the groundwater system will serve to maintain near surface water levels in wetlands located at the Bay front, mitigating any related biological impacts from collecting the septage in a centralized treatment system.

3.6.3 Mitigation

All impacts associated with drainage and surface water quality, groundwater quality, and water supply for the LOWWP were found to be not substantial, therefore no mitigation measures are required.

3.7 Coastal Resources

This section addresses any potential coastal resource concerns by describing the affected environment, environmental consequences and any potential mitigation measures that may be necessary to avoid or minimize any adverse effects caused by the LOWWP. The following sections also document the project’s compliance with the Coastal Zone Management Program.

3.7.1 Affected Environment

The majority of the elements of the LOWWP, including collection, treatment, and recycled water reuse lie within the California Coastal Zone, as established by the California Coastal Act. Treated bio-solids disposal will occur through trucking to off-site sanitary landfills or other permitted sites, none of which lie within the Coastal Zone.

Nationally, coastal areas and barrier systems often provide excellent wildlife habitat and protect inland areas from hurricanes and other storms. Many of the nation’s coastal areas are experiencing severe developmental pressures for residential, recreational and industrial use. Los Osos shares these conditions with other coastal areas in the nation. To address this condition Congress enacted laws to protect coastal areas.

The Coastal Zone Management Act of 1972 (CZMA), as amended applies to all lands on the boundary of any ocean or arm thereof, and the Great Lakes. The Coastal Barrier Resources Act (CBRA) and the Coastal Barrier Improvement Act only apply to selected geographic areas designated as “Coastal Barrier Resources System (CBRS) Units.” At present such units have been established and delineated along the coasts of the Atlantic Ocean, Gulf of Mexico, and the Great Lakes. Proposed units have been identified but not designated along the coasts of States bordering the Pacific Ocean. Therefore, Los Osos is not within an established CBRS unit. At the same time, because the community (and the project) is removed approximately ¾ mile from the active surf line at its closest point, and is not located on a coastal barrier, it is not likely that the project site would be included in a CBRS unit in the future.

All proposals that are within coastal zone management areas must obtain a “consistency determination”. Federal consistency is the CZMA’s requirement that federal actions that are reasonably likely to affect any land or water use or natural resource in a coastal zone be consistent with the enforceable policies of a coastal state's or territory's federally approved coastal management program (“state CMP” or “CMP”). Federal actions

include:

1. Direct federal actions - activities and development projects performed by a federal agency, or a contractor for the benefit of a federal agency; and
2. Indirect federal actions - activities not performed by a federal agency, but requiring federal permits or licenses or other forms of federal approval, and federal financial assistance to states and territories and local governments.

The objective is to ensure that federal agencies and applicants for federal approvals and funding adequately consider and comply with state CMPs.

3.7.2 Federal Consistency

In California, local agencies may prepare LCP for certification by the CCC. San Luis Obispo County's LCP was certified by the CCC in 1988. Certification transfers coastal zone management authority to the local jurisdiction. However, certain classes of projects remain subject to the review of the CCC on appeal. These classes include:

1. Development that is located between the sea and the first public road (as designated in the LCP)
2. Development within 100 feet of any wetland, estuary, or stream,
3. In a sensitive coastal resource area (as mapped or described in the LCP)
4. Development that is not designated as the principal permitted use by the LCP
5. Development of a major public works facility

Because of its size and location, the LOWWP is appealable to the CCC under each of the above criteria. Because the project is appealable to the CCC, and because the standard of review is the Certified LCP, it is essentially not possible for a project that is not consistent with the California Coastal Management Plan to be approved.

As required by the LCP, San Luis Obispo County applied for a CDP in January of 2009. That permit was considered by the County Planning Commission at ten public hearings beginning on April 23, 2009 and concluded in July 2009 with findings supporting the conclusion that the project is consistent with the certified LCP. The Planning Commission's decision was appealed to the San Luis Obispo County Board of Supervisors. In September 2009 and November 2009, the Board of Supervisors, after consideration of the appeals, found the project consistent with the certified LCP and issued a CDP. That decision was appealed to the CCC in December 2009.

Concurrent with the CCC scheduling consideration of the appeals in January 2010, the County filed a request for a consistency determination with the CCC's Federal Consistency Office. In response, the CCC issued a jurisdiction letter on January 25, 2010 (Appendix C, p. C-107). According to the January 25, 2010 letter:

"The CCC declines to assert federal consistency over USDA's proposed federal funding for this project at this time. This determination is based on several factors. While the project initially received a locally-issued CDP (CDP) from San Luis Obispo County, this CDP was appealed to the

CCC. On January 16, 2010, [sic] the Commission determined that a substantial issue was raised by the appeal. Consequently, the final determination of the project’s consistency with the California Coastal Management Program will not occur until the Commission takes further action on the CDP. Nevertheless, for purposes of related federal consistency review of the federal agency (USDA) continuing to fund the project, we have determined that the funding decision may appropriately be separated from and may precede the final CDP action, and that the ultimate CDP action will fully address any issues raised over the project’s protection of coastal resources and consistency with the CCMP”

The project is considered consistent with the California Coastal Management Program for federal funding purposes and the Commission’s final decision on the CDP will, by definition, confirm this finding.

3.8 Socio-Economic Issues/Environmental Justice

This section addresses any potential socio-economic and environmental justice concerns by describing the affected environment, environmental consequences and any potential mitigation measures that may be necessary to avoid or minimize any effects caused by the LOWWP. The completed form RECD 2006-38, “Civil Rights Impact Analysis Certification” is attached in Appendix C, C-109.

3.8.1 Affected Environment

This section addresses affected environmental resources associated with socio-economic issues and environmental justice.

3.8.1.1 Socio-Economic Issues

According to 2007 demographic data for Los Osos, 14,635 residents live within the Community of Los Osos. Income levels based on Federal Housing and Urban Development Department standards are defined as: very low income (up to \$20,200), lower income (from \$20,200 to \$32,300), median income (from \$32,400 to \$40,400), and moderate income (\$40,500 to \$48,500). Minority individuals are considered members of those races that are non-white. Table 3.8-1 shows the demographic data for the community. As shown, households with low incomes represent 24.6 percent of the community, while minority populations represent 15.6 percent of the community.

Table 3.8-1 Demographic Information for the Community of Los Osos.

Income		Race	
Low	Moderate/High	White	Minority
24.6%	75.4%	88.4%	15.6%
Note: 3.5 mile radius encompassing and centered on the residential component of the community, based on County of San Luis Obispo Interactive GIS Mapping 2007			

3.8.1.2 Environmental Justice

Environmental justice deals with the inequitable environmental burden borne by groups such as low income and minority populations. Environmental Justice is defined in California law (Government Code Section 65040.12) as “the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws and policies.”

According to the EPA, “Fair Treatment means that no group of people, including racial, ethnic, or socioeconomic groups should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal environmental programs and policies. Meaningful involvement means that: (1) potentially affected community residents have an appropriate opportunity to participate in decisions about a proposed activity that will affect their environment and/or health; (2) the public’s contribution can influence the regulatory agency’s decision; (3) the concerns of all participants involved will be considered in the decision-making process; and (4) the decision-makers seek out and facilitate the involvement of those potentially affected.”

Environmental justice addresses issues concerning whether a proposed project would expose minority or disadvantaged populations to proportionately greater risks or impacts compared to those borne by other individuals. Both statutory and common-law protections are legal authorities, which support environmental justice efforts.

A condition of environmental justice exists when “Environmental risks and hazards and investments and benefits are equally distributed with a lack of discrimination, whether direct or indirect, at any jurisdictional level; and when access to environmental investments, benefits, and natural resources are equally distributed; and when access to information, participation in decision making, and access to justice in environment-related matters are enjoyed by all.” An environmental injustice exists when “members of disadvantaged, ethnic, minority or other groups suffer disproportionately at the local, regional (sub-national), or national levels from environmental risks or hazards, and/or suffer disproportionately from violations of fundamental human rights as a result of environmental factors, and/or denied access to environmental investments, benefits, and/or natural resources, and/or are denied access to information; and/or participation in decision making; and/or access to justice in environment-related matters.”

3.8.1.3 Public Health and Safety

Wastewater in Los Osos is currently treated with individual on-site septic systems with leach fields or leach pits, and small neighborhood septic systems and leach fields. Although the RWQCB’s Basin Plan sets septic system density at no more than one system per acre, septic system densities in Los Osos often exceed nine (9) systems per acre, with some areas as high as twelve (12) systems per acre. In optimum soil conditions, at least 30 feet of soil separation between the bottom of the leach field and groundwater is required; in Los Osos, many systems are installed with the leach field or leach pit in contact with groundwater. Owing to the unique geology of the community, wet winter seasons result in persistent flooding of low-lying areas within dune sags. Stormwater runoff mixes with septic system leachate and pools at the surface in residential neighborhoods.

3.8.2 Environmental Consequences

This section addresses environmental consequences associated with socio-economic issues and environmental justice.

3.8.2.1 Socio-Economic Issues

The project’s collection system will be placed throughout the portion of the community that will receive wastewater collection services. Consequently, the environmental effects will fall equally on all residents in the service area. Two larger components, the wastewater treatment facility and Broderson leach field may have additional effects on nearby populations.

The Giacomazzi site will contain the new wastewater treatment plant. Because of the size of surrounding parcels, the Interactive GIS Mapping system was unable to provide demographic data at a 0.5 mile radius. The nearest distance that demographic data was available was 1.2 miles. According to the demographic data for 2007, 1,240 residents live within the affected area. As shown in Table 3.8-2, households with low incomes represent 27.8 percent of the potentially affected area, while minority populations represent 3.5 percent of the affected area.

Table 3.8-2 Demographic Information for Treatment Plant Site.

Location	Income		Race	
	Low	Moderate/High	White	Minority
Area Surrounding Treatment Plant (1)	27.8%	72.2%	96.5%	3.5%
Community of Los Osos (2)	24.6%	75.4%	88.4%	15.6%
(1) 1.2 mile radius surrounding the treatment plant site (2) 3.5 mile radius encompassing and centered on the residential component of the community, based on County of San Luis Obispo Interactive GIS Mapping 2007				

The Broderson site will contain the new subsurface leach field. Because of the number of small lots that are located north of the Broderson parcel, the Interactive GIS Mapping system provided demographic data for an area within a 0.5-mile radius of the parcel. According to the demographic data for 2007, 5,217 residents live within the affected area. As shown in Table 3.8-3, households with low incomes represent 25.1 percent of the affected area while minority populations represent 9.2 percent of the affected area.

Table 3.8-3 Demographic Information for Broderson Leach Field Site.

Location	Income		Race	
	Low	Moderate/High	White	Minority
Area Surrounding Broderson Site (1)	25.1%	74.9%	90.8%	9.2%
Community of Los Osos (2)	24.6%	75.4%	88.4%	15.6%
(1) 1.2 mile radius surrounding the Broderson leach field site (2) 3.5 mile radius encompassing and centered on the residential component of the community, based on County of San Luis Obispo Interactive GIS Mapping 2007				

As described above, there are low-income families and minorities that are located within the Community of Los Osos. The implementation of the Project would require a substantial financial investment. This financial investment would be borne by all families that are located within the RWQCB PZ, established by the Regional Board in 1989. The financial investment required by the various families within the PZ will have different economic effects because there will be a greater effect on low-income families compared with moderate and high-income families. In contrast, the response to the proposition 218 assessment vote (80% support) indicates a willingness on the part of the community to fund the development of a wastewater project. To address economic effects, the Project will take advantage of grants and low-interest loan programs including the SRF, the USDA Rural Utilities Program, grants through the Federal Water Resources Development Act and others.

3.8.2.2 Environmental Justice

Collection System

The installation of the collection system would occur throughout the majority of the Community of Los Osos within an area identified by the RWQCB as the PZ. The PZ is an area where there is a discharge moratorium that has effectively halted new construction or major expansions of existing development since the moratorium was established in January 1988. Since the majority of the Community of Los Osos will experience environmental effects of the construction of the collection system, there would not be a disproportionate share of negative environmental effects on households with low income or a minority population; thus, no environmental justice impacts would occur associated with its construction and operation.

Treatment Plant

The treatment plant site is located on the Giacomazzi parcel. The demographic information in Table 3.8-2 shows that the area surrounding the treatment plant site includes 27.8 percent of households with low income, while the Community of Los Osos includes 24.6 percent of households with low income. Based on the comparison of the percentage of households with low income between these two study areas, the area surrounding the treatment plant site does not have a disproportionate percentage of households with low income compared with the Community of Los Osos. The construction and operation of the treatment plant would not disproportionately affect households with low income; therefore no environmental justice impacts would occur.

The demographic information in Table 3.8-2 also shows that the area surrounding the treatment plant site includes 3.5 percent of a minority population while the Community of Los Osos includes 15.6 percent of a minority population. Based on the comparison of the percentage of a minority population within these two areas, the area surrounding the treatment plant site does not have a disproportionate percentage of a minority population compared with the Community of Los Osos. The construction and operation of the treatment plant site would not disproportionately affect a minority population and no environmental justice impacts would occur.

Broderson Leach Field

The Broderson leach field site is an approximate 8 acre portion of a larger 72 acre parcel located to the south of the residential portion of the community. The demographic

information in Table 3.8-3 shows that the area surrounding the Broderson site includes 25.1 percent of households with low income, respectively, while the Community of Los Osos includes 24.6 percent of households with low income. Based on the comparison of the percentage of low-income households between the Broderson site and the Community of Los Osos, the area surrounding the leach field site does not have a disproportionate percentage of households with low income compared with the Community of Los Osos. Therefore, the construction and operation of the leach field would not disproportionately affect households with low income, and no environmental justice impacts would occur.

The demographic information in Table 3.8-3 also shows that the area surrounding the Broderson site includes 9.2 percent of a minority population, respectively, while the Community of Los Osos includes 15.6 percent of a minority population. Based on the comparison of the percentage of a minority population between the Broderson site and the Community of Los Osos, the area surrounding the leach field site does not have a disproportionate percentage of a minority population compared with the Community of Los Osos. Therefore, the construction and operation of the leach field would not disproportionately affect a minority population, and no environmental justice impacts would occur.

Combined Project Effects

Based on the findings described above for the collection system, treatment plant site, and leach field sites, the construction and operation of the Project would not disproportionately affect households with low income or a minority population; thus, no environmental justice impacts would occur.

3.8.2.3 Public Health and Safety

The current wastewater system poses an existing public health and safety impact. Currently all wastewater is handled through individual septic tanks of various ages and states of repair. Consequently, a key purpose of the LOWWP is to alleviate current threats to the domestic water supply, reduce frequent flooding, and comply with RWQCB discharge prohibition orders.

Grading and construction activities associated with constructing the project may involve limited transport, storage, usage, or disposal of hazardous materials, such as the use of petroleum products for fueling/servicing of construction equipment. This activity would occur for short-term periods during the construction of the facilities associated with the collection system, treatment plant site, and recycled water reuse sites. This short-term activity would be subject to federal, state, and local health and safety requirements. The fueling and servicing of construction equipment would cease upon project completion and all such hazardous materials would be removed from the project site and disposed of pursuant to applicable federal, state and local regulations. Because the construction activities are required to comply with the applicable regulations and laws pertaining to the transport, storage, use, and disposal of potentially hazardous materials associated with the project, health hazards from construction activities would be not be substantial.

Past uses of pesticides and chemicals associated with agricultural operations can leave measurable residues in soils. The treatment plant site has been used for agricultural purposes in which agricultural chemicals could have been used. Therefore, there is a

risk from the possible past application of chemicals to the sites. This risk is addressed through standard pre-construction testing to ensure safe levels of chemicals, and if necessary, remediation before work begins.

During operation, the Project would use extended aeration secondary treatment. Treatment and storage facilities would be located at the Giacomazzi site, east of the community. Because of its relatively smaller footprint than the facultative pond alternatives, the extended aeration treatment basins have a reduced risk of structural failure. Because the proposed project also includes a gravity collection system, the extended aeration treatment process would reduce nitrogen without the need for supplementary carbon, including methanol.

Operation and maintenance of the treatment facility would include the storage, handling, and use of such hazardous materials as sodium hydroxide, which is corrosive and can cause severe irritation to eyes, skin, and mucous membranes and sodium hypochlorite, which can result in a pronounced irritant effect and may cause severe burns to skin and eyes. However, the application of standard handling and storage safety protocols will reduce any potential impacts from hazardous materials..

Although unlikely, there is a potential for the proposed collection system piping to experience a break and result in an accidental release of raw wastewater. Potential accidental releases could occur within streets or at creek crossings. Untreated wastewater is considered hazardous, however, operational plans will include spill response and mitigation measures that will serve to mitigate and respond to spills and overflows.

3.8.2.4 Public Outreach

San Luis Obispo County held a series of local public meetings on the project beginning in 2006. The Board of Supervisors placed the project on their public meeting agenda on a weekly basis for all of 2007, monthly through 2008, and at least quarterly through 2009. The project's Technical Advisory Committee, a citizen group appointed by the Board of Supervisors, held 35 community meetings from January to December 2007 to review project issues ranging from GHG emissions to alternative treatment systems. Two CEQA scoping meetings were held in the community in 2007, with additional updates presented at the LOCSD and Los Osos Citizens' Advisory Committee meetings. The majority of these meetings were recorded and repeated on the local public television station. The County also held three Town Hall meetings (two evenings and one Saturday) on December 18, 2006, June 19, 2007, and November 19, 2008. In addition, five project information brochures were developed for various aspects of the project and mailed to the community, and two separate public opinion surveys were conducted. These local hearings and meetings, some 100 in all, culminated in a series of ten County Planning Commission hearings (including two field trips) beginning in February 2009 with a Planning Commission Study Session and culminating in July of 2009.

A project website was established in 2006 to post documents and announcements related to the project. In 2008 the website was expanded to include all information related to the environmental review process. In 2009, an interactive Blog was established to focus on potential USDA funding opportunities, and to respond to questions and comments about project funding, as well as general project updates.

The project was also subject to the public review process associated with the EIR and CDP. As noted above, the public was invited to participate in the CEQA scoping process through two public meetings and the public review Draft EIR comment period was extended from a statutory 45 days to 72 days. The County Planning Commission's consideration of the CDP invited both written and verbal comments throughout the 10 meetings and hearings. In addition, the County Board of Supervisors held a public hearing on September 29, 2009 to consider both the EIR and CDP.

3.8.3 Mitigation

The Project would not disproportionately affect a significant minority and/or low-income populations, therefore, no mitigation actions are required.

3.9 Air Quality

This section provides an analysis of air quality based on extensive analysis performed in the Expanded Air Quality Analysis found in Appendix K-1 of the Final EIR for the LOWWP (March 2009). The analysis utilized an air quality and climate change report prepared for the LOWWP as well as various other resources. Without mitigation, various aspects of the LOWWP have the potential to substantially affect air quality. However, through implementation of the mitigation measures listed in section 3.9.3, project effects will be reduced to less than substantial levels.

3.9.1 Affected Environment

The County of San Luis Obispo is within the South Central Coast Air Basin which is comprised of three district subbasins: the Coastal Plateau, the Upper Salinas River Valley and the East County Plain. The LOWWP is located in the Coastal Plateau region. The local Mediterranean climate influenced by the Pacific Ocean, local winds and topography play a key role in the movement of air pollutants in the Los Osos area. Local temperature inversions can trap air pollutants for periods of time within the air basin, raising levels of criteria pollutants. Air quality in the area is largely influenced by vehicle emissions and the Morro Bay Power Plant. Local air emissions primarily include vehicle exhaust from local highways (State Highway 1), agricultural vehicles and local traffic.

Criteria Pollutants

The Federal Clean Air Act (CAA) establishes public health-based air quality standards. In addition, the state has also developed air quality standards. Table 3.9-1 summarizes federal and state ambient air quality standards identified in the CAA for criteria pollutants. The San Luis Obispo County Air Pollution Control District (SLOAPCD) regulates air emissions within the county.

According to the EPA Region 9 website (EPA 2009), the project area is located in an attainment/unclassified area based on the National Ambient Air Quality Standards (NAAQS). Therefore, federal conformity requirements and State Implementation Plan requirements do not apply. However, the Federal Air Conformity Rule de minimis thresholds are addressed below in the Environmental Consequences section. In addition, the LOWWP is located in a nonattainment area for the state standard for Ozone (O₃) and airborne particulate matter less than 10 microns in diameter (PM₁₀). For

more detailed information regarding state and SLOAPCD standards, please reference the project EIR.

The project site is currently subject to localized, short-term increases in PM₁₀ and Sulfur Dioxide (SO₂) emissions due to operation of the Morro Bay Power Plant, located approximately 5 miles northwest of the project site, as well as the contribution of vehicle exhaust emissions from State Highway 1, located approximately 3 miles north and northeast of the project site. There are no major sources of NAAQS criteria pollutants in the project area.

Table 3.9-1 Ambient Air Quality Standards and Attainment Status

Criteria Pollutant	Federal Standard (National Ambient Air Quality Standards)	Federal Attainment Status	State Standard	State Attainment Status
Ozone (O ₃)	0.08 ppm (8-hour avg.)	Unclassifiable/ Attainment	0.09 ppm (1-hour avg.) 0.070 ppm (8-hour avg.)	Nonattainment
Carbon monoxide (CO)	35 ppm (1-hour avg.) 9 ppm (8-hour avg.)	Unclassifiable/ Attainment	20 ppm (1-hour avg.) 9 ppm (8-hour avg.)	Attainment
Nitrogen dioxide (NO ₂)	0.053 ppm (annual avg.)	Unclassifiable/ Attainment	0.18 ppm (1-hour avg.) 0.030 ppm (annual avg.)	Attainment
Sulfur dioxide (SO ₂)	0.5 ppm (3-hour avg.) 0.14 ppm (24-hour avg.) 0.030 ppm (annual avg.)	Unclassifiable	0.25 ppm (1-hour avg.) 0.04 ppm (24-hour avg.)	Attainment
Particulate matter (PM ₁₀)	150 µg/m ³ (24-hour avg.)	Unclassifiable	50 µg /m ³ (24-hour avg.) 20 µg/m ³ (annual avg.)	Nonattainment
Particulate matter (PM _{2.5})	35 µg/m ³ (24-hour avg.) 15 µg/m ³ (annual avg.)	Unclassifiable/ Attainment	12 µg/m ³ (annual avg.)	Attainment
Lead (Pb)	1.5 µg/m ³ (Quarter avg.)	Attainment	1.5 µg/m ³ (30-day avg.)	Attainment
<p>Notes: µg/m³ = microgram/cubic meter; ppm = parts per million by volume Sulfates (SO₄⁻²), Hydrogen Sulfide (H₂S), Vinyl Chloride and Visibility Reducing particulates were not included in this table as they currently do not have a federal standard. Source: CARB 2006 (in MBA 2008).</p>				

3.9.2 Environmental Consequences

This section analyzes the impacts of the LOWWP on air quality. The analysis includes a discussion of short-term, long-term and cumulative impacts. Construction of the collection system and the facilities at the treatment plant site and recycled water reuse sites have the potential to substantially affect air quality. However, through implementation of the mitigation measures listed in section 3.9.3, effects will be reduced to less than substantial levels. Therefore, the project will not substantially affect air quality.

Short-term Impacts

During construction, the Proposed Action would result in increases of criteria pollutants, primarily Nitrates (NO_x) and Carbon Monoxide (CO) due to exhaust from construction vehicles, and PM₁₀ as dust from construction equipment (see Table 3.9-2). These short-term construction emissions would exceed established Federal thresholds of 10 tons per year for construction activities with respect to NO_x, PM₁₀ and CO, however with mitigation the additional inputs are expected to be less than substantial.

Long-term Impacts

Long-term operation of the collection system, treatment plant and recycled water reuse sites would be generated by employee commute and maintenance activities, and regular chemical deliveries. As shown in Table 3.9-2, the net resulting long-term emissions related to the LOWWP would not exceed Federal thresholds.

Table 3.9-2 Project Construction and Operational Emissions

Project Construction Emissions				
System	Source	Tons Per Year		
		CO	NOx	PM₁₀
Collection	On-road	1.64	3.68	0.12
	Off-road	16.8	35	3.12
	Fugitive	-	-	23.08
Conveyance	On-road	0.52	0.64	0.00
	Off-road	0.80	1.72	0.16
	Fugitive	-	-	5.44
Treatment	On-road	1.04	0.16	0.00
	Off-road	14.88	36.52	1.84
	Fugitive	-	-	11.16
Reuse of Recycled Water	On-road	0.88	3.16	0.08
	Off-road	8.08	19.04	0.56
	Fugitive	-	-	18.72
TOTAL		44.64	99.92	64.28
Exceeds 10 tons per year Federal Air Conformity Rule de minimis threshold		Yes	Yes	Yes
Project Operational Emissions				
Collection	-	0.23	0.05	0.002
Conveyance	-	0.09	0.01	0.00
Treatment	-	0.45	1.83	0.06
Reuse of Recycled Water	-	0.00	0.00	0.00
TOTAL		0.77	1.89	0.062
Current Operations		0.210	1.011	0.027
NET DIFFERENCE		0.560	0.879	0.035
Exceeds 10 tons per year Federal Air Conformity Rule de minimis threshold		No	No	No
Source: MBA 2008.				

3.9.3 Mitigation

Short-term project impacts have the potential to exceed Federal thresholds, therefore the following mitigation measures are required as part of construction implementation to reduce these effects to less than substantial levels.

3.9-1 [5.9-C1] Prior to initiation of construction, the County will submit a Construction Activities Management Plan for the review and approval of the SLOAPCD. This plan

will include but not be limited to the following Best Available Control Technologies for construction equipment:

- a. Minimize the number of large pieces of construction equipment operating during any given period.
- b. Schedule construction related truck/equipment trips during non-peak hours to reduce peak-hour emissions.
- c. Properly maintain and tune all construction equipment according to manufacturer's specifications.
- d. Fuel all off-road and portable diesel powered equipment including but not limited to: bulldozers, graders, cranes, loaders, scrapers, backhoes, generators, compressors, auxiliary power units, with CARB motor vehicle diesel fuel.
- e. Use 1996 or newer heavy duty off road vehicles to the extent feasible.
- f. Use Caterpillar pre-chamber diesel engines (or equivalent) together with proper maintenance and operation to reduce emissions of NO_x.
- g. Electrify equipment where possible.
- h. Use Compressed Natural Gas (CNG), liquefied natural gas (LNG), biodiesel, or propane for on-site mobile equipment instead of diesel- powered equipment.

3.9-2 [5.9-C2] Prior to initiating grading activities, the project will:

- a. Include the following specifications on all project plans: One catalyzed diesel particulate filter (CDPF) will be used on the piece of equipment estimated to generate the greatest emissions. If a CDPF is unsuitable for the potential equipment to be controlled, five diesel oxidation catalysts will be used.
- b. Identify equipment to be operated during construction as early as possible in order to place the order for the appropriate filter and avoid any project delays. This is necessary so that contractors bidding on the project can include the purchase, proper installation, and maintenance costs in their bids.
- c. Contact the SLOAPCD Compliance Division to initiate implementation of this mitigation measure at least two months prior to start of construction.

3.9-3 [5.9-C3] Prior to initiating grading activities, if it is determined that portable engines and portable equipment would be utilized, the contractor will contact the SLOAPCD and obtain a permit to operate portable engines or portable equipment, and will be registered in the statewide portable equipment registration program. The SLOAPCD Compliance Division will be contacted in order to determine the requirements of this mitigation measure.

3.9-4 [5.9-C4] Project contract documents will include the following dust control measures:

- a. Reduce the amount of the disturbed area where possible,
- b. Use water trucks or sprinkler systems in sufficient quantities to prevent airborne dust from leaving the site. Increased watering frequency will be required whenever wind speeds exceed 15 mph. Recycled (non-potable) water should be used whenever possible.
- c. All dirt stockpile areas will be sprayed daily as needed.
- d. Permanent dust control measures identified in the revegetation and landscape plans will be implemented as soon as possible following completion of any soil disturbing activities.
- e. Exposed ground areas that are planned to be reworked at dates greater than one month after initial grading will be sown with a fast germinating native grass seed and watered until vegetation is established.
- f. All disturbed soil areas not subject to revegetation will be stabilized using approved chemical soil binders, jute netting, or other methods approved in advance by the SLOAPCD.
- g. All roadways, driveways, sidewalks, etc. to be paved will be completed as soon as possible. In addition, building pads will be laid as soon as possible after grading unless seeding or soil binders are used.
- h. Vehicle speed for all construction vehicles will not exceed 15 mph on any unpaved surface at the construction site.
- i. All trucks hauling dirt, sand, soil, or other loose materials are to be covered or will maintain at least two feet of freeboard (minimum vertical distance between top of load and top of trailer) in accordance with California Vehicle Code Section 23114.
- j. Install wheel washers where vehicles enter and exit unpaved roads onto streets, or wash off trucks and equipment leaving the site.
- k. Sweep streets at the end of each day if visible soil material is carried onto adjacent paved roads. Water sweepers with recycled water should be used where feasible.
- l. If visible emissions of fugitive dust persist beyond a distance of 200 feet from the boundary of the construction site, all feasible measures will be implemented to eliminate potential nuisance conditions at off-site receptors (e.g., increase frequency of watering or dust suppression, install temporary wind breaks where appropriate, suspend excavation and grading activity when winds exceed 25 mph).
- m. The contractor will designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of

dust offsite. Their duties will include holidays and weekend periods when work may not be in progress. The name and telephone number of such persons will be provided to the SLOAPCD prior to the start of construction.

3.9-5 [5.9-C5] If the above mitigation measures do not bring the construction emissions below the thresholds, off-site mitigation funds can be used to secure emission reductions from projects located in close proximity to this construction site. In this instance, emissions in excess of construction phase thresholds are multiplied by the cost effectiveness value defined in the State's current Carl Moyer Incentive Program Guidelines to determine the off-site mitigation amount associated with the construction period. Examples of off-site emission reduction measures are contained in Section 5.9 of the 2003 CEQA Air Quality Handbook. The actual mix of mitigation measures that will be required to meet the reduction in NO_x to less than a total of 185 pounds (lbs) per day or 6.0 tons per quarter over the term of construction will be finalized and mutually agreed to by the Applicant and appropriate staff of the SLOAPCD at the earliest feasible time, with the goal of reaching agreement prior to commencement of construction of the project.

3.10 Location to Other Formally Classified Lands

No Formally Classified Lands were identified within the project area. State and local agency parklands as well as natural preserves are located adjacent to some of the project facilities. No Formally Classified Lands will be affected by the project directly. Adjacent state and local agency parklands as well as natural preserves should not be indirectly affected since the LOWWP will be limited to serving existing uses and will be maintained within existing right of ways and utility corridors. The project is in a Coastal Zone Management Area, as discussed in detail in section 3.7 of this document.

3.11 Miscellaneous Issues

Several miscellaneous environmental-issue areas: Geology, Traffic and Circulation, Noise and Visual/Aesthetic Resources, are addressed in the project's EIR (see sections 5.4, 5.8, 5.10 and 5.12, respectively). This section addresses the project's effect on local power supply.

3.11.1 Energy

The LOWWP includes a conventional gravity collection system with thirteen "pocket" pump stations (with one horsepower pumps) and nine duplex and triplex pump stations (with pump horsepower ranging from 3 hp to 75 hp). The location, size, and power requirements of the project are identical to those with the previous LOCSD project, with the exception of the Mid-Town pump station, which will be located at the LOCSD's previously proposed treatment plant site.

The treatment facility will be located at the Giacomazzi property (APN 067-011-022), located north of the Los Osos cemetery. The facility will include a 1.1 mgd extended aeration secondary treatment process, tertiary filtration, ultraviolet disinfection, sludge processing, and recycled water pump station. Electrical power requirements are estimated to require an approximate 2,200 amp service and 1,800 KVA connected load.

Pacific Gas and Electric is the regulated power utility company in San Luis Obispo County. They previously coordinated with the LOCSD to provide electrical service to the same collection system layout and the Mid-Town site with their existing distribution system. The distribution system is fed by a 21,000 KVA transmission line from a sub-station near San Luis Obispo. The currently proposed treatment facility at the Giacomazzi property has similar power requirements to the LOCSD's facility and is located in close proximity to the main transmission line.

Pacific Gas and Electric facility planning engineers have confirmed that the proposed project can be served by their existing facilities with no adverse impacts to the local electrical power system.

3.12 Cumulative Effects

Federal Regulations implementing NEPA (40 CFR 1508.7) define a cumulative effect (cumulative impact) as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-federal) or person undertakes such other actions." The following sections identify and describe potential cumulative effects that could result from the LOWWP in combination with other past, present, or reasonably foreseeable future human actions or natural events near the Los Osos area. These other actions and events are called *external actions* because they take place independently from the Project. By considering external actions that could interact with the Project, the cumulative effects analysis allows potential unintended consequences of the Project to be identified.

The cumulative effect analysis for the Project includes:

- Definition of spatial (geographic) and temporal (time frame) boundaries of the analysis.
- Identification of past, present and reasonably foreseeable actions that could produce additive or synergistic environmental effects when combined with potential direct or indirect impacts of the Project.
- Description and discussion of potential cumulative effects of the Project on the physical, biological and human environments.

For the purposes of the cumulative effects analysis, the geographic area taken into consideration is the area within the mapped coastal zone that drains to Morro Bay, and includes projects known north and south within seven miles of the project along the coast. Secondary effects of Project implementation are also considered, including future build-out of the community.

Detailed cumulative impact analyses for each issue area are also provided in the Project EIR in Section 5, Project and Cumulative Impacts, and the Expanded Sections for each issue area within Appendices C through O (see included discs).

3.12.1 Past, Present and Reasonably Foreseeable Future External Actions

Related projects within the cumulative project area are detailed in Table 12.1 and Exhibit 12-1. Three of the ten related projects (Los Osos CSD Waterline Replacement, Los Osos Valley Road Palisades Storm Drain, and AT&T Cable) physically overlap with the study area for the Project but are either completed or expected to be completed by the time that construction of the Project is anticipated to begin. Six of the ten related projects (State Park Marina Renovation, Morro Bay Wastewater Treatment Plant, Dredging of Morro Bay, CMC Wastewater Treatment Plant, Phase II Steam Generator Replacement at Diablo, and Spent Fuel Storage Facility at Diablo) have no physical overlap with the Project. The two related Diablo projects are in fact nearly 7 miles south of Los Osos. Future build-out of the community is also listed.

Table 12-1 Los Osos Wastewater Project-Cumulative Projects

#	Project Name	Description
1	Morro Bay Wastewater Treatment Plant	Planned upgrade of the Morro Bay Wastewater Treatment Plant; construction for this project could overlap with the construction phase of the Los Osos Wastewater Project.
2	California Men’s Colony (CMC) Wastewater Treatment Plant	Completed wastewater treatment plant; experiencing ongoing water quality violations in discharge to Chorro Creek, which drains to the Marina and Morro Bay.
3	Los Osos Community Services District Waterline Replacement	Waterline replacement project recently completed. Some streets undergoing waterline replacement will also receive wastewater collection pipelines as part of the Los Osos Wastewater Project.
4	Los Osos Valley Road Palisades Storm Drain	Storm drain project completed by the County of SLO, extending approximately 0.13 miles west from Bush Drive to Palisades Avenue under Los Osos Valley Road. This project was completed in 2009.
5	AT&T Cable	Completed AT&T Cable project, installing cable generally in the right-of-way for Los Osos Valley Road.
6	Diablo Canyon Nuclear Power Plant – Phase II Steam Generator Replacement	PG&E project to replace steam generators at Diablo Canyon Nuclear Power Plant, completed in 2009.
7	Diablo Canyon Nuclear Power Plant – Spent Fuel Storage Facility	PG&E project to build a spent fuel storage facility at Diablo Canyon Nuclear Power Plant. No major construction associated with this project is expected for several years.
8	Morro Bay Harbor Entrance Dredging	US Army Corps of Engineers 6-year project, currently underway, to dredge the harbor entrance.
9	State Park Marina Renovation	City of Morro Bay project to renovate the existing marina in Morro Bay. Timing is currently unknown.
10	Future Build-out of Los Osos	Future build-out includes a projected population increase of 10 to 15%. Build-out is conditioned on the development of a community wide HCP and Water Management Plan.

3.12.2 Cumulative Effects on the Physical Environment

Air Quality

Cumulative effects to air quality would result primarily from construction vehicle exhaust and fugitive dust emissions during site preparation and construction activities. These temporary increases in NO_x, PM₁₀, and CO during construction would be cumulative with similar emissions from nearby construction projects and permanent facility operations; however with the mitigation incorporated into the project, cumulative emissions are expected to be less than substantial.

Groundwater and Water Quality

Overall beneficial effects to groundwater and water quality are expected as a result of project implementation. Wastewater would no longer leach from the existing septic systems into the Los Osos groundwater basin. Additionally, recycled wastewater will be reused within the community or surrounding agricultural land overlying the groundwater basin. It will either be discharged through leach fields or directly reused for urban or agricultural irrigation.

Recycled water will be returned directly to the upper aquifer at two leach field sites: the Broderson property and at the existing Bayridge leach field. The existing septic tanks in the Bayridge neighborhood would be abandoned or repurposed to collect rainwater and the leach field would be used for recycled water reuse instead of septic tank leachate. In addition, the Project includes a suite of reuse options aimed at optimizing sea water intrusion mitigation. These reuse options include agriculture and urban re-use, as well as environmental reservations to handle the remainder of the recycled water depending on the season. Because of its key role in reducing seawater intrusion, the Broderson leach field is the primary recycled water reuse element. This treated recycled water flow projection also assumes that the County implements water conservation measures (refer to Section 3.6.2.3).

The annual groundwater outflow from the Los Osos area will be reduced by the LOWWP. Septic tanks in the wastewater service area currently discharge 1,237 acre feet of septage to the shallow groundwater annually. This represents approximately 28% of the flow into the groundwater under the service area. However, because it is discharged near the surface, approximately 90% of the septage flows out of the groundwater system and into Morro Bay and the ocean. Therefore, the current method of wastewater treatment and disposal results in the annual loss of 1,113 acre feet of groundwater. The LOWWP will collect the wastewater and return the recycled water to the groundwater system through the Broderson and Bayridge leach fields, and through replacing groundwater pumped for irrigation. Together with the water conservation program, the LOWWP reduces the annual groundwater outflow lost as a result of wastewater treatment to 339 acre feet (the volume of discharges at Broderson and Bayridge that does not percolate to the lower aquifers). This results in a net annual benefit of 774 acre feet to the existing water supply. The 339 acre feet "lost" to the groundwater system will serve to maintain near surface water levels in wetlands located at the Bay front, mitigating any related biological impacts from collecting the septage in a centralized treatment system. Consequently, the Project's effects on groundwater, water quality, and water supply are overwhelmingly beneficial.

Of the ten projects in the cumulative list (Table 12.1 above) eight would have no effect on groundwater, water quality, or water supply, one already completed project, the Los Osos Community Services District Waterline Replacement, resulted in beneficial effects by reducing leaks, and one, the build-out of the community, has the potential for negative effects. Two factors combine to ensure that no substantial cumulative effects will occur to groundwater, water quality, or water supply resources. First, the wastewater project has been conditioned to provide service only to existing development unless and until a long-term water management plan is developed and incorporated into the Local Coastal Plan. Second, the wastewater project will provide substantial benefits in terms of these resources, which, given the magnitude of positive changes, would tend to mitigate any minor negative effects from future development. Therefore, the Project would not negatively contribute to cumulative effects to groundwater and water quality.

Floodplains

The Project could ultimately facilitate an increase in population and housing within the service area, a portion of which borders the 100-year floodplain of Morro Bay. However, all new development must comply with FEMA regulations for building in floodplains. Additionally, there are few, if any, buildable lots in the 100 year floodplain of the Prohibition Zone (Figure 3.2-1). Therefore, the Project would result in no cumulative impacts related to floodplains.

3.12.3 Cumulative Effects on the Biological Environment

Federally-listed Species

No projects listed in Table 12.1 have affected or have the potential to affect the federally-endangered Morro shoulderband snail except for future impacts related to the build-out of the Prohibition Zone. The only project in this analysis that has or could negatively affect steelhead trout is the on-going operational issues at the California Men's Colony water treatment plant. Both USFWS and NMFS have provided consultation for this project. Their cumulative effects analyses are provided below.

USFWS (2010) regarding the Morro shoulderband snail:

“Based upon the analysis in the previous biological opinion for the LOSCD wastewater project, we expect the CRWQCB to remove the building moratorium established by Resolution 83-13 when the proposed wastewater project is operational. This lifting of the moratorium would likely result in the build-out of those vacant lots that remain within the wastewater service area. Approximately 125 acres of degraded and fragmented Morro shoulderband snail habitat could be removed within this area as a result of the anticipated build-out. The wastewater service area consists primarily of parcels (approximately 500) that are less than 1 acre in size. These small parcels contain an estimated 25 acres of fragmented and degraded Morro shoulderband snail habitat. The remaining 40 or so lots within the wastewater service area that are greater than 1 acre in size contain approximately 100 acres of Morro shoulderband snail habitat that is, for the most part, also fragmented and degraded. None of the parcels in the wastewater service area are within designated critical habitat for the Morro shoulderband snail or identified in the recovery plan as important for the recovery of this species (Service 1998b).”

The County is developing a Habitat Conservation Plan to address development both inside and outside the sewer service area. Other covered activities that could be addressed in the plan include maintenance activities, hazardous fuels reduction, and facility development. We anticipate the County will seek authorization for incidental take of the Morro shoulderband snail pursuant to section 100(a)(1)(B) of the Act...After reviewing the status of the Morro shoulderband snail and its critical habitat, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that construction of the LOWWP, as proposed, is not likely to jeopardize the continued existence of the Morro shoulderband snail or destroy or adversely modify critical habitat for the Morro shoulderband snail."

Implementation of the LOWWP mitigation measures and development of a community-wide HCP would lessen cumulative effects to less than substantial levels.

NMFS (2010) regarding steelhead trout:

"With regard to potential population-inducing effects on steelhead and designated critical habitat, the new wastewater system is expected to support an increase in population of about 10-15%, but only within areas that drain to Morro Bay, not Los Osos Creek. While Morro Bay is an important estuarine area for steelhead, any new development will be limited to small parcels at locations that are already designated throughout the community. Because the parcels are small in size and already exist in an urbanized area, development of the parcels is not anticipated to significantly alter runoff patterns or increase contaminants in runoff above existing levels. Furthermore, any development will be required to follow Low Impact Development measures designed specifically to protect and improve urban storm-water quality. Therefore overall growth attributed to the project is not expected to noticeable impact steelhead or critical habitat in Morro Bay."

The LOWWP, in combination with the future build-out of the community, would not yield cumulatively adverse effects, as no foreseeable effects to steelhead trout are anticipated.

Wetlands

Of the projects considered for the cumulative impacts analysis, none were determined to have considerable effect on federally protected wetlands. The LOWWP will not have any effect to federal wetlands; therefore, impacts are not cumulatively considerable.

3.12.4 Cumulative Effects on the Human Environment

Historic Properties

While it is not possible to predict all future impacts to cultural resources within the cumulative project area, all projects in the area are subject to local, State, and Federal requirements for identifying, avoiding, and mitigating impacts on historic properties. However, given the extensive distribution of historic and prehistoric resources throughout the cumulative project area, it is expected that cumulative impacts will occur. Therefore, because of the extent and distribution of the proposed Project, strict compliance with all statutes and regulations designed to protect these resources has been applied. Once construction of the treatment plant, collection pipelines, pump stations, and standby power facilities are completed, likely no additional substantial impacts would occur to cultural resources within the Project Area of Potential Effects from these aspects of the system.

Cumulative effects may include those resulting from the projects listed in Table 12.1, future maintenance and repairs to the conveyance system, and the installation of new connections due to the build-out of the community. Ongoing project maintenance and community build-out activities are all subject to the requirements of the Local Coastal Plan. The Local Coastal Plan contains strict requirements designed to ensure that impacts to historic resources are avoided where possible, and where unavoidable are fully mitigated. Cumulative projects located outside of the County's Local Coastal Plan jurisdiction such as the Morro Bay Wastewater Treatment Plant, Morro Bay Harbor Entrance Dredging, and State Park Marina Renovation are likewise subject to California Coastal Zone resource protection requirements of their respective jurisdiction(s). All of the projects on the cumulative list are located in existing disturbed and developed areas where, by definition, resources have already been compromised to some degree. Of the already completed projects, including the CMC Wastewater Treatment Plant, Los Osos Community Services District Waterline Replacement, Los Osos Valley Road Palisades Storm Drain, and AT&T Cable, cumulative impacts are minimal because of the lack of resources in some areas, the highly disturbed nature of resources in others, and the degree of mitigation applied to the individual projects. Future projects on the cumulative list will occur under similar circumstances and are expected to have similar effects.

The extent and distribution of the proposed Project is far larger than the other cumulative projects combined. Consequently, the degree to which the current project impacts historic resources will tend to govern the overall cumulative result. Because the proposed Project includes extensive mitigation, its effects on historic resources are not substantial, therefore, in combination with measures applied on an individual project basis, cumulative effects on historic resources will not be substantial. While not considered a mitigating factor, from a scientific perspective the field surveys, reporting, and analysis associated with the proposed Project should result in a much clearer understanding of cultural resources in the cumulative project area than what currently exists.

Farmland

The proposed Project would result in the direct and indirect loss of approximately 30 acres of agricultural land. Based on the USDA's Farmland Conversion Impact Rating form (Appendix C, p. C-2), the impacts to agricultural resources due to the Project are

not substantial. Of the ten projects in the cumulative list (Table 12.1 above), only one, the AT&T Cable project, is located in an agricultural area. However, because the cable was placed within existing County road right-of-way, no impacts to agriculture resources occurred. Build-out of the community will likewise not impact any land currently used for or designated for production agriculture. No negative secondary effects to agricultural resources have been identified from the Project or any of the projects on the cumulative list. To the extent that the Project provides irrigation water to existing agricultural uses, and the CMC Wastewater Project supports Chorro Creek, which also provides irrigation water to agricultural uses, the cumulative effects are considered beneficial.

Socio-Economic Issues/Environmental Justice Cumulative Impacts

The Project: (1) would not have adverse environmental impacts that are appreciably more severe in magnitude or predominately borne by households with low income or minority populations; and (2) would not conflict with any applicable environmental justice goals and policies of an agency with jurisdiction over the project. An overview of the ten projects on the cumulative list shows similar results: no disproportionate effects on key populations or conflicts with environmental goals or policies. Therefore, since the Project is not contributing towards a disproportionate effect on low-income and minority people and does not conflict with any applicable environmental justice goals and policies, and no such effects have been identified for the projects on the cumulative list, no substantial cumulative effects to socio-economic issues or environmental justice would occur.

This page blank

4 LIST OF PREPARERS

The individuals involved in the preparation or review of this Environmental Report are listed below:

Name	Title	Agency	Section
Kate Ballantyne	Environmental Resource Specialist	County of San Luis Obispo, Public Works Department	Historic Properties
Katie Drexhage	Environmental Resource Specialist	County of San Luis Obispo, Public Works Department	Water Quality
John Farhar	Environmental Resource Specialist	County of San Luis Obispo, Public Works Department	Important Farmland
Mark Hutchinson	Environmental Programs Manager	County of San Luis Obispo, Public Works Department	Purpose and Need, Alternatives to the Proposed Action, Socio-Economic Issues/ Environmental Justice, Coastal Resources, Cumulative Effects
Kelly Sypolt	Planner	County of San Luis Obispo, Public Works Department	Air Quality, Summary of Mitigation
John Waddell	Project Engineer	County of San Luis Obispo, Public Works Department	Energy
Eric Wier	Environmental Resource Specialist	County of San Luis Obispo, Public Works Department	Floodplains, Wetlands, Biological Resources Information

This page blank

5 REFERENCES

- Bulger, John B., Norman J. Scott, Jr., and Richard B. Seymour. 2003. Terrestrial Activity and Conservation of Adult California red-legged frogs *Rana aurora draytonii* in Coastal Forests and Grasslands. *Biological Conservation* 110:1. 10 pp.
- California Natural Diversity Data Base (CNDDB). 2008. RareFind 3 personal computer program. Data Base Record Search for Information on Threatened, Endangered, Rare, or Otherwise Sensitive Species of Morro Bay South and San Luis Obispo, California USGS Topographic Quadrangles. California Department of Fish and Game, Natural Heritage Division. Sacramento, California.
- _____. 2009. RareFind 3 personal computer program. Data Base Record Search for Information on Threatened, Endangered, Rare, or Otherwise Sensitive Species of Morro Bay South and San Luis Obispo, California USGS Topographic Quadrangles. California Department of Fish and Game, Natural Heritage Division. Sacramento, California.
- County of San Luis Obispo Coastal Zone Land Use Ordinance, Title 23 of the San Luis Obispo County Code. March 1988. County of San Luis Obispo.
- Cowardin, L.M., V. Carter, F. C. Golet, and E.R. LaRoe. 1979. *Classification of wetlands and deepwater habitats of the United States*. U.S. Fish and Wildlife Service, Washington D.C.
- Far Western Anthropological Research Group, Inc. n.d. *Archaeological Studies for the Wastewater Project, Los Osos, San Luis Obispo County, California*. Research report on hold per 2005 halt work order issued by the Los Osos Community Services District Board.
- Interactive GIS Mapping. 2007. County of San Luis Obispo. This information is located in Appendix C-2 of the LOWWP Draft EIR.
- Jones, D. and P. Mikkelsen. 2008. Archaeological Survey Report and Sensitivity Study for Proposed Projects and Alternatives for the Los Osos Wastewater Project, San Luis Obispo County, California. Far Western Anthropological Research Group, Inc., Davis, California. Submitted to Michael Brandman Associates, Irvine, California.
- _____. 2009. Supplemental Archaeological Report for the Preferred Project Evaluation - Los Osos Wastewater Project, San Luis Obispo County, California. Far Western Anthropological Research Group, Inc., Davis, California. Submitted to Michael Brandman Associates, Irvine, California.
- Jones, D., P. Mikkelsen, and W. Hildebrandt. 2010. Historic Properties Evaluation and Treatment Plan for the Los Osos Wastewater Project, San Luis Obispo County, California. Far Western Anthropological Research Group, Inc., Davis, California. Submitted to the County of San Luis Obispo Department of Public Works.

- JRP Historical Consulting. 2003. Inventory and Evaluation of Historic Architectural Resources in Los Osos, California. Submitted to Far Western Anthropological Research Group.
- _____. 2008. Historical Resources Inventory and Evaluation Report for the Los Osos Wastewater Treatment Facility, San Luis Obispo County, California. Submitted to Far Western Anthropological Research Group.
- Local Coastal Program Policy Document, A Portion of the San Luis Obispo County Land Use Element of the General Plan - Coastal Plan Policies. March 1988. County of San Luis Obispo.
- Los Osos Community Services District (LOCSD). 2005. Draft Los Osos Habitat Conservation Plan. Prepared by Crawford, Multari and Clark Associates. Available for Public Review at the Los Osos Community Services District.
- Michael Brandman Associates. 2008. Delineation of Jurisdictional Waters and Wetlands, Los Osos Wastewater Project, Los Osos, San Luis Obispo County, California. June 30, 2008.
- _____. 2008. Draft Environmental Impact Report, County of San Luis Obispo Los Osos Wastewater Project; Appendix K-1: Expanded Air Quality Analysis. Prepared for San Luis Obispo County of Public Works.
- _____. 2009. Final Environmental Impact Report, County of San Luis Obispo Los Osos Wastewater Project. Prepared for San Luis Obispo County Department of Public Works.
- Morro Bay National Estuary Program. 2009. "What is the MBNEP?" Accessed on November 30, 2009. <<http://www.mbnep.org/about/>>
- Morro Group. 2004. Los Osos Wastewater Disposal Project, Treatment Plant Area, Los Osos, California: Wetland Delineation Report. August 9, 2004.
- _____. 2004b. Los Osos Wastewater Disposal Project, Treatment Plant Area, Los Osos, California: Wetland Delineation Report. September 8, 2004.
- _____. 2005. Los Osos Wastewater Disposal Project, 4th Street at Pismo Avenue Area, Los Osos, California: Wetland Delineation Report. June 7, 2005.
- Moyle, Peter B. 2002. Inland Fishes of California. Revised Edition. University of California Press, Berkeley, California.
- National Marine Fisheries Service (NMFS). 2005. *Endangered and Threatened Species; Designation of Critical Habitat for Seven Evolutionarily Significant Units of Pacific Salmon and Steelhead in California; Final Rule*. Federal Register, Vol. 70, No. 170, September 2.
- _____. 2010. "Not Likely to Adversely Affect" determination for the Los Osos Wastewater Project, San Luis Obispo County, California. National Oceanic and Atmospheric Administration National Marine Fisheries Service, Southwest Region.

- The Land Use Element of the San Luis Obispo County General Plan - Estero Area Plan. - November 2004 and last amended November 2006, County of San Luis Obispo.
- United States Environmental Protection Agency (EPA). "Nonattainment Areas Map – Criteria Air Pollutants." 2009.
- <http://www.epa.gov/air/data/nonat.html?st~CA~California>. Accessed December 7, 2009.
- United States Fish and Wildlife Service (USFWS). 1998. Recovery plan for the Morro shoulderband snail and four plants from western San Luis Obispo County, California. U.S. Fish and Wildlife Service, Portland, Oregon. 75 pp.
- _____. 1998b. Draft recovery plan for the least Bell's vireo. U.S. Fish and Wildlife Service, Portland, OR. 139 pp.
- _____. 1999. Morro Bay Kangaroo Rat (*Dipodomys heermanni morroensis*) Draft Revised Recovery Plan. Portland, OR. 96 pp.
- _____. 2001. Final Determination of Critical Habitat for the Morro Shoulderband Snail (*Helminthoglypta walkeriana*). 50 CFR Part 17. Prepared by the U.S. Fish and Wildlife Service, Ventura California for the U.S. Fish and Wildlife Service, Portland, Oregon.
- _____. 2002. Southwestern Willow Flycatcher Recovery Plan. Albuquerque, New Mexico. i-ix + 210 pp. Appendices A-O
- _____. 2003. Biological opinion for field testing activities for the Los Osos Community Services District wastewater treatment facility, Los Osos, San Luis Obispo County, California (1-8-02-F-66). Ventura Fish and Wildlife Office, Ventura, California.
- _____. 2005. Biological Opinion for the Los Osos Wastewater Project, San Luis Obispo County, California (1-8-04-F-48). Ventura Fish and Wildlife Office, Ventura, California.
- _____. 2010. Biological Opinion for the Los Osos Wastewater Project, San Luis Obispo County, California (8-8-10-F-14). Ventura Fish and Wildlife Office, Ventura, California.
- Villablanca F. 2004. Morro Bay Kangaroo Rat Survey: Broderson and Tri-W Sites of the Los Osos Wastewater Facilities Project. August 9, 2004.
- _____. 2005. Morro Bay Kangaroo Rat Survey: Broderson and Tri-W Sites of the Los Osos Wastewater Facilities Project. June, 2005.
- _____. 2009. Morro Bay Kangaroo Rat (*Dipodomys heermanni morroensis*) habitat assessment relative to Los Osos Sewer Project proposed for Tonini Ranch. Prepared for County of San Luis Obispo Public Works Department. February 20, 2009.

