Draft
Environmental Impact Report
County of San Luis Obispo
Los Osos Wastewater Project (LOWWP)

State Clearinghouse No. 2007121034

Prepared by:

Michael Brandman Associates
220 Commerce, Suite 200
Irvine, CA 92602
714.508.4100

Prepared for:

San Luis Obispo County
Department of Public Works
1050 Monterey, Room 207
San Luis Obispo, CA 93408

Draft EIR
County of San Luis Obispo
Los Osos Wastewater Project

State Clearinghouse No. 2007121034

Prepared for:

San Luis Obispo County Dept of Public Works
County Government Center, Room 207
San Luis Obispo, CA 93408
Mark Hutchinson, Environmental Program Manager

Prepared by:

Michael Brandman Associates
220 Commerce, Suite 200
Irvine, CA 92602
714.508.4100

November 14, 2008

TABLE OF CONTENTS

APPENDICES

LIST OF TABLES

LIST OF EXHIBITS

ACRONYMS AND ABBREVIATIONS

BOD5	5 Day Biological Oxygen Demand
ac-ft	acre-feet
AFY	acre-feet per year
AF	Acre-feet
AFY	acre-feet/year
AIPS	Advanced Integrated Pond System®
AG	Agriculture
ADA	Americans with Disabilities Act
AB	Assembly Bill
ADT	average daily trips
ADDWF	Average Day Dry Weather Flow
ADWWF	Average Day Wet Weather Flow
dBA	A-weighted decibels
BP	before present
BMPs	best management practices
BO	Biological Opinion
BOD	Biological Oxygen Demand
CAAQS	California Ambient Air Quality Standards
CBACT	California Best Available Control Technology for construction equipment
CBC	California Building Code
CCC	California Coastal Commission
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
Caltrans	California Department of Transportation
DWR	California Department of Water Resources
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CGS	California Geological Survey
NAHC	California Native American Heritage Commission
CNPS	California Native Plant Society
CALOSHA	California Occupational Safety and Health Administration
SWRCB.	California State Water Resources Control Board
CO	carbon monoxide
CDPF	catalyzed diesel particulate filter
RWQCB	Central Coast Regional Water Quality Control Board
CAP	Clean Air Plan
CWA	Clean Water Act
CDP	Coastal Development Permit
CZLUE	Coastal Zone Land Use Element
CZLUO	Coastal Zone Land Use Ordinance

CFR	Code of Federal Regulations
CNEL	Community Noise Equivalent Level
CNG	Compressed Natural Gas
CY	cubic yards
DT	Decentralized treatment
dB	decibel
DTSC	Department of Toxic Substance Control
DAR	dial-a-ride
DO	dissolved oxygen
DOSD	Division of Safety of Dams
Draft EIR	Draft Environmental Impact Report
ERP	Emergency Response Plan
ESRP	Endangered Species Recovery Program
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
ESHA	Environmentally Sensitive Habitat Areas
ET	evapotranspiration
ESU	Evolutionary Significant Unit
FMMP	Farmland Mapping and Monitoring Program
FEMA	Federal Emergency Management Agency
FIRMs	Flood Insurance Rate Maps
FTE	full-time equivalent employees
gpd	gallons per day
gpm	gallons per minute
GWh	gigawatt hours
GS	gravity sewers
GHG.	greenhouse gas emissions
HMMP	Habitat Monitoring and Mitigation Plan
I/I	Infiltration/Inflow
KOP	Key Observation Point
kWhr	kilowaterhours
LTS	Less Than Significant
LOS	level of service
lf	linear feet
LNG	liquefied natural gas
LCP	Local Coastal Plan
LOCSD	Los Osos Community Services District
LOVR	Los Osos Valley Road
LOWWP	Los Osos Wastewater Project
LPCS	Low Pressure Collection System
LPGP	low pressure grinder pump
MA	Management Authorization

MUP	Master of Urban Planning
MEP	Maximum Extent Practicable
MOU	Memorandum of Understanding
$MTCO_2e$	metric tons of carbon dioxide equivalents
MBA	Michael Brandman Associates
MBTA	Migratory Bird Treaty Act
mg/l	milligrams per liter
mgd	million gallons per day
MGD	million gallons per day
MB/CSD	Morro Bay/Cayucos Sanitary District
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standard for Hazardous Air Pollutants
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NPDES	National Pollution Discharge Elimination System
NWRI	National Water Research Institute
NOA	Naturally Occurring Asbestos
ADS	Nelson Air Diffusion System®
NO_3-N	nitrates
NO_2	nitrogen dioxide
NI	No Impact
NI	No Impact
NTU	Normal Turbidity Units
NOI	Notice of Intent
NOP	Notice of Preparation
OPR	Office of Planning and Research
O&M	Operations and Maintenance
OHWM	ordinary high water mark
Ox Ditch	oxidation ditch
PMFPs	partially mixed facultative ponds
PHWWF	Peak Hour Wet Weather Flow
PVC	Polyvinyl chloride
PSM	Potentially Significant Mitigated
PSU	Potentially Significant Unavoidable
PS	Potentially Significant
lbs	pounds
PSD	Prevention of Significant Deterioration
PZ	Prohibition Zone
PDFs	Project Design Features
PF	Public Facility
RWQCB	Regional Water Quality Control Board
RWQCB	Regional Water Quality Control Board

RMS	Resource Management System
RAS	return activated sludge
ROW	rights-of-way
RCNM	Roadway Construction Noise Model
ROG	reactive organic compound
SLO	San Luis Obispo
APCD	San Luis Obispo County Air Pollution Control District
SLOCHD	San Luis Obispo County Health Department
SLORTA	San Luis Obispo Regional Transit Authority
SRA	Sensitive Resource Area
STE	Septage Tank Effluent
STEG	Septic Tank Effluent Gravity
STEP	Septic Tank Effluent Pumps
STEP/STEG	Septic Tank Effluent Pumps/Septic Tank Effluent Gravity
STE	Sewage Tank Effluent
SWANCC	Solid Waste Agency of North Cook County
SH	Solids Handling
SRTs	solids retention times
SCCAB	South Central Coast Air Basin
SRF	State Revolving fund
SWRCB	State Water Resources Control Board
SWMP	stormwater management plan
SWPPP	stormwater pollution prevention plan
SO_2	sulfur dioxide
SNOP	Supplemental NOP
SS	suspended solids
TAC	Technical Advisory Committee
TMs	Technical Memoranda
TDS	total dissolved solids
TSS	Total Suspended Solids
TAC	toxic air contaminants
USFWS	U. S. Fish and Wildlife Service
USACE	U.S. Army Corps of Engineers
NMFS	U.S. National Marine Fisheries Service
USGS	United States Geological Survey
V/C	volume to capacity ratio
WDR	Waste Discharge Requirements

SECTION 1: INTRODUCTION

1.1 - PURPOSE OF THE EIR

This Draft Environmental Impact Report (Draft EIR) has been prepared in accordance with the California Environmental Quality Act (CEQA) to evaluate the potential environmental impacts associated with a wastewater collection, treatment, and disposal system for the community of Los Osos (Los Osos Wastewater Project, or, LOWWP). The County of San Luis Obispo is the lead agency for the preparation of this Draft EIR. This Draft EIR addresses the impacts of specific alternatives at a conceptual design level of construction, including facility operational impacts to the degree known. This document has been prepared in conformance with CEQA, California Public Resources Code Section 21000 et seq.; CEQA Guidelines (California Code of Regulation, Title 14, Section 15000 et seq.); and the rules, regulations, and procedures for implementing CEQA as adopted by the County of San Luis Obispo.

CEQA requires that all state and local government agencies consider the environmental consequences of projects over which they have discretionary authority before taking action on them.

This Draft EIR is intended to serve as an informational document for the public agency decision-makers and the public regarding the objectives, impacts, and components of the proposed project. This document will address the potentially significant adverse environmental impacts that may be associated with the project, as well as identify appropriate feasible mitigation measures and design features that may be adopted to reduce or eliminate these impacts. It identifies environmental sensitivities in the project study area, and it establishes mitigation measures and guidelines to address project-level environmental impacts that may result from specific project implementation for construction and operational considerations. The County will ultimately certify a Final EIR based on the preferred alternative identified through this process and make findings that support the final project decision. Supplemental environmental documentation may be required to evaluate some aspects of the final Proposed Project and provide adequate public review of the Proposed Project's environmental impacts. The County has committed to consider thoroughly the final Proposed Project's potential environmental impacts and public comments before completing and certifying the Final EIR.

This Draft EIR is the primary reference document for the formulation and implementation of a mitigation monitoring program for the proposed project. Environmental impacts cannot always be mitigated to a level that is considered less than significant. In accordance with Section 15093(b) of the CEQA Guidelines, if a lead agency approves a project that has significant impacts that are not substantially mitigated (i.e., significant unavoidable impacts), the agency shall state in writing the specific environmental, economic, political or social reasons for approving the project despite the adverse impacts, based on the final CEQA documents and any other information in the public record for the project statement of overriding considerations).

The intent of this Draft EIR is to provide a comprehensive environmental document that will allow the County of San Luis Obispo to approve the proposed project. This Draft EIR evaluates the direct, indirect, and cumulative impacts of the proposed project, as well as project alternatives in accordance with the provisions set forth in CEQA and the CEQA Guidelines.

1.1.1 - How to Use and Read This Draft EIR

The structure of this Draft EIR is somewhat different from other EIR documents. There are three levels of detail presented for public review: The Executive Summary, the main EIR document, and the detailed Appendices and Technical Memoranda/Reports. An overview of each level with the kind of information presented is as follows:

- The Executive Summary (Section 2) - provides overview summary information of the Project with a brief discussion of the project purpose, project background and history, project objectives, and alternatives developed and studied in the EIR. It includes a brief summary of the alternatives screening process. There is a table listing letters and communications submitted in response to the Notice of Preparation (NOP) and the Supplemental NOP with cross-reference to sections of the EIR where the comments are addressed. Finally, there is a table summarizing environmental impacts identified in the analysis for the alternatives with appropriate measures or design features to implement to mitigate impacts. This section may be reviewed by the casual reader to get a flavor of the EIR and direct the reader to more detailed sections as desired.
- Draft EIR (Sections 3 through 7): These sections provide a more detailed description of the proposed projects and potential environmental impacts of each project. Sections 3 though 7 represent the "core" of the Draft EIR and form the basis of the review for reader comments.
  - Section 3, Project Description, provides specific detail of the various components of each proposed project (collection system, treatment process, treatment plant site, and effluent disposal details), discussion of Project Objectives, and construction activities.
  - Section 5, Project and Cumulative Impacts, provides detailed discussion for impacts that have been identified as potentially significant or significant and unavoidable. Only those areas of study that have potentially significant impacts are discussed in this section – all other areas of study for which no significant impact has been identified are not discussed here but the reader may consult the discussion in the related detailed Appendix. Section 7, Alternatives to the Proposed Project, contains discussion about the process used to reach the four Alternatives studied in the EIR and other alternatives, which were considered, but not pursued for further study and analysis. These sections of the EIR should be reviewed by the reader desiring detail of the Project and impacts that have been identified, analyzed, and for which mitigation measures have been prepared. These sections are the "meat" of the EIR and form the basis of the review for reader comments.
  - Section 6, Growth Inducing Impacts, provides a discussion of the proposed projects and no significant impacts are noted.

- Section 7, Alternatives to the Proposed Project, contains discussion about the process used to reach the four proposed projects studied in the Draft EIR and other projects that were considered, but not pursued for further study and analysis.
- Appendices with Expanded Sections of the Draft EIR and various reports and technical memoranda provide extensive detail and discussion of the various study subjects that comprise this Draft EIR. The Expanded Sections should be consulted for further detailed information about the various subject areas covered by the environmental analysis. These sections provide the detailed analysis upon which the Draft EIR determines whether there are potentially significant impacts to be addressed by mitigation measures or project design features for implementation. The Expanded Sections are as follows:
  - Appendix C-1: Expanded Land Use Analysis
  - Appendix D-1: Expanded Groundwater Resources Analysis
  - Appendix E-1: Expanded Drainage and Surface Water Quality Analysis
  - Appendix F-1: Expanded Geology Analysis
  - Appendix G-1: Expanded Biological Resources Analysis
  - Appendix H-1: Expanded Cultural Resources Analysis
  - Appendix I-1: Expanded Public Health and Safety Analysis
  - Appendix J-1: Expanded Traffic and Circulation Analysis
  - Appendix K-1: Expanded Air Quality Analysis
  - Appendix L-1: Expanded Noise Analysis
  - Appendix M-1: Expanded Agricultural Resources Analysis
  - Appendix N-1: Expanded Visual Resources Analysis
  - Appendix O-1: Expanded Environmental Justice Analysis

1.2 - PROJECT HISTORY

1.2.1 - Initial Community Development and Sanitation Issues

The unincorporated community of Los Osos is located on a series of ancient sand dunes and is in close proximity to the ocean (Exhibit 1-1). Water needs for the coastal community are met solely by well extraction from the Paso Robles Formation, a multi-level aquifer underlying the shallow dune sands. The Paso Robles Formation is comprised of an upper and lower aquifer, which is separated by an impermeable layer of clay, restricting the vertical movement of groundwater. Below the Paso Robles formation lays the non-water bearing Franciscan Formation which, in suite with the Pacific Ocean, confines the aquifer to the west end of the Los Osos Valley.

Development in Los Osos began in the late 19th century with the division of land into small residential lots intended for summer homes and retreats. Due largely in part as an antiquated subdivision, the community developed in the absence of a central wastewater collection and treatment system. Sanitation needs were met by individual septic tanks and leach fields, while domestic water was supplied via wells penetrating the Paso Robles Formation.

Septic tanks treat sanitary waste by separating the solids from the raw sewage, while the liquid fluid flows directly into the soil through the leach field. The septic system's efficiency in neutralizing the liquid waste is dependent on the ability of the soil to disperse the pollutants. Key controlling factors include soil composition and the vertical distance between the leach field and the ground water. When septic systems fail, either by direct leakage of the tank or by clogged/inoperative leach fields, there is high potential for groundwater contamination. The minimum requirements for effluent discharge from septic systems are typically set forth by the Regional Water Quality Control Board (RWQCB) in Basin Plans developed for specific watersheds.

Nitrates are the primary constituent of concern in sewage. Excessive nitrate levels can lead to a plethora of health problems and can cause algal blooms in surface water, which consume large quantities of dissolved oxygen resulting in adverse impacts to aquatic life. Bacteria, such as fecal coliform, and viruses are additional constituents of concern as they pose potential health risks to humans both from direct contact with contaminants in the surface water and through the consumption of shellfish.

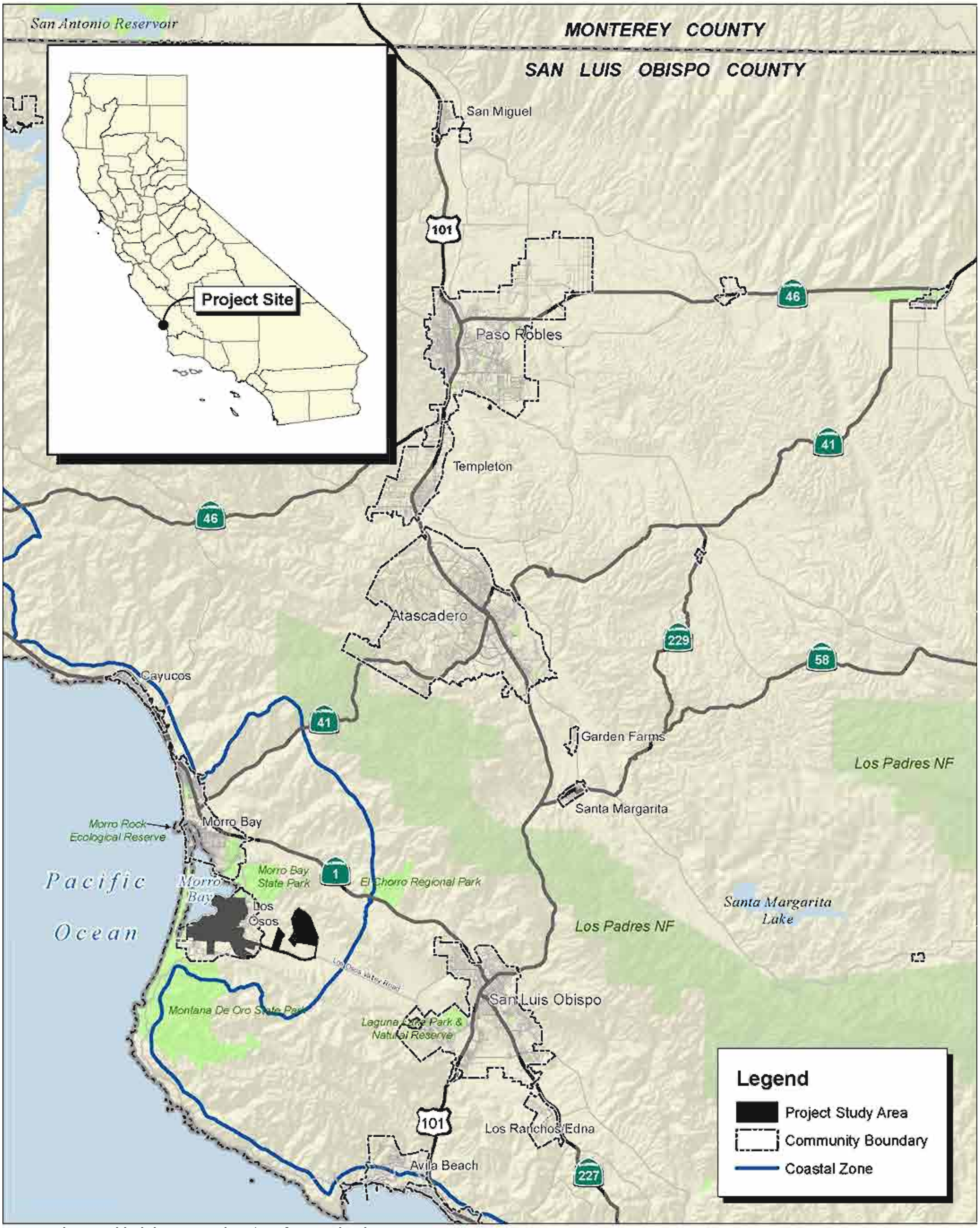
1.2.2 - Regulatory Oversight and Concerns

Beginning as early as 1971, the RWQCB and other health agencies became concerned with safety of the Los Osos community sanitary system. Concern arose from the high level of variance in depth to the ground water, which in certain areas is shallow enough to flood leach fields during wet weather. Additionally, many of the smaller lots do not contain sufficient land area to accommodate leach fields. As a result, these areas depend solely on deeper seepage pits, which may discharge directly into the ground water. To compound matters, the Los Osos area draws its potable water supply from the groundwater. The RWQCB responded in 1971, by adopting an interim Basin Plan in June 1971, which contained a provision prohibiting septic system discharge in the area after 1974.

In 1983, the RWQCB Central Coast Region determined that contamination in excess of State standards had occurred in the groundwater basin (upper aquifer) with a substantial effect from the use of septic systems throughout the community and followed with a regulatory mandate to cease and desist.

The RWQCB issued Resolution No. 83-13 and made the following findings:

- Previous studies (Brown and Caldwell 1983) indicated that the quality of water derived from the shallow aquifer underlying the community was deteriorating, particularly as it relates to increasing concentrations of nitrates in excess of State standards.
- The current method of wastewater disposal by individual septic tank systems located in areas of high groundwater are a major contributing factor to this degradation of water quality.
- Continuation of this method of waste disposal could result in health hazards to the community and the continued degradation of groundwater quality is in violation of the Porter-Cologne Act.



Source: Census 2000 Data, The CaSIL, MBA GIS 2008.

Michael Brandman Associates

NORTH

5 2.5 0 5
Miles

Exhibit 1-1
Project Vicinity

Further, the RWQCB also approved discharge prohibitions for a portion of the Los Osos area known as the RWQCB Prohibition Zone. By prohibiting discharge from new or additional individual and community sewage disposal systems, the regulatory actions created a moratorium effectively halting new construction or major expansions of existing development until the water pollution problem was solved.

1.2.3 - Los Osos Wastewater Project Efforts

For over 20 years, there have been many attempts to rectify the situation through construction and operation of a wastewater project. In January 1988, new construction or major expansion of existing development was halted by a RWQCB discharge moratorium until the County (in charge of service at that time) provided a solution to the water pollution problem.

A. In conjunction with the County Services Area No. 9 Advisory Group, the County produced a plan for a wastewater treatment system that was composed of conventional collection, treatment and disposal technologies. In 1987, an Environmental Impact Report (EIR) was prepared for the wastewater project. The report addressed the following issues: Geologic and Seismic Hazards, Groundwater Hydrology, Flooding and Drainage, Biological Resources, Cultural Resources, Visual Resources, Traffic and Circulation, Noise, Air Quality, Agricultural Resources, Growth Inducement, Alternatives, Economic and Fiscal Considerations. Two addendums to the EIR were prepared. The first addendum addressed new information regarding isotopes of nitrogen and their potential role on the groundwater contamination problem. The second provided additional information regarding agricultural impacts associated with the proposed treatment plant site along with more specific data regarding native plant life. After preparing a Supplemental EIR (1988), the County embarked on the detailed design process.

B. In the mid 1990s, the project was modified to relocate the proposed wastewater treatment facility out of a rural area northeast of the community (the Turri Road site) to a site within the partially developed area in the middle of the Los Osos community. This site change necessitated preparation of a second supplemental EIR (1997). For a variety of reasons, the conventional wastewater collection and treatment system evaluated by the 1997 supplemental EIR, did not enjoy community-wide support. Overriding concerns with the project related to:
   - The cost of constructing, operating and maintaining the project
   - The potential for the proposed disposal system and the volume of wastewater being introduced on the disposal site to result in the daylighting of discharge treated effluent down-slope.
   - The use of percolation ponds and their susceptibility to rupture.
   - The potential for increased liquefaction potential and flooding down-slope from the disposal site.

C. In 1995, a study issued in by the RWQCB titled "Assessment of Nitrate Contamination in Ground Water Basins of the Central Coast Region Preliminary Working Draft," illustrated significant increases in nitrate concentrations over time in both the lower and upper aquifers. According to a letter from the RWQCB on July 10, 1998, 107 monitoring wells with more than 1,100 data points were used in the construction of the contour maps included in the study. The RWQCB letter stated:

Monitoring data indicates much of the shallow groundwater in the most densely developed areas exceeds 45mg/l, the drinking water standard for nitrate. For this reason, many of the shallow water supply wells have been removed from service and demand shifted to the deeper aquifer. Dependence upon the deeper aquifer exacerbates the surface water problems because the community's water supply, formerly from the upper aquifer, is now drawn from the deeper aquifer and recharged (after use) to the upper aquifer causing ground water levels to rise and flood more septic systems. Increasing surface water impacts including: restriction of portions of shellfish harvesting areas because of rising bacteria levels: water surround the Los Osos area periodically do not meet bacteria standards for water contact recreation (such as swimming, wading, kayaking and small boat sailing): and the public is increasingly exposed to surface wastewater.

This study and letter prompted further action to address the issue of groundwater contamination.

1.2.4 - Los Osos Community Services District

In 1998, the community voted to establish a community services district with wastewater authority. The Los Osos Community Services District (LOCSD) developed a wastewater collection and treatment project with the treatment facilities located in the west-central portion of the community (referred to as the Tri-W site but referred to as the Mid-town site in this document). The LOCSD prepared an EIR for the project and certified the EIR on March 1, 2001. After receipt of a Coastal Development Permit (CDP) project construction started in 2005. In the fall of 2005, voters recalled a majority of the LOCSD board members in a special election and the new board immediately halted construction on the wastewater project. In August 2006, the LOCSD rescinded certification of the 2001 EIR Findings and filed for federal bankruptcy protection due to default on State grants and loans.

1.2.5 - Legislative Initiatives

After the recall and suspension of construction, California Assemblyman Sam Blakely attempted to resolve the dispute between the RWQCB and LOCSD. The efforts were to no avail. Assemblyman Blakely then proposed legislation. Assembly Bill (AB) 2701 was proposed to authorize transfer of wastewater authority from the LOCSD to the County of San Luis Obispo to proceed with implementation of a project to build a wastewater collection and treatment system for the Los Osos community. AB 2701 was passed unanimously and signed into law by Governor Arnold Schwarzenegger effective January 1, 2007. Based on legislative policies and project strategies established by the Board of Supervisors in June 2006, the County has embarked on a process to develop a community wastewater collection and treatment system in Los Osos. That process included numerous actions; detailed engineering of various options and sites for wastewater treatment and processes; creation of a community Technical Advisory Committee (representing financial, engineering, and environmental areas of expertise and experience); an inter-disciplinary team of County staff; and a team of consultants familiar with conditions in Los Osos (versed in engineering, hydro-geotechnical, and environmental expertise). The process produced a Rough Screening Report and a Fine Screening Report that identified various options for treatment technologies, sites for treatment plants and other options which may be pursued by the County. Although the County was involved in previous efforts, its responsibility as Lead Agency requires due diligence and consideration of new evidence.

The documents focused on identifying a set of viable project alternatives that were used as the basis for cost estimates in later stages of the project development. The County anticipated funding the project primarily from bond funds paid by a property assessment on the properties that would receive benefit of the wastewater improvements (the focus is on the properties in the designated Prohibition Zone). AB 2701 mandated adherence with the provisions of Proposition 218 whereby a majority of the property owners must approve the property assessment. The Proposition 218 vote was held in October 2007 and was approved by the property owners (80 percent for and 20 percent against) to authorize LOWWP funding.

The LOWWP consists of three main components: wastewater collection; wastewater treatment, which includes solids processing and disposal; and effluent disposal. The development of potential project alternatives and considerations were made using the preliminary design information developed by a number of sources for the CEQA/NEPA process covered by this EIR. Numerous sources of information are used, including: previous environmental documentation from the earlier projects; other technical reports prepared for various past projects; the Fine Screening Report; subsequent Technical Memoranda prepared by the County’s consultant engineering firm; and public review and comment of the Technical Memoranda by the Technical Advisory Committee. Ongoing efforts to define project costs and consider community preferences are continuing with the County project team by moving through an alternatives analysis process that will result in a preferred project for the final design.

For this EIR, detailed environmental analysis in this document considers four preliminary Proposed Projects equally. The preferred LOWWP selected could be any one of the four alternatives or an alternative with a different combination of project components. Public review of this Draft EIR will coincide with a community preferences survey and the continuing design process. The Draft EIR availability will enable Los Osos community residents, the project team, and County elected officials to consider the LOWWP’s potential environmental impacts and allow the County to identify the preferred alternative using environmental, economic, and community preferences information; incorporate appropriate mitigations; and move forward with the final design and permitting process.

The County will ultimately certify a Final EIR based on the preferred alternative identified through this process and make findings that support the final project decision. Supplemental environmental documentation may be required if the final Proposed Project creates environmental impacts, or if needed, to provide adequate public review of the Proposed Project's environmental impacts. The County has committed to consider thoroughly the final Proposed Project's potential environmental impacts and public comments before completing and certifying the Final EIR. Further, the County fully recognizes the significance of the California Coastal Commission's responsibilities under the Coastal Act, and if their consideration of a Coastal Development Permit warrants additional environmental evaluations or modified findings, including those that result in changes in the course of design efforts, those considerations will be accommodated in the final project.

1.3 - SCOPE AND CONTENT OF THIS EIR

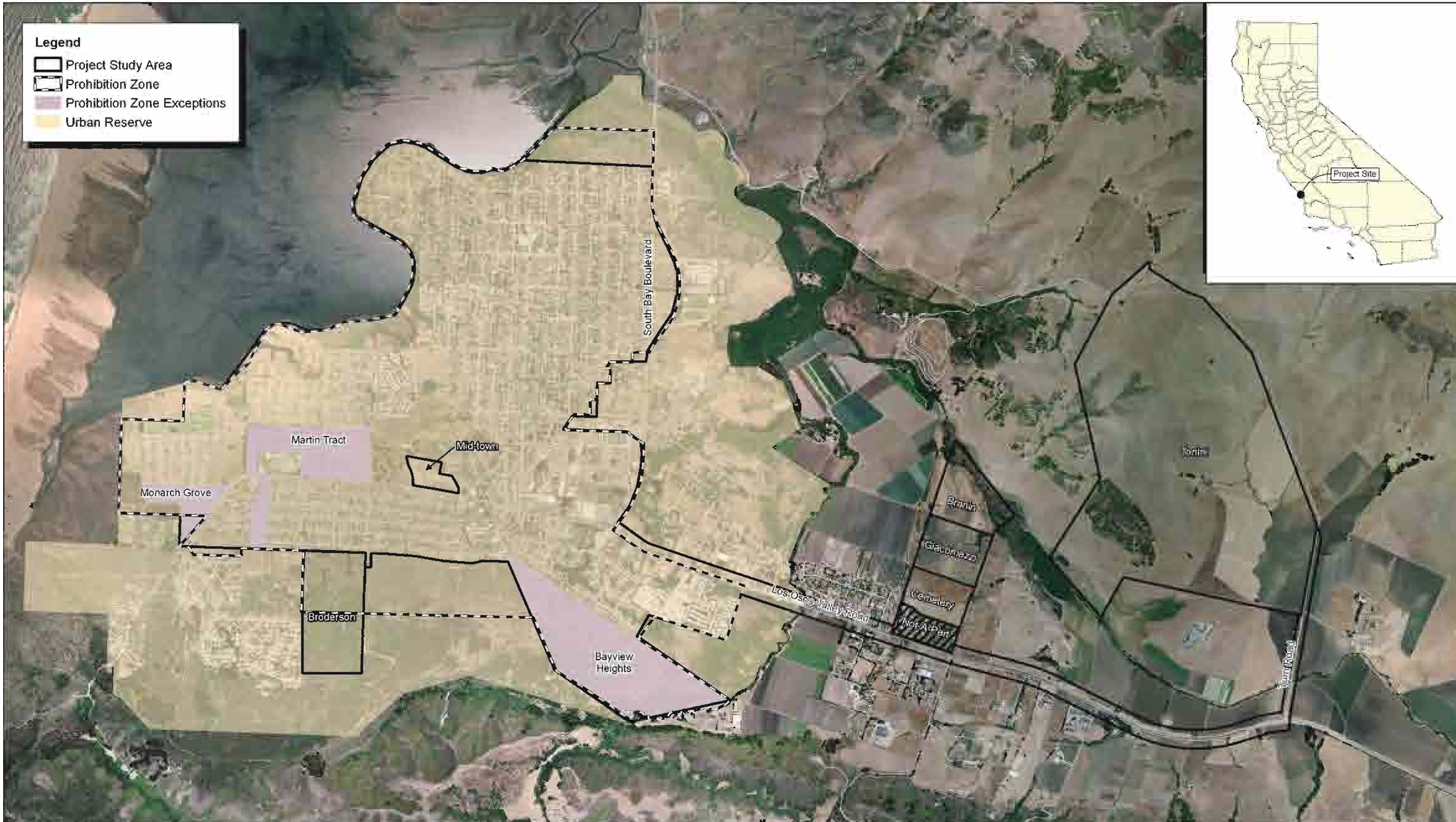
This Draft EIR has been prepared primarily by Michael Brandman Associates (MBA) under direct contract to the County of San Luis Obispo, and has been independently reviewed by County staff. Supporting technical studies prepared by other consultants have been reviewed for CEQA adequacy by MBA. Subconsultants are listed in Section 10, Report Preparation Personnel, of this Draft EIR.

The primary purpose of the LOWWP is development of infrastructure for a wastewater collection, treatment, and disposal system to serve the community of Los Osos in the designated Prohibition Zone, refer to Exhibit 1-2 for Project Setting. Two primary benefits of the LOWWP are:

- Compliance with the Waste Discharge Requirements of the RWQCB: and
- Alleviating groundwater contamination, primarily nitrates, which have occurred by the use of septic systems throughout the community of Los Osos.

Another important consideration of the Project involves water resource issues related to seawater intrusion that is contaminating the Los Osos groundwater basin. While the purpose of the LOWWP is to develop a community wastewater system, implementation measures for effluent disposal can enhance opportunities for the water purveyors to improve the local water resources.

This EIR presents a detailed environmental analysis of four preliminary Proposed Project Alternatives on an equal basis. The preferred LOWWP Alternative selected could be any one of the four alternatives or an alternative combination of project components. Public review of this Draft EIR will coincide with a community preferences survey and the continuing design process.



Source: AirPhoto USA, San Luis Obispo County GIS Data, and MBA GIS Data.

Michael Brandman Associates

NORTH

2,000 1,000 0 2,000
Feet

02240002 • 10/2008 | 1-2_project_setting.mxd

Exhibit 1-2
Project Setting

COUNTY OF SAN LUIS OBISPO • LOS OSOS WASTEWATER PROJECT
ENVIRONMENTAL IMPACT REPORT

Having the Draft EIR available will enable Los Osos community residents, project team, and County elected officials to consider the LOWWP's potential environmental impacts as the County identifies the preferred alternative using environmental, economic, and community preferences information; incorporates appropriate mitigations; and moves forward with the final design and permitting process.

This document analyzes the environmental effects of the project to the degree of specificity appropriate to the current proposed actions, as required by Section 15146 of the CEQA Guidelines. This analysis considers the series of actions associated with the various discretionary actions required for project implementation to determine the associated short-term and long-term effects. This Draft EIR discusses both the direct and indirect impacts of this project as identified in Section 5, Project and Cumulative Impacts, of this Draft EIR.

1.3.1 - Scoping Process

Approval of a project requires discretionary actions by the County of San Luis Obispo. Accordingly, in compliance with CEQA Guidelines, the County of San Luis Obispo has taken steps to maximize opportunities to participate in the environmental process. Based on the findings of the NOP, a determination was made by the County that an EIR is required to address the potentially significant environmental effects of the LOWWP. The scope of the Draft EIR includes issues identified by the County of San Luis Obispo during the preparation of preliminary engineering analyses performed by a County engineering consultant of project options. The NOP for the proposed project, by agencies and the public in response to the NOP, and supplemental NOP.

During the preparation of the Draft EIR, various federal, state, regional, and local governmental agencies and other interested parties were contacted to solicit comments and inform the public of the proposed project. This included the distribution of the NOP on December 18, 2007. The project was described, potential environmental effects associated with project implementation were identified, and agencies and the public were invited to review and comment on the NOP. The close of the NOP comment period was January 17, 2007. On June 23, 2008, the County issued a Supplemental NOP (SNOP) which further refined the site alternatives and treatment processes to be studied in the EIR. The NOP and SNOP are located in Appendix A-1 of this EIR and comment letters received during the NOP/SNOP review periods are included in Appendix A-2 of this EIR. Agencies, organizations, and interested parties not contacted or who did not respond to the request for comments about the project during the preparation of the Draft EIR now have the opportunity to comment during the extended public review period on the Draft EIR.

1.4 - COMPONENTS OF THIS EIR ANALYSIS

- **Section 2 - Executive Summary:** This section includes a summary of the LOWWP and summary of the alternatives to the proposed project addressed in the Draft EIR.

- **Section 3 - Project Description:** This section includes a detailed description of the LOWWP, including its location, background, site development constraints, and technical, economic, and environmental characteristics. The technical characteristics are further broken down into four sub-sections for each of the proposed alternative scenarios. A discussion of the project objectives and intended uses of the Draft EIR, which includes the approvals that are required for the LOWWP is also provided.

- **Section 4 - Environmental Setting:** This section includes an overview of the regional and cumulative setting of the environment in the vicinity of the project site.

- **Section 5 - Project and Cumulative Impacts:** The analysis of each environmental category, identified in Table 1-1 below, is organized into the following subsections:

  - Introduction - identifies the primary documents used in the preparation of the section and any other pertinent information.

  - Environmental Setting - identifies and describes the physical environmental conditions that exist at the time of publication of the NOP, and which constitute the baseline physical conditions that assist in determining whether an impact is significant.

  - Thresholds of Significance - identifies applicable thresholds from Appendix G of the CEQA Guidelines or other published documentation that assists in a determination of whether an impact is significant. Unless specifically identified within each environmental issue section of this document, the thresholds of significance used are those contained in Appendix G of the CEQA Guidelines.

  - Significance Determination - describes the potential significant environmental changes to the existing physical conditions that may occur if the project is implemented, and evaluate these changes with respect to the thresholds of significance. This section refers the reader to the Expanded Analysis in the appendices to this Draft EIR if impacts were found to be less than significant or if there were no impacts.

  - Proposed Mitigation Measures - Feasible mitigation measures are recommended to reduce potential significant impacts. Mitigation Measures are those specific measures that may be required of the project by the decision-makers in order to (1) avoid an impact, (2) minimize an impact, (3) rectify an impact by restoration, (4) reduce or eliminate an impact over time by preservation and maintenance operations, or (5) compensate for the impact by replacing or providing substitute resources or environment.

  - Summary of Environmental Impacts with Incorporation of Mitigation Measures - discusses whether the project's impacts can be reduced to levels that are considered less than significant. The level of significance after mitigation is determined after mitigation measures are implemented.

- Summary of Environmental Impacts with Incorporation of Mitigation Measures -discusses whether the project's contribution to cumulative impacts can be reduced to levels that are considered less than significant. The level of significance after mitigation is determined after mitigation measures are implemented.

- **Section 6 - Growth Inducing Impacts:** This section describes the potential for the proposed project to cause direct or indirect growth in the project vicinity.
- **Section 7 - Alternatives to the Proposed Project:** This section compares the impacts of the LOWWP with alternatives to the proposed project. The environmentally superior alternative is identified.
- **Section 8 - Other CEQA Considerations:** This section identifies significant unavoidable impacts associated with the project as well as significant irreversible environmental changes and effects found not to be significant.
- **Section 9 - Organizations and Persons Consulted:** This section lists the various organizations and persons consulted during the preparation of the Draft EIR.
- **Section 10 - Report Preparation Personnel:** This section lists the various individuals who contributed to the preparation of the Draft EIR.
- **Section 11 - References:** This section lists the references used to prepare the Draft EIR.

1.4.1 - Environmental Issues Determined To Be Potentially Significant

A determination was made by the County of San Luis Obispo that an EIR is required to address the potentially significant environmental effects of a combination of alternative sites and treatment processes for the LOWWP. The scope of this Draft EIR is based on issues identified by the County during the preparation of the Project synopsis in the Request for Proposals for an environmental consultant, the NOP, written comments received from public agencies and the public in response to the NOP, and SNOP. Based on the foregoing, the environmental issues that could result in potentially significant project-specific and cumulative impacts to the environment that are described and evaluated in this Draft EIR are listed in Table 1-1 along with the corresponding sections of the Draft EIR in which they are discussed

Table 1-1: Potentially Significant Environmental Issues

Environmental Issue	Draft EIR Document Section
Land Use and Planning	Section 5.1
Geology	Section 5.4
Biological Resources	Section 5.5
Cultural Resources	Section 5.6
Traffic and Circulation	Section 5.8

Environmental Issue	Draft EIR Document Section
Air Quality	Section 5.9
Visual Resources	Section 5.11
Agricultural Resources	Section 5.12

1.5 - LEAD AGENCY AND CONTACT PERSONS

The County of San Luis Obispo is the lead agency in the preparation of the Draft EIR. Michael Brandman Associates is the environmental consultant for the project. Preparers of this Draft EIR are provided in Section 10, Report Preparation Personnel. Key contact persons are as follows:

Lead Agency/Contact:
Mark Hutchinson
Environmental Programs Manager
San Luis Obispo County Dept of Public Works
County Government Center, Room 207
San Luis Obispo, CA 93408

Environmental Consultant:
Michael Brandman Associates
Gene Talmadge, MUP
220 Commerce, Suite 200
Irvine, CA 92602

1.6 - INCORPORATION BY REFERENCE

The documents incorporated by reference within this Draft EIR are identified in the Introduction section of each Expanded Analysis located in the Appendices to this Draft EIR. These documents are included in Section 11, References, and are on file and available for review at the County of San Luis Obispo Department of Public Works, County Government Center, Room 2007, San Luis Obispo, California, 93408.

1.7 - REVIEW OF THE DRAFT EIR

This Draft EIR, including technical appendices, was distributed to responsible and trustee agencies, other affected agencies, County of San Luis Obispo, and interested parties, as well as all parties requesting a copy of the Draft EIR in accordance with Public Resources Code 21092(b)(3). The Notice of Completion of the Draft EIR was also distributed as required by CEQA. During the expanded public review period, the Draft EIR, including technical appendices, is available for review at the County of San Luis Obispo Department of Public Works, County Government Center, Room 207, San Luis Obispo, California, 93408.

Written comments on the Draft EIR should be addressed to:

Mark Hutchinson
Environmental Programs Manager
San Luis Obispo County Dept of Public Works
County Government Center, Room 207
San Luis Obispo, CA 93408
Written Comments to be received by January 30, 2009

Upon completion of the expanded public review period, written responses to all substantive environmental issues raised will be prepared and available for review at least 10 days prior to the public hearing at which the certification of the Final EIR will be considered. These environmental comments and their responses will be included as part of the environmental record for consideration by decision-makers for the project.

SECTION 2: EXECUTIVE SUMMARY

The proposed Los Osos Wastewater Project (LOWWP) is a comprehensive effort to resolve long-standing concerns about potential contamination of the Los Osos groundwater basin stemming from the use of septic systems. In compliance with the California Environmental Quality Act (CEQA), the County of San Luis Obispo has prepared a Draft Environmental Impact Report (Draft EIR) to evaluate baseline conditions and analyze project impacts associated with a range of alternatives. This Executive Summary provides a brief but thorough and user-friendly synopsis of key information contained in the EIR.

2.1 - Executive Summary Contents

Topics addressed in this Executive Summary include:

- LOWWP EIR
- Introduction and Location
- Background and History
- Project Objectives
- Project Alternatives
- Feasibility Criteria
- Alternatives Selection
- Scoping Input and Notice of Preparation (NOP) Comments
- Project Phasing and Scheduling
- Project funding Sources
- Discretionary Actions and Permits Required
- Summary of Environmental Impacts and Mitigation

This Draft EIR discusses multiple alternatives that lead to a completed wastewater project. As such, this document considers the scope of actions and approvals that may occur over an extended period of time that can, as a whole, be characterized as a single project. The purpose of this environmental assessment is to consider the "whole of an action," including policy issues and cumulative effects, at an early stage when there is flexibility to consider broad alternatives, refine project concepts, and incorporate mitigation measures to protect the environment.

It is possible that a portion of the project costs could be funded through a low-interest rate revolving fund loan from the US Environmental Protection Agency through the State Water Resources Control Board (SWRCB) Division of Financial Assistance. Because of the federal nexus, this document has been prepared in compliance with the CEQA-Plus requirements set forth by SWRCB, which include elements adapted from the National Environmental Policy Act (NEPA). The County of San Luis Obispo is the Lead Agency responsible for assuring that the document complies with the requirements of CEQA, and the SWRCB is responsible for assuring that the document complies with the requirements of CEQA-Plus, as noted later in this section.

Additional Information

For further information and to submit comments on this Draft EIR, please contact:

Mark Hutchinson
Environmental Programs Manager
San Luis Obispo County Dept of Public Works
County Government Center Room 207
San Luis Obispo, CA 93408 Telephone 805.781.5252

State Clearinghouse Number: **2007121034**
Comments Must Be Received By: January 30, 2009

2.2 - LOWWP EIR

This EIR addresses the impacts of specific alternatives at a conceptual design level of construction, including facility operational impacts to the degree known. It identifies environmental sensitivities in the project study area, and it establishes mitigation measures and guidelines to address project-level environmental impacts that may result from project implementation for construction and operational considerations.

The County will ultimately certify a Final EIR based on the preferred alternative identified through consideration of this Draft EIR, comments provided on the Draft EIR from the community and other agencies, and the results of the County-sponsored Community Survey to make findings that support the final project decision. The County has committed to consider thoroughly the final Proposed Project’s potential environmental impacts and public comments before completing and certifying the Final EIR. Further, the County fully recognizes the significance of the California Coastal Commission’s responsibilities under the Coastal Act, and if their consideration of a Coastal Development Permit warrants additional environmental evaluations or modified findings, including those that result in changes in the course of design efforts, those considerations will be accommodated in the final project.

The primary purpose of the LOWWP is development of infrastructure for a wastewater collection, treatment and disposal system to serve the community of Los Osos in the designated Prohibition Zone. Two primary benefits of the LOWWP are:

- Compliance with the Waste Discharge Requirements of the RWQCB: and
- Alleviating groundwater contamination, primarily nitrates, which have occurred by the use of septic systems throughout the community of Los Osos.

Another important consideration of the Project involves water resources issues related to seawater intrusion that is contaminating the Los Osos groundwater basin. While the purpose of the LOWWP is to develop a community wastewater system, implementation measures for effluent disposal can enhance opportunities for the water purveyors to improve the local water resources.

2.2.1 - Introduction and Location

Los Osos is an unincorporated coastal community of about 15,000 residents located in San Luis Obispo County (County) at the south end of Morro Bay about twelve miles west of the City of San Luis Obispo. The City of Morro Bay lies about two miles to the north. The physical 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. Current wastewater treatment for the community consists of individual septic systems serving each developed property, or in some cases multiple properties.

Exhibit 3-1 provides a project vicinity map that depicts the location of the Los Osos community in relation to the surrounding cities of Morro Bay, San Luis Obispo, and Atascadero.

The primary benefit of the Los Osos Wastewater Project (the Project, or, LOWWP) is compliance with the Regional Water Quality Control Board - Central Coast Region (RWQCB) directives to alleviate groundwater contamination, primarily nitrates, which have occurred at least partially because of the use of septic systems throughout the community of Los Osos. The proposed action to alleviate the groundwater contamination due to the septic systems will be accomplished with the installation of a wastewater collection and treatment system serving the Los Osos community. This action is taken in response to the determinations of the RWQCB 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.

Another important issue relating to the LOWWP involves water resources issues related to seawater intrusion that is contaminating the Los Osos groundwater basin. While the main benefit of the LOWWP is compliance with RWQCB directives to alleviate groundwater contamination from existing septic systems, implementation measures adopted for effluent disposal methods can also enhance opportunities for the water purveyors to improve the local water resources.

This Draft EIR presents a detailed environmental analysis of four preliminary alternative Proposed Projects on an equal basis. The preferred LOWWP Alternative selected could be any one of the four alternatives or a different alternative of project components. Public review of this Draft EIR will coincide with a community preferences survey and the continuing design process. Having the Draft EIR available will enable Los Osos community residents, the project team, and County elected officials to consider the LOWWP's potential environmental impacts as the County identifies the preferred alternative using environmental, economic, and community preferences information;

incorporates appropriate mitigations; and moves forward with the final permitting, design, and construction efforts.

2.2.2 - Background and History

Beginning as early as 1971, the RWQCB and other health agencies became concerned with safety of the Los Osos community sanitary system and effects on groundwater conditions. Concern arose regarding the shallow depth to the ground water causing some leachfields to flood during wet weather. To compound matters, the Los Osos area draws its potable water supply from the groundwater. The RWQCB responded in June 1971 by adopting an interim Basin Plan which contained a provision prohibiting septic system discharge in the area after 1974.

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 the use of septic systems throughout the community. The RWQCB also approved a discharge moratorium for a portion of the Los Osos area known as the RWQCB Prohibition Zone. By prohibiting discharge from additional individual and community sewage disposal systems, the moratorium effectively halted new construction or major expansions of existing development until the County could provide a solution to the water pollution problem. The LOWWP is proposed to address this contamination by constructing a wastewater collection and treatment system for the community with resultant abandonment of the existing on-site septic systems as required by the RWQCB.

A. Since these actions by the Regional Water Quality Board, there have been many attempts to rectify the situation through construction and operation of a wastewater project. In the late 1980's, in response to the RWQCB, the County developed a wastewater collection and treatment project and prepared an 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 a rural area northeast of the community (the Turri Road site) to a site within the partially developed area in middle of the community of Los Osos. This site change necessitated preparation of a second supplemental EIR (1997). For a variety of reasons, the conventional wastewater collection and treatment system evaluated by the 1997 supplemental EIR, did not enjoy community-wide support. Overriding concerns with the project related to:

    - The cost of constructing, operating and maintaining the project
    - The potential for the proposed disposal system and the volume of wastewater being introduced on the disposal site to result in the daylighting of discharge treated effluent down-slope.

- The use of percolation ponds and their susceptibility to rupture.
- The potential for increased liquefaction potential and flooding down-slope from the disposal site.

In 1998, the community voted to establish a community services district with wastewater authority. The Los Osos Community Services District (LOCSD) developed a wastewater collection and treatment project with the treatment facilities located in the west-central portion of the community (previously known as the "Tri-W Site," it is referred to as the Mid-town site in this document). The LOCSD prepared an EIR for the project and certified the EIR on March 1, 2001. After receipt of a Coastal Development Permit (CDP), project construction started in 2005. In the fall of 2005, voters recalled a majority of the LOCSD board members in a special election and the new board immediately suspended construction on the wastewater project. In August 2006, the LOCSD rescinded certification of the 2001 EIR Findings and filed for federal bankruptcy protection due to default on State grants and loans.

To alleviate this setback after the recall election, California Assemblyman Sam Blakely attempted to resolve the dispute between the RWQCB and LOCSD. The efforts were to no avail. Assemblyman Blakely then proposed legislation, Assembly Bill (AB) 2701, to authorize transfer of wastewater authority from the LOCSD to the County of San Luis Obispo to proceed with implementation of a project to build a wastewater collection and treatment system for the Los Osos community. AB 2701 was passed unanimously and signed into law by Governor Arnold Schwarzenegger effective January 1, 2007. Based on legislative policies and project strategies established by the Board of Supervisors in June 2006, the County has embarked on a process to develop a community wastewater collection and treatment system in Los Osos. That process included numerous actions; detailed engineering of various options and sites for wastewater treatment and processes; creation of a community Technical Advisory Committee (representing financial, engineering, and environmental areas of expertise and experience); an inter-disciplinary team of County staff; and a team of consultants familiar with conditions in Los Osos (versed in engineering, hydro-geotechnical, and environmental expertise). The process produced a Rough Screening Report and a Fine Screening Report that identified various options for treatment technologies, sites for treatment plants and other options that may be pursued by the County.

The documents focused on identifying a set of viable project alternatives that were the basis for cost estimates to be used in later stages of the project development including a Proposition 218 vote as required by AB 2701. The County anticipates funding the project primarily from bond funds paid by a property assessment on the properties that would receive benefit of the wastewater improvements (the focus is on the properties in the designated Prohibition Zone). AB 2701 mandated adherence with the provisions of Proposition 218 whereby a majority of the property owners must approve the property assessment. The Proposition 218 vote was held in October 2007 and was approved by the voters to authorize LOWWP funding with an 80 percent yes and 20 percent no margin in favor a of the assessment of approximately $25,000 per single family residence in the Prohibition Zone (those developed properties that would benefit from the LOWWP for sanitation services).

The LOWWP alternatives consist of three main components: wastewater collection; wastewater treatment, which includes solids processing and disposal; and effluent disposal. The development of potential project alternatives and considerations were created using the preliminary design information developed by a number of sources for the CEQA/NEPA process covered by this EIR. For this EIR, a detailed environmental analysis considers four preliminary Proposed Projects on an equal basis. The preferred LOWWP selected could be any one of the four alternatives or a different combination of project components. Public review of this Draft EIR will coincide with a community preferences survey and the continuing design process. The Draft EIR availability will enable Los Osos community residents, the project team, and County elected officials to consider the LOWWP's potential environmental impacts and allow the County to identify the preferred alternative using environmental, economic, and community preferences information; incorporates appropriate mitigations; and move forward with the final design and permitting process.

2.2.3 - Project Objectives

The primary purpose of the LOWWP is development of infrastructure for a wastewater collection, treatment and disposal system to serve the community of Los Osos in the designated Prohibition Zone as required by the RWQCB. One benefit of the LOWWP is to alleviate groundwater contamination, primarily nitrates, due to contamination caused by the use septic systems throughout the community of Los Osos. Another important issue of the LOWWP involves water resources related to seawater intrusion that is contaminating the Los Osos groundwater basin. The LOWWP can be an important first step to help solve these water resource problems. How that goal is met with effluent discharge options can afford opportunities for the water purveyors to improve the local water resources.

The specific objectives of the Los Osos Wastewater Project are:

1. Develop a community wastewater project that will comply with RWQCB Waste Discharge Requirements. Address the issues of water quality defined by the Waste Discharge Requirements (WDR) for discharge limits issued by the RWQCB. The WDR discharge limitations are summarized below in Table 2-1.
2. Groundwater Quality. Alleviate groundwater contamination—primarily nitrates—that has occurred at least partially because of the use of septic systems throughout the community.

Table 2-1: Effluent and Recycled Water Limitations from Previous Waste Discharge Requirements (Order No. R3-2003-0007)

Effluent Limitations			
Constituent	**Units**	**Monthly Average**	**Daily Maximum**
Settleable Solids	mg/L	0.1	0.5
BOD*, 5-Day	mg/L	60	100
Suspended Solids	mg/L	60	100
Total Nitrogen (as N)	mg/L	7	10
Recycled Water Limitations			
Constituent	**Units**	**Monthly Average**	**Daily Maximum**
BOD, 5-Day	mg/L	30	30
Suspended Solids	mg/L	90	90
Turbidity	NTU	2**	5**
pH	Units	In range 6.5 to 8.4	

Notes:
BOD = Biological Oxygen Demand mg/L = milligram per liter
NTU = Normal Turbidity Units
* Biological Oxygen Demand
** 24-hour mean value
*** Turbidity must not exceed 5 NTU more than 5 percent of the time within a 24-hour period and must not exceed 10 NTU.
Source: Central Coast Regional Water Quality Control Board Order No. R3-2003-0007.

3. Other Objectives:
   a. Environmental Impacts. Incorporate measures to minimize potential environmental impacts on the Los Osos community and surrounding areas. These include, but are not limited to sustainability of environmental principles of habitat conservation, endangered species and habitat, air and water quality, greenhouse gas emissions, wetlands and estuary preservation or enhancement, agricultural lands enhanced.
   b. Project Costs. Meet the project water quality requirements while minimizing life-cycle 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, Environmentally Sensitive Habitat Areas (ESHA standards), State Marine Reserve, and archeological concerns.
   d. Water Resources. Address water resource issues by mitigating the Project’s impacts of saltwater intrusion. Furthermore, the wastewater project will maintain the widest possible options for beneficial reuse of treated effluent.

In addition, this document will be prepared to fulfill the “CEQA Plus” requirements of the State Water Resources Control Board Division of Financial Assistance in order for the County to be eligible for other state grants, loans or other considerations.

2.3 - Project Alternatives

The facilities that are part of the four alternative proposed projects evaluated in the Draft EIR are located at several locations within and outside the Los Osos Community. Each Proposed Project includes a conveyance system, a wastewater treatment process, a treatment plant, a primary wastewater pumping station and effluent disposal sites. Some project elements, such as the Broderson leachfield and the Tonini spray fields, are common to all four Proposed Projects; other elements are included in only one alternative. Three of the potential treatment plant sites (Branin, Cemetery and Giacomazzi) are located on adjacent parcels, and there are several potential LOWWP configurations that include several of these parcels simultaneously.

Table 2-2 summarizes key points for each of the four alternative proposed projects under review including treatment plant site and process, effluent disposal options, conveyance systems and storage locations.

Table 2-2: Proposed Projects

Proposed Project	Treatment Plant Site	Collection System	Conveyance Systems		Treatment Process	Storage Location	Effluent Disposal
			Raw Wastewater	Treated Effluent			
1	Cemetery - Giacomazzi - Branin	STEP/ STEG	Mid-town Central Point to Giacomazzi	Giacomazzi to Broderson and Tonini	Facultative Ponds (Secondary Treatment)	Onsite at Cemetery - Giacomazzi - Branin	Broderson Leachfield, Tonini Spray fields and Conservation
2	Giacomazzi	Gravity	Mid-town Pump Station to Giacomazzi	Giacomazzi to Broderson and Tonini	Oxidation Ditch or Biolac (Secondary Treatment)	At Tonini Spray field Site	Broderson Leachfield, Tonini Spray fields and Conservation
3	Giacomazzi - Branin	Gravity	Mid-town Pump Station to Giacomazzi	Giacomazzi to Broderson and Tonini	Oxidation Ditch or Biolac (Secondary Treatment)	Onsite at Giacomazzi	Broderson Leachfield, Tonini Spray fields and Conservation
4	Tonini	Gravity	Mid-town Pump Station to Tonini	Tonini to Broderson and onsite at Tonini	Facultative Ponds (Secondary Treatment)	Onsite at Tonini treatment and spray field site	Broderson Leachfield, Tonini Spray fields and Conservation
Source: Appendix B-8: Kennedy/Jenks Consultants, 2008, Los Osos Wastewater Project Environmental Impact Report Draft Proposed Projects Descriptions, Draft August 1.							

The four projects identified in the table above and discussed below represent a discrete combination of treatment plant sites, collection system types, wastewater conveyance system schemes, and effluent storage and disposal techniques. They form the basis for analysis in this Draft EIR. However, it is possible that any combination of these elements may be used for the County's preferred alternative identified through this Draft EIR process and for the County to make findings that support the final project decision.

Proposed Project 1: Project 1 includes a combination Septic Tank Effluent Pumps (STEP)/Septic Tank Effluent Gravity (STEG) 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 (only the portion of the Cemetery site proposed for use is the part not currently occupied by the Memorial Park). Treated effluent can be stored in the seasonal storage pond on the combined Cemetery/Giacomazzi/Branin site or sent directly through the treated effluent conveyance system to the Broderson leachfield and/or the Tonini spray fields.

Proposed Project 2: Proposed Project 2 includes a gravity sewerage collection system and an Oxidation Ditch/Biolac 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. Treated effluent can be sent directly through the treated effluent conveyance system to the Broderson leachfield. Alternatively, some or all of the treated effluent can be sent through the eastern end of the treated effluent conveyance system to the Tonini spray fields or the seasonal storage pond on the Tonini site.

Proposed Project 3: Proposed Project 3 includes a gravity sewerage collection system and an Oxidation Ditch/Biolac 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. Treated effluent can be stored in the seasonal storage pond on the combined Giacomazzi/Branin site or sent directly through the treated effluent conveyance system to the Broderson leachfield and/or the Tonini spray fields.

Proposed Project 4: Proposed Project 4 includes a gravity sewerage 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. Treated effluent can be sent directly through the treated effluent conveyance system to the Broderson leachfield. Alternatively, some or all of the treated effluent can be sent to the nearby Tonini spray fields and or seasonal storage pond on the Tonini site.

2.4 - Project Components

The four Proposed Projects described above are combinations of various project component options. General descriptions of each basic project components are described below.

2.4.1 - Collection and Conveyance Systems

A collection system collects the wastewater from individual wastewater generators within the Wastewater Service Area and conveys the wastewater to the wastewater treatment plant. A separate conveyance system carries the treated effluent from the wastewater treatment facility and storage pond to the effluent disposal areas. There are two systems of collection considered for the alternatives in this project: STEP/STEG and gravity. A Sewage Tank Effluent (STE) collection system would consist of both STEP and STEG collection lines. For this system, the LOWWP Project 1 would install new sealed STEP/STEG tanks in the front yard of each property receiving wastewater services. Gravity or pressurized lateral pipelines would be installed to convey the STEP/STEG tank effluent to the street collection system sewer main. In a gravity collection system, a pipeline system would convey both the wastewater and sewerage solids collected from residences and buildings within the Wastewater Service Area to a centrally located pump station at the Mid-town site and then pumped to the wastewater treatment facility. Proposed Projects 2, 3, and 4 include a gravity collection system.

2.4.2 - Wastewater Treatment Process and Solids Processing

A wide range of wastewater treatment process alternatives were evaluated for suitability for the LOWWP, including the ability to reliably provide secondary levels of wastewater treatment meeting the RWQCB Waste Discharge Requirements. Two wastewater treatment processes were selected as the most viable and cost-effective for the four Proposed Projects: Partially Mixed Facultative Ponds and an Oxidation Ditch or the similar Biolac. Solids processing facilities would also be provided at each wastewater treatment facility to process the sludge before it is hauled offsite to a Class 2 landfill facility (there may be future opportunities for composting but that option is not studied in detail in this Draft EIR).

Partially mixed facultative ponds combine a biological process that oxidizes organic oxygen-demanding material and a physical operation that allows settling of organic and inorganic solids. Extended aeration provides dissolved oxygen (DO) needed for aerobic organisms in the pond to convert and oxidize the organic material in the wastewater. Pond systems are typically selected because they provide a low-energy means to reduce Biological Oxygen Demand (BOD) and Total Suspended Solids (TSS) in the treated effluent discharge. In addition, ponds provide effective in-plant flow equalization that permits operation of the facility at predictable flows, reducing the costs of operations. Furthermore, partially mixed facultative ponds require minimal effort to manage biosolids; the solids remain in the pond to be digested in the anaerobic layer at the bottom of the pond.

An oxidation ditch consists of a ring or oval shaped channel equipped with extended aeration and mixing devices that create the optimal conditions for treating the raw wastewater to secondary levels. The combined raw and partially treated wastewater circulates around the oxidation ditch many times during the treatment process. This helps equalize the flow rates and wastewater concentrations between day and night and during wet weather. The oxidation ditch tank configuration, aeration system, and mixing devices promote unidirectional channel flow, so that the energy used for aeration is sufficient to provide mixing in a system with a relatively long hydraulic retention time. The long solids retention times (SRTs) and large tank volumes provide for nitrification. As the wastewater leaves the aeration zone, the DO concentration decreases and denitrification may occur. Brush-type or surface-type extended aerators are used for mixing and aeration. Secondary sedimentation tanks are used for most applications, and in some cases intra-channel clarifiers have been used to improve solids removal. Biolac® Extended Aeration is a proprietary process that combines long solids retention times with submerged aeration in earthen basins. Fine bubble membrane diffusers are attached to floating aeration chains that are moved across the basin by the air released from the diffusers.

Although oxidation ditches and Biolac are different treatment processes, the two systems share similar area requirements and treatment process trains, involving similar upstream and downstream support process components. They are considered interchangeable in the Proposed Projects. Oxidation ditches/Biolac systems are typically selected because they provide a mechanical process to reduce BOD by oxidation of organic wastes. Additionally, effective nitrogen removal is integral to the oxidation ditch/Biolac system rather than requiring a separate nitrification/denitrification system process to follow the primary treatment process. Biolac offers a lower construction cost than oxidation ditches because the earthen basins require less concrete and less energy to operate since the fine-bubble aeration process has a higher efficiency. Energy requirements to operate an oxidation ditch/Biolac system are higher than the energy required for a partially mixed facultative pond system.

2.4.3 - Effluent Disposal

For all four Proposed Projects, the treated effluent conveyance system would consist of an above ground effluent pump station and underground pipeline to convey the treated effluent from the wastewater treatment facility to the two effluent disposal sites: the Broderson leachfield and the Tonini spray fields. All four Proposed Projects include disposal of 1,290 AFY (estimated) of projected treated effluent based on the wastewater generated by the buildout population and estimated wet weather infiltration into the collection system. This treated effluent flow projection also assumes that the County implements water conservation measures.

No single effluent disposal alternative has enough capacity to accept the entire 1,290 AFY effluent flow. Therefore, different effluent disposal options must be combined to create sufficient effluent disposal capacity. Table 2-3 illustrates the effluent disposal systems. The choice of effluent disposal options also affects the groundwater water quality and groundwater management benefits created by the project, including reducing seawater intrusion. These issues are discussed in detail in the EIR.

Table 2-3: Proposed LOWWP Effluent Disposal System

Effluent Disposal Method	Available Area (acres)	Estimated Capacity per Acre (AFY[1]/acre)	Capacity (AFY[1])	Proposed Project Capacity (AFY[1])
Broderson Leachfield	7	64	448[2]	448
Tonini Spray fields[3]	190 (175 used)	4.8	910	842[3]
Total Effluent Disposal Capacity			1,358	1,290
Conservation Program			160	160[4]

Notes:
1 AFY = acre-feet per year.
2 This is a conservative estimate of the maximum possible estimated effluent discharge capacity that can be sustained reliably without constructing dewatering wells downstream that could pump out groundwater, if necessary, to maintain adequate depth to the groundwater table and avoid saturated soil conditions along the bay. See Section 5.2 and Appendix D for additional detail on groundwater issues.
3 The Proposed Projects will use 175 acres of the 190 suitable acres at the Tonini site. 842 AFY of proposed spray irrigation at Tonini corresponds to 175 acres of spray fields.
4 The 1,290 AFY needed effluent disposal capacity assumes that a water conservation program will be implemented that will reduce water consumption and corresponding wastewater generation by 160 AFY.
Source: Carollo, April 2008.

2.4.4 - Solids Processing and Disposal

The quantity and frequency of solids management varies significantly for the four Proposed Projects. For partially mixed facultative ponds, accumulated solids are removed from the ponds typically every 15 to 20 years. The removed solids would be processed in temporary mobile solids processing facilities. Algae must be removed more frequently from the facultative pond surfaces (algae is considered a biosolid for regulatory purposes and sufficient aeration will control algae growth). For oxidation ditches/Biolac systems, solids are settled out in the secondary clarifier tanks on an ongoing basis and then pumped to the permanent solids handling facilities.

The removed solids from both types of treatment facilities would be processed in an aerobic digestion process, dewatered by a screw press system to about 15 percent solids, and then hauled to a Class B landfill for disposal. Solar drying or composting could be used to process and dispose of the accumulated algae.

A STEP/STEG collection system handles solids in a different manner. A STEP/STEG system retains solids in the on-lot tanks instead of discharging all material to the collector system. It will be necessary to pump solids from the STEP/STEG tanks on a periodic basis (every five years) and transport the solids to the wastewater treatment facility.

Noise and odor control are important considerations for the solids processing facility, so the solids processing equipment would be enclosed within a sound insulated building. An inorganic media air scrubber would trap and scrub the interior foul air before releasing it to the outside air.

2.4.5 - Conservation Considerations

The average wastewater generation rate of 1.2 million gallons a day estimated for the LOWWP assumes that water conservation measures would be implemented to reduce water consumption and the corresponding wastewater generation rate by 0.1 million gallons a day or 160 acre-feet a year. Reducing wastewater generation by 160 acre-feet a year by 2020 represents about a ten percent reduction from the 2006 average daily per capita wastewater generation rate. If the water conservation measures are not implemented, the capacity of the wastewater treatment facility would have to be increased by 0.1 million gallons per day, and the treated effluent disposal system would have to accommodate additional flows.

All four Proposed Projects may include the proposed water conservation measures, which would include three primary elements:

1. Mandate that property owners retrofit their bathrooms with all low-flow fixtures, including low-flow toilets, prior to hooking up their buildings to the sewer.

2. Conduct Public Education campaign to increase awareness of water conservation practices.

3. Promote High-Efficiency appliance measures that are sponsored by the gas and electric utility companies. Many of these programs cover appliances such as energy efficient dishwashers and clothes washers that would reduce both energy and water consumption.

Leachfield

Effluent disposal through leachfields is a means where treated effluent is spread on a prepared area and allowed to percolate into the ground. This method would not depend on weather conditions so it may be used on a year-round basis. Application rates may be adjusted so annual effluent disposal totals do not exceed the leachfield’s design capacity and annual hydraulic loading capacity respectively. This flexibility allows the LOWWP to discharge more effluent through a leachfield during the winter wet season when the spray fields are not available and less effluent during the summer when the spray fields can be used. Approximately 8 acres of the approximately 80-acre Broderson site is suitable for a leachfield. The Broderson site is the only potential leachfield site that incurs a seawater intrusion mitigation benefit. The 8-acre active leachfield area at the Broderson site would require extensive preparation to function properly including excavation, backfill with gravel for drainage, installation of perforated piping, and then covered by geotextile fabric and native materials.

Spray fields

Spray field disposal is the practice of spraying effluent on land to dispose of the water through evapotranspiration and percolation. Spray field disposal, which requires secondary treatment, would be operated to maximize evaporation and avoid runoff. Disposal would occur through evapotranspiration, or through both evapotranspiration and percolation. The LOWWP would need approximately 175 acres at the Tonini Ranch that are suitable for spray fields in order to dispose of 842 acre-feet of effluent per year. Together with the Broderson leachfield, the two effluent disposal options would provide sufficient capacity for the 1,290 acre-feet per year of effluent that are projected for the LOWWP.

Effluent Storage

During wet weather, treated effluent cannot be applied to the sprayfields but can sent to Broderson for groundwater management. To provide seasonal storage during these wet periods, each of the four Proposed Projects would provide up to 46 acre-feet of effluent storage capacity in seasonal storage ponds. The seasonal storage ponds could be emptied when the stored effluent is sprayed on the fields during hot, dry periods when evapotranspiration rates are high. Typically, the ponds would be empty during the summer and fall months.

2.4.6 - Feasibility Criteria

The CEQA Guidelines require that the assessment of alternatives be governed by a "rule of reason" that limits the analysis to alternatives that would avoid or substantially lessen significant project impacts and feasibly attain most project objectives. The determination of what constitutes a ‘feasible’ alternative is to be based on factors including site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, and site availability for the proposed uses. Six specific objectives will guide the selection of a project alternative for the Los Osos Wastewater Project:

1. **Waste Discharge Requirements.** The project must comply with all Waste Discharge Requirements (WDR) established by RWQCB as set forth in Table 2-4.

2. **2. Groundwater Contamination:** The selected alternative must be fully responsive to RWQCB requirements for alleviation of the Cease and Desist Order in the Prohibition Zone.

3. **Other Objectives:**
    a. Environmental Impacts. Incorporate measures to minimize potential environmental impacts on the Los Osos community and surrounding areas.
    b. Project Costs. Meet the project water quality requirements while minimizing life-cycle 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, Environmentally Sensitive Habitat Areas (ESHA standards), State Marine Reserve, and archeological concerns.
    d. Water Resources. Address water resource issues by mitigating the Project’s impacts of saltwater intrusion. Furthermore, the wastewater project will maintain the widest possible options for beneficial reuse of treated effluent.

Table 2-4: Effluent & Recycled Water Limitations from Previous WDRs (Order No. R3-2003-0007)

Effluent Limitations			
Constituent	**Units**	**Monthly Average**	**Daily Maximum**
Settleable Solids	mg/L	0.1	0.5
BOD, 5-Day	mg/L	60	100
Suspended Solids	mg/L	60	100
Total Nitrogen (as N)	mg/L	7	10
Recycled Water Limitations			
Constituent	**Units**	**Monthly Average**	**Daily Maximum**
BOD, 5-Day	mg/L	30	30
Suspended Solids	mg/L	90	90
Turbidity*	NTU	2*	5*
pH	Units	In range 6.5 to 8.4	

Notes:
BOD = Biological Oxygen Demand mg/L = milligram per liter
NTU = Normal Turbidity Units
* Monthly average is given as a 24-hour mean value; daily maximum turbidity must not exceed 5 NTU more than 5 percent of the time within a 24-hour period and must not exceed 10 NTU.
Source: Central Coast Regional Water Quality Control Board Order No. R3-2003-0007

2.4.7 - Alternatives Selection Process

This document considers four preliminary Proposed Projects on an equal basis. The preferred LOWWP selected could be any one of the four alternatives or another alternative combination of project components. Public review of this Draft EIR will coincide with a community preferences survey and the continuing design process. The Draft EIR availability will enable Los Osos community residents, the project team, and County elected officials to consider the LOWWP's potential environmental impacts and allow the County to identify a preferred alternative and incorporate appropriate mitigation measures to move forward with the final design and permitting process.

Based on information presented in this Draft EIR concerning potential impacts and mitigation requirements, one project alternative will be identified by the County to pursue for design, permitting and construction leading to preparation of a Final EIR prior to final approval and acceptance of the EIR by the County.

2.4.8 - Scoping Input and NOP Comments

The County issued two NOPs for the current EIR. The first NOP was issued in December 2007, and a supplemental NOP was issued in June 2008 when additional information was available concerning the proposed project alternatives. Table 2-5 summarizes key points from comment letters received in response to the December 2007 NOP, and Table 2-6 summarizes key points from letters commenting on the June 2008 NOP.

Table 2-5: Summary of Written Comments on the December 2007 NOP

Source	Summary of Points Raised in Comment Letter	Section (§) Where Addressed
Central Coast Regional Water Quality Control Board	Requests that the Basin Plan be included on the list of policies and plans with which the project must be consistent.	EIR §5.2, 5.3, Appendices D-1 and E-1
	Notes that composting toilets would not be appropriate in Los Osos and would require separate nitrogen sequestering facilities.	EIR §7
	Notes that proposed analysis of a merger with Morro Bay/Cayucos Sanitary District or with the Department of Corrections California Men's Colony treatment facilities may be infeasible due to separate on-going improvements underway or recently completed by those agencies.	EIR §7
City of Morro Bay	Notes that the project description is too vague to permit detailed comment on the NOP or the project.	EIR §3
	Recommends that the County eliminate regional solutions from the list of alternatives under review.	EIR §7
	Notes that Morro Bay/Cayucos Sanitary District (MB/CSD) are moving forward with plans to construct tertiary treatment within an 8-year timeframe. Notes that the MB/CSD plant will provide full tertiary treatment using oxidation ditches with filtration prior to ocean discharge, with the intent to practice reclamation in future years.	EIR §7 EIR §7
	The MB/CSD project utilizes a fee structure that was achieved through much debate.	EIR §7
Air Pollution Control District	Provides name and address for the Air Pollution Control District (APCD) Contact Person.	EIR §9
	APCD Permits may be required for portable equipment used in construction as well as operational permits for the selected wastewater treatment plant and/or components thereof.	EIR §5.9 and Appendix K-1
	Demolition and remodeling activities generate adverse air quality impacts & require analyses that comply with standards set forth in the National Emission Standard for Hazardous Air Pollutants (NESHAP).	EIR §5.9
	Projects located in an area with Naturally Occurring Asbestos (NOA) require a geologic evaluation. If NOA is not found, an exemption must be filed; if NOA is present, additional requirements shall apply.	EIR §5.7 EIR §5.9
	APCD prohibits burning of vegetative materials except unless a waiver is granted.	EIR §5.9
	The project has potentially significant impacts requiring thorough assessment, for each alternative, of construction and buildout impacts on air quality including baseline conditions, the type and volume of emissions, analysis for each alternative, GHG and mitigations.	EIR §5.9

Table 2-5 (Cont.): Summary of Written Comments on the December 2007 NOP

Source	Summary of Points Raised in Comment Letter	Section (§) Where Addressed
Air Pollution Control District (cont.)	The Air Quality Handbook should be used in the EIR analysis.	EIR §5.9 and Appendix K-1
	A consistency analysis comparing project alternatives to adopted land use goals and population projections shall be required to comply with the Clean Air Plan.	EIR Appendix K-1
Native American Heritage Cmsn.	Notes that projects with significant effects on historical resources would be subject to compliance requirements including CEQA review and mitigation where required, though avoidance is recommended where feasible.	EIR §5.6 and Appendix H-1
Ocean Outfall Group	States that gravity sewers are outdated, require that treatment facilities be constructed at low elevations that are subject to flooding, and may degrade important ecological resources in the Morro Bay East Estuary State Marine Reserve.	EIR Appendix G-1
	Recommends a pressure or decentralized system to reduce risk of spillage and be more protective of environmental resources.	EIR §7
	Recommends an expandable system that can accommodate future tertiary treatment and wastewater recycling capability.	EIR §7
John and Alison Ball	States that the project must eliminate discharges from septic tanks.	EIR §1 and 5.2 and Appendices D-1 and D-2
	Assessment should consider whether cessation of septic tank discharges may contribute to land subsidence.	EIR Appendices F-1 and F-2
	EIR should analyze the potential for surfacing groundwater due to excessive discharges.	EIR Appendices D-1 and D-2
Lisa Schicker	States that the current EIR is not required to reconsider the Tri-W site that was evaluated in a prior project EIR.	EIR §7
	Provides numerous attachments in support of this statement.	EIR §7
Coastal San Luis Resource Conservation District	Requests inclusion on the distribution list for project notices and environmental documents.	EIR §1
Carmen Nakkasha, LLP (representing Cayucos Sanitary District)	Requests that CSD be included on the distribution list for project notices and environmental documents.	EIR §1
	States that the Morro Bay/CSD alternative is infeasible because (a) CSD is now moving forward with plans to upgrade to full tertiary treatment within a fixed 8-year timeframe; (b) Los Osos' schedule cannot be accommodated within the time available to CSD; (c) construction and operational costs for such a project would far exceed the cost of other options; and (d) mitigation costs for such a project would also likely be prohibitive.	EIR §7

Table 2-5 (Cont.): Summary of Written Comments on the December 2007 NOP

Source	Summary of Points Raised in Comment Letter	Section (§) Where Addressed
Anne Norment	The Low Pressure Collection System (LPCS) alternative would be associated with high energy demands in violation of AB 32 requirements to minimize carbon footprint.	EIR §7
	The EIR should analyze impacts if LPCS grinder pumps fail during a power outages.	EIR §5.7 and Appendix I-1
	The EIR should analyze comparative LPCS and STEP/STEG characteristics on each lot in terms of costs (electrical hook-up, control panels, failure response, pump noise, tree root issues, grease clogging and odors), as well as implications of homeowners assuming responsibility for emptying of septic tanks.	EIR §5.7
	The EIR should evaluate potential for sewage spills into Morro Bay and the State Marine Preserve; determine the extent to which LPCS is used at other coastal sites with similar resources.	EIR §5.5 and Appendix G-1
	Decentralized treatment (DT) offers many advantages, but the alternative appears to assume 30 mini-treatment plants with subsurface irrigation to each residence; other configurations should be considered including (a) fewer treatment plants on larger tracts of land; and (b) impacts of an in-town plant on aesthetics, odors, noise and energy demands. The selection for Los Osos should be guided by the recommendation of industry experts; (c) DT impacts on ESHA should be compared with impacts of commercial or residential development on the same lot; (d) consideration of potential for spills as sewage is conveyed to and from distant treatment plant sites; (e) Note that RWQCB previously permitted multiple sites for the Tri-W project; (f) multiple discharge sites would relieve pressure on the Broderson site; (g) the introduction of nitrogen through irrigation with treated wastewater would be offset by decreased use of fertilizer - this should be analyzed; and (h) the EIR should analyze and compare seawater intrusion effects associated with DT at in-town and more distant sites.	EIR §7
	The safety and efficacy of groundwater management at Broderson remain uncertain and could impact subsurface stability in Redfield Woods and other downgradient neighborhoods, with a range of secondary effects - especially during wet weather. Alternatives should be considered including irrigation at other sites, creation of wetlands and agricultural exchange. Irrigation at Broderson should meet or exceed EPA guidelines, and releases should be controlled to avoid conflict with other releases. The EIR should also consider environmental effects associated with soil maintenance at the Broderson site.	EIR Appendices F-1 and F-2
	Alternatives that export water reduce basin groundwater management, a critical concern since Los Osos is in a level III severity water shortage. Features should be incorporated to enhance natural groundwater management, including permeable paving, bioswales, rain gardens and diversion of runoff to infiltration sites; conservation should also be analyzed in the budget.	EIR §3 and §7

Table 2-5 (Cont.): Summary of Written Comments on the December 2007 NOP

Source	Summary of Points Raised in Comment Letter	Section (§) Where Addressed
cont.	The significant per capita project costs would be borne solely by residents inside the Prohibition Zone (PZ), but project impacts would benefit a larger population. Environmental justice effects should be considered, and funding assistance programs sought.	EIR §5.13 and Appendix O-1
	All options should be examined in terms of risk, frequency and severity of potential sewage spills, with estimates of the cost of fines and clean-up; the EIR should discuss how such costs would be borne and by whom. If by PZ residents, this would represent an addition environmental justice issue for analysis.	EIR §5.13 and Appendix O-1
	Chosen alternatives should minimize need for offsite hauling of sludge to reduce associated cost and environmental impacts; ecomachines should be considered as a biosolids processing option.	EIR §7
	Green building practices should be utilized at the treatment facility.	EIR §5.9 and Appendix K-1
Chaffe McCall LLP (repre-senting Los Osos Mortuary and Memorial Park)	Construction of a proposed wastewater treatment facility adjacent to the Los Osos Mortuary and Memorial Park would adversely affect the tranquility at this site and may impact the desirability of the Mortuary as a resting place.	EIR Appendix L-1
	The Mortuary opposes any alternative that would result in a treatment plant on an adjacent parcel.	EIR §3.3.2 and 4.2.2
	The Mortuary requests inclusion on the distribution list for project notices and environmental documents.	EIR §1
Dr. Mary Fullwood representing San Luis Chapter of the Surfrider Foundation (representing a number of interests: Sierra Club, SLO Green Build, Los Osos Sustainability Group, The Terra Foundation, and Northern Chumash Tribal Council	In response to direction from the Chair of the County Board of Supervisors, the environmental consortium focused attention on sustainability of any option considered by the county for the project. They defined sustainability as the protection, preservation, and restoration of environmental, social, and economic gifts and opportunities enjoyed by the community. Concern was also expressed about protecting past cultural resources of Native Americans, and the preservation and enhancement of local watersheds on which other vital systems depend, including coastal ecosystems. Their recommendations for the LOWWP centered on collection systems: - Provide protection against overflows of untreated wastewater - Protect groundwater resources - -Avoid significant environmental impacts during construction - -Provide energy efficient solutions The group also provided a Report of their analysis and recommendations titled “Statement of Key Environmental Issues Los Osos Wastewater Treatment Project: Collection System” where there was an analysis of various collection systems and their recommendation to utilize a STEP/STEG system.	EIR §5.6. 5.7, 5.11, 5.12, Appendices H-1, I-1, M-1, and N-1

Table 2-5 (Cont.): Summary of Written Comments on the December 2007 NOP

Source	Summary of Points Raised in Comment Letter	Section (§) Where Addressed
Dr. Donald Asquith	Letter correspondence expressing concern with tables and statements made in the Carollo Engineers' "Fine Screening Report" that is used as feeder information to the Draft EIR. Concerns related to: - Table 2-3 and the use of "harvesting" makes inference that mounding of groundwater would occur and be an issue depending on the level of use of the Broderson site. - Use of the term "harvest wells" is a misnomer - Operational concerns with the level of use of the Broderson site - Presence of a salt water "wedge" under the sand spit may disrupt discharges to the upper aquifer from reaching the ocean and would remain in the Bay.\	EIR §5.2, Appendix D-1
State Clearing-house	Standard correspondence affirming NOP distribution to state agencies and comment procedures.	EIR §1

Table 2-6: Summary of Written Comments on the June 2008 Supplemental NOP

Source	Summary of Points Raised in Comment Letter	Where Addressed
Air Pollution Control District	Provides name and address for APCD Contact Person.	EIR §9
	The air quality analysis should assess greenhouse gas emissions (GHG).	EIR §5.9 and Appendix K-1
	Requests that air quality analyses for project alternatives comply with APCD comments provided in response to the original NOP.	EIR §5.9 and Appendix K-1
	APCD Permits may be required for portable equipment used in construction as well as operational permits for the selected wastewater treatment plant and/or components thereof.	EIR §5.9 and Appendix K-1
	Demolition and remodeling activities generate adverse air quality impacts & require analyses that comply with standards set forth in the National Emission Standard for Hazardous Air Pollutants (NESHAP).	EIR §5.9 and Appendix K-1
	Projects located in an area with Naturally Occurring Asbestos (NOA) require a geologic evaluation. If NOA is not found, an exemption must be filed; if NOA is present, additional requirements shall apply.	EIR §5.4, 5.7, Appenidx F-1, I-1
	APCD prohibits burning of vegetative materials unless a waiver is granted.	EIR §5.9 and Appendix K-1
	The project has potentially significant impacts requiring thorough assessment for each alternative, of construction and buildout impacts on air quality including baseline conditions, the type and volume of emissions, analysis for each alternative, GHG and mitigations.	EIR §5.9 and Appendix K-1
	The Air Quality Handbook should be used in the EIR analysis.	EIR §5.9 and Appendix K-1

Table 2-6 (Cont.): Summary of Written Comments on the June 2008 Supplemental NOP

Source	Summary of Points Raised in Comment Letter	Where Addressed
Cont.	A consistency analysis comparing project alternatives to adopted land use goals and population projections shall be required to comply with the Clean Air Plan	EIR §5.9 and Appendix K-1
Native American Heritage Commis-sion	Notes that projects with significant effects on historical resources would be subject to compliance requirements including CEQA review and mitigation where required, though avoidance is recommended where feasible.	EIR §5.6 and Appendices H-1 and H-2
County of San Luis Obispo Dept. of Agriculture	Tonini Ranch, Turri Road, Branin, Andre/Robbins and Giacomazzi are all within the Agriculture land use category and can support agriculture. The EIR should assess impacts on agriculture associated with the conversion of these sites to project uses.	EIR §5.11 and §7, Appendix M-1
	Tonini Ranch and Turri Road are under Williamson Act contracts that do not identify the proposed project as an allowed or compatible use; cancellation would require a finding that no suitable alternative sites are available. The EIR must provide information suitable to determine whether these findings can be supported.	EIR §5.11, §7, and Appendix M-1
	Coastal Plan Policies also prohibit the planned project unless (a) no suitable alternative sites are available, (b) the least amount of agricultural land is converted, and (c) the use will not conflict with adjoining agricultural lands. Each site should be evaluated for consistency with these Coastal Plan Policies.	EIR §5.1, §5.11, and Appendices C-1 and M-1
	The County's Agricultural and Open Space Element includes policies to protect agriculture including policy nos. AGP-2, AGP-17, AGP-18 and AGP-24. Each site must be evaluated for consistency with these policies.	EIR §5.13 and Appendix M-1
	The proposed uses may be incompatible with agriculture on adjacent properties due to dust, changes in water quality and supply and drainage, reduced access and trespass. The EIR should evaluate all of these potential impacts.	EIR §5.1, §5.13, and Appendices C-1 and M-1
State Water Resources Control Board-Division of Financial Assistance	Notes that County is seeking funding assistance from the State Revolving Fund and will be required to comply with associated requirements including CEQA-Plus environmental documentation and submittal of materials comprising the Final EIR when complete.	EIR §1 and Appendix C-1
	Outlines the elements of CEQA-Plus that differ from CEQA including compliance with: (a) the Federal Endangered Species Act (including a §7 clearance), (b) the National Historic Preservation Act (including §106), (c) the federal Clean Air Act, (d) the Coastal Zone Management Act, (d) wetlands protection requirements of the Army Corps of Engineers (ACOE), (e) Flood Plain Management Act, (f) Migratory Bird Treaty Act, (g) Farmland Protection Policy Act, and (h) Wild and Scenic Rivers Act.	EIR §1, §5.5, §5.6, §5.13, and Appendices C-1, G-1, H-1, and M-1
	Impacts to ephemeral drainages should be analyzed, with mitigation as required.	EIR §5.5 and Appendix G-1

Table 2-6 (Cont.): Summary of Written Comments on the June 2008 Supplemental NOP

Source	Summary of Points Raised in Comment Letter	Where Addressed
Cont.	Impacts to the Williamson Act parcels (Tonini and Turri) require assessment and mitigation to reduce impacts.	EIR §5.13, §7, and Appendix M-1
	The EIR should offer a thorough discussion of wetlands and jurisdictional waters with a wetland delineation study.	EIR §5.5 and Appendices G-1 and G-2

2.5 - Project Phasing and Scheduling

The LOWWP is planned to be a single-phase project spread over the next two years with construction of the wastewater collection, treatment and disposal system completed by late 2010. The Draft EIR will be available for public/agency review and comment in November 2008 with approval and adoption of the Final EIR by late Spring 2009. Numerous other actions will be undertaken by the County related to execution of the LOWWP.

Coastal Development Permit (CDP): Concurrent with the EIR review and comment period will be the application and review of the Coastal Development Permit (CDP). Actual construction of facilities cannot begin until the CDP is approved.

Community Survey: The County will engage the Los Osos community and solicit their opinions regarding various options proposed for the LOWWP. This Community Survey will be conducted in late 2008 and will help the County focus on a final, preferred alternative for serving the community.

Design-Build Contract: The County will be pursuing through a formal process an effort for engaging a Design-Build venture to perform the detailed engineering design and construction of the LOWWP facilities. The Design-Build process will result in a contract award during 2009 and construction initiated in 2010.

Funding: The County will be funding the project work primarily from bonding sources associated with an established Assessment District encompassing the “Prohibition Zone” in Los Osos. Bonds will be authorized for sale in 2009. Concurrent with this effort, the County will be pursuing loan funding through the State Revolving Fund for wastewater facilities administered by the State Water Resources Control Board.

2.6 - Project Funding Sources

2.6.1 - Project Costs

Numerous variables will affect the final project costs. The County’s engineering consultant, Carollo Engineers, developed preliminary project costs for construction and other capital costs, as well as operations and maintenance (O&M) in August 2007 for the “Viable Project Alternatives Fine Screening Analysis” report. These costs and the associated assumptions have been summarized in

Table 2-7 below. Cost refinement is ongoing by the County during preparation of the "Design-Build" Request for Qualifications (RFQs) and subsequent Request for Proposals (RFP's) with prospective design-build teams.

According to the Carollo Engineers estimates, the estimated Project probable capital costs for the four Proposed Projects range from $144 to $180 million for Proposed Project 1 and from $165 to $188 million for Proposed Projects 2, 3 and 4 as shown in Table 3-9. Table 2-7also provides estimates of the projected annual operations and maintenance costs for the four Proposed Projects. O&M costs range from $2 to 3.1 million for Proposed Project 1 and $1.6 to 3.0 million for Proposed Projects 2, 3 and 4.

Table 2-7: Proposed Projects Costs (Millions)

Costs	Proposed Project 1	Proposed Project 2	Proposed Project 3	Proposed Project 4
Project Capital Costs[1,2]	$144 - 180	$165 - 188	$165 - 188	$165 - 188
Annual Operations & Maintenance[3, 4, 5]	$2.0 - 3.1	$1.6 - 3.0	$1.6 - 3.0	$1.6 - 3.0

Notes:
1. Estimated Project costs in April 2007 dollars, including probable construction costs, design, construction management, administration and legal costs. Estimated Construction Costs in April 2007 dollars, including contractor overhead and profit, permitting and mitigation.
2. Assumes that project provides seawater intrusion mitigation Level 2a from Fine Screening Report, based on the projected 185 acre-feet/year mitigation provided by the Broderson leachfield.
3. Estimated Operations & Maintenance (O&M) Costs in April 2007 dollars.
4. O&M Costs for Proposed Projects 1 and 4 include annuity to fund temporary, mobile facilities to remove solids from facultative ponds 20 years following startup of the wastewater treatment facilities.
5. O&M Costs do not include funding for water conservation program or ongoing habitat mitigation.

Source: Carollo Engineers, 2007, San Luis Obispo County, Los Osos Wastewater Project Development, Viable Project Alternatives: Fine Screening Analysis, Final August 2007.

2.6.2 - Project Funding

Funding for the LOWWP is secured primarily from an Assessment Districted established by the County Board of Supervisors for properties that will receive benefits of wastewater services now and in the future. This assessment was approved in August 2007 and initiated, pursuant to Proposition 218, by a vote of the property owners to approve the assessment. The Assessment District relates to parcels with the established Prohibition Zone for properties that have been developed and that each property received benefit for each of five project components (the Lateral Component, Collector Component, Trunk Component, Treatment/Disposal Component, and Common Component covering engineering, environmental analysis, legal, permitting and mitigation). Some parcels were excluded from consideration for various reasons. The Board of Supervisors also addressed a policy related to undeveloped, or underdeveloped parcels in the Assessment District. The policy recognized that engineering reports and associated cost estimates for the overall project are based on ultimate build-out of the Assessment District consistent with land use requirements and including both developed and undeveloped properties. Since the 2007 Proposition 218 vote only affected developed properties the County Board of Supervisors approved actions directing additional work relating to undeveloped properties including, for example, developing a water management plan with the community's water purveyors and further development of a Habitat Conservation Plan for the community (which were both included as conditions established under a Coastal Development Permit previously approved by the California Coastal Commission.)

The special benefit to each parcel was assessed by assigning Beneficial Units (BU) to each property for each of five components to the project. One Beneficial Unit is equivalent to one single-family residence. The apportionment was adjusted to consider special land uses and wastewater considerations such as multiple-dwelling properties (apartments), mobile home areas, schools, special properties (library, fire stations, community centers and the like) commercial properties, and open space. In general, the basic assessment fee for each BU is $24,941.19.

Bonds will be sold for the financial support of the Assessment District to provide funding for the project. The bond principle and interests costs will be paid by the fees collected by the County from the Assessment District.

It is not definite at this time but it is possible for the County to qualify for various state or federal grants or loan programs to assist with funding portions of the project.

2.7 - Discretionary Actions and Permits Required

Numerous discretionary actions and permits are required for the LOWWP. The County of San Luis Obispo is the agency with primary responsibility for approving the LOWWP and certifying the EIR. In addition, permits will be required for the following:

- Preparation and approval of a Coastal Development Permit/Development Plan consistent with the Local Coastal Plan
- LOWWP must meet the RWQCB treated effluent and recycled water limitations defined by the RWQCB Waste Discharge Requirements permit
- Preparation of a Drainage Plan and a Sedimentation and Erosion Control Plan consistent with the Coastal Zone Land Use Ordinance
- Aspects of the construction and operation of a wastewater system may be subject to the permitting requirements of the Air Pollution Control District
- Stormwater management plans for the LOWWP improvements located within LOCSD boundaries would need to be consistent with the LOCSD SWMP and community drainage plan.
- Temporary and permanent impacts to jurisdictional wetlands would take place in accordance with general and specific conditions outlined in USACE, RWQCB, and CDFG permitting requirements

- Environmentally Sensitive Habitats section in the San Luis Obispo Coastal Plan designates portions of the Proposed Project area as an Environmentally Sensitive Habitat Area. The CDFG and CCC will review any potential impacts and require various mitigation measures to be implemented to protect the habitat
- Assume responsibility for liability and oversight of the LOWWP pond's design and construction, in lieu of DOSD staff. The County Board of Supervisors must pass a resolution to assume liability.
- The California Native American Heritage Commission monitors whether project lead agencies adequately assess and mitigate a proposed project's potential for adverse impacts to historical resources, including archaeological resources.
- A potential funding source for the LOWWP is the State Revolving Fund managed by the SWRCB. This requires CEQA-Plus environmental documentation and review, and requires consultation directly with agencies responsible for implementing federal environmental laws and regulations.

2.8 - Summary of Environmental Impacts and Mitigation Measures

Environmental impacts identified in the various sections of this Draft EIR are summarized in Table 2-8 and Table 2-9 (below). The impacts are based on the analysis proposed projects 1 through 4 as set forth in Sections 5.1 through 5.13 and as discussed in the relevant Expanded Draft EIR Sections C through O. The referenced analysis includes a discussion of project-specific and cumulative impacts, and provides mitigation measures where required. The tables below present the expected environmental effect for each of the proposed projects as well as each component of the project, including collection, treatment, disposal, combined, and cumulative and for which mitigation measures, or design features, are proposed. Throughout this Draft EIR, only impacts that were found to be Potentially Significant are discussed. Findings of Less Than Significant or No Impacts for each area of study are not studied further. The complete analysis and rationale for determining a Less Than Significant or No Impact for each of the thresholds of significance can be found in the relevant Appendix for each section.

This page intentionally blank.

Table 2-8: Summary of Environmental Impacts and Mitigation Measures

Impact	Project 1		Project 2		Project 3		Project 4	
	Combined Effect	Cumulative	Combined Effect	Cumulative	Combined Effect	Cumulative	Combined Effect	Cumulative
Section 5.1 - Land Use								
5.1-A: The project would not physically divide an established community	NI	NI	NI	NI	NI	NI	NI	NI
5.1-B: The project would not conflict with applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.	NI	NI	NI	NI	NI	NI	NI	NI
Section 5.2 - Groundwater Quality and Water Supply								
5.2-A: The proposed project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted.	LTS	NI	LTS	NI	LTS	NI	LTS	NI
5.2-B: The proposed project would not degrade groundwater quality.	LTS	NI	LTS	NI	LTS	NI	LTS	NI
5.2-C: The proposed project would not conflict with local programs or policies related to groundwater quality or water supply?	LTS	NI	LTS	NI	LTS	NI	LTS	NI
Section 5.3 - Drainage and Surface Water Quality								
5.3-A: The proposed projects would not violate any water quality standards or waste discharge requirements.	LTS	NI	LTS	NI	LTS	NI	LTS	NI
5.3-B: The proposed projects would not substantially alter the existing drainage pattern or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site.	LTS	NI	LTS	NI	LTS	NI	LTS	NI
5.3-C: The proposed projects would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.	LTS	NI	LTS	NI	LTS	NI	LTS	NI
5.3-D: The proposed projects would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.	LTS	NI	LTS	NI	LTS	NI	LTS	NI

Legend: NI = No Impact LTS = Less Than Significant PSM = Potentially Significant Mitigated PSU = Potentially Significant Unavoidable

Table 2-8 (Cont.): Summary of Environmental Impacts and Mitigation Measures

Impact	Project 1		Project 2		Project 3		Project 4	
	Combined Effect	Cumulative	Combined Effect	Cumulative	Combined Effect	Cumulative	Combined Effect	Cumulative
5.3-E: The proposed projects would not otherwise substantially degrade water quality.	LTS	NI	LTS	NI	LTS	NI	LTS	NI
5.3-F: The proposed projects would not place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.	NI	NI	NI	NI	NI	NI	NI	NI
5.3-G: The proposed projects would not place within a 100-year flood hazard area structures which would impede or redirect flood flows.	LTS	NI	LTS	NI	LTS	NI	LTS	NI
5.3-H: The proposed projects would not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.	NI	NI	NI	NI	NI	NI	NI	NI
5.3-I: The proposed projects would be subject to inundation by seiche, tsunami, or mudflow.	LTS	NI	LTS	NI	LTS	NI	LTS	NI
5.3-J: The proposed projects would not exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.	NI	NI	NI	NI	NI	NI	NI	NI
5.3-K: The proposed projects would require or result in the construction of minor new storm water drainage facilities or expansion of existing facilities. The construction of this minor facility would not cause significant environmental effects.	LTS	NI	LTS	NI	LTS	NI	LTS	NI
5.3-L: The proposed projects would not conflict with federal laws or local goals and policies relating to hydrology and water quality.	LTS	NI	LTS	NI	LTS	NI	LTS	NI
Section 5.4 - Geology								
5.4-A: The project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving a rupture of a known earthquake fault as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist	NI	NI	NI	NI	NI	NI	NI	NI
5.4-B: The project could expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving a strong seismic ground-shaking.	PSM 5.4-B1	LTS	PSM 5.4-B1	LTS	PSM 5.4-B1	LTS	PSM 5.4-B1	LTS

Legend: NI = No Impact LTS = Less Than Significant PSM = Potentially Significant Mitigated PSU = Potentially Significant Unavoidable

Table 2-8 (Cont.): Summary of Environmental Impacts and Mitigation Measures

Impact	Project 1		Project 2		Project 3		Project 4	
	Combined Effect	Cumulative	Combined Effect	Cumulative	Combined Effect	Cumulative	Combined Effect	Cumulative
5.4-C: The project may expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving seismic-related ground failure, including liquefaction.	PSM 5.7.B-1, 5.4-C1 and 5.4-C2	LTS	PSM 5.7.B-1, 5.4-C1 and 5.4-C2	LTS	PSM 5.7.B-1, 5.4-C1 and 5.4-C2	LTS	PSM 5.7.B-1, 5.4-C1 and 5.4-C2	LTS
5.4-D: The project would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving landslides.	NI	NI	NI	NI	NI	NI	NI	NI
5.4-E: The project could result in substantial soil erosion or the loss of topsoil.	PSM 5.4-E1 through 5.4-E3	LTS	PSM 5.4-E1 through 5.4-E3	LTS	PSM 5.4-E1 through 5.4-E3	LTS	PSM 5.4-E1 through 5.4-E3	LTS
5.4-F: The project could be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.	PSM 5.4-F1	LTS	PSM 5.4-F1	LTS	PSM 5.4-F1	LTS	PSM 5.4-F1	LTS
5.4-G: The projects would be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.	PSM 5.4-G1	LTS	PSM 5.4-G1	LTS	PSM 5.4-G1	LTS	PSM 5.4-G1	LTS
5.4-H: The project would not have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.	PSM 5.4-C1	LTS	NI	NI	NI	NI	NI	NI
Section 5.5 - Biological Resources								
5.5-A: The project would have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.	PSM 5.5-A1 through 5.5-A16, and 5.5-C1 through 5.5-C3	LTS	PSM 5.5-A1 through 5.5-A16, and 5.5-C1 through 5.5-C3	LTS	PSM 5.5-A1 through 5.5-A16, and 5.5-C1 through 5.5-C3	LTS	PSM 5.5-A1 through 5.5-A16, and 5.5-C1 through 5.5-C3	LTS
5.5-B: The project would have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.	PSM 5.5-C1 through 5.5-C3, and 5.5-A7	LTS	PSM 5.5-C1 through 5.5-C3, and 5.5-A7	LTS	PSM 5.5-C1 through 5.5-C3, and 5.5-A7	LTS	PSM 5.5-C1 through 5.5-C3, and 5.5-A7	LTS
5.5-C: The project would have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.	PSM 5.5-C1 through 5.5-C3, and 5.5-A7	LTS	PSM 5.5-C1 through 5.5-C3, and 5.5-A7	LTS	PSM 5.5-C1 through 5.5-C3, and 5.5-A7	LTS	PSM 5.5-C1 through 5.5-C3, and 5.5-A7	LTS

Legend: NI = No Impact LTS = Less Than Significant PSM = Potentially Significant Mitigated PSU = Potentially Significant Unavoidable

Table 2-8 (Cont.): Summary of Environmental Impacts and Mitigation Measures

Impact	Project 1		Project 2		Project 3		Project 4	
	Combined Effect	Cumulative	Combined Effect	Cumulative	Combined Effect	Cumulative	Combined Effect	Cumulative
5.5-D: The project would interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of wildlife nursery sites.	PSM 5.5-A6 through 5.5-A8 and 5.5-C1 through 5.5-C3	LTS	PSM 5.5-A6 through 5.5-A8 and 5.5-C1 through 5.5-C3	LTS	PSM 5.5-A6 through 5.5-A8 and 5.5-C1 through 5.5-C3	LTS	PSM 5.5-A6 through 5.5-A8 and 5.5-C1 through 5.5-C3	LTS
5.5-E: The project would conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	PSM 5.5-A1 through 5.5-A16, and 5.5-C1 through 5.5-C3	LTS	PSM 5.5-A1 through 5.5-A16, and 5.5-C1 through 5.5-C3	LTS	PSM 5.5-A1 through 5.5-A16, and 5.5-C1 through 5.5-C3	LTS	PSM 5.5-A1 through 5.5-A16, and 5.5-C1 through 5.5-C3	LTS
5.5-F: The project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.	NI	NI	NI	NI	NI	NI	NI	NI
Section 5.6 - Cultural Resources								
5.6-A: The project would not cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5.	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS
5.6-B: The project would cause a substantial adverse change in the significance of an archaeological resource pursuant to section 15064.5.	PSM 5.6-B1 through 5.6-B8	LTS	PSM 5.6-B1 through 5.6-B5	LTS	PSM 5.6-B1 through 5.6-B8	LTS	PSM 5.6-B1 through 5.6-B5	LTS
5.6-C: The project would not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	PSM 5.6-C1	LTS	PSM 5.6-C1	LTS	PSM 5.6-C1	LTS	PSM 5.6-C1	LTS
5.6-D: The project would disturb human remains, including those interred outside of formal cemeteries.	PSM 5.6-D1 through 5.6-D3	LTS	PSM 5.6-D1 through 5.6-D3	LTS	PSM 5.6-D1 through 5.6-D3	LTS	PSM 5.6-D1 through 5.6-D3	LTS
5.6-E: The project would conflict with the California Coastal Act of 1976, Section 30244.	PSM 5.6-B1 through 5.6-B8	LTS	PSM 5.6-B1 through 5.6-B8	LTS	PSM 5.6-B1 through 5.6-B8	LTS	PSM 5.6-B1 through 5.6-B8	LTS
Section 5.7 - Public Health and Safety								
5.7-A: The proposed project could result in exposing residents, visitors, and construction personnel to health hazards from the routine transport, use, or disposal of hazardous materials during construction activities.	PSM 5.7-A1	LTS	PSM 5.7-A1	LTS	PSM 5.7-A1	LTS	PSM 5.7-A1	LTS
5.7-B: The proposed wastewater facilities could result in exposing offsite residents and visitors to health hazards from the routine transport, use, or disposal of hazardous materials.	PSM 5.7-B1	LTS	PSM 5.7-B1	LTS	PSM 5.7-B1	LTS	PSM 5.7-B1	LTS

Legend: NI = No Impact LTS = Less Than Significant PSM = Potentially Significant Mitigated PSU = Potentially Significant Unavoidable

Table 2-8 (Cont.): Summary of Environmental Impacts and Mitigation Measures

Impact	Project 1		Project 2		Project 3		Project 4	
	Combined Effect	Cumulative	Combined Effect	Cumulative	Combined Effect	Cumulative	Combined Effect	Cumulative
5.7-C: The project could create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the hazardous materials into the environment.	PSM 5.7-B1	LTS	PSM 5.7-B1	LTS	PSM 5.7-B1	LTS	PSM 5.7-B1	LTS
5.7-D: The project may create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions.	PSM 5.7-D1	LTS	PSM 5.7-D1	LTS	PSM 5.7-D1	LTS	PSM 5.7-D1	LTS
5.7-E: The project could emit hazardous emissions or handle hazardous or actuely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school.	PSM 5.7-B1	LTS	PSM 5.7-B1	LTS	PSM 5.7-B1	LTS	PSM 5.7-B1	LTS
5.7-F: The project would not be located on a site that is included on a list of hazardous materials site compiled pursuant to Government Code Section 65962.5 and, as a result, would not create a significant hazard to the pubic or the environment.	NI	NI	NI	NI	NI	NI	NI	NI
5.7-G: For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, the project would not result in a safety hazard for people residing or working the project area.	NI	NI	NI	NI	NI	NI	NI	NI
5.7-H: For a project within the vicinity of a private airstrip, the project would not result in a safety hazard for people residing or working in the project area.	NI	NI	NI	NI	NI	NI	NI	NI
5.7-I: The project would not impair the implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	NI	NI	NI	NI	NI	NI	NI	NI
5.7-J: The project would not expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.	LTS	NI	LTS	NI	LTS	NI	LTS	NI
5.7-K: The proposed projects would not conflict with local goals and policies relating to public health and safety.	NI	NI	NI	NI	NI	NI	NI	NI
Section 5.8 - Traffic and Circulation								
5.8-A: The Proposed Project would cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system or either individually or cumulatively exceed a level of service standard established by the county congestion management agency for designated roads or highways.	PSM 5.8-A1	LTS	PSM 5.8-A1	LTS	PSM 5.8-A1	LTS	PSM 5.8-A1	LTS

Legend: NI = No Impact LTS = Less Than Significant PSM = Potentially Significant Mitigated PSU = Potentially Significant Unavoidable

Table 2-8 (Cont.): Summary of Environmental Impacts and Mitigation Measures

Impact	Project 1		Project 2		Project 3		Project 4	
	Combined Effect	Cumulative	Combined Effect	Cumulative	Combined Effect	Cumulative	Combined Effect	Cumulative
5.8-B: The project would result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.	NI	NI	NI	NI	NI	NI	NI	NI
5.8-C: The project would substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment).	PSM 5.8-A1	LTS	PSM 5.8-A1	LTS	PSM 5.8-A1	LTS	PSM 5.8-A1	LTS
5.8-D: The project would result in adequate emergency access.	LTS	NI	LTS	NI	LTS	NI	LTS	NI
5.8-E: The project would result in adequate parking capacity.	NI	NI	NI	NI	NI	NI	NI	NI
5.8-F: The project would conflict with adopted policies, plans, or programs supporting alternative transportation (e.g. bus turnouts, bicycle racks)?	PSM 5.8-A1	LTS	PSM 5.8-A1	LTS	PSM 5.8-A1	LTS	PSM 5.8-A1	LTS
5.8-G: The project would not conflict with local goals and policies relating to traffic and transportation.	PSM 5.8-A1	LTS	PSM 5.8-A1	LTS	PSM 5.8-A1	LTS	PSM 5.8-A1	LTS
Section 5.9 - Air Quality								
5.9-A: The project would not conflict with or obstruct implementation of the applicable air quality plan.	NI	NI	NI	NI	NI	NI	NI	NI
5.9-B: The project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation.	LTS	NI	LTS	NI	LTS	NI	LTS	NI
5.9-C: The project may result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors).	PSM 5.9-C1 through 5.9-C5	LTS	PSM 5.9-C1 through 5.9-C5	LTS	PSM 5.9-C1 through 5.9-C5	LTS	PSM 5.9-C1 through 5.9-C5	LTS
5.9-D: The project may expose sensitive receptors to substantial pollutant concentrations.	PSM 5.9-C1, 5.9-C2 and 5.9-C4	LTS	PSM 5.9-C1, 5.9-C2 and 5.9-C4	LTS	PSM 5.9-C1, 5.9-C2 and 5.9-C4	LTS	PSM 5.9-C1, 5.9-C2 and 5.9-C4	LTS
5.9-E: The project would not create objectionable odors affecting a substantial number of people.	LTS	NI	LTS	NI	LTS	NI	LTS	NI
5.9-F: The project would not result in an increase in greenhouse gas emissions that would significantly hinder or delay the State's ability to meet the reduction targets contained in AB 32.	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS

Legend: NI = No Impact LTS = Less Than Significant PSM = Potentially Significant Mitigated PSU = Potentially Significant Unavoidable

Table 2-8 (Cont.): Summary of Environmental Impacts and Mitigation Measures

Impact	Project 1		Project 2		Project 3		Project 4	
	Combined Effect	Cumulative	Combined Effect	Cumulative	Combined Effect	Cumulative	Combined Effect	Cumulative
5.9-G: The project would not conflict with local goals and policies relating to air quality.	NI	NI	NI	NI	NI	NI	NI	NI
Section 5.10 - Noise								
5.10-A: The project would result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies and result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.	PSM 5.10-A1 and 5.10-A2	LTS	PSM 5.10-A2 and 5.10-A3	LTS	PSM 5.10-A2 and 5.10-A3	LTS	PSM 5.10-A3	LTS
5.10-B: The project would expose people to or generation of excess groundborne vibration or groundborne noise levels.	LTS	LTS	PSM 5.10-B1	LTS	PSM 5.10-B1	LTS	PSM 5.10-B1	LTS
5.10-C: The project would result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.	PSM 5.10-C1	NI	PSM 5.10-C1 and 5.10-C2	NI	PSM 5.10-C1 and 5.10-C2	NI	PSM 5.10-C1 and 5.10-C2	NI
5.10-D: For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, the project would not expose people residing or working in the project area to excessive noise levels.	NI	NI	NI	NI	NI	NI	NI	NI
5.10-E: For a project within the vicinity of a private airstrip, the project would not expose people residing or working in the project area to excessive noise levels.	NI	NI	NI	NI	NI	NI	NI	NI
5.10-F: The project would be consistent with the General Plan goals and policies.	PSM 5.10-A1 through 5.10-A3	NI	PSM 5.10-A1 through 5.10-A3	NI	PSM 5.10-A1 through 5.10-A3	NI	PSM 5.10-A1 through 5.10-A3	NI
Section 5.11 - Agricultural Resources								
5.11-A: The project would convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use, and pursuant to standards established by the California Coastal Commission.	PSU 5.11-A1	PSU	PSU 5.11-A1	PSU	PSU 5.11-A1	PSU	PSU 5.11-A1	PSU
5.11-B: The project would not conflict with existing zoning for agricultural use, or a Williamson Act contract.	PSU 5.11-B1	PSU	PSU 5.11-B1	PSU	PSU 5.11-B1	PSU	PSU 5.11-B1	PSU

Legend: NI = No Impact LTS = Less Than Significant PSM = Potentially Significant Mitigated PSU = Potentially Significant Unavoidable

Table 2-8 (Cont.): Summary of Environmental Impacts and Mitigation Measures

Impact	Project 1		Project 2		Project 3		Project 4	
	Combined Effect	Cumulative	Combined Effect	Cumulative	Combined Effect	Cumulative	Combined Effect	Cumulative
5.11-C: The project would not involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use.	NI	NI	NI	NI	NI	NI	NI	NI
5.11-D: The proposed project would not conflict with the local goals and policies protecting agricultural resources.	NI	NI	NI	NI	NI	NI	NI	NI
Section 5.12 - Visual Resources								
5.12-A: The project would not have a substantial adverse effect on a scenic vista.	LTS	NI	LTS	NI	LTS	NI	LTS	NI
5.12-B: The project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.	NI	NI	NI	NI	NI	NI	NI	NI
5.12-C: The project would substantially degrade the existing visual character or quality of the site and its surroundings.	PSM 5.12-C1 through 5.12-C3	NI	PSM 5.12-C1 through 5.12-C3	NI	PSM 5.12-C1 through 5.12-C3	NI	PSM 5.12-C1 through 5.12-C3	NI
5.12-D: The project would create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.	PSM 5.12-D1	NI	PSM 5.12-D1	NI	PSM 5.12-D1	NI	PSM 5.12-D1	NI
5.12-E: The project would not affect designation of LOVR as a County Scenic Corridor Design Area.	LTS	NI	LTS	NI	LTS	NI	LTS	NI
5.12-F: The project would locate structures that would disrupt views of Ag zoned parcels from LOVR.	PSM 5.12-F1 through 5.12-F3	NI	PSM 5.12-F1 through 5.12-F3	NI	PSM 5.12-F1 through 5.12-F3	NI	PSM 5.12-F1 through 5.12-F3	NI
5.12-G: The proposed projects would not conflict with local goals, policies and ordinances relating to visual resources.	LTS	NI	LTS	NI	LTS	NI	LTS	NI
Section 5.13 - Environmental Justice								
5.13-A: The proposed project would not have adverse environmental impacts that are appreciably more severe in magnitude or predominately borne by households with low-income or minority populations.	NI	NI	NI	NI	NI	NI	NI	NI
5.13-B: The proposed project would not conflict with any applicable environmental justice goals and policies of an agency with jurisdiction over the project.	NI	NI	NI	NI	NI	NI	NI	NI

Legend: NI = No Impact LTS = Less Than Significant PSM = Potentially Significant Mitigated PSU = Potentially Significant Unavoidable

Table 2-9: Mitigation Measure Summary Table

Mitigation Number	Mitigation Measure
Section 5.4: Geology	
5.4-B1	Prior to the approval of building plans for each proposed facility, the design of each facility shall be based on a facility-specific geotechnical report prepared by a California registered geotechnical engineer and professional geologist. The geotechnical report shall provide seismic data for use with at least the minimum requirements of the California Building Code (2007), as adopted by the County of San Luis Obispo.
5.4-C1	Prior to approval of the improvement plans for the proposed facilities that are part of the collection system and at the treatment plant site, a geotechnical report that addresses liquefaction hazards shall be prepared and approved by the County of San Luis Obispo. The geotechnical report shall state the recommended actions for the collection system and treatment plant site so that potential impacts from seismically-induced liquefaction would be reduced to less than significant.
5.4-C2	Prior to approval of improvement plans, an Emergency Response Plan (ERP) shall be prepared as part of the operation and maintenance plan for the proposed collection system. The ERP shall recognize the potential for liquefaction, seismic hazards and ground lurching to impact the pipeline or other proposed facilities, and specific high hazard areas shall be inspected for damage following an earthquake. "Soft Fixes" shall be incorporated in the ERP. Soft Fixes typically consist of having a plan in-place to address the hazards, such as can be achieved by storing supplies and equipment for repair.
5.4-E1	Prior to the approval of grading plans for each facility, erosion control measures shall be incorporated into the grading plans to minimize the potential for erosion or loss of top soil during grading to the satisfaction of the County of San Luis Obispo.
5.4-E2	Prior to the approval of grading plans for each facility, vegetation/landscaping shall be provided on the graded cut and fill slopes to reduce the long-term potential for soil erosion or loss of topsoil to the satisfaction of the County of San Luis Obispo.
5.4-E3	Prior to the approval of grading plans for each facility, the plans shall provide for the control of surface water away from slopes to the satisfaction of the County of San Luis Obispo.
5.4-F1	Prior to approval of the improvement plans for the proposed facilities, a geotechnical report that addresses the potential for lateral spreading, ground subsidence, and ground lurching and provides measures to reduce potential impacts to less than significant shall be prepared and approved by the County of San Luis Obispo.
5.4-G1	Prior to approval of improvement and building plans for the proposed collection system facilities and facilities at the treatment plant site, a design-level geotechnical report shall be prepared that addresses and reduces potential expansive soil impacts to less than significant. The expansive soil data shall be used with the requirements of the California Building Code (2007), as adopted by the County of San Luis Obispo.
Section 5.5: Biological Resources	
5.5-A1	The proposed project may result in a take of federally listed species and their habitat. Prior to project approval, the County shall enter into formal consultation with the USFWS and NMFS. A Biological Opinion (BO) will be prepared by the USFWS and NMFS for any proposed action that may result in the potential take of a listed species and its habitat. Pending the determinations made by the USFWS and NMFS in a forthcoming BO, the proposed project will be required to fulfill all mitigation obligations and conservation measures conditioned in the BO regarding federally-listed species and the their habitat. This will include preconstruction survey and avoidance measures, and compensatory mitigation for loss of occupied habitat to be incorporated and implemented prior to project development. Specific avoidance measures, preconstruction survey requirements, and mitigation measures, if required, will be provided by the USFWS consultation with regard to federally-listed species.

Table 2-9 (Cont.): Mitigation Measure Summary Table

Mitigation Number	Mitigation Measure
5.5-A2	The proposed project may result in take of California state listed species and their habitat. Prior to project approval, the County shall enter into formal consultation with the CDFG to obtain a Memorandum of Understanding (MOU) and Management Authorization (MA) pursuant to Section 2050 et seq. of the CFG Code. Development of an MOU/MA for the project would be based upon the formal consultation with the USFWS and NMFS, and a forthcoming BO for the proposed action. The project will be required to fulfill all responsibilities in the project MOU/MA regarding any state-listed species and their habitat. Responsibilities will include preconstruction survey and avoidance measures, and compensatory mitigation for loss of occupied habitat to be incorporated and implemented prior to project development. Specific avoidance measures, preconstruction survey requirements, and mitigation measures, if required, will be provided by the CDFG through formal consultation with regard to state-listed species and fully protected species.
5.5-A3	A worker education program and clearly defined operations procedures shall be prepared prior to project construction. The worker education program and operations procedures shall be implemented by the County throughout the duration of construction. A biologist approved by the USFWS shall be retained to provide construction personnel specific instruction on general detection and avoidance of sensitive resources during construction. The worker education program shall include: descriptions and pictures of listed species; the provisions of the Endangered Species Act; those specific measures being implemented to conserve listed species as they relate to the project; and the project boundaries within which the work will occur.
5.5-A4	Prior to project approval, a biologist authorized by the USWFS shall conduct intensive surveys to identify and relocate all snail specimens within the proposed impact area on the Broderson and Mid-town properties, and all suitable habitat areas within the proposed collection system. Only USFWS authorized biologists shall survey for, monitor, handle, or relocate Morro shoulderband snails. A biologist authorized by the USFWS shall be retained to monitor all construction activities that will take place within suitable habitat for the Morro shoulderband snail. Monitoring activities shall be required daily until completion of initial disturbance at each construction area. The monitoring biologist shall be granted full authority to stop work at his or her discretion. The monitoring biologist shall be responsible for implementing avoidance and minimization measures during construction. The monitoring biologist shall stop work if project-related activities occur outside the demarcated boundaries of the construction footprint. The monitoring biologist shall stop work if any Morro shoulderband snails are detected within the proposed construction footprint, and shall implement measures to relocate them to suitable habitat out of harms way prior to construction activities resuming. If no suitable habitat opportunities are available in the immediate vicinity of the construction footprint, salvaged and relocated
5.5-A5	Prior to project construction and pending determinations made by the USFWS, a biologist permitted by the USWFS shall conduct protocol trapping surveys for the Morro Bay kangaroo rat within all suitable habitat that occurs on and in the immediate vicinity of the proposed impact area. Protocol trapping efforts shall be conducted in coordination with the USFWS, CDFG, and the Endangered Species Recovery Program (ESRP), and all trapped specimens shall be retained for consideration of captive breeding by the USFWS, ESRP or other agency responsible for the recovery of extremely endangered species.
5.5-A6	fueling procedures shall be restricted to disturbed or developed upland areas at least 50 feet from Los Osos Creek to prevent potential spills of hazardous materials. The project shall confine all heavy equipment, vehicles, and construction work to approved roads and work areas around Los Osos Creek. Stream channel work for open-cut trenching or activities associated with pipe suspension shall limit disturbance to Los Osos Creek to what is necessary for construction. If the project proposes to use HDD methods, the project shall implement a frac-out contingency plan to manage the inadvertent release of any drilling muds into Los Osos Creek. All project work areas within and around Los Osos Creek shall be restored to pre-existing contours upon completion of work. Any impacts to riparian and wetland habitat shall be mitigated for through replacement mitigation at a set ratio as determined through consultation with the regulatory and wildlife agencies. Where the mitigation

Table 2-9 (Cont.): Mitigation Measure Summary Table

Mitigation Number	Mitigation Measure
	requirements of separate policy under the CZLUO, or the requirements of the USACE, RWQCB, and CDFG or other agency with jurisdiction over an area are different, the more restrictive regulations shall apply.
5.5-A7	Implementation of trenchless technologies shall be considered as a feasible option for the installation of conveyance pipelines within and adjacent to areas containing wetlands, streams, and riparian vegetation. Trenchless technologies that are feasible for all Proposed Projects include microtunneling and horizontal directional drilling (HDD) within all areas along the proposed conveyance routes, and pipe suspension at areas supporting existing bridge crossings along the proposed conveyance routes (at the Los Osos Creek and Warden Creek crossings). Microtunneling and HDD entrance and exit locations shall be set back as far away from wetlands, streams, and riparian vegetation as feasible and consistent with the setback requirements of the CZLUO. Implementation of microtunneling and HDD methodologies shall incorporate a frac-out contingency plan and all relevant Best Management Practices during construction. Maintenance activities associated with pipe suspension that may result in activity within the streambed of Los Osos Creek shall be restricted to periods when the streambed is dry and does not support any flowing water or pooling water in the proposed maintenance area.
5.5-A8	Additional specific avoidance measures, preconstruction survey requirements, and mitigation measures, if required, will be provided by the USFWS consultation with regard to California red-legged frog. Prior to project construction, the County shall retain a qualified biologist to conduct pre-construction surveys for the California red-legged frog according to protocol approved by the USFWS. Surveys shall be conducted within all areas that at are determined to contain suitable breeding habitats for this species and that occur within 100 feet of proposed construction, or at a distance determined through USFWS consultation. These areas shall include the following: wetlands within the community of Los Osos; tributaries T-1 and T-2 to Warden Creek on the Tonini property; tributaries W-3, W-4, W-5, W-5a, and W-5b to Warden Creek along the Los Osos Valley Road right-of-way; Warden Creek at the Turri Road crossing; Warden Lake on the Branin property; tributaries W-1 and W-2 to Warden Creek on the Giacomazzi property, and Los Osos Creek at the Los Osos Valley Road crossing. All areas that are determined to be occupied by California red-legged frog shall be avoided during all phases of the proposed project unless authorized and permitted by the USFWS. Construction avoidance and minimization measures will be required for all activities within or adjacent to suitable breeding habitat for this species, as determined through USFWS consultation. Additional conservation measures may be determined through the USFWS consultation.
5.5-A9	The proposed project shall avoid Monarch butterfly winter roost habitats where feasible. If the proposed project will impact potential winter roost habitat, a qualified biologist with expertise in positively identifying the Monarch butterfly and winter roosting behavior shall conduct preconstruction surveys within all suitable habitat that occurs within the proposed impact area during the months of October through February. All potential roost sites that have a potential to be impacted as a result of construction activities shall be fenced and avoided. No construction activities shall be permitted in the vicinity (within 500 feet) of potential roost sites during the winter roosting months.
5.5-A10	Construction activities on the Broderson and Mid-town properties shall be conducted in conjunction with relocation efforts for the Morro Bay blue butterfly. Prior to construction activities on the Broderson and Mid-town properties, a qualified biologist shall be retained to conduct relocation efforts for the Morro Bay blue butterfly. Relocation efforts shall include multiple capture and transport surveys of adult Morro Bay blue butterflies throughout the adult flight season (April to June), or according to

Table 2-9 (Cont.): Mitigation Measure Summary Table

Mitigation Number	Mitigation Measure
	other protocol recommended for similar blue butterfly species. Adult Morro Bay blue butterflies shall be relocated from the proposed impact areas within the Broderson and Mid-town properties to offsite locations to prevent any egg-laying and subsequent development of generation larvae within the proposed impact area. Construction activities shall commence immediately following the completion of the relocation activities. Prior to construction, all potential larval host plants in the immediate vicinity of the proposed impact area shall be fenced and avoided.
5.5-A11	If the removal or trimming of any trees or shrubs is proposed during the general bird breeding season (February 1 through August 31), a pre-construction survey shall be conducted by a qualified biologist within 10 calendar days prior to grading activities within any project impact area to identify all active nests in areas impacted throughout project construction and implementation. If an active nest is identified during the pre-construction survey, no construction activity shall take place within a minimum of 250 feet of any active nest until the young have fledged (as determined by a qualified biologist) and/or the nest is no longer determined to be active. Construction activity in the vicinity of any active nest shall be conducted at the discretion of a qualified monitoring biologist. For sensitive species, including Allen’s hummingbird, yellow warbler, and loggerhead shrike, the distance and placement of the construction avoidance shall be a minimum of 250 feet unless otherwise determined through consultation with the CDFG.
5.5-A12	If the removal or trimming of any trees or shrubs is proposed during the general raptor breeding season (April 1 through July 31), a pre-construction survey shall be conducted by a qualified biologist within 10 calendar days prior to grading activities within any project impact area to identify all active raptor nests in areas impacted throughout project construction and implementation. If an active raptor nest is identified during the pre-construction survey, no construction activity shall take place within a minimum of 500 feet of any active raptor nest until the young have fledged (as determined by a qualified biologist) and/or the nest is no longer determined to be active. Construction activity in the vicinity of any active nest shall be conducted at the discretion of a qualified monitoring biologist. Pursuant to Section 2050 of the CFG Code, the CDFG will not permit any impacts to the California state fully protected raptor white-tailed kite. If an active nest or breeding territory is detected during preconstruction surveys for nesting birds, no construction activities shall take place within 500 feet of the location of the active nest. The area shall be completely avoided and fenced to allow for an adequate buffer from construction activities. A qualified biologist shall be retained to monitor the activity of the nest during the breeding season until it is determined that the nest is no longer active (i.e. all young have fledged the nest and are no individual kites are dependent on the nest).
5.5-A13	Prior to project construction and within all areas on the Broderson and Mid-town properties that contain suitable habitat for Morro manzanita, Monterey spineflower, and Indian knob mountainbalm, a qualified biologist approved by the USFWS shall conduct botanical surveys to identify all sensitive plant species within and in the immediate vicinity of the proposed impact area. Surveys shall be conducted during the local blooming periods for each species and according to recommendations and guidelines prepared by the CDFG and CNPS. All specimens shall be clearly demarcated with flagging, and avoided to the maximum extent feasible during construction. A qualified monitoring biologist shall be retained to monitor all construction activities in the immediate vicinity (within 100 feet) of any flagged specimens. Any impacts that are proposed to the Morro manzanita, Monterey spineflower, and Indian knob mountainbalm shall proceed according to stipulations determined through wildlife agency consultation. Mitigation for Morro manzanita shall include replacement at a minimum ratio of 5:1, unless determined otherwise during wildlife agency consultation. Transplantation and relocation of salvaged specimens, if appropriate and feasible, should be considered during wildlife agency consultation. Salvaged specimens should be transported to an offsite location that is approved by the USFWS, and should be assessed against survival and reproduction success criteria according to a mitigation monitoring plan. The County shall provide a written report to USFWS within 90 days following the completion of the proposed project. The report must document the number of Morro

Table 2-9 (Cont.): Mitigation Measure Summary Table

Mitigation Number	Mitigation Measure
	manzanita, Monterey spineflower, and Indian knob mountainbalm removed and relocated from project areas, the locations of all Morro manzanita, Monterey spineflower, and Indian knob mountainbalm relocations, and the number of Morro manzanita, Monterey spineflower, and Indian knob mountainbalm known to be dead or damaged. The report shall 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.
5.5-A14	The proposed project should minimize to the maximum extent feasible any potential impacts to non-listed plant and lichen species designated as sensitive by the CNPS, including Blochman leafy daisy, saint's daisy, San Luis Obispo wallflower, curly-leafed monardella, dune almond, spiraled old man's beard, Los Osos black and white lichen, long-fringed parmotrema, and splitting yarn lichen. A qualified biologist shall conduct botanical surveys within suitable coastal sage scrub habitat on the Broderson and Mid-town properties to identify all sensitive plant and lichen species within and in the immediate vicinity of the proposed impact area. Surveys shall be conducted during the local blooming periods for each species, where applicable, and according to recommendations and guidelines prepared by the CDFG and CNPS. All specimens shall be clearly demarcated with flagging and avoided to the maximum extent feasible during construction.
5.5-A15	Prior to project construction, land containing coastal sage scrub habitat and/or other habitat shall 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 proposed project shall be acquired within the remaining acres of land on the Broderson property that will not be impacted by the proposed leachfields. Mitigation lands within the Broderson property shall 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 shall 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 shall be prepared. The County shall 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.
5.5-A16	The existing coastal sage scrub within the Broderson property shall be restored 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 activities shall be conducted on the Broderson property by qualified personnel with expertise in restoration ecology and knowledge of sensitive plant and wildlife species in the area. Restoration activities shall be conducted according to a Restoration Plan or similar plan specifically prepared for the effort and approved by USFWS, CDFG, and/or the CNPS. Similarly, restorative measures and maintenance shall be implemented according to a Habitat Mitigation and Monitoring Plan or similar implementation plan that shall require a schedule and program for monitoring and reporting the progress of the restoration effort. The Restoration Plan shall 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 shall be least damaging to native species. Any disturbed portion of acquired mitigation lands should be appropriate for restoration into coastal sage scrub habitat

Table 2-9 (Cont.): Mitigation Measure Summary Table

Mitigation Number	Mitigation Measure
	and have the potential to support the functions and values necessary for the Morro shoulderband snail, the Morro Bay kangaroo rat, and other sensitive species. The restoration effort shall include the implementation of a seed collection program to gather seeds to be used during restoration from native sources. The seed collection program shall be prepared for approval by the County prior to project construction activities. The seed collection program shall include the use of native plants that will be removed as a result of the project. Collection shall take place by qualified personnel with expertise inbotanical resources during the appropriate time of year for seed production and harvesting. The County shall provide annual reports to the USFWS documenting the results of all restoration and monitoring activities. Annual reports shall 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 leachfields, in addition to other requirements as determined through USFWS consultation and stipulated within permit conditions.
5.5-C1	Prior to project approval, the County shall provide an application of a Nationwide or Individual Permit, depending upon the extent of impacts, to the United States Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act (CWA). If required, the County shall obtain a Nationwide or Individual Permit from the USACE for any impacts, temporary and permanent, to any areas within the proposed project which are determined to qualify as jurisdictional waters and wetlands of the U.S. The County shall implement all required conditions and special considerations stipulated within the Nationwide or Individual Permit during all relevant phases of development.
5.5-C2	Prior to project approval, an application for a Water Quality Certification shall be submitted by the County to the Central Coast RWQCB pursuant to Section 401 of the CWA and State Porter-Cologne Water Quality Act. If required, a Water Quality Certification shall be obtained from the Central Coast RWQCB for any impacts, temporary and permanent, to any areas within the proposed project which are determined to qualify as jurisdictional waters of the State. The County shall implement all required conditions and special considerations stipulated within the Water Quality Certification during all relevant phases of development.
5.5-C3	Prior to project approval, a Notification of Lake or Streambed Alteration shall be submitted by the County to the CDFG pursuant to CFG Code Section 1602. If required, a Streambed Alteration Agreement shall be obtained from the CDFG for any impacts, temporary and permanent, to any areas within the proposed project which are determined to qualify as jurisdictional streambed or riparian habitat. The County shall implement all required conditions and special considerations stipulated within the Streambed Alteration Agreement during all relevant phases of development.
Section 5.6: Cultural Resources	
5.6-B1	Avoidance of cultural resources is the paramount mitigation measure to protect cultural resources potentially impacted during project development.
5.6-B2	A Treatment Plan shall be prepared that would detail the extensive scope of the proposed project, establish site types with corresponding levels of effort for mitigation, and detail data recovery and monitoring plans for the extent of the proposed project. The former Treatment Plan (Far Western 2001) prepared for the wastewater project shall be adapted and modified where appropriate for the current project.
5.6-B3	Any project components of the approved project design not previously surveyed for archaeological resources shall be subject to a pedestrian survey by a qualified archaeologist. For example, in the case of Proposed Project 1, if selected, survey of the Cemetery and Branin parcels shall be completed. Field survey shall establish the surface boundaries of the previously recorded sites (SLO-13 and SLO-25) and the potential historic-era ranch complex (Parcel #067-011-020), if these are found to exist within the parcels. Any newly identified sites shall be recorded,

Table 2-9 (Cont.): Mitigation Measure Summary Table

Mitigation Number	Mitigation Measure
5.6-B4	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 shall be undertaken to establish boundaries and evaluate the resources' potential eligibility to the California Register of Historical Resources under CEQA and the National Register of Historic Places under NEPA. If a site is determined ineligible, no further work will be required. If a site is determined eligible, data recovery excavations shall be required to mitigate adverse effects incurred from project development.
5.6-B5	H Historic-era ranch/farm complexes may contain intact artifact deposits from early periods of occupation (in privies, trash pits, wells, etc.). Management of resources, such as the potential Azores immigrant farm complex located on the Branin parcel (Project 1), would require initial investigations to determine whether intact features are present. All historic artifact deposits on properties included in the preferred project alternative shall have detailed surface mapping showing the location of identified features; additional documentary research; and possible testing of the features to determine their data potential. Testing shall be performed by a qualified historical archaeologist and could include controlled backhoe trenching to search effectively for buried features.
5.6-B6	Preconstruction monitoring shall occur in areas ranked as high in sensitivity for buried deposits. Two such areas have been identified within the proposed project area: (1) along Los Osos Valley Road from Los Osos Creek east to the Cemetery Parcel; and (2) in the western portion of the Tonini Parcel. Mechanical backhoe trenching shall be conducted within the
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 addition testing, monitoring, and/or data recovery shall be required to reduce impacts to a less-than-significant level.
5.6-B8	As full analysis, processing, documentation, curation, and reporting of the project collections were not achieved because of the stop-work order on the 2005 wastewater project. These tasks shall 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 shall be made available to the general public and local Native Americans, as well as to the scientific community.
5.6-C1	Although unlikely, should any vertebrate fossils or potentially significant finds (e.g., numerous well-preserved invertebrate or plant fossils) be encountered by anyone working on the site, all activities in the immediate vicinity of the find are to cease until a qualified paleontologist evaluates the find for its scientific value. If deemed significant, the paleontological resource(s) shall be salvaged and deposited in an accredited and permanent scientific institution where they will be properly curated and preserved for the benefit of current and future generations.
5.6-D1	A Memorandum of Agreement has been prepared for the treatment and disposition of human remains and associated burial items. 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 Descendents approved by the Native American Heritage Commission; these individuals are signatories on the Agreement.
5.6-D2	For sites with known human remains or which have a potential for human remains, pre-construction excavations shall take place within the direct impact areas to insure that no human remains are present.
5.6-D3	If human remains are encountered within the project area, the County shall 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 Assembly Bill 2641. Restrictions or procedures for excavation, treatment, or handling of human remains shall be established in consultation with the individuals designated by the Native American Heritage Commission as the Most Likely Descendents.

Table 2-9 (Cont.): Mitigation Measure Summary Table

Mitigation Number	Mitigation Measure
Section 5.7: Public Health and Safety	
5.7-A1	Prior to any onsite construction activities at the proposed treatment plant sites, soils shall be sampled and analyzed by a licensed engineer or geologist approved by the County of San Luis Obispo Health Department to determine the level of residue for pesticides, herbicides, chemicals, and associated metals. If residues are found to be within acceptable amounts per the San Luis Obispo County Health Department (SLOCHD) and Environmental Protection Agency/Department of Toxic Substance Control (DTSC) standards then grading and construction may begin. If the residue is found to be greater than the SLOCHD and DTSC standards, all contaminated soils exceeding the acceptable limits shall be remediated and/or properly disposed of per SLOCHD and DTSC requirements. An appropriate verification closure letter from SLOCHD and DTSC shall be obtained and submitted to the County of San Luis Obispo Planning Department. Depending on the extent of contaminated soils, a verification closure letter from the California Regional Water Quality Control Board may also need to be submitted to the County of San Luis Obispo Planning Department. Site remediation can occur by the use of on-site transportable thermal treatment units or bio-remediation. The soil can also be excavated and shipped off-site to fixed incineration or bio-remediation facilities.
5.7-B1	Prior to operation of the wastewater project, a Hazardous Materials Management Plan shall be developed and submitted to the County of San Luis Obispo Environmental Health Services Division for approval. The plan shall identify hazardous materials utilized at the proposed wastewater facilities and their characteristics; storage, handling, training procedures, and spill contingency procedures. Additionally, the Hazardous Materials Management Plan shall identify procedures in the event of accidents such as the release of raw wastewater or secondary treated water into watercourses such as Los Osos Creek. These procedures shall include immediate response personnel to limit public access to spill areas, potentially shutting down pump stations, creating berms, use of vacuum trucks, and use of water booms to contain spills within open water areas. Furthermore, the Plan shall address response and containment of fuel at pump stations sites, when used.
5.7-D1	To reduce the potential temporary loss of water for fire fighting that may occur as a result of construction activities, either of the following shall occur 1) acquiring a water tender, to the satisfaction of the County Fire Chief or 2) through some other equivalent means as determined by the County Fire Chief.
Section 5.8: Traffic and Circulation	
5.8-A1	Prior to construction, a traffic management plan shall be prepared for review and approval by the County of San Luis Obispo Traffic Department. The traffic management plan shall be based on the type of roadway, traffic conditions, duration of construction, physical constraints, nearness of the work zone to traffic and other facilities (bicycle, pedestrian, driveway access, etc.). The traffic management plan shall include: a) Advertisement. An advertisement campaign informing the public of the proposed construction activities should be developed. Advertisements should occur prior to beginning work and periodically during the course of project construction. b) Property Access. Access to parcels along the construction area shall be maintained to the greatest extent feasible. Affected property owners shall receive advance notice of work adjacent to their property access and when driveways would be potentially closed. c) Schools. Any construction adjacent to schools shall ensure that access is maintained for vehicles, pedestrians, and bicyclists, particularly at the beginning and end of the school day. d) Buses, Bicycles and Pedestrians. The work zone shall provide for passage by buses, bicyclists and pedestrians, particularly in the vicinity of schools. e) Intersections. Traffic control (i.e. use of flag men) shall be used at intersections that are determined to be unacceptably congested due to construction traffic.
Section 5.9: Air Quality	
5.9-C1	Prior to issuance of grading permits, the applicant shall submit a Construction Activities Management Plan for the review and approval of the SLOAPCD. This plan shall include but not be limited to the following Best Available Control Technologies for construction equipment:

Table 2-9 (Cont.): Mitigation Measure Summary Table

Mitigation Number	Mitigation Measure
	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 NOX. 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.
5.9-C2	Prior to initiating grading activities, the proponent's contractor or engineer shall: a. Include the following specifications on all project plans: One catalyzed diesel particulate filter (CDPF) shall 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 (DOC) shall 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.
5.9-C3	Prior to initiating grading activities, if it is determined that portable engines and portable equipment would be utilized, the contractor shall contact the SLOAPCD and obtain a permit to operate portable engines or portable equipment, and shall be registered in the statewide portable equipment registration program. The SLOAPCD Compliance Division shall be contacted in order to determine the requirements of this mitigation measure.
5.9-C4	Project contract documents would 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. Reclaimed (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 APCD. 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 CVC Section 23114. j. Install wheel washers where vehicles enter and exit unpaved roads onto streets, or wash off trucks and equipment leaving the site.

Table 2-9 (Cont.): Mitigation Measure Summary Table

Mitigation Number	Mitigation Measure
	k. Sweep streets at the end of each day if visible soil material is carried onto adjacent paved roads. Water sweepers with reclaimed 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 shall 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.
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 would be required to meet the reduction in NO_X to less than a total of 185 lbs per day or 6.0 tons per quarter over the term of construction and would be finalized and mutually agreed to by the Applicant and appropriate staff of the SLOAPCD prior to commencement of construction of the project.
Section 5.10: Noise	
5.10-A1	The project applicant shall require that the treatment plant be designed so that the mechanical aeration system is located a minimum of 250 feet away from the nearest residence**.**
5.10-A2	The project applicant shall require that the treatment plant be designed so that the backup diesel generator is enclosed in a structure and is located a minimum of 250 feet away from the nearest residence.
5.10-A3	The project applicant shall require that the backup power facility structures for the in-town collection system be designed so that the noise created from the backup diesel generator that would be located inside the structure would not exceed 45 dBA Leq at the nearest residence. The noise from the backup diesel generator may be attenuated through the use of a "manufacturer enclosure" or through incorporation of noise attenuation design features into the backup power facility structure.
5.10-C1	The project applicant shall require construction contractors to adhere to the following noise attenuation requirements: • Construction activities shall be limited to between the hours of 7 a.m. to 9 p.m. on any day except Saturday or Sunday or between the hours of 8 a.m. to 5 p.m. on Saturday or Sunday. • All construction equipment shall use noise-reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer. • Construction staging and heavy equipment maintenance activities shall be performed a minimum distance of 300 feet from the nearest residence, unless safety or technical factors take precedence. • Stationary combustion equipment such as pumps or generators operating within 100 feet of any residence shall be shielded with a noise protection barrier.
5.10-C2	The construction contractor shall notify all property owners and tenants adjacent to the proposed pile driving activities of the days and hours of operation. The construction contractor shall also require that a noise damper be utilized between the pile driver and the object that is being driven into the ground.

Table 2-9 (Cont.): Mitigation Measure Summary Table

Mitigation Number	Mitigation Measure
Section 5.11: Agricultural Resources	
5.11-A1	Prior to the issuance of grading permits, the County Department of Public Works shall provide evidence to the County Planning and Building Department that a farmland conservation easement, a farmland deed restriction, or other farmland conservation mechanism has been granted in perpetuity to the County or a qualifying entity approved by the County Agricultural Commissioner (or designee). The easement shall provide conservation acreage at a ratio of 1:1 for direct impacts and 0.5:1 for indirect impacts. Additionally, the project proponent shall provide appropriate funds (as determined by the County Planning Department) to compensate for reasonable administrative costs incurred by the easement holder. The area conserved shall be minimally sized at 175 acres, may consist of no more than three noncontiguous parcels, and shall be of a quality that is reasonably (as determined by the County Agricultural Commissioner or designee) similar to that of the farmland within the project limits. The area to be conserved shall be located within San Luis Obispo County within reasonable proximity to the project site.
5.11-B1	Provide fencing of areas currently grazed on the Tonini parcel, and a buffer between the boundary of the disposal area and areas currently grazed. The width of the buffer shall be determined in consultation with the San Luis Obispo County Agricultural Commissioner's office.
Section 5.12: Visual Resources	
5.12-C1	Aesthetic Policy AES 1 (construction staging area) from the Estero Area Plan shall apply. For all aspects of the project, construction staging areas shall be located away from sensitive viewing areas to the extent feasible. Before construction activities begin, an area of construction equipment storage away from direct views of sensitive viewing corridors (e.g. residences and major roads in the project area) shall be designated
5.12-C2	A final landscaping plan shall be prepared for the entire project site and approved by the County prior to building permit issuance. Said landscaping plan shall emphasize native plant materials and shall include sufficient planting to screen views of the project from nearby roads and residential developments. The landscaping plan shall be to visually integrate the project into the rural landscape, while preserving and enhancing existing views.
5.12-C3	Any buildings associated with collection facilities at the Broderson and Mid-Town parcels shall be designed in such a manner so they are architecturally compatible with other buildings in the vicinity.
5.12-D1	Aesthetic Policy AES-5 (lighting plan) from the Estero Area Plan shall apply. A final lighting plan shall be prepared for the treatment and disposal facilities. The lighting plan shall meet County design standards. This shall include proper shielding, proper orientation, and applicable height standards. All lighting fixtures shall be shielded so that neither the lamp nor the related reflector interior surface is visible from adjacent properties. Light hoods shall be dark-colored.
5.12-F1	Any building (equipment areas, pumping stations) associated with treatment and disposal facilities shall be designed to conform to an agricultural landscape. Buildings shall be designed to appear as barns or other farm related structures.
5.12-F2	Mitigation Measure 5.12-C2 shall be required.
5.12-F3	Aesthetic Policy AES 4 (Revegetation Plan) from the Estero Area Plan shall apply. A revegetation plan shall be to the satisfaction of the US Fish and Wildlife Service, California Department of Fish and Game and San Luis Obispo County for the portion of the Broderson site that will be disturbed by the installation of the disposal leach fields. The plan shall be prepared by a qualified landscape architect and/or botanist and shall, to the extent feasible, restore the site to its condition prior to disturbance

SECTION 3: PROJECT DESCRIPTION

3.1 - PROJECT OBJECTIVES

3.1.1 - Project Background

Los Osos is an unincorporated coastal community of about 15,000 residents located in San Luis Obispo County (County) at the south end of Morro Bay about 12 miles west of the City of San Luis Obispo. Los Osos extends to the south and east of the Bay into the lower foothills of the Irish Hills. The City of Morro Bay lies about two miles to the north. 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. The sandy soils and marine climate combine to produce a unique coastal ecosystem that is home to several plant and animal species found nowhere else in the world. Exhibit 3-1 provides a project vicinity map that locates the Los Osos community and the Proposed Los Osos Wastewater Plant (LOWWP) Environmental Impact Report study area within the County.

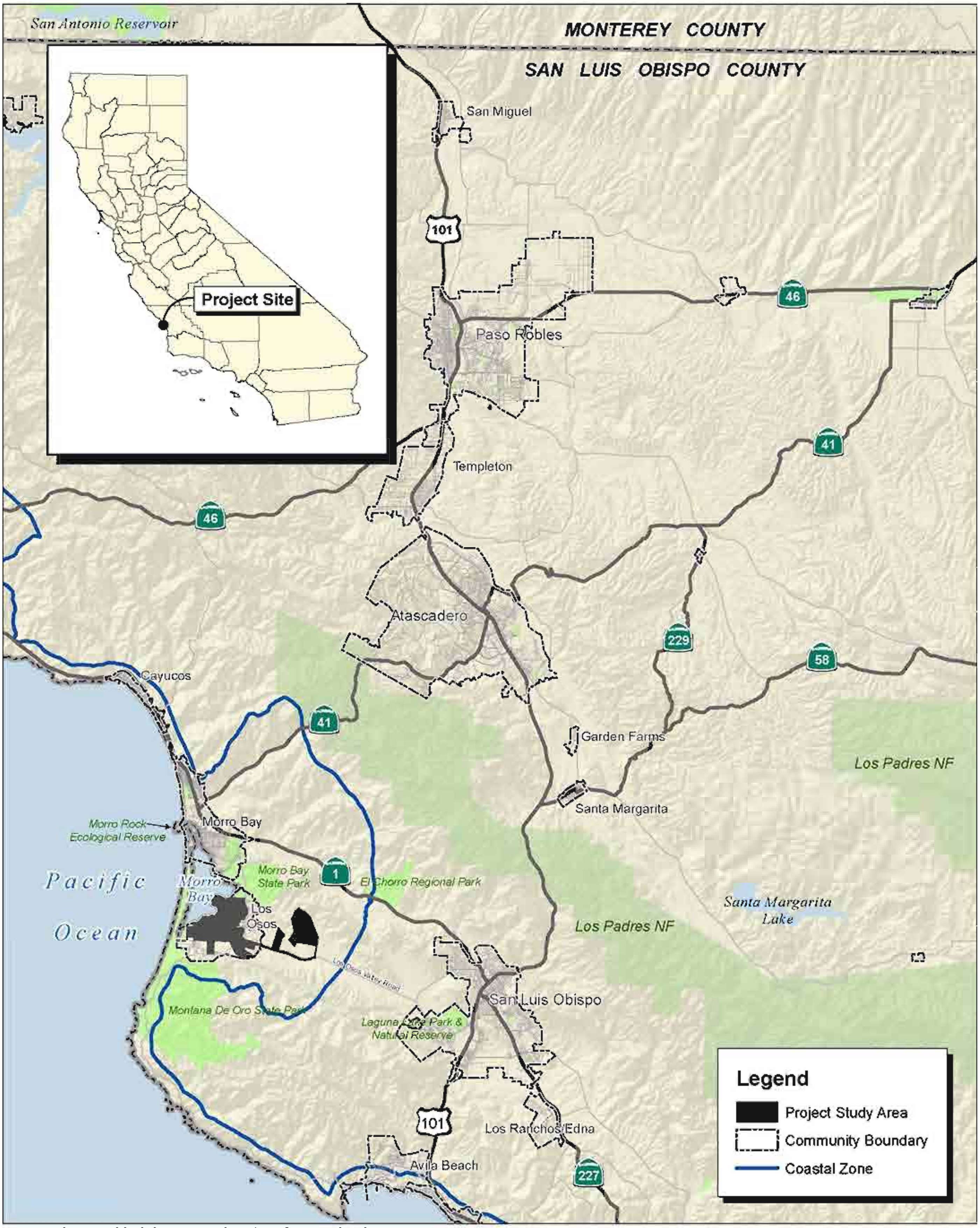
The Regional Water Quality Control Board - Central Coast Region (RWQCB) determined in 1983 that contamination in excess of State standards had occurred in the groundwater basin (upper aquifer) at least partially due to use of septic systems throughout the community. RWQCB Resolution 83-13 states that "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 State Water Resources Control Board 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 (Exhibit 3-2). By prohibiting discharge from additional individual and community sewage 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 response to the RWQCB, 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 Los Osos Community Services District (LOCSD) developed a wastewater collection and treatment project with the treatment facilities located in the west-central portion of the community. (This project, originally known as the Tri-W Project, is referred to as the Mid-town site in this document.) The LOCSD 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 LOCSD board members in a special election; the new board immediately suspended construction on the wastewater project. In August 2006, the LOCSD rescinded certification of the 2001 EIR and filed for federal bankruptcy protection.

On September 20, 2006, Governor Arnold Schwarzenegger signed Assembly Bill (AB) 2701, which authorizes transfer of wastewater authority from the LOCSD to the County. Based on the state-legislated policies and project strategies established by the 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 Proposition 218 cost estimates. By approving an assessment under Proposition 218 in the October 2007 election by an 80 to 20 percent margin, Los Osos voters authorized LOWWP funding.

Since 2006, the County's efforts on the LOWWP are the result of an interdisciplinary team approach involving responsible and trustee agencies, consultants, and County staff members. The current project team, composed of over 20 individuals representing several departments and divisions of the County, four engineering, environmental, and hydro-geotechnical consulting firms, and five public agencies, has established an efficient and interactive team approach to addressing the project. The County has continued and expanded this approach by adding an interdisciplinary environmental consulting team to analyze the LOWWP's environmental impacts under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) as well as the permitting requirements. Since the environmental team is conducting their analysis in parallel with the project team and the Technical Advisory Committee (TAC), information developed by each LOWWP participant is integrated with the efforts of the other participants. This process will continue through the environmental, design, regulatory permitting, and construction phases of the project.



Source: Census 2000 Data, The CaSIL, MBA GIS 2008.

Michael Brandman Associates

NORTH

5 2.5 0 5 Miles

Exhibit 3-1
Project Vicinity

Source: AirPhoto USA, San Luis Obispo County GIS Data, and MBA GIS Data.

Michael Brandman Associates

NORTH

2,200 1,100 0 2,200 Feet

Exhibit 3-2
Wastewater Service Area

The LOWWP consists of three main components: wastewater collection; wastewater treatment, which includes biosolids processing and disposal; and effluent disposal. Using conceptual design information and the CEQA/NEPA process, which coincides with ongoing efforts to define project costs and consider community preferences, the County project team is analyzing alternatives. This process is leading towards selecting a preferred project for the final design.

Based upon the volumes of documentation produced for the project over the past decades, the most recent County work produced, and the clear project purposes of wastewater treatment and alleviating groundwater contamination, the County has been examining a wide range of alternatives on a co-equal basis. Section 7, Alternatives to the Proposed Project, and Technical Appendices P-1, Alternatives Development and Descriptions and P-2, Systems Component Evaluation; provide a summary of the process followed to identify the four proposed projects discussed in this Draft EIR and to set aside other alternatives from further consideration. The preferred LOWWP project the county selects could be any one of the four alternatives or a different combination of project components. The flexibility to mix and match project components was supported by the National Water Research Institute (NWRI) peer review of the LOWWP. Their report recommended considering a range of six project component combinations. More detail on their recommended alternatives is provided in Section 7. (NWRI 2008).

The detailed environmental analysis in this document considers four preliminary proposed projects equally as described later in this section. Appendix B, Project Description Data, describe the four proposed projects in detail, served as the primary basis for this section. Since Appendix B was compiled, site environmental and technical field investigations, preliminary engineering design, and the environmental analysis have continued. Consequently, the proposed projects descriptions contained in this Draft EIR have evolved somewhat from the descriptions in Appendix B.

Public review of this Draft EIR will coincide with a community preferences survey and the continuing design process. Having the Draft EIR available will enable Los Osos community residents, the project team, and County elected officials to consider the LOWWP’s potential environmental impacts as the County identifies the preferred alternative using technical, environmental, economic, and community preferences information; incorporates appropriate mitigations; and moves forward with the final design and permitting process, and finally, project construction.

The County will ultimately certify a Final EIR based on the preferred alternative identified through this process and make findings that support the final project decision. Supplemental environmental documentation may be required to evaluate some aspects of the final proposed project, provide adequate public review of the proposed project’s environmental impacts, and to support the permitting process that will include, among others, the RWQCB Waste Discharge Requirements (WDR) and the Coastal Development Permit. The County has committed to consider thoroughly the final proposed project's potential environmental impacts and public comments before completing and certifying the Final EIR.

3.1.2 - Project Goals and Objectives

The primary goal of the LOWWP is to construct and operate a community wastewater collection, treatment and disposal system and, thereby, comply with the RWQCB's WDR Resolution 83-13. Eliminating discharges from onsite wastewater, as directed by the RWQCB, will also help accomplish the LOWWP's second primary goal: alleviating groundwater contamination, primarily nitrates, that has occurred at least partially because of the use of septic systems throughout the community.

One of the wastewater project's secondary objectives involves water resources issues. Water resources issues are important because of seawater intrusion that is contaminating the Los Osos groundwater basin. On March 27, 2007, the County Board of Supervisors certified a "evel of Severity (LOS) III for the community of Los Osos while adopting a Resource Capacity Study of the Los Osos groundwater basin. The LOS III determination is the highest determination of a resource problem under the County's Resource Management System. The wastewater project can be an important first step to solving water resource problems. While the primary purpose of the Los Osos Wastewater Project is to construct a community wastewater system and, thereby, to alleviate groundwater contamination, how that goal is met can create or hinder opportunities for the water purveyors to improve the local water resources.

To summarize, the specific objectives of the Los Osos Wastewater Project are:

- **RWQCB Waste Discharge Requirements.** Address the issues of water quality defined by the Waste Discharge Requirements (WDR) for discharge limits issued by the RWQCB.
- **Groundwater Quality.** Alleviate groundwater contamination—primarily nitrates—that has occurred at least partially because of the use of septic systems throughout the community.
- **Secondary Objectives**
    a) **Water Resources.** Address water resource issues by mitigating the project's impacts on water supply and saltwater intrusion. Further, the wastewater project will maintain the widest possible options for beneficial reuse of treated effluent.
    b) **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 emissions, social and economic sustainability, wetlands and estuary preservation or enhancement, cultural resources protection, and agricultural land enhancements).
    c) **Project Costs.** Meet the project water quality requirements while minimizing life-cycle costs and the related affordability impacts to residents.
    d) **Regulatory Compliance.** Comply with applicable local, State, and federal permits, land uses, and other requirements including the Local Coastal Plan, Environmentally

Sensitive Habitat Areas (ESHA standards), State Marine Reserve, and archeological concerns.

3.1.3 - Discharge Objectives

The RWQCB issued "Waste Discharge/Recycled Water Requirements Order No. R3-2003-0007" for the LOCSD when it was moving forward with the last abandoned Los Osos wastewater project. After completing the EIR for that project in 2001, the LOCSD had obtained all the requisite permits, such as a CDP and the RWQCB WDR. The currently proposed LOWWP must also meet the RWQCB treated effluent and recycled water limitations from that order. The WDR discharge limitations are summarized below in Table 3-1.

Table 3-1: Effluent and Recycled Water Limitations from Previous Waste Discharge Requirements (Order No. R3-2003-0007)

Effluent Limitations			
Constituent	**Units**	**Monthly Average**	**Daily Maximum**
Settleable Solids	mg/L	0.1	0.5
BOD, 5-Day	mg/L	60	100
Suspended Solids	mg/L	60	100
Total Nitrogen (as N)	mg/L	7	10
Recycled Water Limitations			
Constituent	**Units**	**Monthly Average**	**Daily Maximum**
BOD, 5-Day	mg/L	30	30
Suspended Solids	mg/L	90	90
Turbidity	NTU	2*	5**
pH	Units	In range 6.5 to 8.4	

Notes:
BOD = Biological Oxygen Demand mg/L = milligram per liter
NTU = Normal Turbidity Units
* 24-hour mean value.
** Turbidity must not exceed 5 NTU more than 5 percent of the time within a 24-hour period and must not exceed 10 NTU.
Source: Central Coast Regional Water Quality Control Board Order No. R3-2003-0007.

3.2 - PROJECT LOCATION

3.2.1 - Project Setting

Los Osos is located at the south end of Morro Bay, 12 miles west of the City of San Luis Obispo in the County. Exhibit 3-1 is a map of the project vicinity that depicts the Los Osos community location within the County as well as the nearby communities of Morro Bay and Cayucos. The project will provide wastewater treatment for properties within the Wastewater Service Area, shown in Exhibit 3-2, which includes all the properties within the RWQCB-designated Prohibition Zone except for the Martin Tract and Bayview Heights subdivisions and open space properties. The RWQCB decided to allow these two excluded large-lot subdivisions to remain on septic systems rather requiring them to join the LOWWP Wastewater Service Area. Another subdivision, the Monarch Groves subdivision, will discontinue using their package wastewater treatment plant and, instead, connect their existing wastewater collection system to the new LOWWP collection system. Some LOWWP project components for wastewater collection, treatment, and effluent disposal, the project could be contained within the prohibition zone; other potential components are located outside the Wastewater Service Area.

3.2.2 - Proposed Projects Sites

The four proposed projects evaluated in detail in this Draft EIR are located at several locations within and outside the Los Osos Community. Exhibit 3-3 depicts a project location map showing the various proposed project site locations, including treatment plant sites, the primary wastewater pumping station and effluent disposal sites. Some sites, such as the Broderson leachfield and the Tonini sprayfields, are common to all four proposed projects; other sites are included in only one proposed project. Three of the potential treatment plant sites: Branin, Cemetery and Giacomazzi, are adjacent, so there are several potential LOWWP configurations that include from one to all three of these parcels. Section 3.3.4 below identifies which sites are included in each of the four proposed projects.

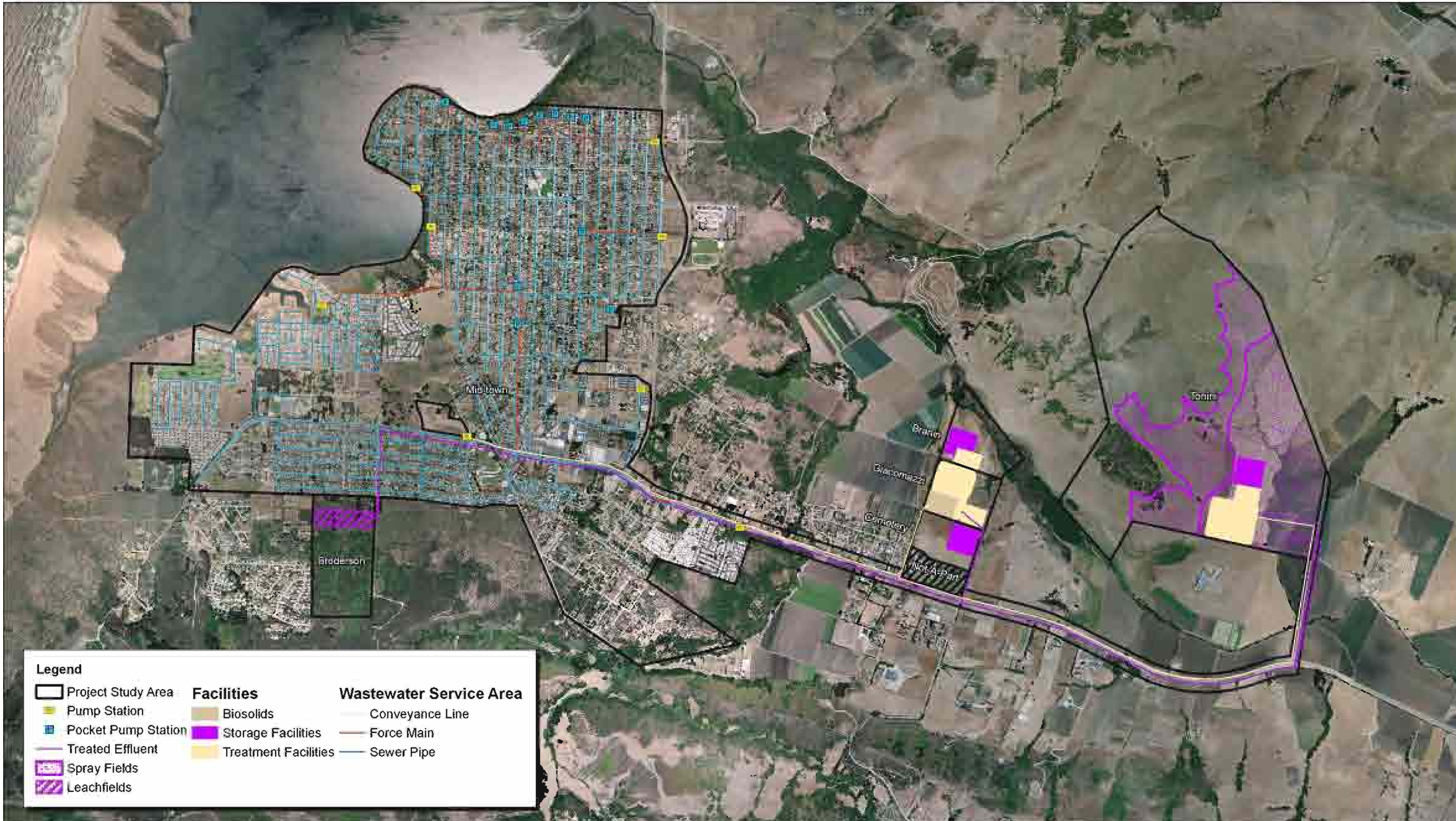
Potential Treatment Plant Sites

Giacomazzi

The Giacomazzi property is a 38.2-acre rectangular parcel north of Los Osos Valley Road 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 (offsite). The channel supports a small oak woodland along its northerly reaches. There is a collection of farm-related buildings along the western border with numerous tall trees surrounding the buildings. A dirt agricultural road from the southeastern property corner to Los Osos Valley Road provides access to the parcel. The level areas of the site have been cultivated with dry farmed crops. The property is in the Agriculture Land Use Category.

Cemetery

The Cemetery property consists of a 47.4-acre rectangular parcel north of Los Osos Valley road; the Los Osos Mortuary and Memorial Park occupies the southerly portion of the site (about 19 acres). The site slopes gently downward to the north; the westerly boundary slopes downward to the west to a dirt road that provides access to surrounding farming operations. About 6.5 acres in the northwest



Source: AirPhoto USA, San Luis Obispo County GIS Data, and MBA GIS Data.

Michael Brandman Associates

NORTH

2,000 1,000 0 2,000 Feet

Exhibit 3-3
Potential Treatment Plant and Effluent Disposal Sites

corner is cultivated with row crops, with the remainder fallow. Some of the proposed facilities for Proposed Project 1 would be located on the fallow portion of the site. There are no large trees or other natural features. The property is in the Public Facilities Land Use Category.

Branin

The Branin property consists of a 42.2-acre irregularly shaped parcel north of Los Osos Valley Road and adjacent to Warden Lake, which consists of native wetland and riparian vegetation. The site slopes to the north and contains two ephemeral drainages. A dirt road that wraps around the eastern perimeter of the Cemetery property provides access to the Branin property and several surrounding farming operations. Currently level portions of the Branin property are cultivated for agriculture, and the areas sloping towards Warden Creek are fallow and may be grazed. The Branin property is within an Agricultural Preserve, which is the prelude to inclusion in a Williamson Act Contract. However, since the property owners have not formally completed the Williamson Act Contract, the Branin property is not subject to the Williamson Act restrictions, especially the restrictions limiting conversion to another land use.

Tonini

The Tonini property consists of an approximate 650-acre irregularly shaped parcel north of Los Osos Valley Road, immediately west and south of Turri Road. Approximately half of the site is too steeply sloped to use for a wastewater treatment facility. Access to the site is provided by Turri Road, which fronts the property on the eastern and northern sides. Current uses include farm support residences, farm support buildings, grazing, forage crops, and row crops (barley, oat, wheat, and irrigated row crops). The property is in the Agriculture Land Use Category and is under a Williamson Act contract.

Other Potential Treatment Plant Sites

The Supplemental Notice of Preparation mentioned three other potential wastewater treatment plant sites: Turri Road, Robbins/Andre, and Mid-town. After extensive analysis of technical, environmental, and economic issues, these three sites were set aside from further consideration as primary LOWWP treatment plant sites. The site alternatives review process that led to this conclusion is summarized in Section 7, Alternatives to the Proposed Project, and in Appendix P-1, Alternative Components, (Kennedy/Jenks Consultants 2008) and Appendix P-2, Evaluation of Component Alternatives (Kennedy/Jenks Consultants 2008).

Potential Pump Station Sites

Collection System Pump Stations

As described in Sections 3.3.3 and 3.3.4 below, two types of wastewater collections systems are included in the proposed projects: a conventional gravity collection system and a Septage Tank Effluent (STE) collection system. The gravity collection system is considered a hybrid gravity collection system since it includes a limited number of low pressure grinder pumps to pump wastewater from low-lying residences. In addition, several small pump stations of varying capacities pump wastewater collected from low-lying collection system subareas to higher elevations so that the wastewater can flow by gravity to the main pump station at the Mid-town site. The low-pressure grinder pumps and small pump stations are proposed at key locations within the collection system. These locations, shown in Exhibit 3-4, are described in detail in Section 3.3.3 and Appendix B.

Mid-town

The Mid-town site was the location of the wastewater treatment facility proposed by the LOCSD District in 2001. The LOCSD started construction and partially cleared and graded the Mid-town site, but halted construction in 2005. Since then, the vegetation is returning to native scrub habitat suitable for the endangered Morro shoulderband snail (*Helminthoglypta walkeriana*). The site is an 11.7-acre irregularly shaped parcel adjacent to the north side of Los Osos Valley Road, which provides access. The property is currently "dual-zoned" with allowed uses in the Office/Professional and Commercial Retail or Public Facilities Land Use Categories.

None of the four proposed projects includes the Mid-town site as a treatment plant site; however, three of the four proposed projects (Proposed Projects 2, 3, and 4) include a small portion of the Mid-town site (0.1 acre) to construct an underground central pump station to pump all the wastewater collected from the Los Osos Wastewater Service Area (see Exhibit 3-2) to the treatment plant. Proposed Project 1 includes the Mid-town site as a central collection point for the wastewater, but it does not require a pump station at Mid-town to pump the collected wastewater to the treatment plant. Sufficient pressure would be provided by the individual STE pumps for each connection.

Potential Effluent Disposal and Reuse Sites

Broderson

The Broderson property consists of an approximately 81-acre rectangular shaped parcel located south of Highland Drive. Beginning with the County's 1987 proposal, every version of the LOWWP has proposed the Broderson property as an effluent disposal site. Access to the site is from the south end of Broderson Avenue. Approximately 8 acres of the site would be used to construct an effluent disposal leachfield; the remainder of the site would be placed in permanent open space and added to the greenbelt surrounding the Los Osos Community. The northern half of the currently undeveloped and undisturbed property is zoned for a Residential Single Family. The southern half is undesignated. As part of project permitting for the earlier Los Osos Wastewater Project, most of the parcel was to be designated open space.

Tonini

The Tonini property consists of an approximate 650-acre irregularly shaped parcel north of Los Osos Valley Road, immediately west and south of Turri Road. Approximately half of the site is too steeply sloped to use for effluent disposal sprayfields. Access to the site is provided by Turri Road,

Source: AirPhoto USA, San Luis Obispo County GIS Data, and MBA GIS Data.

Michael Brandman Associates

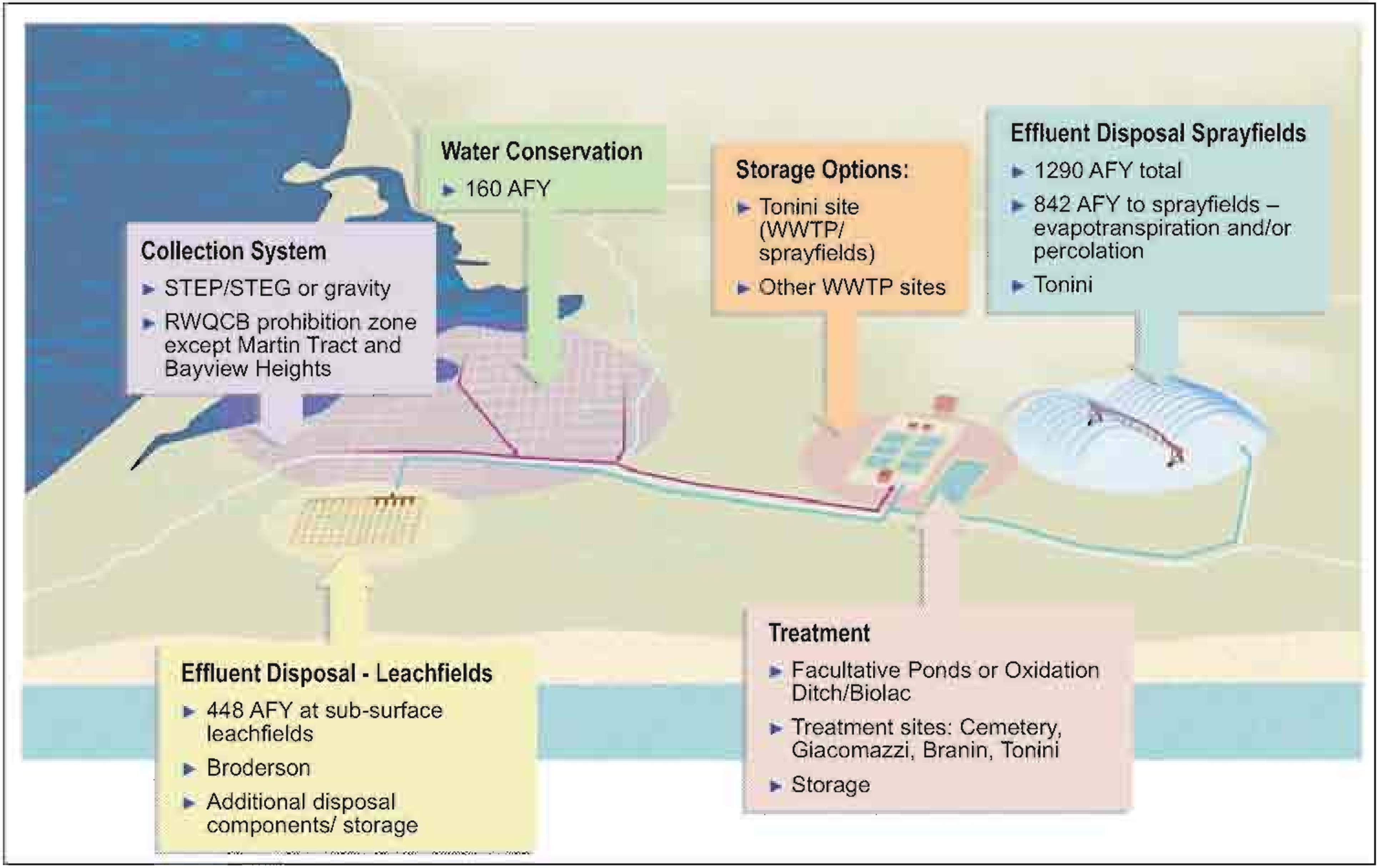
NORTH

1,500 750 0 1,500 Feet

02240002 • 11/2008 | 3-4_prelim_wastewater_collection.mxd

Exhibit 3-4
Preliminary Wastewater Collection System

COUNTY OF SAN LUIS OBISPO • LOS OSOS WASTEWATER PROJECT
ENVIRONMENTAL IMPACT REPORT



Source: Kennedy/Jenks Consultants, 2008.

Michael Brandman Associates

Exhibit 3-5
Conceptual Wastewater Treatment System

which fronts the property on the eastern and northern sides. Current uses include farm support residences, farm support buildings, grazing, forage crops and row crops (barley, oat, wheat, and irrigated row crops). The property is in the Agriculture Land Use Category and is under a Williamson Act contract.

Other Potential Effluent Disposal and Reuse Locations

The Supplemental Notice of Preparation mentioned two other potential effluent disposal and reuse locations: urban reuse and agricultural reuse. After extensive analysis of technical, environmental, and economic issues, these types of locations were eliminated from further consideration for the current LOWWP project. The alternatives review process that led to this conclusion is summarized in Section 7, Alternatives to the Proposed Project, and in Technical Memoranda P-1, Alternatives Development and Descriptions Index and P-2, Systems Components Appendix.

3.3 - PROJECT CHARACTERISTICS

3.3.1 - Population and Estimated Wastewater Flows

Population

The current population of the Los Osos Wastewater Service Area is about 15,000. At buildout, once the RWQCB moratorium is lifted, the future population is projected to be about 18,500 people (Carollo Engineers February 2008c). This population estimate was originally provided by the Los Osos Wastewater Committee for the Wastewater Facilities Project Final Project Report (Montgomery Watson Americas 2001) and used again for the Los Osos Wastewater Management Plan Update (Ripley Pacific Company 2006) and the LOWWP Development Potential Viable Project Alternatives Rough Screening Analysis (Carollo Engineers, et al. 2007). The estimates were based on the 1990 census, consistency with the General Plan projections for Los Osos minus the areas outside the Prohibition Zone, and knowledge about existing and future development planned for the Los Osos area.

Wastewater Flows

The proposed LOWWP design has been based on wastewater generation rates that assume a Los Osos Wastewater Service Area population of 18,500, increased water conservation, and the collection system choice that affects both the organic loading and Infiltration/Inflow (I/I) rates. These estimates were outlined in the Rough Screening Analysis Report (Carollo Engineers, et al., 2007) and the Fine Screening Report (Carollo Engineers, et al., 2007) updated in the Flows and Loads Technical Memorandum (Carollo Engineers 2008c) and evaluated again by Kennedy/Jenks Consultants in the LOWWP Environmental Impact Report Draft Proposed Projects Descriptions that is provided in Appendix B. According to the Flows and Loads Technical Memorandum and the Rough Screening Analysis, the 2006 water consumption rates for the approximately 8500 residents served by the LOCSD during winter months were about 66 gallons per capita per day. Since there is little outside irrigation during the winter months, 66 gallons per capita per day is a reasonable current estimate of

Los Osos per capita wastewater generation rates. With the estimated buildout population of 18,500, this yields a baseline dry-weather wastewater generation rate of 1.2 million gallons per day. This wastewater generation rate is further refined for water conservation, I/I, and the type of collection system as summarized in Table 3-2. The preliminary engineering design for the LOWWP has been based on an Average Day Wet Weather Flow (ADWWF) of 1.2 million gallons per day for Proposed Project 1, which has a Septic Tank Effluent Pumps (STEP)/Septic Tank Effluent Gravity (STEG) collection system. Proposed Projects 2 through 4, which have a gravity collection system, have been based on an ADWWF of 1.4 million gallons per day (mgd).

Table 3-2: Projected Wastewater Generation Rates

Collection System	Wastewater Generation Estimate (mgd)[1]	Conservation (mgd)	$I/I_{average}$[2] (mgd)	ADWWF[3] (mgd)	PHWWF[4] (mgd)
Gravity[5]	1.2	0.1	0.3	1.4	2.5
STEP/STEG[6]	1.2	0.1	0.1	1.2	1.7

Notes:
1 Based on Buildout Population of 18,500 people and 66 gallons per capita per day wastewater generation rate.
2 I/I = Infiltration/Inflow. I/I rates are higher for the gravity collection system because the typical pipeline connections will slowly start to leak overtime unless a regular collection system maintenance program is instituted to identify and repair joint leaks.
3 ADWWF = Average Day Wet Weather Flow = Wastewater Generation Estimate - Conservation + $I/I_{average}$. ADWWF serves as basis for sizing wastewater collection and treatment facilities.
4 PHWWF = Peak Hour Wet Weather Flow = Wastewater
5 An additional 720 gallons/day of septage would be added 250 days per year for the septage receiving station.
6 An additional 6,400 gallons/day of septage would be added 250 days per year for the septage receiving station.
mgd = million gallons per day
Sources:
1. Carollo Engineers, February 2008c. Technical Memorandum on Flows and Loads.
2. Carollo Engineers, April 2008k, Technical Memorandum on Septage Receiving Station Option.

The type of collection system has a more significant effect on the facility process design. Table 3-3 provides a summary of the anticipated influent wastewater characteristics as a function of collection system type.

Table 3-3: Gravity/STEP/STEG Collection System Wastewater Characteristics

Collection System Type	BOD5[1] (mg/l)	SS[1] (mg/l)	total - N[1] (mg/l)
Gravity - Average Day	340	390	56
Gravity - Peak Day	350	400	58
STEP/STEG - Unfiltered[2]	140	80	56
STEP/STEG - Filtered[2]	120	40	56
Septage[3]	5,000	15,000	

Table 3-3 (Cont.): Gravity/STEP/STEG Collection System Wastewater Characteristics

Collection System Type	BOD5[1] (mg/l)	SS[1] (mg/l)	total - N[1] (mg/l)

[1] BOD5 = 5 Day Biological Oxygen Demand SS = suspended solids. N= Nitrogen
[2] The LOWWP would install STEP/STEG tanks with effluent filters.
[3] Septage pumped from the 4,679 STEP/STEG tanks (Proposed Project #1 only) and 749 septic tanks remaining outside the Prohibition Zone (All Proposed Projects) would be about 3 percent solids. Based on pumping each tank every 5 years, total septage is about 6,400 gallons per day for Proposed Project 1 or 720 gallons per day for Proposed Projects 2, 3 and 4 for 250 days per year.
Sources:
Carollo Engineers, February 2008c and Carollo Engineers, April 2008k.

Since the influent 5-day biological oxygen demand (BOD) and suspended solids (SS) are significantly less for the STEP/STEG system, the wastewater treatment plant for Proposed Project 1 would need to handle and dispose of fewer biosolids and meet a lower aeration demand. In their 2008 Technical Memorandum on the Septage Receiving Station Option, Carollo Engineers estimated that adding a septage receiving station for the STEP/STEG and septic tank septage to the treatment plant headworks would increase the combined raw wastewater and septage SS about 200 percent compared to the raw wastewater received directly from the STEP/STEG collection system; the BOD load would increase about 20 percent. The septage receiving station for the wastewater treatment plants with a gravity sewer will only accept septage from the remaining septic tanks outside the Prohibition Zone. At buildout, adding the septic tank septage will increase the combined raw wastewater and septage SS by 20 percent compared to the raw wastewater received directly from the gravity collection system; the BOD load would increase about 20 percent.

While the total nitrogen (N) is the same with either collection system, nitrogen is principally in the nitrate form for the STEP/STEG alternative and in the organic and ammonia form for the gravity collection system alternative. With respect to the STEP/STEG system, there is an inadequate amount of carbon in the STEP/STEG tank effluent for the denitrification process; therefore, a supplemental unit process that adds carbon to the effluent would be required. No supplement would be required if a gravity sewer collection system is installed. (Carollo Engineers 2008k.)

3.3.2 - Proposed Projects

Introduction to Proposed Projects

Each of the four proposed projects includes all the project components listed below:

1. Collection and Conveyance System
    a. Wastewater collection system to collect the wastewater from the individual residences and buildings.
    b. Raw wastewater conveyance system to transmit the collected wastewater to the wastewater treatment plant.

   c. Treated effluent conveyance system to transmit the treated effluent from the treatment facility to the effluent disposal areas.
2. Wastewater Treatment Process
   a. Wastewater treatment facility providing secondary treatment.
   b. Solids processing facility and disposal system.
3. Effluent Disposal Facilities
   a. Effluent storage pond.
   b. Water conservation measures.
   c. Leachfield effluent disposal facility.
   d. Effluent sprayfield disposal facility.

Each of the four proposed projects includes different combinations of treatment facility sites, types of collection systems, wastewater treatment processes, and effluent disposal facilities. Table 3-4 defines which project components have been combined into the four proposed projects. The various project component options are described in Section 3.3.4 and Appendix B, Project Description Data. Section 3.3.5 and Appendix P, Alternatives Information, provides detailed descriptions of the four proposed projects and additional technical information on the project components.

Table 3-4: Proposed Projects

Proposed Project	Treatment Plant Site	Collection System	Conveyance Systems		Treatment Process	Storage Location	Effluent Disposal
			Raw Wastewater	Treated Effluent			
1	Cemetery/Giacomazzi/Branin	STEP/STEG	Mid-town Central Point to Giacomazzi	Giacomazzi to Broderson and Tonini	Facultative Ponds (Secondary Treatment)	Onsite at Cemetery/Giacomazzi/ Branin	Broderson Leachfield, Tonini Sprayfields, and Conservation
2	Giacomazzi	Gravity	Mid-town Pump Station to Giacomazzi	Giacomazzi to Broderson and Tonini	Oxidation Ditch or Biolac (Secondary Treatment)	At Tonini Sprayfield Site	Broderson Leachfield, Tonini Sprayfields, and Conservation
3	Giacomazzi/Branin	Gravity	Mid-town Pump Station to Giacomazzi	Giacomazzi to Broderson and Tonini	Oxidation Ditch or Biolac (Secondary Treatment)	Onsite at Giacomazzi	Broderson Leachfield, Tonini Sprayfields, and Conservation
4	Tonini	Gravity	Mid-town Pump Station to Tonini	Tonini to Broderson and onsite at Tonini	Facultative Ponds (Secondary Treatment)	Onsite at Tonini treatment and sprayfield site	Broderson Leachfield, Tonini Sprayfields, and Conservation

Source: Appendix B: Kennedy/Jenks Consultants, 2008, LOWWP Environmental Impact Report Draft Proposed Projects Descriptions, Draft August 1.

Proposed Project 1

As shown in Exhibit 3-6 and summarized in Table 3-4, Proposed Project 1 includes a combination STEP/STEG collection system and a facultative pond wastewater treatment facility that provides secondary level treatment. The raw wastewater conveyance system carries the collected wastewater from the Mid-town central collection point to the combined Cemetery/Giacomazzi/Branin wastewater treatment plant site. Treated effluent can be stored in the seasonal storage pond on the combined Cemetery/Giacomazzi/Branin site or sent directly through the treated effluent conveyance system to the Broderson leachfield and/or the Tonini sprayfields.

Proposed Project 2

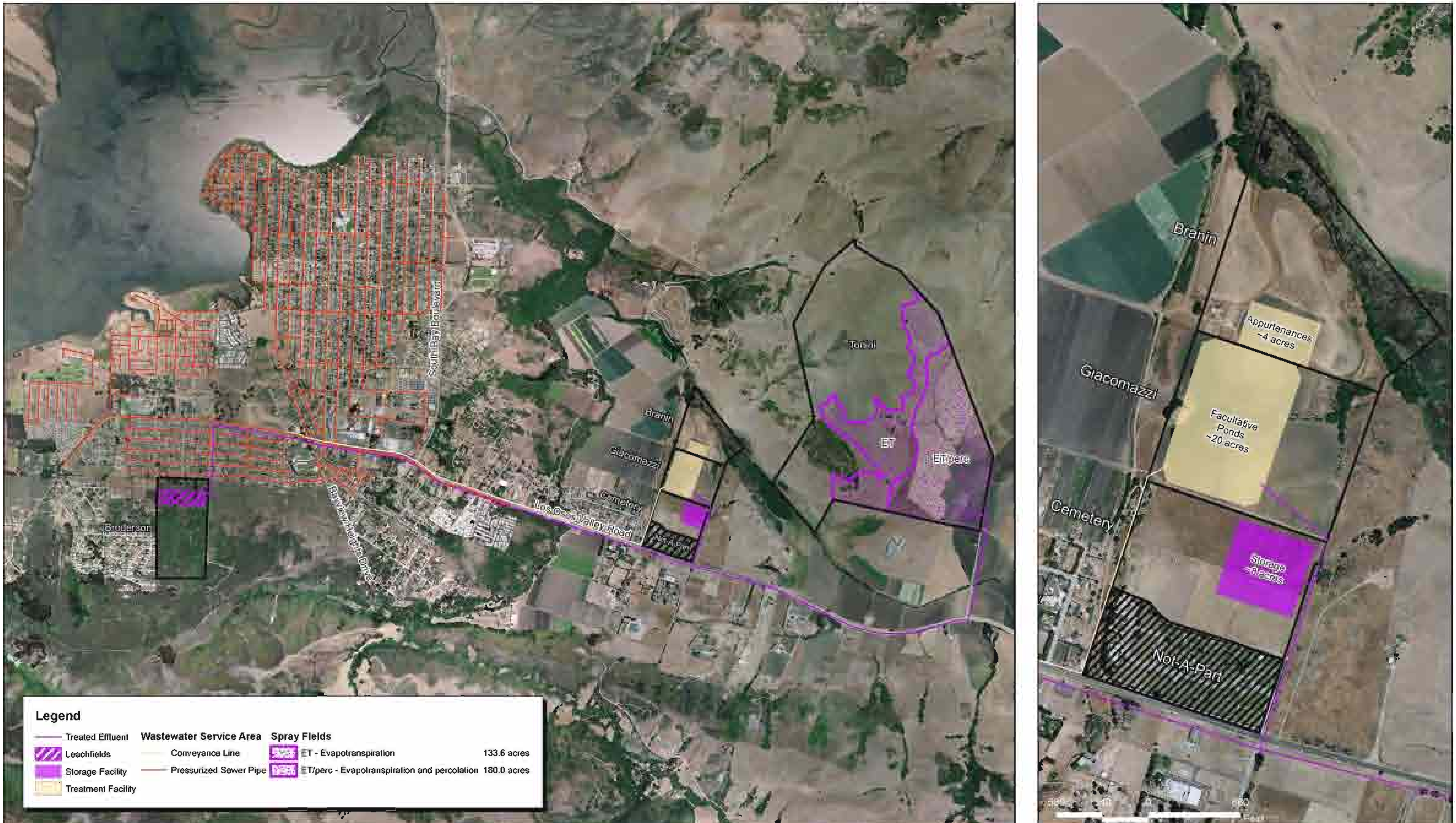
As shown in Exhibit 3-7 and summarized in Table 3-4, Proposed Project 2 includes a gravity sewerage collection system and an Oxidation Ditch/Biolac wastewater treatment facility that provides secondary-level treatment. The raw wastewater conveyance system carries the collected wastewater from the Mid-town pump station to the Giacomazzi wastewater treatment plant site. Treated effluent can be sent directly through the treated effluent conveyance system to the Broderson leachfield. Alternatively, some or all of the treated effluent can be sent through the eastern end of the treated effluent conveyance system to the Tonini sprayfields or the seasonal storage pond on the Tonini site.

Proposed Project 3

As shown in Exhibit 3-8 and summarized in Table 3-4, Proposed Project 3 includes a gravity sewerage collection system and an Oxidation Ditch/Biolac wastewater treatment facility that provides secondary-level treatment. The raw wastewater conveyance system carries the collected wastewater from the Mid-town pump station to the combined Giacomazzi/Branin wastewater treatment plant and sprayfield site. Treated effluent can be stored in the seasonal storage pond on the combined Giacomazzi/Branin site or sent directly through the treated effluent conveyance system to the Broderson leachfield and/or the Tonini sprayfields.

Proposed Project 4

As shown in Exhibit 3-9 and summarized in Table 3-4, Proposed Project 4 includes a gravity sewerage collection system and a facultative pond wastewater treatment facility that provides secondary-level treatment. The raw wastewater conveyance system carries the collected wastewater from the Mid-town pump station to the combined Tonini wastewater treatment plant site. Treated effluent can be sent directly through the treated effluent conveyance system to the Broderson leachfield. Alternatively, some or all of the treated effluent can be sent to the nearby Tonini sprayfields and or seasonal storage pond on the Tonini site.



Source: San Luis Obispo County, 2008; MBA, 2008.

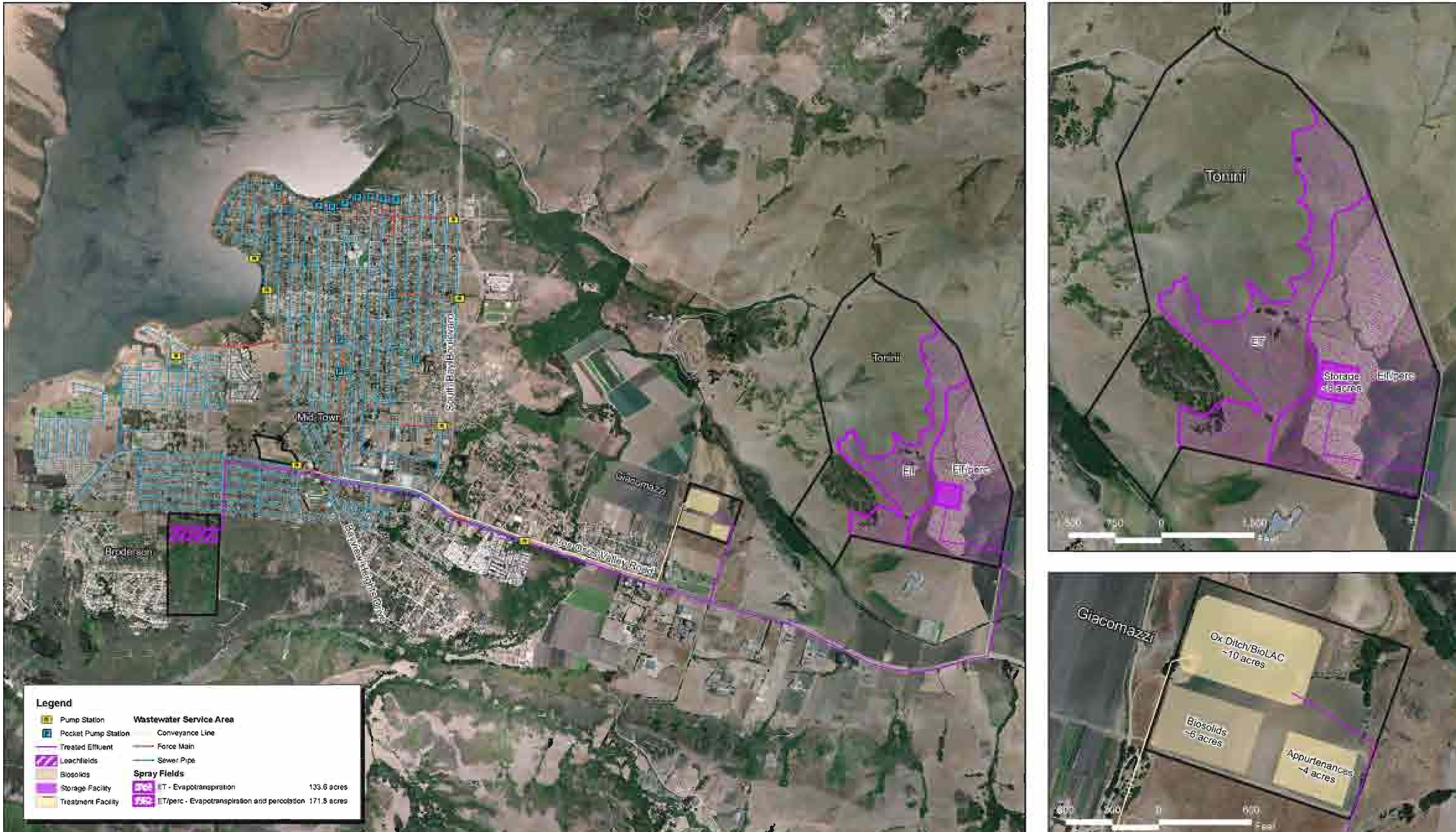
Michael Brandman Associates

NORTH

2,400 1,200 0 2,400 Feet

02240002 • 11/2008 | 3-6_proposed_project1.mxd

Exhibit 3-6
Proposed Project 1



Source: San Luis Obispo County, 2008; MBA,2008.

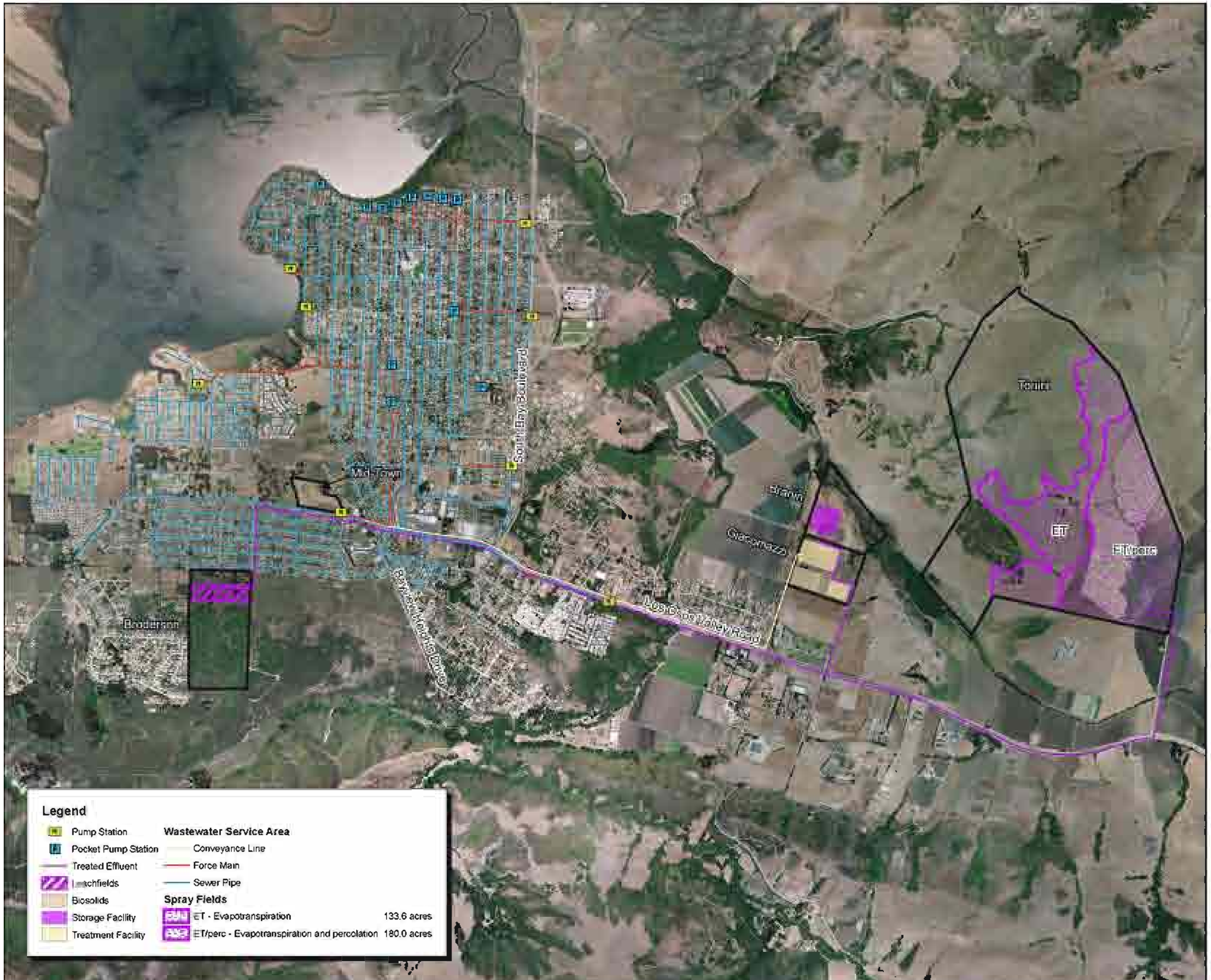
Michael Brandman Associates

NORTH

2,400 1,200 0 2,400 Feet

Exhibit 3-7
Proposed Project 2

02240002 • 11/2008 | 3-7_proposed_project.mxd



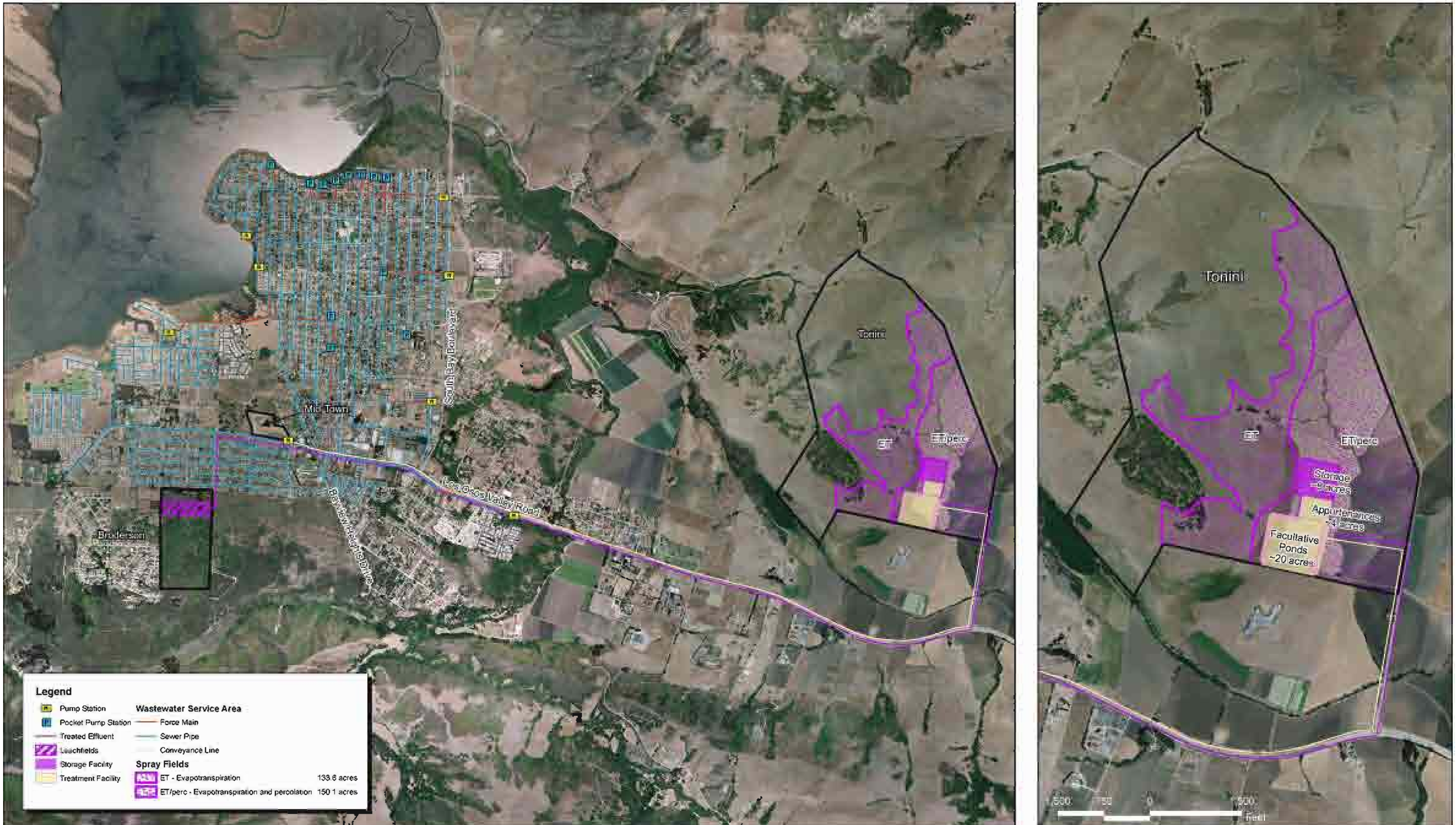
Source: San Luis Obispo County, 2008; MBA, 2008.

Michael Brandman Associates

NORTH

2,400 1,200 0 2,400
Feet

Exhibit 3-8
Proposed Project 3



Source: San Luis Obispo County, 2008; MBA,2008.

Michael Brandman Associates

NORTH

2,400 1,200 0 2,400
Feet

02240002 • 11/2008 | 3-9_proposed_project4.mxd

Exhibit 3-9
Proposed Project 4

Other Project Combinations

Several other combinations of the various project components are possible. Each alternative combination could include different types of collection systems, wastewater treatment and biosolids disposal processes, treatment facility sites, and effluent disposal facilities. The final preferred alternative and its project components will be selected for final design, permitting, and construction based on technical, economic, and environmental issues as well as community preferences. Project Components

The four proposed projects described in Table 3-4 are combinations of various project component options. This section provides general descriptions of the basic project components:

- Collection and Conveyance Systems
- Wastewater Treatment Process and Biosolids Processing
- Effluent Disposal

This discussion is based on Appendix B, Project Description Data, which contains additional detail on the project components.

Collection and Conveyance Systems

A collection system collects the wastewater from individual generators within a wastewater service area and conveys the wastewater to a central collection point. From the central collection point, the raw wastewater flows by pressure into and through the water conveyance system to the wastewater treatment plant. Another conveyance system carries the treated effluent from the wastewater treatment facility and storage pond to the effluent disposal areas. Each of these pipeline systems is described in more detail below.

Collection System

The proposed LOWWP collection system will collect the wastewater from individual generators within the Wastewater Service Area and convey the wastewater to a central collection point. The Wastewater Service Area includes all the properties within the RWQCB Prohibition Zone except for open space and properties that are one acre or larger such as the Martin Tract and Bayview Heights. At buildout, the LOWWP is projected to have 4,769 connections. Exhibit 3-4 provides a preliminary layout for the proposed collection system.

Two different types of collection systems have been proposed for the LOWWP:

- Gravity Collection System
- Septic Tank Effluent (STE) Collection System

In a gravity collection system, a pipeline system would convey both the wastewater and sewerage solids collected from residences and buildings within the Wastewater Service Area to a central location point at the Mid-town site. From there a subsurface main pump station would pump the collected wastewater into the raw wastewater conveyance system that carries the wastewater to the wastewater treatment facility. Individual septic tanks would not be used, and the existing septic tanks would be abandoned. Individual property owners within the Wastewater Service Area would be responsible to abandon their existing septic tank and construct a wastewater pipeline from their residence or building to the property line. About 25 percent of current property owners have septic tanks in their backyards. These homeowners would need to install a new lateral from the back of the house to their front yard where they would connect to the new sewer system. About 5 percent of the homeowners would also need to add a low pressure grinder pump (LPGP) to pump the sewerage from their backyard to their front yard connection. The LOWWP would construct connecting gravity lateral pipelines from the property line to the new gravity collection system sewer main in the street or right-of-way. When needed, a limited number of small, subsurface pump stations would pump wastewater from low-lying collection system areas to higher elevations so that the wastewater can flow by gravity to the main pump station. Because some low-lying areas will be served by small pump stations and force mains, the proposed gravity collection system can be considered a gravity hybrid system. Telemetry would be provided to monitor and manage collection operations, including the pump stations (Appendix B, Project Description Data; and Carollo Engineers February 2008)

The 7 pump stations and 12 pocket pump stations in the gravity collection system would use electrically driven submersible pumps set in precast underground concrete vaults with two or three pumps per station. The pocket pumps would be 1 horsepower pumps in 10-foot diameter vaults. Five of the seven larger pump stations would be duplex pump stations ranging from 3 to 10 horsepower and set in 10-foot diameter vaults. The two larger pump stations would have 30 and 60 horsepower triplex pumps in 12-foot diameter vaults. The depth of all the pump stations would generally range from about 10 to 20 feet (Appendix B, Project Description Data).

The underground concrete vaults would be sited within lightly traveled public rights-of-way. They would be fitted with traffic-rated access hatches that would allow maintenance of the pumps and station structure. The pumps would be guide-mounted to allow rapid and easy removal or installation, minimizing the time that the access hatches would have to be opened. The precast vaults would be designed to minimize solids deposition and holding time in order to avoid odor generation. The pumps would run nearly silently and would not cause noise nuisances to nearby residences. Immediately adjacent and behind the pump station vault would be a shallow valve vault with the valves and discharge piping needed to operate the pump station. Also mounted close to the pump station would be an above ground weather proof and vandal resistant electrical control panel to control the pump operation (Crawford, Multari and Clark Associates 2000). Emergency power generators would be provided for the larger pumps, but not the pocket pumps. The diesel (or natural gas, depending on permit requirements) emergency generators would be installed above ground in manufacturers enclosures with two levels of noise control and two levels of emissions scrubbing. (MWH 2003 and MWH 2005)

The other type of collection system, the STE collection system, would consist of both STEP and STEG collection lines. This system is typically referred to as a STEP/STEG system. For this system, existing septic tanks would be abandoned and the LOWWP would install new sealed STEP/STEG tanks with effluent filters in the front yard at each connection. About 25 percent of current property owners have septic tanks in their backyards. These homeowners would need to install a new lateral from the back of the house to their front yard for connection to the new STEP/STEG tanks. About 5 percent of the homeowners would also need to add a LPGP to pump the sewerage from their backyard to their front yard STEP/STEG tank.

Most of the biosolids would settle out in the onsite STEP/STEG tanks. Gravity or pressurized lateral pipelines would be installed to convey the STEP/STEG tank effluent to the street collection system sewer main. Next the wastewater would flow by gravity or under pressure to the raw wastewater conveyance system and, finally to the wastewater treatment plant. For this project, the majority of the connections would be STEP, not STEG connections. Because the wastewater would already be under sufficient pressure created by the individual pumping stations for each STEP connection, a separate main pumping station would not be required to pump the collected wastewater to the treatment facility. Telemetry would be provided to monitor and manage collection operations, including monitoring that the STEP/STEG tanks are functioning properly.

Carbon media filters to control odors would be required at high points throughout the system where air within the piping is released to prevent air bubbles from forming. The canisters and air release valves on the pressurized main collection lines would be enclosed in small (approximately 3 foot by 4 foot by 4 foot) buried vaults. STEP/STEG tanks would be vented to roof level, similar to existing septic tanks). About every five years, tank trunks would be used to pump out the septage from the STEP/STEG tanks and haul it to the wastewater treatment plant for treatment and disposal (Appendix B, Kennedy/Jenks Consultants 2008; and Crawford, Multari and Clark Associates 2000).

Proposed Project 1 includes a STEP/STEG collection system. Proposed Projects 2, 3, and 4 include a gravity collection system. More detail on the proposed collection system for each proposed project is provided in Section 3.3.5 and in Appendix B.

Raw Wastewater Conveyance System

The raw wastewater conveyance system would be somewhat different for the various proposed projects depending on the type of collection system. For Proposed Project 1, the raw wastewater conveyance system would begin at a central raw wastewater collection point at the Mid-town site on Los Osos Valley Road as shown on Exhibit 3-6. From the Mid-town site, the force main would carry the wastewater along Los Osos Valley Road, then turn north, and follow an existing dirt road just past the Cemetery to the Giacomazzi wastewater treatment plant site. Because the individual household pumps that are part of the STEP system would pressurize the collection system, a central pump station at the Mid-town site would not be required to pump the raw wastewater through the conveyance system to the wastewater treatment facility.

Proposed Projects 2, 3, and 4 would have a small (0.1 acre) underground central pump station at the Mid-town site on Los Osos Valley Road to pump the collected raw wastewater into the conveyance system force main that flows to the wastewater treatment plant sites along Los Osos Valley Road. As shown in Exhibits 3-7 and 3-8, the raw wastewater conveyance system for Proposed Projects 2 and 3 would follow the same alignment as the raw wastewater conveyance system for Proposed Project 1 from the Mid-town site to the Giacomazzi wastewater treatment facility site. The raw wastewater conveyance pipeline for Proposed Project 4, shown in Exhibit 3-9, would begin at the Mid-town pump station, pass the Giacomazzi site turnoff and continue further on Los Osos Valley Road to Turri Road before it turns north and ends at the Tonini wastewater treatment facility site.

The raw wastewater conveyance system for all four proposed projects would cross Los Osos Creek to reach the wastewater treatment facility sites as shown in Exhibits 3-6 to 3-9. Reaching the Tonini wastewater treatment facility site for Proposed Project 4 would also require crossing several drainages along Los Osos Valley Road and Turri Road as shown in Exhibit 3-9.

Treated Effluent Conveyance System

For all four proposed projects, the treated effluent conveyance system would consist of an above ground effluent pump station and pipeline to convey the treated effluent from the wastewater treatment facility at either the Giacomazzi or Tonini wastewater treatment facility site to the two effluent disposal sites: the Broderson leachfield in southwestern Los Osos and the Tonini sprayfields east of the Wastewater Service Area. The alignments for the treated effluent conveyance system would follow Los Osos Valley Road for most of their length and turn south to the Broderson leachfield. To reach the Tonini sprayfields, the treated effluent conveyance system for Proposed Projects 1, 2, and 3 would head in the opposite direction along Los Osos Valley Road and then turn north along Turri Road as shown in Exhibits 3-6 through 3-9. The treatment plant for Proposed Project 4 is also at the Tonini site, so a short pipeline would connect to the sprayfields as shown in Exhibit 3-9. A second underground pump station is included in all four of the proposed projects at the Broderson leachfield to equalize the wastewater distribution throughout the leachfield; this second pump station may or may not be required once the final design is completed.

Wastewater Treatment and Biosolids Processing

As described in Appendices P-1 and P-2, a wide range of wastewater treatment process alternatives were evaluated for their suitability for the LOWWP, including their ability to reliably provide secondary levels of wastewater treatment meeting the RWQCB WDR. Two wastewater treatment processes were selected as the most viable and cost-effective for the four proposed projects: Partially Mixed Facultative Ponds and an Oxidation Ditch or the similar Biolac. Biosolids processing facilities would also be provided at each wastewater treatment facility to process the biosolids before they are hauled offsite to a Sub-Class 2 landfill facility. Each of these treatment facilities is described below.

Partially Mixed Facultative Ponds

The proposed treatment process associated with the LOWWP partially mixed facultative pond system for Proposed Projects 1 and 4 would include the following components:

- **Headworks** - to screen out inorganics and measure the plant inflow. Degritting is optional since the downstream equipment and ponds are less susceptible to damage than the oxidation ditch/Biolac system. A septage receiving station will be included for both projects.
- **Pond System** - to treat the wastewater to secondary treatment levels.
- **Nitrogen removal -** to remove sufficient nitrogen through nitrification and subsequent denitrification to meet the RWQCB WDR.
- **Algae management** - to provide sufficient aeration and other design features so that algae do not accumulate on the facultative pond surfaces.
- **Biosolids management -** as required, anticipated on a 15 to 20 year cycle.
- **Odor control system -** to control odors by maintaining an “aerobic cap” over the anaerobic layer in the facultative pond and by using an inorganic media system to trap and scrub foul air from within the buildings enclosing the headworks and the biosolids dewatering equipment.

Treatment involving partially mixed facultative ponds requires multiple support systems, both upstream and downstream of the principal process. Each process element requires area, energy input, and maintenance. Appendix B, Project Description Data, contains a schematic view of the major components included in treatment systems involving partially mixed facultative ponds.

Partially mixed facultative ponds combine a biological process that oxidizes organic oxygen-demanding material and a physical operation that allows settling of organic and inorganic solids. They often include proprietary designs such as the Nelson Air Diffusion System® (ADS) and Advanced Integrated Pond System® (AIPS). Mechanical aeration provides dissolved oxygen needed for aerobic organisms in the pond to convert and oxidize the organic material in the wastewater. It also provides the physical mixing necessary to distribute dissolved oxygen, suspend the organic material and bring the organisms into contact with the organic material. Mixing must not be so great as to prevent the settling of biosolids for both sedimentation and for facultative and anaerobic degradation.

Wastewater treatment using partially mixed facultative ponds relies on the large volume available in the ponds and the resulting extended detention times to treat organic wastes and reduce nitrogen levels. Pond systems are typically selected because they provide a low-energy means to reduce BOD and Total Suspended Solids (TSS) in the treated effluent discharge. In addition, ponds provide effective in-plant flow equalization that permits operation of the facility at predictable flows, reducing the costs of operations. Furthermore, partially mixed facultative ponds require minimal effort to manage biosolids; the biosolids remain in the pond to be digested in the anaerobic layer at the bottom of the pond (Appendix B, Project Description Data). Every 15-20 years, the LOWWP operators will remove the accumulated biosolids from the ponds, dewater the solids and have transported to the landfill.

A septage receiving station will be added to the headworks for both Proposed Projects 1 and 4. Proposed Project 1 will accept septage pumped from the 4,679 STEP/STEG tanks in the collection system plus the 749 septic tanks remaining in Los Osos that are outside the Prohibition Zone. Proposed Project 4 would only accept septage from the 749 septic tanks remaining in Los Osos that are outside the Prohibition Zone. The facultative ponds would be sized and designed to handle the combined flow.

Oxidation Ditch/Biolac

The proposed treatment process associated with the LOWWP oxidation ditch/Biolac wastewater treatment system for Proposed Projects 2 and 3 would include the following components:

- **Headworks** - to screen out inorganics, de-grit, and measure the wastewater inflow. A septage receiving station will be included for both projects.
- **Oxidation ditch/Biolac** - to treat the wastewater to secondary treatment levels.
- **Secondary Clarification** - to settle out the suspended solids in the treated wastewater.
- **Nitrogen removal** - to add supplemental carbon to complete denitrification if a STEP/STEG collection system is selected. Nitrification/denitrification is completed within the oxidation ditch/Biolac if a gravity collection system is selected.
- **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.

Treatment involving oxidation ditches/Biolac requires multiple support systems, both upstream and downstream of the principal process. Each process element requires area, energy input, and maintenance. Appendix B, Project Description Data, shows a schematic view of the major components included in treatment systems involving oxidation ditches/Biolac.

An oxidation ditch consists of a ring or oval shaped channel equipped with mechanical aeration and mixing devices that create the optimal conditions for treating the raw wastewater to secondary levels. Screened wastewater enters the oxidation ditch channel and combines with the return activated sludge (RAS). RAS is partially digested sludge that is collected downstream at the wastewater treatment plant and returned to the plant's headworks. Activated sludge provides the active biological organisms that can multiply and digest the raw wastewater. The combined raw and partially treated wastewater circulate around the oxidation ditch many times during the treatment process. This helps equalize the flow rates and wastewater concentrations between day and night and during wet weather. A steady stream of partially treated wastewater is diverted from the oxidation ditch to the downstream secondary clarifier.

The oxidation ditch tank configuration, aeration system, and mixing devices promote unidirectional channel flow, so that the energy used for aeration is sufficient to provide mixing in a system with a relatively long hydraulic retention time. The aeration/mixing method used creates a velocity from 0.25 to 0.30 meters per second in the channel, which is sufficient to keep the activated sludge in suspension. At these channel velocities, the mixed wastewater and RAS completes a tank circulation in 5 to 15 minutes, and the magnitude of the channel flow is high enough to dilute the influent wastewater flow by a factor of 20 to 30 parts recirculating channel flow to 1 part influent raw wastewater flow. As a result, the process kinetics approaches that of a complete-mix reactor, but with plug flow along the channels. The long solids retention times (SRTs) and large tank volumes provide for nitrification. As the wastewater leaves the aeration zone, the dissolved oxygen (DO) concentration decreases and denitrification may occur. Brush-type or surface-type mechanical aerators are used for mixing and aeration. Secondary sedimentation tanks are used for most applications, and in some cases intra-channel clarifiers have been used to improve solids removal.

Biolac® Extended Aeration is a proprietary process that combines long solids retention times with submerged aeration in earthen basins. Fine bubble membrane diffusers are attached to floating aeration chains that are moved across the basin by the air released from the diffusers. Aeration basins are typically 2.4 to 4.6 meters deep. The process can be designed for nitrification since the SRT ranges from 40 to 70 days. A variation of the standard process, known as "wave oxidation modification," allows biological nitrification and denitrification to occur simultaneously by using timers to cycle the airflow rate to each aeration chain. Either an internal or an external clarifier can be used to remove solids.

Although oxidation ditches and Biolac are different treatment processes, the two systems share similar area requirements and treatment process trains, involving similar upstream and downstream support process components. They are considered interchangeable in the proposed projects. Oxidation ditches/Biolac systems are typically selected because they provide a mechanical process to reduce BOD by oxidation of organic wastes. Additionally, effective nitrogen removal is integral to the oxidation ditch/Biolac system rather than requiring a separate nitrification/denitrification system process to follow the primary treatment process. Biolac offers a lower construction cost than oxidation ditches because the earthen basins require less concrete and less energy to operate since the fine-bubble aeration process has a higher efficiency. Energy requirements to operate an oxidation ditch/Biolac system are higher than the energy required for a partially mixed facultative pond system.

Proposed Projects 2 and 3 will only accept septage from the 749 septic tanks remaining in Los Osos that are outside the Prohibition Zone. The oxidation ditch/Biolac system would be sized and designed to handle the combined flow.

Biosolids Processing and Disposal

The quantity and frequency of biosolids management vary significantly for the four proposed projects. For partially mixed facultative ponds, as in Proposed Projects 1 and 4, accumulated biosolids are removed from the ponds typically every 15 to 20 years, with more effective pond systems exhibiting lower cleaning frequency. The removed biosolids would be processed in temporary mobile biosolids processing facilities. Sufficient mixing and other design features will be incorporated into the facultative ponds design so that algae does not accumulate on the pond surfaces. For oxidation ditches/Biolac systems in Proposed Projects 2 and 3, biosolids are settled out in the secondary clarifier tanks on an ongoing basis and then pumped to the permanent biosolids handling facilities.

The removed biosolids from both types of treatment facilities would be dewatered by a belt filter or screw press system to about 15 percent solids, and then hauled to a Sub-Class B landfill for disposal. To be disposed in a landfill, biosolids must meet the discharge standards specified in Title 40 Section 503.23 of the Code of Federal Regulations, which also prescribes landfill management practices to be followed for biosolids handling. (Appendix B, Project Description Data).

A STEP/STEG collection system will affect the biosolids processing and collection system in several ways. First, a STEP/STEG system would reduce the solids load in the raw wastewater from 4,000 pounds (lbs) per day with a gravity system to 1,000 lbs/day. This would reduce the area required for the biosolids processing facility from approximately 14,000 square feet for Proposed Projects 2, 3, and 4 to 8,000 square feet for Proposed Project 1. (Appendix B, Project Description Data).

Another effect is that the 4,769 STEP/STEG tanks in the STEP/STEG system would need to be pumped about every five years on a rotating basis. Septage pumped from the STEP/STEG tanks would be trucked to the wastewater treatment facility on an ongoing basis and discharged to the septage receiving facility at the treatment plant headworks. Although the solids that settle in the STEP/STEG tanks would degrade over time, about 28 percent of the solids originally removed from the raw wastewater would be trucked to the wastewater treatment plant in the pumped septage. This would increase the raw wastewater solids of 1,000 lbs/day transported by the STEP/STEG collection system to a net suspended solids load of about 1,700 lbs/day in the combined raw wastewater and septage entering the treatment plant headworks for the STEP/STEG collection system in Proposed Project 1. The acreage required for the facultative ponds and the biosolids processing facility would increase accordingly. (Carollo Engineers 2008, Technical Memorandum: Technical Receiving Station Option.)

Noise and odor control are important components for the biosolids processing facility, so the biosolids processing equipment would be enclosed within a sound insulated building. An inorganic media air scrubber would trap and scrub the interior foul air before releasing it to the outside air (Crawford, Multari and Clark Associates, 2000; and Appendix B, Project Description Data).

Effluent Disposal

All four proposed projects include disposal of 1,290 acre-feet/year (AFY) of projected treated effluent based on the wastewater generated by the buildout population and estimated wet weather infiltration into the collection system of 336 AFY for three months per year. This treated effluent flow projection assumes that the County implements water conservation measures as described below.

No single effluent disposal alternative has enough capacity to accept the entire 1,290 AFY effluent flow (Carollo Engineers April 2008). Therefore, different effluent disposal options must be combined to create sufficient effluent disposal capacity as summarized in Table 3-5. The choice of effluent disposal options also affects the groundwater water quality and groundwater management benefits created by the project, including reducing seawater intrusion. These issues are discussed below under each treated effluent disposal option. Detailed analysis of the impacts that effluent disposal has on groundwater quality and quantity issues is provided in Section 5.2, Groundwater Resources.

Table 3-5: Proposed LOWWP Effluent Disposal System

Effluent Disposal Method	Available Area (acres)	Estimated Capacity per Acre (AFY[1]/acre)	Capacity (AFY[1])	Proposed Project Capacity (AFY[1])			
				Proposed Project #1	Proposed Project #2	Proposed Project #3	Proposed Project #4
Broderson Leachfield	8	64	448[2]	448	448	448	448
Tonini Sprayfields[3]	80	4.8[4]/3.0[5]	864	842	842	842	842
Total Effluent Disposal Capacity			**1,358**	**1,290**	**1,290**	**1,290**	**1,290**
Conservation Measures[6]			160	160	160	160	160

Notes:
1 AFY = acre-feet per year.
2 This is a conservative estimate of the maximum possible estimated effluent discharge capacity that can be sustained reliably without constructing dewatering wells downstream that could pump out groundwater, if necessary, to maintain adequate depth to the groundwater table and avoid saturated soil conditions along the bay. See Section 5.2 and Appendix D for additional detail on groundwater issues.
3 The proposed Tonini sptrayfields would include a combination of evapotranspiration (ET) and percolation and ET only. The actual split between land that is suitable for ET and percolation and land that is suitable only for ET will be determined as part of the design process. Other site conditions such as providing buffers along coastal streams will be accommodated in the final design.
4 Capacity for ET and percolation.
5 Capacity for ET only.
6 The 1,290 AFY needed effluent disposal capacity assumes that water conservation measures will be implemented to reduce water consumption and the corresponding wastewater generation by 160 AFY.
Source: Carollo Engineers, April 2008b.

Conservation

As discussed in Section 3.3.1 and Table 3-2, the average wastewater generation rate of 1.2 million gallons a day estimated for the LOWWP assumes that water conservation measures would be implemented to reduce water consumption and the corresponding wastewater generation rate by 0.1 million gallons a day or 160 AFY. Reducing wastewater generation by 160 AFY by 2020 represents about a ten percent reduction from the 2006 average daily per capita wastewater generation rate. If sufficient water conservation measures were not implemented, the capacity of the wastewater treatment facility would have to be increased by 0.1 million gallons per day, and the treated effluent disposal system would have to accommodate 160 AFY more effluent. The water conservation measures will also reduce the potable water pumped from the groundwater aquifer by an equal amount.

All four proposed projects include the proposed water conservation measures, which would include three primary measures:

1. Mandate that property owners retrofit their bathrooms with all low-flow fixtures, including low-flow toilets, prior to hooking up their buildings to the sewer.
2. Conduct a Public Education campaign to increase awareness of water conservation practices.
3. Promote High-Efficiency appliance programs that are sponsored by the gas and electric utility companies. Many of these programs cover appliances such as energy-efficient dishwashers and washers that would reduce both energy and water consumption.

The LOWWP would institute additional water conservation measures as needed to achieve the target 10 percent per capita water conservation rate and the resulting wastewater generation reduction.

Leachfield

Effluent disposal through leachfields would not depend on weather conditions, so treated effluent disposal can occur through a leachfield during the winter rainy season. Furthermore, as long as the instantaneous application rate and the annual effluent disposal total do not exceed the leachfield's design capacity and annual hydraulic loading capacity respectively, leachfield disposal need not occur uniformly throughout the year. This flexibility allows the LOWWP to discharge more effluent through a leachfield during the winter wet season when the sprayfields are not available and less effluent during the summer when the sprayfields can be used.

According to the 2008 Technical Memorandum: Effluent Reuse and Disposal Alternatives by Carollo Engineers (Carollo Engineers 2008b), Broderson is the only potential leachfield site that incurs a seawater intrusion mitigation benefit. Approximately 8 acres of the 81-acre Broderson site is suitable for a leachfield (Carollo April 2008b). The Carollo memorandum summarizes several prior analyses that have evaluated the Broderson leachfield hydraulic capacity. Although higher application rates could be possible, a 2000 hydrogeologic study (Cleath and Associates 2000) recommends that the annual application rate not exceed 448 AFY. Exceeding this rate could cause the water table to rise near the bay front and require installing harvest wells downstream to keep the water table from rising unacceptably.

When the LOWWP is first completed and begins operation, the estimated total treated effluent will be approximately 200 AFY less than the total treated effluent forecast at buildout. This will allow the LOWWP flexibility to apply about 250 AFY to the leachfield and monitor the effects on the groundwater using the monitoring wells that have already been installed.

The Broderson site would be accessed by a gravel road that extends south from the end of Broderson Avenue as shown on Exhibits 3-6 through 3-9. The site would require fencing to limit public access since the treated effluent would meet secondary but not the more stringent Title 22 tertiary standards for recycled water. The 8-acre active leachfield area at the Broderson site would be excavated to an average depth of 6.5 feet during construction, backfilled with a 4-foot layer of gravel for drainage, and then covered by geotextile fabric. Final cover would consist of a minimum of 2.5 feet of native soil backfill. The percolation piping would consist of 4-inch perforated PVC pipe laid approximately one foot below the geotextile fabric layer, with the perforations facing upwards. If the pores beneath the leachfield become clogged over time, the leachfield would be excavated and the ground beneath it would be ripped or disked. The estimated frequency of ripping ranges between 5 and 10 years (Appendix B, Project Description Data, and Carollo April 2008b).

Sprayfields

Sprayfield disposal is the practice of spraying effluent on land to dispose of the water through evapotranspiration and percolation. Sprayfield disposal, which requires secondary treatment, would be operated to maximize evaporation and minimize runoff. This would entail spraying only during the daytime and collecting any tailwater (runoff) that does occur and returning it to the sprayfields for reapplication. Disposal would occur through evapotranspiration (ET), or through both evapotranspiration and percolation. The estimated capacity for sprayfield land that is suitable for both ET and percolation is 4.8 AFY per acre, and the estimated capacity for sprayfield land that is suitable for ET only is 3.0 AFY per acre. Approximately 175 acres of sprayfield are expected to be needed for Proposed Projects 1 through 4 and the actual split between land that is suitable for ET and percolation and land that is suitable for ET only will be determined as part of the design process.

The two effluent disposal options of sprayfields and the Broderson leachfield, plus water conservation would provide sufficient capacity for the 1,290 AFY of effluent that are projected for the LOWWP at buildout as shown in Table 3-5. During the wet winter months, the sprayfields would not be active. If the daily treated effluent flow exceeds the Broderson leachfield capacity, the effluent could be stored in the 46-acre pond until spring after the wet weather and high runoff periods are over.

Treated effluent from the treatment facility would be pumped to the Tonini property through a pressurized pipeline known as the treated effluent conveyance system. The irrigation lines to the spray heads would be buried less than two feet below grade. Spray heads would be detachable and approximately three feet tall. They would rotate and spray water out to a radius of approximately 15 feet and would be installed at approximately 30-foot spacing. A drain would be constructed at the bottom of the sprayfield slopes to collect the tailwater (runoff), and a pump would be required to reapply the water.

Because the effluent disposed at the sprayfields would likely not meet Title 22 tertiary treatment standards, the sprayfield area would be fenced off to prevent public contact with the water. Nutrient management to prevent nitrates in the groundwater would consist of harvesting the grass grown in the field several times over the course of a year and disposing of the grass at the Cold Canyon and/or Chicago Grade landfills. See Appendix B for more detail on the sprayfield disposal system.

Effluent Storage

During wet weather, treated effluent can be discharged through the Broderson leachfield, but cannot be applied to the sprayfields. To provide seasonal storage during these wet periods, each of the four proposed projects would provide up to 46 AF of effluent storage capacity in seasonal storage ponds. The seasonal storage ponds could be emptied when the stored effluent is sprayed on the fields during hot, dry periods when evapotranspiration rates are high. Typically, the ponds would be empty during the summer and fall months. Proposed Projects 1 and 3 have a 46-AF seasonal storage pond on the Giacomazzi/Cemetery/Branin or Giacomazzi wastewater treatment facility site as shown on Exhibits 3-6 and 3-8 respectively. Proposed Projects 2 and 4 both have a 46-AF storage pond on the Tonini site near the sprayfields where the stored effluent would be sprayed. The Tonini storage pond sites are shown on Exhibits 3-7 and 3-9.

As discussed in the LOWWP Development Technical Memorandum: Effluent Reuse and Disposal Alternatives (Carollo Engineers 2008b), in Appendix B, Project Description Data, and summarized in Table 3-6, the storage pond surface area would decrease as the pond dam height is increased. The maximum feasible depth below grade varies depending on the site that is selected, but a depth of 15 feet would be possible in any location east of Los Osos Creek. The freeboard required for any pond would be approximately 4 feet to comply with seismic codes and stormwater containment requirements. Storage ponds would be lined to prevent percolation and the banks would be protected with riprap. After storage for several months, the effluent would be screened or filtered to remove algae that could cause clogging before the effluent is sent for disposal.

Table 3-6: Possible Footprints for Storage Pond

Storage Capacity (AF)	Approx. Pond Surface Area (acres)	Approx. Dam Height (feet)
46	8	10
46	6	12

Table 3-6 (Cont.): Possible Footprints for Storage Pond

Storage Capacity (AF)	Approx. Pond Surface Area (acres)	Approx. Dam Height (feet)
46	5	13

Sources:
1. Carollo Engineers. 2008b. San Luis Obispo County, LOWWP Development, Technical Memorandum, Effluent Reuse and Disposal Alternatives, Final Draft. April.
2. Appendix B, Kennedy/Jenks Consultants, 2008.

3.3.3 - Detailed Proposed Project Descriptions

The detailed environmental analysis in this document considers four preliminary proposed projects on an equal basis. Each of the potential project component options described in Section 3.3.3 above is included in one or more of the four proposed projects. Technical Appendices P-1 and P-2 provide a summary of the process followed to evaluate the potential project components and site alternatives; identify and eliminate project components that may not be technically, environmentally or financially viable for the LOWWP; and combine the remaining project components into the four proposed projects. Table 3-4 summarizes which combinations of project components and sites are included in the four proposed projects. The final LOWWP could be any one of the four alternatives, a different combination of project components, or a completely different Proposed Project selected through the project community review, CEQA analysis and final design process.

Exhibits 3-6 through 3-9 provide graphic representations of the four proposed projects. A more detailed summary comparing the four proposed projects is provided in Table 3-7 and in the following sections. Some of the components common to all four proposed projects include:

- Water conservation measures would be initiated with a goal of reducing per capita water consumption, and the corresponding wastewater generation rate, 10 percent by 2020. The primary element of the conservation measures would be requiring all property owners to retrofit their properties with low-flow fixtures, including toilets, before they hook up to the sewer system. Water conservation would also help reduce the potential for seawater intrusion (Carollo Engineers April 2008c).
- Broderson leachfield would operate year-round during dry and wet weather to dispose up to 448 AFY of treated effluent. Effluent disposal rates at the leachfield would be managed to offset groundwater impacts created when the former septage flow is diverted to the LOWWP and to maximize reduction of seawater intrusion potential. Groundwater modeling analysis has indicated that discharging 448 AFY through the Broderson leachfield could reduce seawater intrusion by 187 AFY. Higher discharge rates might be possible, but dewatering wells could be required downstream to maintain adequate depth to the groundwater table. See Section 5.2 and Appendix D for more detail on this issue.

- The Tonini sprayfields would dispose of up to 842 AFY of treated effluent by spray irrigating 175 acres of cultivated grasses and the actual acres would approximately depend on whether effluent is sprayed on land suitable for both ET and percolation or for ET only. Assumed acreage capacities and locations for each type of land are listed in Exhibits 3-6 to 3-9. The sprayfield would operate during daytime hours only during the dry seasons since all effluent disposal would occur through evaporation and percolation. Irrigation rates would be managed to avoid any excess tailwater runoff that exceeds the plant uptake and soil percolation rates. Any excess runoff that does occur would be collected and reapplied to the fields so that runoff does not enter nearby surface waters.
- Biosolids will be dewatered and hauled to a Sub-Class B landfill.
- Property owners would be responsible to abandon their existing septic tank and install a connecting pipeline from their building to either the new STEP/STEG tank or the new sewer lateral stubbed to their property line. If the new STEP/STEG tank will be installed in the same location as the existing septic tank, then the LOWWP, instead of the property owner, will be responsible for removing and abandoning the existing septic tank.

Table 3-7: Summary of Proposed Projects Los Osos Wastewater Project (LOWWP)
Page 1 of 5[3]

Proposed Project	Treatment Plant Site	Collection System [1]	Conveyance Systems		Treatment Process and Wastewater Flows	Storage Location	Effluent Disposal	Biosolids Disposal
			Raw Wastewater	Treated Effluent				
1	Cemetery/ Giacomazzi/ Branin	**STEP/STEG[3]:** • Abandon 4,679 existing septic tanks (75% in front yards and 25% in backyards) • Install 4,679 1500-gallon STEP/STEG tanks (95% in front yards and 5% in backyards.) • 4,679 0.5 hp effluent pumps and controls with average pumping capacity of 10 gpm at 150 TDH • 4,679 electrical service connection upgrades. • 4,679 connecting 4-inch sewer laterals from STEP/STEG tanks to street collection system (about 129,000 lf total: 25 feet for front yards and 75 feet for backyards) • 31,600 lf of 10-, 8-, and 6-inch PVC force main. (Mostly 4 to 6 feet deep.) • 203,600 lf of 2 to 4-inch pressure sewer collector. (Mostly 4 to 6 feet deep.) • 1,000 isolation valves and air release valves. • 200 flushing ports. • Maintenance includes inspecting STEP/STEG tanks and cleaning the effluent filters every two years and pumping the accumulated septage every five years and hauling it to the treatment plant. • Telemetry will signal false and real alarms for STEP/STEG tanks and collection system malfunctions. • Pressure system requires maintenance and periodic replacement of the air-vacuum valve carbon filters and 4,679 effluent pumps and controls. Energy consumption of about 425,000 kWhr/year.	1. Install conveyance system to transmit raw wastewater from Mid-town Site to Giacomazzi site. • Install 18,700 lf of 10-inch force main at 4foot depth. • No Mid-town Pump Station. • Construct 500-linear foot Los Osos Creek Crossing. 2. Tanker trucks will pump and transport septage from 936 STEP/STEG tanks and 150 septic tanks each year and discharge to the treatment plant headworks.	1. Install conveyance system to transmit treated effluent from Giacomazzi site to Broderson Leachfield. • Install 17,000 lf of 12-inch pipeline. • Install pump station at Giacomazzi to pump maximum of 65 AF monthly (448 AF annually) of treated effluent to Broderson Leachfield (50 hp pump with capacity of 1000 gpm). • Install possible second pump station at Broderson to achieve equal distribution throughout disposal field (20 hp pump with capacity of 500 gpm at 40 psi). • Construct 500 foot Los Osos Creek Crossing. 2. Install conveyance system to transmit treated effluent from Giacomazzi site to Tonini Sprayfields. • Install 9,800 lf of 12-inch pipeline. • During non-wet periods, pump maximum of 80 AF monthly (842 AFY) of treated effluent to Tonini sprayfields. Install possible site booster pump to increase pressure.	1. Assumes Water Conservation Measures are implemented: • Reduce water consumption and wastewater generation by 160 AFY (10% by buildout in 2020). • Mandate that bathrooms be retrofitted with all low-flow fixtures prior to hookup to the sewer. • Conduct Public Education campaign. • Promote High-Efficiency appliance programs. 2. At buildout, the wastewater generation rate from the STEG/STEG3 collection system is forecast to be: ADDWF = 1.1 MGD ADWWF = 1.2 MGD PHWWF = 1.7 MGD[3] • Filtered STEP/STEG effluent/WWTP influent Average Day Wastewater Characteristics: BOD5 = 120 mg/l Suspended Solids = 40 mg/l Total Nitrogen = 56 mg/l • STEP/STEG and septic tank septage Typical Wastewater Characteristics: • Average Daily Pumping = 6,400 gpd • BOD5 increase = 269 lbs/day • Suspended Solids increase = 806 lbs/day 3. Construct Partially-Mixed Facultative Pond Wastewater Treatment System to provide Secondary Treatment meeting RWQCB WDR. Plant includes: • Headworks to screen out inorganics and measure flow. Solids volume is about 25% compared to gravity collection system. • Partially Mixed Facultative Ponds. • Septage receiving station required to screen and process septage from 4,769 STEP/STEG tanks and 749 remaining septic tanks. • About 20-acre wastewater treatment facility site, assuming Advanced Integrated Pond System (AIPS). • Energy consumption will be about 1.07 million kWhr/year. • Aeration and other features to prevent algae accumulation on pond surfaces. • Nitrogen Removal System with carbon addition. • Open air odor control system for ponds and enclosed odor control for headworks and biosolids handling processes. • Site will be fenced. • Requires 2.0 FTE crew for O&M.	Construct 46 AF seasonal storage pond for treated effluent onsite at Cemetery/ Giacomazzi/Branin site. • Potential surface area varies from 5 to 8 acres depending on the pond depth. • Allows for 4-foot freeboard. • Site will be fenced. • Pond will be lined to prevent leakage and protected with riprap.	Effluent Disposal will have two components: 1. Broderson Leachfield, • Construct 8-acre leachfield to discharge up to 448 AFY of treated wastewater effluent. • Can operate during dry and wet weather. • Mitigates 187 AFY of seawater intrusion. • Site will be fenced. • Excavate leachfield, disk or rip underlying ground and reconstruct leachfield every 5-10 years when it clogs. 2. Tonini Sprayfields. • Spray up to 842 AFY of treated wastewater effluent on approximately 175 acres of dedicated fields at Tonini site. • Disposal occurs through evapotranspiration and percolation. • Spraying will occur during daytime and dry weather only. • Any tailwater runoff will be collected and reapplied to the sprayfields. • Nitrates will be controlled by harvesting the grass several times a year and disposing of the grass at Cold Canyon or Chicago Grade landfills. • Site will be fenced.	1. Every 15-20 years, solids from ponds will be removed, dewatered with belt filter or screw presses and hauled to the Cold Canyon or Chicago Grade landfills for disposal. 2. Odors and noise will be controlled by enclosing the dewatering facility and providing odor scrubbing equipment. 3. Septage pumped from STEP/STEG tanks will be transported by trucks to wastewater treatment plant for processing.

Table 3-7 (Cont.): Summary of Proposed Projects Los Osos Wastewater Project (LOWWP) Page 2 of 5[3]

Proposed Project	Treatment Plant Site	Collection System [1]	Conveyance Systems		Treatment Process and Wastewater Flows	Storage Location	Effluent Disposal	Biosolids Disposal
			Raw Wastewater	Treated Effluent				
2	Giacomazzi	**Gravity:** • Abandon 4,679 existing septic tanks. (75% in front yards and 25% in backyards.) • Install 4679 connecting 4-inch sewer laterals from property line to street collection system (about 140,000 lf). • 230,000 lf of gravity sewer and force mains (8-18 inch pipeline, most at depths of less than 8 feet[2]). • 907 manholes. • 5 duplex pump stations. • 2 triplex pump stations. • 12 pocket pump stations. • Standby power facilities (for stationery duplex, triplex and Mid-town pump stations. • Maintenance includes inspections of the collection system every 2 years (half of system each year). • Telemetry will signal false and real alarms for pump station malfunctions. • Energy consumption of about 500,000 kWhr/year.	1. Mid-town Pump Station to Giacomazzi • Install 18,700 lf of 14-inch force main at 4-foot depth. • Install Mid-town Pump Station with 3 75-hp pumps with average pumping capacity of 875 gpm at 170 TDH. • Pump Station site is 0.1 acre. • Construct 500 foot Los Osos Creek Crossing. 2. Tanker trucks will pump and transport septage from 150 septic tanks each year and discharge to the treatment plant headworks.	1. Install conveyance system to transmit treated effluent from Giacomazzi site to Broderson Leachfield • Install 17,000 lf of 12-inch pipeline. • Install pump station at Giacomazzi to pump maximum of 65 AF monthly (448 AF annually) of treated effluent to Broderson Leachfield. (50 hp pump with capacity of 1000 gpm.) • Install possible second pump station at Broderson to achieve equal distribution throughout disposal field. (20 hp pump with capacity of 500 gpm at 40 psi.) • Construct 500 foot Los Osos Creek Crossing. 2. Install conveyance system to transmit treated effluent from Giacomazzi site to Tonini Sprayfields. • Install 9,800 lf of 12-inch pipeline. • During non-wet periods, pump maximum of 80 AF monthly (842 AFY) of treated effluent to Tonini sprayfields. Install possible site booster pump to increase pressure.	1. Assumes Water Conservation Measures are implemented: • Reduce water consumption and wastewater generation by 160 AFY (10% by buildout in 2020). • Mandate that bathrooms be retrofitted with all low-flow fixtures prior to hookup to the sewer. • Conduct Public Education campaign. • Promote High-Efficiency appliance programs. 2. At buildout, the wastewater generation rate from the gravity collection system is forecast to be: ADDWF = 1.2 MGD ADWWF = 1.4 MGD PHWWF = 2.5 MGD[3] • Average Day influent Wastewater Characteristics: BOD5 = 340 mg/l Suspended Solids = 390 mg/l Total Nitrogen = 56 mg/l • Septic tank septage Typical Wastewater Characteristics: Average Daily Pumping = 720 gpd BOD5 increase = 30 lbs/day Suspended Solids increase = 90 lbs/day 3. Construct Oxidation Ditch or Biolac Wastewater Treatment System to provide Secondary Treatment meeting RWQCB WDR. Plant includes: • Headworks to screen out inorganics, and de-grit and measure flow. • Oxidation Ditch or Biolac system. • Septage receiving station required to screen and process septage from 749 septic tanks remaining outside Prohibition Zone. • Secondary Clarifier. • About 8 to 10 acre wastewater treatment facility site. • Energy consumption will be about 1.36 million kWhr/year. • Nitrogen Removal System integral to Oxidation Ditch or Biolac system without carbon addition. • Enclosed odor control for headworks and solids handling processes. • Site will be fenced. • Requires 2.5 FTE crew for O&M.	Construct 46 AF seasonal storage pond for treated effluent onsite at Tonini Sprayfields site. • Potential surface area varies from 5 to 8 acres depending on the pond depth. • Allows for 4-foot freeboard. • Site will be fenced. • Pond will be lined to prevent leakage and protected with riprap.	Effluent Disposal will have two components: 1. Broderson Leachfield, • Construct 8-acre leachfield to discharge up to 448 AFY of treated wastewater effluent. • Can operate during dry and wet weather. • Mitigates 187 AFY of seawater intrusion. • Site will be fenced. • Excavate leachfield, disk or rip underlying ground and reconstruct leachfield every 5-10 years when it clogs. 2. Tonini Sprayfields. • Spray up to 842 AFY of treated wastewater effluent on approximately 175 acres of dedicated fields at Tonini site. • Disposal occurs through evapotranspiration and percolation. • Spraying will occur during daytime and dry weather only. • Any tailwater runoff will be collected and reapplied to the sprayfields. • Nitrates will be controlled by harvesting the grass several times a year and disposing of the grass at Cold Canyon or Chicago Grade landfills. • Site will be fenced.	1. Construct belt filter or screw press facilities to dewater 3600 lbs/day of solids to meet Sub-Class B biosolids requirements. 2. Dewatered biosolids will be hauled to the Cold Canyon or Chicago Grade landfills for disposal. 3. Odors and noise will be controlled by enclosing the dewatering facility and providing odor scrubbing equipment.

Table 3-7 (Cont.) Summary of Proposed Projects Los Osos Wastewater Project (LOWWP) Page 3 of 5[3]

Proposed Project	Treatment Plant Site	Collection System [1]	Conveyance Systems		Treatment Process and Wastewater Flows	Storage Location	Effluent Disposal	Biosolids Disposal
			Raw Wastewater	Treated Effluent				
3	Giacomazzi/Branin	**Gravity:** • Abandon 4,679 existing septic tanks (75% in front yards and 25% in backyards). • Install 4679 connecting 4-inch sewer laterals from property line to street collection system (about 140,000 lf). • 230,000 lf of gravity sewer and force mains (8-18 inch pipeline, most at depths of less than 8 feet[2]) • 907 manholes. • 5 duplex pump stations. • 2 triplex pump stations. • 12 pocket pump stations. • Standby power facilities (For stationery duplex, triplex and Mid-town pump stations. • Maintenance includes inspections of the collection system every 2 years (half of system each year). • Telemetry will signal false and real alarms for pump station malfunctions. • Energy consumption of about 500,000 kWhr/year.	• Mid-town Pump Station to Giacomazzi. • Install 18,700 lf of 14-inch force main at 4-foot depth. • Install Mid-town Pump Station with 3 75-hp pumps with average pumping capacity of 875 gpm at 170 TDH. • Pump Station site is 0.1 acre. • Construct 500 foot Los Osos Creek Crossing. • Tanker trucks will pump and transport septage from 150 septic tanks each year and discharge to the treatment plant headworks.	1. Install conveyance system to transmit treated effluent from Giacomazzi site to Broderson Leachfield. • Install 17,000 lf of 12-inch pipeline. • Install pump station at Giacomazzi to pump maximum of 65 AF monthly (448 AF annually) of treated effluent to Broderson Leachfield. (50 hp pump with capacity of 1,000 gpm). • Install possible second pump station at Broderson to achieve equal distribution throughout disposal field. (20 hp pump with capacity of 500 gpm at 40 psi.) • Construct 500 foot Los Osos Creek Crossing 2. Install conveyance system to transmit treated effluent from storage pond on Branin site to Tonini Sprayfields. • Install 9,800 lf of 12-inch pipeline. • During non-wet periods, pump maximum of 80 AF monthly (842 AFY) of treated effluent to Tonini sprayfields. Install possible site booster pump to increase pressure.	1. Assumes Water Conservation Measures are implemented: • Reduce water consumption and wastewater generation by 160 AFY (10% by buildout in 2020). • Mandate that bathrooms be retrofitted with all low-flow fixtures prior to hookup to the sewer. • Conduct Public Education campaign. • Promote High-Efficiency appliance programs. 2. At buildout, the wastewater generation rate from the gravity collection system is forecast to be: ADDWF = 1.2 MGD ADWWF = 1.4 MGD PHWWF = 2.5 MGD[3] • Average Day Influent Wastewater Characteristics: BOD5 = 340 mg/l Suspended Solids = 390 mg/l Total Nitrogen = 56 mg/l • Septic tank septage Typical Wastewater Characteristics: Average Daily Pumping = 720 gpd BOD5 increase = 30 lbs/day Suspended Solids increase = 90 lbs/day 3. Construct Oxidation Ditch or Biolac Wastewater Treatment System to provide Secondary Treatment meeting RWQCB WDR. Plant includes: • Headworks to screen out inorganics, and de-grit and measure flow. • Oxidation Ditch or Biolac system. • Septage receiving station required to screen and process septage from septic tanks remaining within excluded areas. • Secondary Clarifier. • About 8-10 acre wastewater treatment facility site. • Energy consumption will be about 1.36 million kWhr/year. • Nitrogen Removal System integral to Oxidation Ditch or Biolac system without carbon addition. • Odor control by enclosing headworks and biosolids handling processes. • Site will be fenced. • Requires 2.5 FTE crew for O&M.	Construct 46 AF seasonal storage pond for treated effluent onsite on Branin site. • Potential surface area varies from 5 to 8 acres depending on the pond depth. • Allows for 4-foot freeboard. • Site will be fenced. • Pond will be lined to prevent leakage and protected with riprap.	Effluent Disposal will have two components: 1. Broderson Leachfield, • Construct 8-acre leachfield to discharge up to 448 AFY of treated wastewater effluent. • Can operate during dry and wet weather. • Mitigates 187 AFY of seawater intrusion. • Site will be fenced. • Excavate leachfield, disk or rip underlying ground and reconstruct leachfield every 5-10 years when it clogs. 2. Tonini Sprayfields. • Spray up to 842 AFY of treated wastewater effluent on approximately 175 acres of dedicated fields at Tonini site. • Disposal occurs through evapotranspiration and percolation. • Spraying will occur during daytime and dry weather only. • Any tailwater runoff will be collected and reapplied to the sprayfields. • Nitrates will be controlled by harvesting the grass several times a year and disposing of the grass at Cold Canyon or Chicago Grade landfills. • Site will be fenced.	1. Construct belt filter or screw press facilities to dewater 3600 lbs/day of biosolids to meet Sub-Class B biosolids requirements. 2. Dewatered biosolids will be hauled to the Cold Canyon or Chicago Grade landfills for disposal. 3. Odors and noise will be controlled by enclosing the dewatering facility and providing odor scrubbing equipment.

Table 3-7 (Cont.) Summary of Proposed Projects Los Osos Wastewater Project (LOWWP)
Page 4 of 5[3]

Proposed Project	Treatment Plant Site	Collection System [1]	Conveyance Systems		Treatment Process and Wastewater Flows	Storage Location	Effluent Disposal	Biosolids Disposal
			Raw Wastewater	Treated Effluent				
4	Tonini	**Gravity:** • Abandon 4,679 existing septic tanks (75% in front yards and 25% in backyards). • Install 4679 connecting 4-inch sewer laterals from property line to street collection system (about 140,000 lf). • 230,000 lf of gravity sewer and force mains (8-18 inch pipeline, most at depths of less than 8 feet[2]) • 907 manholes. • 5 duplex pump stations. • 2 triplex pump stations. • 12 pocket pump stations. • Standby power facilities (For stationery duplex, triplex and Mid-town pump stations.). Maintenance includes inspections of the collection system every 2 years (half of system each year). • Telemetry will signal false and real alarms for pump station malfunctions. • Energy consumption of about 500,000 kWhr/year.	1. Mid-rown Pump Station to Tonini. • Install 28,500 lf of 14-inch force main at 4- foot depth. • Install Mid-town Pump Station with 3 75-hp pumps with average pumping capacity of 875 gpm at 170 TDH. • Pump Station site is 0.1 acre. • Construct 500 foot Los Osos Creek Crossing. 2. Tanker trucks will pump and transport septage from 150 septic tanks each year and discharge to the treatment plant headworks.	1. Install conveyance system to transmit treated effluent from Tonini site to Broderson Leachfield. • Install 26,800 lf of 12-inch pipeline. • Install pump station at Tonini to pump maximum of 65 AF monthly (448 AF annually) of treated effluent to Broderson Leachfield. (75 hp pump with capacity of 1000 gpm.) • Install possible second pump station at Broderson to achieve equal distribution throughout disposal field. (20 hp pump with capacity of 500 gpm at 40 psi). • Construct 500 foot Los Osos Creek Crossing. 2. Install conveyance system to transmit treated effluent from Tonini site to Tonini Sprayfields. • Install 6,500 lf of 12-inch pipeline. • During non-wet periods, pump maximum of 80 AF monthly (842 AFY) of treated effluent to Tonini sprayfields. Install possible site booster pump to increase pressure.	1. Assumes Water Conservation Measures are implemented: • Reduce water consumption and wastewater generation by 160 AFY (10% by buildout in 2020). • Mandate that bathrooms be retrofitted with all low-flow fixtures prior to hookup to the sewer. • Conduct Public Education campaign • Promote High-Efficiency appliance programs. 2. At buildout, the wastewater generation rate from the gravity collection system is forecast to be: ADDWF = 1.2 MGD ADWWF = 1.4 MGD PHWWF = 2.5 MGD[3] • Average Day Influent Characteristics: BOD5 = 340 mg/l Suspended Solids = 390 mg/l Total Nitrogen = 56 mg/l • Septic tank septage Typical Wastewater Characteristics: Average Daily Pumping = 720 gpd BOD5 increase = 30 lbs/day Suspended Solids increase = 90 lbs/day 3. Construct Partially-Mixed Facultative Pond Wastewater Treatment System to provide Secondary Treatment meeting RWQCB WDR. Plant includes: • Headworks to screen out inorganics and measure flow. • About 20-acre wastewater treatment facility site, assuming Advanced Integrated Pond System (AIPS). • Septage receiving station required to screen and process septage from 749 septic tanks remaining outside Prohibition Zone. • Energy consumption will be about 1.24 million kWhr/year. • Aeration and other features to prevent algae accumulation on pond surfaces. • Nitrogen Removal System with limited carbon addition. • Open air odor control system for ponds and enclosed odor control for headworks and biosolids handling processes. • Site will be fenced. • Requires 2.0 FTE crew for O&M.	Construct 46 AF seasonal storage pond for treated effluent onsite at Tonini site. • Potential surface area varies from 5 to 8 acres depending on the pond depth. • Allows for 4-foot freeboard. • Site will be fenced. • Pond will be lined to prevent leakage and protected with riprap.	Effluent Disposal will have two components: 1. Broderson Leachfield, • Construct 8-acre leachfield to discharge up to 448 AFY of treated wastewater effluent. • Can operate during dry and wet weather. • Mitigates 187 AFY of seawater intrusion. • Site will be fenced. • Excavate leachfield, disk or rip underlying ground and reconstruct leachfield every 5-10 years when it clogs. 2. Tonini Sprayfields. • Spray up to 842 AFY of treated wastewater effluent on approximately 175 acres of dedicated fields at Tonini site. • Disposal occurs through evapotranspiration and percolation. • Spraying will occur during daytime and dry weather only. • Any tailwater runoff will be collected and reapplied to the sprayfields. • Nitrates will be controlled by harvesting the grass several times a year and disposing of the grass at Cold Canyon or Chicago Grade landfills. • Site will be fenced.	1. Every 15-20 years, biosolids from ponds will be removed, dewatered by belt filter or screw presses and hauled to the Cold Canyon or Chicago Grade landfills for disposal. 2. Odors and noise will be controlled by enclosing the dewatering facility and providing odor scrubbing equipment.

4.

Table 3-7 (Cont.): Summary of Proposed Projects Los Osos Wastewater Project (LOWWP)
Page 4 of 5[3]

Proposed Project	Treatment Plant Site	Collection System [1]	Conveyance Systems		Treatment Process and Wastewater Flows	Storage Location	Effluent Disposal	Biosolids Disposal
			Raw Wastewater	Treated Effluent				

Notes:
1. Cost of abandoning existing septic tanks and replacing onsite landscaping and other onsite improvements disturbed by sewer lateral and septic tank abandonment or installation is paid by property owner for all Proposed Projects. Property owner for STEP/STEG collection system pays cost of sewer lateral from house or building to new STEP/STEG tank. Property owner for gravity collection system pays cost of sewer laterals from property line to house or building.
2. 94 percent of gravity collection system will be 8-inch PVC, 3 percent will be 10- to 12-inch PVC, and 3 percent will be 15- to 18-inch PVC. 72.6 percent will be buried 8 feet or less, 24.6 percent from 9 to 12 feet, and less than 3 percent from 13 to 18 feet. See Appendix B, Project Description Data, for more detail.
3. ADDWF = Average Day Dry Weather Flow, ADWWF = Average Day Wet Weather Flow, AF = Acrefeet, AFY = acre-feet per year, gpm = gallons per minute, gpd = gallons per day; FTE=full-time equivalent employees, kWhr = kilowaterhours; lbs = pounds; lf = linear feet, MGD = million gallons per day, O&M = operations and Maintenance, PHWWF = Peak Hour Wet Weather Flow, RWQCB = Regional Water Quality Control Board, STEP/STEG = Septic Tank Effluent Pumps/Septic Tank Effluent Gravity.

Source: Appendix B, Project Description Data; LOWWP Environmental Impact Report Draft Proposed Projects Descriptions, Draft August 1, Final October.

This page intentionally blank.

The following sections describe some of the unique features of the four proposed projects.

Proposed Project 1

As shown in Exhibit 3-6 and detailed in Table 3-7, Proposed Project 1 includes a combination STEP/STEG collection system and a facultative pond wastewater treatment facility that provides secondary level treatment. The raw wastewater conveyance system carries the collected wastewater from the Mid-town central collection point to the combined Cemetery/Giacomazzi/Branin wastewater treatment plant site. Treated effluent can be stored in the seasonal storage pond on the combined Cemetery/Giacomazzi/Branin site or sent directly through the treated effluent conveyance system to the Broderson leachfield and/or the Tonini sprayfields. Some of the key differences for Proposed Project 1 include:

- The STEP/STEG collection system including new STEP/STEG systems on each property connected to the LOWWP and a pressured collection system.
- No pump station is required at the Mid-town central collection point since the individual pump stations on each property would provide sufficient system pressure.
- Odor control of the open facultative ponds by aerating the surface layer of wastewater. Enclosed headworks and biosolids processing facilities that have air scrubbers that control odors and noise.
- Construction of a partially mixed facultative ponds wastewater treatment plant at the Cemetery/Giacomazzi/Branin site. Because the STEP/STEG collection system reduces the solids loading to the wastewater treatment plant, the partially-mixed facultative pond system design includes:
  - Similar hydraulic design.
    - ◊ Decrease biosolids accumulation in the facultative ponds by about 72 percent, from about 3,600 lbs per day to 1,000 lbs per day.
    - ◊ A septage receiving station to accept and process the septage pumped from the 4,769 STEP/STEG systems plus the 749 septic tanks (at buildout) that will remain in Los Osos but outside the Prohibition Zone.
    - ◊ Added carbon during the nitrogen removal process to complete denitrification and meet the RWQCB Waste Discharge Requirement.
- Staff to operate and maintain the LOWWP system, including:
  - A 2.0 full-time equivalent crew to operate the facultative ponds.
  - Two 1-person crews to pump about 936 STEP/STEG tanks every year since each STEP/STEG tank needs to be pumped at least every five years after an initial startup up period.
  - 2 to 3 people to inspect and clean each STEP/STEG tank every two years.
  - One 2-person crew to maintain and periodically replace the 1,000 carbon filters on the air-vacuum valves and the 4,679 pumps once the system has been in operation for a few years.

- Additional staff time to operate and maintain the raw wastewater and treated effluent conveyance systems, the storage ponds, leachfield, and sprayfields; respond to emergencies; and to remove, dewater and haul the biosolids removed from the facultative ponds every 15 to 20 years.
- Construction of a 46-AF seasonal storage pond on the Cemetery/Giacomazzi/ Branin wastewater treatment plant site.

Proposed Project 2

As shown in Exhibit 3-7 and detailed in Table 3-7, Proposed Project 2 includes a gravity sewerage collection system and an Oxidation Ditch/Biolac wastewater treatment facility that provides secondary level treatment. The raw wastewater conveyance system carries the collected wastewater from the Mid-town pump station to the Giacomazzi wastewater treatment plant site. Treated effluent could be sent directly through the treated effluent conveyance system to the Broderson leachfield. Alternatively, some or all of the treated effluent could be sent through the eastern end of the treated effluent conveyance system to the Tonini sprayfields or the seasonal storage pond on the Tonini site. Some of the key differences for Proposed Project 2 include:

- The gravity collection system includes sewer laterals stubbed out to each property.
- Seven pump stations and 12 smaller pocket pumps lift the wastewater collected from low sections of Los Osos to higher elevations so the wastewater flows by gravity to the central collection point at the Mid-town pump station. The Mid-town pump station provides sufficient system pressure to convey the collected wastewater to the wastewater treatment plant site.
- A septage receiving station to accept and process the septage pumped from the 749 septic tanks (at buildout) that will remain in Los Osos but outside the Prohibition Zone.
- Construction of an oxidation ditch or Biolac wastewater treatment plant at the Giacomazzi site. Differences between the oxidation ditch/Biolac system and the partially-mixed facultative pond system design include:
    - The oxidation ditch/Biolac process requires a 10-acre site while the facultative ponds require about 20 acres.
    - A secondary clarifier is required to settle out the suspended solids.
    - Nitrogen removal is integral to the oxidation ditch/Biolac process, so a separate nitrogen removal process would not be needed in order to meet the RWQCB Waste Discharge Requirement.
    - Energy consumption is higher than for facultative ponds.
    - Odor control is more reliable. Like the facultative ponds, the headworks and biosolids processing facilities are enclosed and have air scrubbers to control odors and noise.
    - Biosolids are removed during the wastewater treatment process on an ongoing basis, dewatered and hauled to a Sub-Class B landfill.
- Staff required to operate and maintain the LOWWP system, including:
    - A 2.5 full-time equivalent crew to operate the oxidation ditch/Biolac system.

  - One 2-person crew to maintain the pump stations and appurtenances throughout the collection system.
  - Annually, a 2-person crew for two months to clean the collection system.
  - Every year or two a crew to inspect the physical integrity of the collection system and make any necessary repairs.
  - Additional staff time to operate and maintain the raw wastewater and treated effluent conveyance systems, the storage ponds, leachfield, and sprayfields; respond to emergencies; and to process, dewater and haul the biosolids removed from the wastewater.
- Construction of a 46-AF seasonal storage pond on the Tonini sprayfield site.

Proposed Project 3

As shown in Exhibit 3-8 and detailed in Table 3-7, Proposed Project 3 includes a gravity sewerage collection system and an Oxidation Ditch/Biolac wastewater treatment facility that provides secondary level treatment. The raw wastewater conveyance system carries the collected wastewater from the Mid-town pump station to the combined Giacomazzi/Branin wastewater treatment plant site. Treated effluent could be stored in the seasonal storage pond on the combined Giacomazzi/Branin site or sent directly through the treated effluent conveyance system to the Broderson leachfield and/or the Tonini sprayfields. Some of the key differences for Proposed Project 3 include:

- The gravity collection system includes sewer laterals stubbed out to each property.
- Seven pump stations and 12 smaller pocket pumps lift the wastewater collected from low sections of Los Osos to higher elevations so wastewater can flow by gravity to the central collection point at the Mid-town pump station. The Mid-town pump station provides sufficient system pressure to convey the collected wastewater to the wastewater treatment plant site.
- A septage receiving station to accept and process the septage pumped from the 749 septic tanks (at buildout) that will remain in Los Osos but outside the Prohibition Zone.
- Construction of an oxidation ditch or Biolac wastewater treatment plant at the Giacomazzi/Branin site. Differences between the oxidation ditch/Biolac system and the partially-mixed facultative pond system design include:
  - The oxidation ditch/Biolac process requires a 10-acre site while the facultative ponds require about 20 acres.
  - A secondary clarifier is required to settle out the suspended solids.
  - Nitrogen removal is integral to the oxidation ditch/Biolac process, so a separate nitrogen removal process would not be needed in order to meet the RWQCB Waste Discharge Requirement.
  - Energy consumption is higher than for facultative ponds.
  - Odor control is more reliable. Like the facultative ponds, the headworks and biosolids processing facilities are enclosed and have air scrubbers to control odors and noise.

- Biosolids are removed during the wastewater treatment process on an ongoing basis, dewatered and hauled to a Sub-Class B landfill.

- Staff required to operate and maintain the LOWWP system, include:
  - A 2.5 full-time equivalent crew to operate the oxidation ditch/Biolac system.
  - One 2-person crew to maintain the pump stations and appurtenances throughout the collection system.
  - Annually, a 2-person crew for two months to clean the collection system.
  - Every year or two a crew to inspect the physical integrity of the collection system and make any necessary repairs.
  - Additional staff time to operate and maintain the raw wastewater and treated effluent conveyance systems, the storage ponds, leachfield, and sprayfields; respond to emergencies; and to process, dewater and haul the biosolids removed from the wastewater.

- Construction of a 46-AF seasonal storage pond on the Giacomazzi/Branin site.

Proposed Project 4

As shown in Exhibit 3-9 and detailed in Table 3-7, Proposed Project 4 includes a gravity sewerage collection system and a facultative pond wastewater treatment facility provides secondary level treatment. The raw wastewater conveyance system carries the collected wastewater from the Mid-town pump station to the combined Tonini wastewater treatment plant and sprayfield site. Treated effluent could be sent directly through the treated effluent conveyance system to the Broderson leachfield. Alternatively, some or all of the treated effluent could be sent to the nearby Tonini sprayfields and or seasonal storage pond on the Tonini site. Some of the key differences for Proposed Project 4 include:

- The gravity collection system includes sewer laterals stubbed out to each property.

- Seven pump stations and 12 smaller pocket pumps lift the wastewater collected from low sections of Los Osos to higher elevations so the wastewater can flow by gravity to the central collection point at the Mid-town pump station. The Mid-town pump station provides sufficient system pressure to convey the collected wastewater to the wastewater treatment plant site.

- A septage receiving station to accept and process the septage pumped from the 749 septic tanks (at buildout) that will remain in Los Osos but outside the Prohibition Zone.

- Construction of a partially mixed facultative ponds wastewater treatment plant at the Tonini site. Differences between the partially-mixed facultative pond system and the oxidation ditch/Biolac system design include:
  - The oxidation ditch/Biolac process requires a 10-acre site while the facultative ponds require about 20 acres.

  - A separate nitrogen removal process is needed to meet the RWQCB Waste Discharge Requirement.
  - Energy consumption is lower for facultative ponds.
  - Since aerating the surface layer of wastewater provides odor control for the open facultative ponds, odor control would be less reliable. Like the oxidation ditch/Biolac system, the headworks and biosolids processing facilities are enclosed and have air scrubbers to control odors and noise.
  - Biosolids are removed from the facultative ponds every 15 to 20 years, processed in an aerobic digester, dewatered and hauled to a Sub-Class B landfill

- Comparing the partially-mixed facultative pond system design combined with the gravity collection system to a facultative pond system with a STEP/STEG collection system:
  - The hydraulic design remains about the same.
  - The biosolids accumulate in the facultative ponds at a rate of about 3,600 lbs per day compared to 1,000 lbs per day for the STEP/STEG collection system.
  - No added carbon is needed during the nitrogen removal process to complete denitrification and meet the RWQCB Waste Discharge Requirement.

- Staff would be required to operate and maintain the LOWWP system. They would include:
  - A 2.0 full-time equivalent crew to operate the facultative pond wastewater treatment system.
  - One 2-person crew to maintain the pump stations and appurtenances throughout the collection system.
  - Annually, a 2-person crew for two months to clean the collection system.
  - Every year or two a crew to inspect the physical integrity of the collection system and make any necessary repairs.
  - Additional staff time would be required to operate and maintain the raw wastewater and treated effluent conveyance systems, the storage ponds, leachfield, and sprayfields; respond to emergencies; and to remove, process, dewater and haul the biosolids removed

- Construction of a 46-AF seasonal storage pond on the Tonini site.

3.3.4 - Construction Activities

Construction of the proposed project is expected to take about 16 to 24 months. Both the County's contractor and individual property owners are responsible for portions of the LOWWP, as described below.

Construction Activities by Contractor

Construction of the collection system and the raw wastewater and treated effluent conveyance systems involve installing collection pipes within easements and public rights-of-way using trenching techniques. Because of the predominance of sandy soils in the Los Osos area, a sheeting and shoring system would be utilized to comply with California Occupational Safety and Health Administration (CALOSHA) regulations. Trenching also requires dewatering in shallow groundwater areas as well as stabilizing measures. Baker tanks will be moved from one temporary location to another as needed during construction to contain the water pumped during dewatering operations. In general, construction activities would have multiple pipe-runs excavated at a time for project efficiency. Some of the collection and conveyance system construction may involve boring for creek crossings. If the STEP/STEG collection system option is selected, long segments of the collection system may be installed by boring to avoid disturbing the surface features. The collection system construction also involves installing submersible pump stations, that in turn involve excavation and construction of underground vaults, although these could be pre-cast or be cast in-place concrete. Once the collection system is installed in each area, the roadway would be repaved. (Appendix B, Kennedy/Jenks Consultants 2008; and Crawford, Multari and Clark Associates 2000).

If the STEP/STEG collection system is selected, the Contractor will install new STEP/STEG tanks and, if necessary, an electrical service upgrade, within an easement in the front yard of each facility connected to the LOWWP and a lateral from the new tank to the sewer collection line in the street. If the new tank location is the same as the existing septic tank location, the Contractor will remove and abandon the existing tank. If the locations for the new and old tanks are different, the homeowner will be responsible to properly abandon the existing septic tank. If a gravity hybrid collection line is selected, the Contractor will install the sewer lateral from the property line to the sewer collection line in the street.

A construction yard will be located within the Los Osos community to support collection system construction by providing a lay down yard for pipeline, a storage yard for materials and equipment, and trailers for construction administration. During the prior LOCSD wastewater project, the LOCSD adopted a Negative Declaration under CEQA for a 5 to 8 acre construction yard at the northwest corner of Pismo Avenue and South Bay Boulevard and cleared the site. This location has been tentatively identified as the LOWWP collection system construction yard; however, a final location will be selected during the project final design. (Crawford, Multari and Clark, 2003)

Construction of the treatment plant, biosolids processing facilities, storage pond, and sprayfield facilities involve grading, excavation for facility construction and stormwater drainage, and construction of the building and facilities. The surface area to be disturbed, including a construction yard for the treatment plant, is about 1.5 times greater than the 20-acre pond area for the facultative pond in Proposed Projects 1 and 4 and the 8 to 10 acre oxidation ditch/Biolac facility for Proposed Projects 2 and 3. (Appendix B, Kennedy/Jenks Consultants, 2008.)

The leachfield site of all four proposed projects would be excavated, backfilled with gravel for drainage, and then covered first by a geotextile fabric and then by native soil backfill. Percolation piping would be installed about one foot below the geotextile fabric layer (Crawford, Multari and Clark Associates, 2000).

Construction Activities by Property Owners

For all four proposed projects, property owners have the responsibility to install a lateral that connects from their building to the new LOWWP STEP/STEG tank, if the STEP/STEG option is selected, or, if the gravity sewer option is selected, to the sewer lateral stub out that ends at their property line. Responsibility for retrofitting plumbing fixtures so all fixtures are low-flow, in accordance with the water conservation measures, also belongs to the property owner (Crawford, Multari and Clark Associates, 2000).

If Proposed Project 1 is selected, the County's Contractor will install the new STEP/STEG tank within a front yard easement on each property. In addition, if a site has limited available space and the new STEP/STEG tank must be installed in the same location as the existing septic tank, the LOWWP Contractor will make room for the new STEP/STEG tank by removing the existing septic tank and hauling it to a landfill facility for disposal before installing the new STEP/STEG tank. If the existing septic tank does not need to be removed, then the property owner will have the responsibility to decommission their existing septic tank. Decommissioning the existing septic tank involves pumping out the tank, removing the top of the tank and backfilling the tank with sand. There are other methods to abandon the existing septic tanks that would increase their usefulness for groundwater recharge, however these options are at the property owner's discretion and expense.

For properties that currently have a septic tank in the backyard, (about 25 percent of the Los Osos community,) the property owner has the responsibility to install a new lateral line from the structure's backyard or front yard to the new STEP/STEG tank for Proposed Project 1 or to the property line for Proposed Projects 2 through 4. LOWWP project engineers anticipate that property owners with low elevation backyard septic tanks, (about 5 percent of the Los Osos community,) will also need to install and maintain a low pressure grinder pump to move the sewage from their backyard to the front yard. (Carollo Engineers, 2007a)

Excavation Requirements

Estimated construction excavation requirements vary from about 570,000 to 630,000 cubic yards for the four proposed projects as summarized in Tables 3-8a and 3-8b. Detailed evaluations of the construction excavation requirements are provided in Appendices B and K. Some of the significant differences between projects are:

- Because the footprint for the Oxidation Ditch/Biolac wastewater treatment plant (8 to 10 acres) is less than the Facultative Ponds footprint (about 20 acres,) more acreage would be disturbed to construct the facultative ponds for Proposed Projects 1 and 4. The actual area disturbed for all projects would be about 1.5 times the treatment plant area in order to accommodate the appurtenant facilities.
- There is about a five percent reduction in the total collection system excavation requirement if a STEP/STEG collection system is constructed instead of a gravity collection system. Because

the STEP/STEG collection system will be installed about four feet below grade compared to the average eight-foot depth for the gravity sewer, excavation requirements for the STEP/STEG collection pipeline will be about 64,000 cubic yards compared to 247,000 cubic yards for the gravity pipeline. This reduced STEP/STEG collection system excavation requirement also assumed that half of the STEP/STEG collection system will be installed by boring rather than open trench excavation. These collection pipeline excavation savings are offset by the approximately 181,000 cubic yards (CY) of excavation required to install the 4,769 new STEP/STEG tanks in the front yard of each property. Although about 17,000 CY of excavation is required to install the sewer manholes and pump stations for the gravity sewer system, this is a fraction of the STEP/STEG tank excavation requirement. A more detailed breakdown of the collection system excavation requirements is provided in Table 3-8a.

- Raw wastewater conveyance and treated water conveyance excavation requirements for the four proposed projects are about the same except for Proposed Project 4. This project includes additional pipeline to convey the raw wastewater to the Tonini treatment plant site.

Table 3-8a: Collection System Excavation Requirements

Project Facility	Proposed Project 1 (CY)	Proposed Project 2 (CY)	Proposed Project 3 (CY)	Proposed Project 4 (CY)
Collection System	64,000	247,000	247,000	247,000
Laterals and Low Pressure Grinder Pumps	77,000	77,000	77,000	77,000
STEP Tanks	181,000			
Pump Stations		3,000	3,000	3,000
Manholes		14,000	14,000	14,000
Total Collection System Estimated Excavation[1]	**322,000**	**340,000**	**340,000**	**340,000**
Notes: Totals may not add exactly due to rounding of subtotals. CY = cubic yards Based on: Appendix K, Air Quality; Appendix B, Project Description Data; Carollo Engineers, 2008b.				

Table 3-8b: Project Excavation Requirements

Project Facility	Proposed Project 1 (CY)	Proposed Project 2 (CY)	Proposed Project 3 (CY)	Proposed Project 4 (CY)
Collection System	321,000	340,000	340,000	340,000
Raw Wastewater Conyeyance[1]	10,400	10,500	10,500	15,800

Table 3-8b (Cont.): Project Excavation Requirements

Project Facility	Proposed Project 1 (CY)	Proposed Project 2 (CY)	Proposed Project 3 (CY)	Proposed Project 4 (CY)
Treated Effluent Conveyance[1]	15,100	15,100	15,100	15,100
Wastewater Treatment Plant	83,000	28,600	28,600	83,000
Biosolids Processing and Disposal	1,000	1,900	1,900	1,000
Seasonal Storage[2]	77,000	77,000	77,000	77,000
Leachfield	73,000	73,000	73,000	73,000
Sprayfield[3]	25,000	25,000	25,000	25,000
Total Estimated Excavation	**605,500**	**571,100**	**571,100**	**629,900**

Notes:
1. Proposed Projects 2, 3, and 4 include additional 100 CY for Mid-town raw wastewater pump station. All proposed projects include 100 CY for effluent pump station.
2. Assumes 6-acre pond surface area.
3. Estimated excavation for irrigation lines, runoff collection recirculation pipeline and pump station. Additional grading will occur seasonally during planting.

CY = cubic yards
Based on:
1. Appendix B, Project Description Data; Carollo Engineers 2008b; Appendix K, Air Quality

3.3.5 - Operations and Maintenance

Each of the LOWWP facilities requires operation and maintenance activities that are described below.

Collection and Conveyance Systems

STEP/STEG Collection System

Operations and maintenance of the STEP/STEG collection system focuses on the STEP/STEG tanks, associated pumps and system appurtenances.

Once the STEP/STEG system is operational, an inspection program would begin to measure STEP/STEG tank biosolids accumulation and clean the STEP/STEG tank effluent filters every two years. This would require 2 to 3 full-time people to inspect 2,340 STEP/STEG tanks annually, assuming that inspecting each STEP/STEG tank and cleaning the effluent filter requires 2 hours. False alarms are also likely for the individual pumping systems. Full-time around the clock (24/7) response would be required for false and real alarms.

In addition, the 630 carbon filters on the collection system air-vacuum valves and 4,679 pumps would all require routine maintenance and replacement. Once the system has been in operation for several years, one 2-person crew would be required for these activities.

Biosolids in each STEP/STEG tank needs to be pumped out at least once every 5 years. Pumping 936 STEP/STEG tanks each year would require two additional 1-person crews and would generate approximately 4 truck trips per day for each non-holiday weekday. In-house forces or local septic tank pumping contractors could perform this task. The biosolids would be trucked to the septage receiving station at the wastewater treatment plant. Regular inspection and maintenance of the STEP/STEG collection system is important so that exfiltration to the groundwater or infiltration and inflow to the collection system are minimized. When regular inspections reveal maintenance problems, or the telemetry system alarm signals that there is a collection system malfunction, the maintenance crews would need to quickly respond and repair any collection system malfunction.

Exfiltration of treated or untreated sewage into the groundwater can occur when sewage is discharged from the collection system through damaged pipes and appurtenances or through leaks at joints and/or gaskets. The volume of exfiltration is a function of the hydrostatic pressure or head at the point of leakage, the age of the pipe, the pipe materials, and pipe condition. The higher the pressure at the point of leakage, the greater is the rate of leakage.

While STEP/STEG and LPGPs are not as susceptible to exfiltration as gravity sewer systems, exfiltration can still occur. STEP/STEG sewers operate under higher pressures and function more like potable water systems than gravity sewers. Because of this higher pressure, leakage (exfiltration) can occur just as leakage occurs in pressurized water systems. The exfiltration would most likely occur at fittings, valves (especially air release valves), and other appurtenances. Other sources of exfiltration for STEP/STEG systems would include the gravity portion of the house laterals and STEP/STEG tanks, which operate under several feet of head.

Inflow/Infiltration (I/I) is a similar phenomenon. For I/I to occur, defects in the overall collection system must be present that permit entry of water into the collection system. For a STEP/STEG collection system, the most likely location for I/I to enter the collection system is through the laterals from the house to the STEP/STEG tanks (Appendix B, Kennedy/Jenks Consultants 2008). I/I is less likely in the pressurized sewer mains since the pipeline integrity must be maintained in order to maintain the system pressure.

Gravity Collection System

The long-term operation and maintenance (O&M) of the gravity collection system would center on pump maintenance and maintenance of the collection system. There are a sufficient number of pump stations and appurtenances that a full-time 2-person crew would be required for pump station maintenance. The most significant maintenance activity for the collection system would be an annual cleaning. This would require a 2-person crew for approximately 2 months. This could be performed by the management entity that operates the facilities, contracted out to a private maintenance firm, or a maintenance agreement could be entered into with a nearby sanitary agency that would have the equipment and work force required. The emergency power generators for the 7 larger pump stations and the Mid-town pump station would be operated for a few hours every 60 days in order to maintain the generators in working order.

In addition to the 2-person pump maintenance crew, another 1 or 2 individuals would be required to address unforeseen collection system conditions as they arise.

Exfiltration of treated or untreated sewage into the groundwater can occur when sewage is discharged from the collection system through damaged pipes and appurtenances or through leaks at joints and/or gaskets. The volume of exfiltration is a function of the hydrostatic pressure or head at the point of leakage, the age of the pipe, the pipe materials, and pipe condition. The higher the pressure at the point of leakage, the greater is the rate of leakage.

Modern gravity sewer systems are constructed of 20-foot lengths of PVC with bell-and-spigot joints sealed with rubber gaskets. This flexible pipe has a lower potential for leakage than older brittle clay pipe that comes in shorter sections. For gravity sewers the rate of leakage is a function of the available hydraulic head. This is the difference in elevation between the water surface elevation and the elevation in the soils where the groundwater flow changes from saturated flow to unsaturated flow. Exfiltration is limited in areas like Los Osos that have sandy soils because this change from saturated to unsaturated flow would occur within a short distance after any exfiltration leaves the sewer pipe. This would limit the hydraulic head and corresponding exfiltration rate.

Inflow/Infiltration (I/I) is a similar phenomenon. For I/I to occur, defects in the overall collection system must be present that permit entry of water into the collection system. Inflow is typically associated with groundwater entering the system where the sewer lines are located below the seasonal groundwater table. Infiltration is typically associated with rainfall events where rainwater enters the collection system directly during a rainfall event.

There are numerous locations where I/I can enter a gravity sewer system (Appendix B, Kennedy/Jenks Consultants 2008); these locations include:

- The sewer main line
- The laterals, both in the public right-of-way and on private property
- Manholes, both at the joints for individual sections and the ring and cover assembly

In order to reduce the likelihood that exfiltration and I/I would occur in the gravity collection system, a video inspection of the collection system would be conducted every 2 to 5 years or when a leak is suspected. The maintenance staff or a contractor would repair any sources of leaks such as cracks, separated joints, illegal storm drainage connections, or intruding roots.

Raw Wastewater and Treated Water Conveyance Systems

Maintenance of the raw wastewater and treated water conveyance systems would be similar to maintenance of the gravity collection system. The raw wastewater conveyance system would have one pump station at Mid-town or none if the STEP/STEG option is selected. The treated water conveyance system would have one or two additional pumps. Because there is a limited number of additional pump stations and since the most of the total LOWWP pipeline is contained within the collection system, the collection system 2-person maintenance crew could also maintain the conveyance systems with a small increase in allotted hours (Appendix B, Kennedy/Jenks Consultants 2008)

Wastewater Treatment Facilities

Facultative Ponds

The partially mixed facultative ponds would require 2.0 full-time equivalent staff members to operate and maintain the equipment and building, monitor and control the treatment process and respond to emergency alarms. The type of collection system would make no difference in the treatment staffing requirements (Carollo Engineers, Variable Project Alternatives Fine Screening Analysis, 2007).

Oxidation Ditch/Biolac

The oxidation ditch/Biolac treatment plant would require 2.5 full-time equivalent staff members to operate and maintain the equipment and building, monitor and control the treatment process and respond to emergency alarms if a gravity collection system is selected. The staffing requirement would be reduced to 2.0 full-time equivalent staff members if the STEP/STEG collection system is selected since the wastewater strength would be reduced as shown in Table 3-3 (Carollo Engineers, Variable Project Alternatives Fine Screening Analysis, 2007).

Biosolids Processing and Disposal

Additional staffing would be required to operate and maintain the biosolids processing and disposal facility. For the oxidation ditch/Biolac wastewater treatment facility in Proposed Projects 2 and 3, there would be a slight increase in the wastewater treatment plant full-time equivalent staffing requirement. Since the major biosolids processing for the facultative ponds in Proposed Projects 1 and 4 would only occur every 15 to 20 years, it could be possible to hire a temporary contract crew to process the biosolids and haul them to the Sub-Class B landfill for disposal.

Effluent Disposal

Effluent Storage

Effluent storage ponds would be maintained in the summer and fall months when they are empty. Maintenance would consist of checking the integrity of the pond lining and riprap, and repairing them as needed. The algae filters and pumps would also be cleaned and maintained.

Conservation

The wastewater flow rates to the LOWWP would be monitored to verify that the residents achieve the 10 percent per capita water consumption conservation rate goal for 2020 and the corresponding wastewater generation rate reduction. If the water conservation goals are not met, then the water conservation measures would be enhanced.

Leachfield

The primary operations and maintenance activities for the leachfield are maintaining the pumps and monitoring the quantity and rate at which the discharged treated effluent percolates into the ground to optimize the disposal operations. Leachfields often clog over time. About every 5 to 10 years when clogging occurs, the effective flow rate decreases significantly and the leachfield requires excavation. The subsurface ground would be ripped or disked, and then the leachfield would be reconstructed (Carollo Engineers April 2008b).

Sprayfields

Operation and maintenance of the sprayfields would be similar to a grass-growing agricultural operation. Staff members would maintain the irrigation system, including the tail water collection and recirculating system during the spring, summer, and fall months when it is in operation. They would also harvest the grass grown on the site several times a year and hauled to the Cold Canyon and/or Chicago Grade landfills (Appendix B, Project Description Data; Kennedy/Jenks Consultants 2008).

3.3.6 - Costs and Funding Associated with the Proposed Projects

Since the LOWWP design has only reached the conceptual stage, numerous variables will affect the final project costs. Carollo Engineers developed preliminary project costs for construction and other capital costs, as well as operations and maintenance (O&M) in August 2007 for the "Viable Project Alternatives Fine Screening Analysis" report, which is included as Appendix O-2. These costs and the associated assumptions have been summarized in Table 3-9. More refined construction costs will be developed when the project design is completed further and the Preferred Project is selected.

According to Carollo Engineers estimates, the estimated project probable capital costs for the four proposed projects range from $144 to 180 million for Proposed Project 1 and from $165 to 188 million for Proposed Projects 2, 3, and 4 as shown in Table 3-9. Table 3-9 also provides estimates of the projected annual operations and maintenance costs for the four proposed projects. O&M costs range from $2 to 3.1 million for Proposed Project 1 and $1.6 to 3.0 million for Proposed Projects 2, 3, and 4.

Table 3-9: Proposed Projects Costs (Millions of Dollars)

Costs	Proposed Project 1	Proposed Project 2	Proposed Project 3	Proposed Project 4
Project Capital Costs[1, 2]	$144 - 180	$165 - 188	$165 - 188	$165 - 188
Annual Operations & Maintenance[3, 4, 5]	2.0 - 3.1	1.6 - 3.0	1.6 - 3.0	1.6 - 3.0

Notes:
1. Estimated project costs in April 2007 dollars, including probable construction costs, design, construction management, administration and legal costs. Estimated Construction Costs in April 2007 dollars, including contractor overhead and profit, permitting and mitigation.
2. Assumes that project provides seawater intrusion mitigation Level 2a from Fine Screening Report, based on the projected 185 AFY mitigation provided by the Broderson leachfield.
3. Estimated Operations & Maintenance (O&M) Costs in April 2007 dollars.
4. O&M Costs for Proposed Projects 1 and 4 include annuity to fund temporary, mobile facilities to remove biosolids from facultative ponds 20 years following startup of the wastewater treatment facilities.
5. O&M Costs do not include funding for water conservation measures or ongoing habitat mitigation.

Source: Carollo Engineers, 2007, San Luis Obispo County, LOWWP Development, Viable Project Alternatives: Fine Screening Analysis, Final August 2007.

To pay for the project, voters within the Prohibition Zone approved an Assessment District under Proposition 218 in October 2007. The County expects to authorize project bond sales beginning in the summer of 2009. Concurrent with this effort, the County will pursue loan funding through the State Revolving Fund for wastewater facilities that is administered by the State Water Resources Control Board.

3.3.7 - Project Design Features

The LOWWP includes project design features that will reduce potential environmental impacts associated with the implementation of the project. These project design features are listed below and identified in the environmental analysis in Appendices E-1 and I-1 of this Draft EIR. These project design features are referenced in Appendix E-1, Expanded Drainage and Surface Water Quality Analysis, and I-1, Expanded Public Health and Safety Analysis, of this Draft EIR as Project Design Features (PDFs).

PDF 5.3.A-1 Pastoral agricultural activities on the Tonini property in the vicinity of the onsite streams that convey surface water to Warden Creek would cease. This would result in allowing the denuded wetlands to rejuvenate, increasing their associated vegetation and overall biological function and values. Water quality in drainages associated with such wetlands would improve.

PDF 5.3.A-2 The project facilities, except for storm drains, would be located at least 100 feet from Warden Creek and Warden Creek wetland.

PDF 5.3.A-3 The project would include detention/retention basin(s) to collect and treat stormwater runoff.

PDF 5.3.A-4 Implementation of measures described in the SWPPP [stormwater pollution prevention plan] and the Sedimentation and Erosion Control Plan, and incorporation of operational BMPs [best management practices] according to guidance provided in the SLOC [San Luis Obispo County] SWMP [stormwater management plan] would ensure that construction and operational activities for the treatment system do not violate any water quality standards or waste discharge requirements.

PDF 5.3.A-5 Jurisdictional drainages onsite would be left in their existing condition and the nearest spray heads would be located at least 115 feet (100 foot setback plus 15 foot spray radius) from the upper extent of the wetland.

PDF 5.3.A-6 Berms (earthen or of other suitable material) would be constructed parallel to, and set back from existing onsite drainages (i.e., Drainage T-1 and Drainage T-2). This would prevent sprayed effluent from running off into these drainages.

PDF 5.3.I-1 Maps of evacuation routes in the event of a tsunami would be prepared and kept in a conspicuous location at the treatment plant site. The design feature would reduce the impacts associated with seiche or tsunami to less than significant.

PDF 5.7.B-1 A fence will be placed around the regions used as sprayfields and leachfields to prevent the unauthorized entrance of people into the region.

PDF 5.7.B-2 Berms (earthen or of other suitable material) would be constructed around the leachfields in locations where it would allow potential runoff of effluent during storm events to be captured and allowed to infiltrate.

3.4 - INTENDED USES OF THIS DRAFT EIR

This Draft EIR is being used by the County to assess the potential environmental impacts that may arise in connection with actions related to implementation of the proposed LOWWP. On September 20, 2006, Governor Arnold Schwarzenegger signed AB 2701, which authorizes transfer of wastewater authority from the LOCSD to the County. Pursuant to CEQA Guidelines Section 15367, San Luis Obispo County is the lead agency for the proposed project and has discretionary authority over the proposed project and project approvals.

3.4.1 - Responsible and Trustee Agencies

A number of other agencies in addition to the County will serve as Responsible and Trustee Agencies, pursuant to CEQA Guidelines Section 15381 and 15386, respectively. This Draft EIR will provide environmental information to these agencies and other public agencies that may be required to grant approvals or coordinate with the County as part of project implementation. These agencies may include, but are not limited to, the following:

- San Luis Obispo County
  - Department of Public Works (Lead Agency)
  - Department of Agriculture
  - Department of Planning and Building
- San Luis Obispo County Air Pollution Control District (APCD)
- California Coastal Commission (CCC)
- California Department of Conservation, Division of Land Resource Protection
- California Department of Fish and Game (CDFG)
- California Department of Water Resources (DWR) Division of Safety of Dams (DOSD)
- California Native American Heritage Commission
- California State Water Resources Control Board (SWRCB).
  - Division of Financial Assistance
  - Cultural Resources Officer
- Central Coast Regional Water Quality Control Board (RWQCB)
- U.S. Army Corps of Engineers (USACE)
- U. S. Fish and Wildlife Service (USFWS)
- U.S. National Marine Fisheries Service (NMFS)

3.4.2 - Discretionary Actions

Several permits will be required for the LOWWP. In addition, several agencies have authority to review and comment on the LOWWP during the CEQA and permit reviews conducted by other agencies. These discretionary actions are summarized below.

San Luis Obispo County

Department of Public Works

The San Luis Obispo County Department of Public Works is the agency with primary responsibility for developing, approving and carrying out the LOWWP project.

Department of Agriculture

The County Department of Agriculture (Department) is responsible for protecting agricultural resources and operations from the negative effects of encroaching suburban and urban development. The Department acts in an advisory capacity when reviewing land use projects. Projects submitted to the County Planning and Building Department are referred to the Department for review. The Department makes recommendations to county decision-makers to mitigate the negative impacts of development to agriculture, but does not have regulatory authority over land use issues. The Department works to protect the resources, including soil and water, upon which agriculture depends. The Department's goal is to provide a level of protection to ensure that future farmers have adequate land and water resources.

The proposed project is governed by agricultural and farmland regulations established by the State of California and the County of San Luis Obispo. The primary agricultural regulatory mechanism for farmland preservation is the California Land Conservation Act of 1965 (Williamson Act). Further guidance and procedures regarding land use matters are governed by the County of San Luis Obispo's General Plan, Zoning Ordinance including the Coastal Zone Land Use Ordinance, the Estero Area Plan, the Right to Farm Ordinance, and the Coastal Act. For a complete discussion of each of the aforementioned, please see Appendix M-1, Expanded Agricultural Resources Analysis.

Department of Planning and Building

San Luis Obispo County General Plan

The San Luis Obispo County General Plan (General Plan) outlines the developments goals of the county and provides a basis for government decision making, as well as for informing the public about the rules that guide development within the county. The General Plan includes both ordinances and elements.

The general breakdown of the General Plan sections that are relevant to the LOWWP are:

- General Plan
  - Ordinances
    - Title 22 - Land Use Ordinances (revised in 2008)
    - Title 23 - Coastal Zone Land Use Ordinance (CZLUO) (revised in January 2006)
  - Elements
    - Local Coastal Plan
    - Land Use Element (LUE)
    - Coastal Zone Land Use Ordinance (CZLUO)
    - Estero Area Plan
    - Coastal Plan Policies

A brief discussion of a few General Plan sections is provided below.

Local Coastal Plan (LCP)

The County is responsible to prepare and approve a Coastal Development Permit (CDP)/-Development Plan in accordance with the San Luis Obispo County General Plan including the Coastal Plan Policies that are part of the San Luis Obispo County Land Use Element of the General Plan (revised April 2007). The Estero Area Plan that the County last updated in July 2006 as part of the County General Plan serves as the Local Coastal Plan. The CCC has retained review and appeal authority after County certification of the Local Coastal Plan under several provisions pertinent to the LOWWP as described below under the California Coastal Commission.

Coastal Zone Land Use Element and Land Use Ordinance

The County assumes permit authority in the Coastal Zone based on adopted and certified Coastal Zone Land Use Element (CZLUE) and the Coastal Zone Land Use Ordinance (CZLUO).

Discretionary actions the County will need to take prior to project implementation include publicly acquiring the Tonini parcel and preparing a development plan for a public facility for the entire project in order to obtain a permit as required in CZLUO 23.08.286a, and 23.08.286b. The County will need to acquire the Tonini parcel since it contains lands under a Williamson Act contract. In order to terminate the contract, the County needs to publicly acquire the Tonini parcel following guidelines outlined in Government Code Sections 51290-51295, and in 51296.6. Prior to obtaining a permit, the County will need to prepare a development plan following guidance in CZLUO 23.08.288. More detail on the agricultural land preservation issues is discussed under the County Department of Agriculture section above.

The CZLUO also provides policy protecting categorical sensitive biological resources that include: Sensitive Resource Areas (SRAs) and Environmentally Sensitive Habitat Areas (ESHAs); wetlands, streams and riparian vegetation; terrestrial habitat protection; and mature trees. These areas are high-priority areas for preservation and developments requiring a land use permit within or adjacent to these areas are subject to Sections 23.07.160 through 23.07.176 of the CZLUO. The LOWWP development plan for the entire project area will also need to address these CZLUO sections concerning sensitive biological resources before the land use permit can be approved.

Drainage Plan and Sedimentation and Erosion Control Plan

Some key provisions of the Land Use Ordinance (Title 22, revised in 2008) and the Coastal Zone Land Use Ordinance (CZLUO) (Title 23, revised in January 2006) are requirements that the LOWWP prepare a Drainage Plan and a Sedimentation and Erosion Control Plan for review and approval by the County Engineer. These two ordinances have stormwater and drainage design and construction mitigation measures that must be incorporated into the design documents. The CCC has retained review and appeal authority after County certification of Drainage Plan and Sedimentation and Erosion Control Plan revisions since they are part of the Local Coastal Plan

Septic Tank Abandonment

The SLOC Department of Planning and Building requires that the private property owners pump out abandoned septic tanks and provide a copy of the receipt for pumping to the area inspector. According to the SWRCB National Pollution Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity (Water Quality Order 99-08-DWQ), removing the abandoned tanks will require preparing a Storm Water Pollution Prevention Plan (SWPPP) as described above. The County will prepare a SWPPP for the entire project, including LOWWP construction and both publicly and privately financed related actions that are required such as septic tank abandonment. The SWPPP will include appropriate Best Management

Practices (BMPs) to avoid stormwater pollution as described in the Surface Drainage and Water Quality Section of the Draft EIR.

San Luis Obispo County Air Pollution Control District (APCD)

Certain aspects of the construction and operation of a wastewater system may be subject to the permitting requirements of the Air Pollution Control District. Their authority has been delegated from the State and federal governments to implement the federal and State Clean Air Acts. See the Clean Air Act discussion below under the State Water Resources Control Board.

California Coastal Commission

The project lies within the coastal zone and will be subject to relevant provisions of the California Coastal Act. The CCC has retained review and appeal authority after County certification of the Local Coastal Plan under several provisions pertinent to the LOWWP including ESHAs, development within 100 feet of any stream and treatment works within the coastal zone. By County Ordinance Title 23, the CZLUO, the Executive Director of the CCC may also review and comment on the project Sedimentation and Erosion Control Plan.

California Department of Fish and Game (CDFG)

The California Department of Fish and Game (CDFG) administers the California Endangered Species Act (CESA). The State of California considers an “endangered” species one whose prospects of survival and reproductions are in immediate jeopardy. A “threatened” species is one present in such small numbers throughout its range that it is likely to become an endangered species in the near future in the absence of special protection or management. A “rare” species is one present in such small numbers throughout its portion of its known geographic range that it may become endangered of its present environment worsens. The rare species designation applies to California native plants. State threatened and endangered species are fully protected against take, as defined below. The term “species of special concern” is an informal designation used by CDFG for some declining wildlife species that are not state candidates for listing. This designation does not provide legal protection, but signifies that these species are recognized as sensitive by CDFG.

Streambed Alteration Agreement

For all proposed projects, the temporary and permanent impacts to jurisdictional wetlands would take place in accordance with general and specific conditions outlined in USACE, RWQCB, and CDFG permitting requirements. The County will negotiate a Streambed Alteration Agreement with the CDFG based on the CDFG criteria for identifying riparian habitat and mitigating any potential project impacts. Streambed Alteration Agreements generally require that project developers establish compensatory mitigation, either by paying an in-lieu fee to a regulatory agency approved mitigation bank, or by establishing and operating a mitigation site. Wetland habitat mitigation requirements, often at a ratio greater than 1:1 for mitigated to impacted acreage, call for increasing the acreage of existing wetlands or enhancing the functional capacity of existing wetlands onsite or elsewhere.

Incidental Take Permit

In accordance with the California Fish and Game Code, an Incidental Take Permit would be required if project construction would result in the incidental take of any sensitive species of concern to the CDFG.

Environmentally Sensitive Habitat Area (ESHA)

Policy 19 of the Environmentally Sensitive Habitats section in the San Luis Obispo Coastal Plan designates portions of the proposed project area as an ESHA. The CDFG and CCC will review any potential impacts to ESHA areas and require that these areas be avoided and/or that the proposed project incorporate mitigations for any potential impacts. Typical mitigations include providing future habitat protection and enhancement on or offsite.

California Department of Water Resources (DWR) Division of Safety of Dams (DOSD)

The Division of Safety of Dams (DOSD) is responsible for ensuring that the design and construction of dams protects the health and safety of the public. They have jurisdiction over dams that are over 25 feet in height **and** have greater than 50 acre-feet (ac-ft) of storage capacity. The facultative ponds could fall within DOSD jurisdiction; however, the smaller seasonal storage ponds may be exempt. Under special provisions for wastewater projects, the County has indicated its plan to accept an offer from the DOSD to assume responsibility for liability and oversight of the LOWWP ponds design and construction, in lieu of DOSD staff. The County Board of Supervisors must pass a resolution to assume liability.

California Native American Heritage Commission (NAHC)

The California Native American Heritage Commission (NAHC) monitors whether project lead agencies adequately assess and mitigate a proposed project's potential for adverse impacts to historical resources, including archaeological resources. They will help the lead agency to identify relevant database information and Native American contacts for the project area.

California State Water Resources Control Board - Division of Financial Assistance (SWRCB)

The SWRCB has jurisdictional authority to preserve, enhance, and restore the quality of California's water resources. The Division of Financial Assistance administers the State Revolving fund (SRF) Program that provides construction funding for projects to improve the quality of the State's water supply. Because the SRF is partially funded by the U.S. Environmental Protection Agency, the SWRCB requires CEQA-Plus environmental documentation and review. In addition to the normal CEQA review, the SWRCB is required to consult directly with agencies responsible for implementing federal environmental laws and regulations. Any environmental issues raised by federal agencies or their representatives must be resolved before the SWRCB will approve an SRF funding commitment to the project. Specifically, SRF funding approvals require compliance with the following federal and State laws and related regulations:

Federal Endangered Species Act

SRF-funded projects are subject to the federal and California Endangered Species Acts and must obtain Section 7 clearance from the United States Fish and Wildlife Service (USFWS) and/or the NMFS for any potential effects to special status species. As part of the Section 7 consultation between the SWRCB and the USFWS and/or NMFS, the County, as lead CEQA agency, will need to identify whether the LOWWP will directly or indirectly affect federally listed threatened or endangered species that are known to occur, or have the potential to occur, on the project site, in the surrounding areas, on in the service area. The County will also be required to identify applicable conservation measures to reduce the potential adverse effects.

National Historic Preservation Act

SRF funded projects must also comply with Section 106 of the National Historic Preservation Act, which is a federal law pertaining to cultural resources. The County has met with the SRWCB's Cultural Resources Officer to initiate the Section 106 process and work together to identify and, if appropriate, mitigate the project's potential effects on cultural resources within the LOWWP's Area of Potential Effects (APE). The APE includes the construction sites and staging areas that will be disturbed by construction activities, including excavation.

Clean Air Act

To comply with the federal Clean Air Act, the County will be required to provide the SWRCB and the San Luis Obispo Air Pollution Control District (SLOAPCD) with air quality studies. As the primary agency responsible for overseeing air quality issues within the County, the SLOAPCD has adopted an Air Quality Management Plan. San Luis Obispo County has been designated a "moderate" non-attainment area that does not meet State standards for ozone and respirable particulate matter (PM-10). In accordance with the Clean Air Act, the air quality analysis must provide a summary of estimated project emissions during construction and operations for each federal criteria pollutant. The SLOAPCD will consider the project's air quality impacts, compliance with the Air Quality Management Plan, and, if needed, the adequacy of any proposed mitigations.

Coastal Zone Management Act

Since the LOWWP is located within the Coastal Zone, the County must coordinate with the CCC and consider whether the project conforms to the Local Coastal Plan (LCP). The Estero Area Plan that the County last updated in July 2006 as part of the County General Plan serves as the Local Coastal Plan for the Los Osos area. More detail on the responsibilities of the County and the CCC to review the proposed project's conformance with the Local Coastal Plan is provided above in the sections under San Luis Obispo County and the CCC. The SWRCB Division of Financial Assistance will approve project funding only after they have certification that the project conforms to the LCP.

United States Army Corps of Engineers Clean Water Act Section 401 and 404 Permits

The SWRCB SRF funding eligibility requirements include compliance with the U.S. Army Corps of Engineers (USACE) permitting requirements. This will require coordination with the USACE and following their guidelines for delineating wetlands and U.S. waters. The types of areas that will be evaluated include creeks, creek crossings, wetlands and ephemeral drainages. A 404 permit from the USACE would be required if there will be any discharge to waters of the U.S. A 401 permit would be required if there are potential impacts to wetlands; administration of this permit has been delegated to the Central Coast RWQCB as described later in this section.

Floodplain Management Act

The LOWWP will required to comply with the Floodplain Management Act by identifying which portions of the project are located within the 100-year flood zone, evaluating if proposed new structures would impede flood flows, and prepare a flood map that indicates how the LOWWP might change the 100-year floodplain boundary.

Migratory Bird Treaty Act

To comply with the federal Migratory Bird Treaty Act, the biological environmental analysis will identify any birds protected under this Act that may be impacted by the LOWWP and identify conservation measures to minimize potential impacts.

Farmland Protection Policy Act

The Farmland Protection Policy Act requires that the County evaluate whether the proposed LOWWP will require conversion of existing farmlands. If farmland conversion will occur, the County must demonstrate that other reasonably feasible sites not under contract are not available. Part of this evaluation involves identifying the status of farmland as either Prime, Unique or of local or statewide importance and whether or not a Williamson Act contract for farmland conservation exists for the proposed project sites under consideration. The California Department of Conservation Division of Land Resource Protection must be notified when an agency plans to convert farmland that is currently under a Williamson Act contract.

Wild and Scenic Rivers Act

To comply with the federal Wild and Scenic Rivers Act, the County must identify any Wild and Scenic Rivers that might be potentially impacted by the project and include any conservation measures to minimize such impacts in the CEQA environmental analysis.

Central Coast Regional Water Quality Control Board (RWQCB)

The Central Coast RWQCB, also known as the Regional Board, is responsible for enforcing the federal Clean Water Act at the local level.

National Pollution Discharge Elimination System (NPDES) and Waste Discharge Requirements (WDR)

As part of their responsibility to implement the Clean Water Act, the State Water Resources Control Board (SWRCB) and its subsidiary Central Coast RWQCB, have adopted discharge and water quality standards that must be achieved by any wastewater treatment system. These standards are set forth in the Water Quality Control Plan, Central Coast Basin (Basin Plan) adopted by the RWQCB and the SWRCB. As part of this plan, the RWQCB must approve the LOWWP treatment and disposal system and issue a Water Discharge Requirements (WDR) discharge permit prior to operations beginning.

The RWQCB issued "Waste Discharge/Recycled Water Requirements Order No. R3-2003-0007" for the LOCSD when it was moving forward with the last abandoned Los Osos wastewater project. After completing the EIR for that project in 2001, the LOCSD had obtained all the requisite permits, such as a CDP and the RWQCB WDR. The currently proposed LOWWP must also meet the RWQCB treated effluent and recycled water limitations from that order as described in Table 3-1.

According to the California Code of Regulations Title 22, the Central Coast RWQCB allows groundwater management facilitated by the utilization of sprayfields, subject to a case-by-case evaluation. The proposed leachfield will receive similar evaluation by the RWQCB.

Storm Water Pollution Prevention Plan (SWPPP)

The State Water Resources Control Board (SWRCB) implements aspects of the Federal Water Pollution Control Act (commonly known as the Clean Water Act). In California, any projects that disturb one or more acres of soil, or any projects that disturb less than one acre but are part of a larger common plan of development that disturbs one acre or more, are required to be covered by the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit, 99-08-DWQ). This permit is part of the national NPDES Phase II program for stormwater discharges. A Notice of Intent (NOI) package must be submitted to the SWRCB and a site specific Storm Water Pollution Prevention Plan (SWPPP) must be prepared and submitted to the RWQCB to address construction phase -related stormwater discharge issues. San Luis Obispo County is in the process of preparing a countywide SWPPP that will cover all projects receiving County construction permits; however, since the countywide SWPPP has not yet been adopted by the County and approved by the RWQCB or SWRCB, the RWQCB will still have authority to review and approved the LOWWP SWPPP.

During the process of private septic tank removal, appropriate BMPs to avoid stormwater pollution would be implemented as required under terms of the project specific SWPPP developed for the proposed project.

Because the project site would discharge stormwater runoff directly to a Clean Water Act Section 303(d) listed limited water segment (Warden Creek), the SWPPP must also include a sediment monitoring plan, in conformance with Section A of the Construction General Permit.

Stormwater Management Plan (SWMP)

As outlined in the Clean Water Act Section 402, the NPDES controls direct (point source) discharges into navigable waters. The SWRCB determined that six unincorporated communities located in the County, including Baywood-Los Osos, are subject to Environmental Protection Agency (EPA) NPDES Phase II requirements under the "MS4 General Permit." This permit is SWRCB Quality Order No. 2003-0005-DWQ, NPDES General Permit No. CA CAS000004, known as "Waste Discharge Requirements for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems."

To comply with this permit, the County of San Luis Obispo developed a stormwater management program (SWMP) designed to reduce the discharge of pollutants to the Maximum Extent Practicable (MEP) and to protect water quality during the project operations phase. The SWMP is intended to provide an integrated approach for the prevention of pollution from stormwater runoff within the county. On March 23, 2007, the Central Coast RWQCB via Resolution R3-2007-0019 approved the SWMP. Operation of the proposed projects, including the sprayfields and stormwater containment at the treatment plant, pump stations and other facilities, would be in accordance with the SWMP requirements.

In addition to complying with the SWMP requirements, a site-specific SWMP will be developed and submitted to the Central Coast RWQCB for approval. It will include a stormwater management program, including a runoff monitoring program for the treatment plant, sprayfields and other LOWWP facility sites.

Clean Water Act (CWA) Section 401 Permit and Porter-Cologne Water Quality Act

The SWRCB and its subsidiary RWQCB have been delegated the authority to administer the Clean Water Act Section 401 Water Quality Certification permitting process. The goal of Section 401 permits is to ensure that the quality of surface water discharge to streams and rivers is maintained at levels necessary to sustain the functional capacity of streams, estuaries, and lakes. Because each proposed project would disturb more than 1 acre of soil and would potentially impact waters considered jurisdictional by the USACE and the Central Coastal RWQCB, CWA Section 401 water quality certification applications must be prepared, submitted and approved before project construction begins. Typical water quality improvements include collecting site runoff at proposed LOWWP facilities, constructing water quality detention/retention basins and implementing BMPs outlined in the SWPPP and the Sedimentation and Erosion Control Plan.

Dewatering Plan Review and Approval

Construction of the collection system may require dewatering of trenches. These waters may be high in suspended solids and other pollutants that would have to be disposed of in accordance with RWQCB standards. A temporary NPDES discharge permit would be required from the RWQCB.

U.S. Army Corps of Engineers (USACE)

Clean Water Act (CWA) Section 404 Permit

Since Los Osos Creek is under jurisdiction of the USACE as "waters of the United States," excavating trenches across the Los Osos Creek would require obtaining a CWA Section 404 Permit for discharge of fill into waters of the United States. A permit may not be required if the pipelines are constructed by directional boring under the creek without disturbing the ground surface.

Section 404 Permits generally require that project developers establish compensatory mitigation, either by paying an in-lieu fee to a regulatory agency approved mitigation bank, or by establishing and operating a mitigation site. Wetland habitat mitigation requirements, often at a ratio greater than 1:1 for mitigated to impacted acreage, call for increasing the acreage of existing wetlands or enhancing the functional capacity of existing wetlands onsite or elsewhere. The latter would require the preparation of a USACE-approved Habitat Monitoring and Mitigation Plan (HMMP). Each regulatory permit would be issued with specific conditions that must be met in order to the project to proceed. Compliance with these requirements would result in the project avoiding any violation of water quality standards or waste discharge requirements.

Waters of the United States

Waters of the U.S., as defined in the Code of Federal Regulations (CFR) §328.3, include all waters or tributaries to waters such as lakes, rivers, intermittent and perennial streams, mudflats, sand-flats, natural ponds, wetlands, wet meadows, and other aquatic habitats. Frequently, waters of the U.S., with at least intermittently flowing water or tidal influences are demarcated by an ordinary high water mark (OHWM). The OHWM is defined in CFR §328.3(e) as the line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. In this region, the OHWM is typically indicated by the presence of an incised streambed with defined bank shelving.

In June 2001, the USACE South Pacific Division issued "Guidelines for Jurisdictional Delineations for Waters of the United States in the arid Southwest." The purpose of this document was to provide background information concerning physical characteristics of dryland drainage systems. These guidelines were reviewed and used to identify jurisdictional drainage features within the study area. See Section 5.5, Biological Resources, and Appendix G, Biological Resources, for additional detail.

The USACE regulates activities affecting waters of the U.S. by requiring a Section 404 Permit for the discharge of dredge and fill material into waters of the U.S. as described above.

Wetlands

Wetland vegetation is characterized by vegetation in which more than 50 percent of the dominant plant species are species associated with wetlands. The USACE 1987 Wetlands Delineation Manual specifies criteria that must be satisfied to classify an area as a jurisdictional wetland. These criteria have been modified in accordance with the 2001 Solid Waste Agency of North Cook County (SWANCC) case law that now requires a wetland to show connectivity to a stream course in order to be considered jurisdictional wetlands. These modified criteria have been used to make a preliminary assessment of the limits of jurisdictional wetlands for the LOWWP as described in Appendix G Biological Resources. The USACE regulates actions within jurisdictional wetlands under Section 404 of the Clean Water Act as described above and under Section 401 as described above under the Central Coast RWQCB. Section 401 administrative authority has been delegated to the RWQCBs in California.

United States Fish and Wildlife Service (USFWS)

The United States Fish and Wildlife Service (USFWS) administers the federal Endangered Species Act (ESA). The ESA provide a process for listing species as either threatened or endangered and methods of protecting listed species. The ESA defines as “endangered” any plant or animal species that is in danger of extinction throughout all of a significant portion of its known geographic range. A “threatened” species is a species that is likely to become endangered. A “proposed’ species is one that has been officially proposed by the USFWS for addition to the federal threatened and endangered species list and is under public review.

ESA §9 prohibits “take” of threatened or endangered species. The term “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct. Take can include disturbance to habitats used by a threatened or endangered species during any portion of its life history. The presence of any federally threatened or endangered species in a project area generally imposes severe constraints on development, particularly if development would result in “take” of the species or its habitat. Under the regulations of the ESA, the USFWS may authorize “take” when it is incidental to, but not the purpose of, an otherwise lawful act.

Certain aspects of the project will involve the disturbance or loss of habitat that supports special status species listed in accordance with the federal Endangered Species Act. When a project could adversely impact habitat for special status plants or animals listed by the Endangered Species Act, federal Migratory Bird Treaty Act, or the Magnuson-Stevens Fishery Conservation and Management Act, certain permitting requirements apply which are administered by the USFWS. More detail on these two federal laws and the USFWS role is provided above at the heading, “State Water Resources Control Board Division of Financial Assistance,” which describes CEQA Plus requirements for projects that receive funding under the federal Clean Water Act. Additional detail is provided in Section 5.5, Biological Resources, and in Appendix G-1, Expanded Biological Resources Analysis.

United States National Marine Fisheries Service (NMFS)

Certain aspects of the project will involve the disturbance or loss of habitat that supports special status species listed in accordance with the federal Endangered Species Act. When a project could adversely impact habitat for special status plants or animals listed by the Endangered Species Act or federal Migratory Bird Treaty Act, or the Magnuson-Stevens Fishery Conservation and Management Act, certain permitting requirements apply which are administered by the NMFS within the Coastal Zone. More detail on these federal laws and the NMFS role is provided above at the heading, "State Water Resources Control Board Division of Financial Assistance," which describes CEQA Plus requirements for projects that receive funding under the federal Clean Water Act. Additional detail is provided in Section 5.5, Biological Resources, and in Appendix G-1, Expanded Biological Resources Analysis.

3.4.3 - Non-Discretionary Actions

San Luis Obispo County Department of Agriculture

The San Luis Obispo County Department of Agriculture oversees the County's agricultural resources. They will review and comment on potential farmland conversions proposed for the LOWWP with particular focus on prime farmland and Williamson Act terminations. More detail is provided above under the SWRCB section on the Farmland Protection Act and below under the California Department of Conservation Division of Land Resources Protection.

California Department of Conservation, Division of Land Resource Protection

The California Department of Conservation, Division of Land Resource Protection monitors farmland conversion statewide and administers the Williamson Act and other agricultural land conservation programs. Government Code Section 51291 requires a government agency to notify the Director of the Department of Conservation when it appears that land covered by a Williamson Act contract will be acquired for public improvements.

SECTION 4: ENVIRONMENTAL SETTING

4.1 - INTRODUCTION

The analysis contained in this Draft EIR is intended to aid decision-makers and the public by providing factual information about the potential environmental consequences of the proposed Los Osos Wastewater Project. Based on a thorough understanding of the environmental setting, the potential project-specific and cumulative impacts can be evaluated. This section discusses the overall environmental setting both locally and regionally and identifies the Environmental Setting in general terms while the detailed sections of Section 5, and supporting Expanded Analysis for each area, provide a more in depth discussion of the environmental setting as it pertains to a specific environmental issue (air quality, biological resources, transportation, etc.). The environmental setting is illustrated by Exhibit 4-1.

Similar to other portions of this Draft EIR, general information is presented here and referenced to more specific discussion in Section 5. Readers interested in greater detail than what is presented in Section 5, can find more information in the appropriate Expanded Section or Technical Memoranda.

4.2 - REGIONAL AND LOCAL SETTING

The community of Los Osos is located in west-central San Luis Obispo County about mid-way between the San Francisco and Los Angeles metropolitan areas. The County includes a diversity of landscapes, from fertile coastal plains and valleys, to rolling hills and mountain ranges rising to over 4,000 feet.

Los Osos is an unincorporated coastal community of about 15,000 residents located in San Luis Obispo County at the south end of Morro Bay about 12 miles west of the City of San Luis Obispo. The City of Morro Bay lies about two miles to the north. Los Osos is located on a series of ancient sand dunes in close proximity to the ocean. Development in Los Osos began in the late 19th century with the division of land into small residential lots intended for summer homes and retreats. The physical 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 community developed with the absence of a central wastewater collection and treatment system. Sanitation needs were met by individual septic tanks and leachfields, while domestic water was supplied via wells. Current wastewater treatment for the community consists of individual septic systems serving each developed property, or in some cases multiple properties.

Los Osos is located at the south end of the Morro Bay estuary, recognized as one of the most important biological resources on the entire west coast of the United States. In addition to providing a resting place for dozens of species of migratory waterfowl, the Bay is a nursery to both marine and anadromous fish, and provides a forage and resting area for marine mammals. The coastal dunes which surround the community to the west (and upon which the community has developed) are one of the most sensitive—and threatened—environments in California. Species of plants that have adapted to the harsh coastal dune environment are among the most rare, with many occurring nowhere else on earth. The biological richness and sensitivity of the Morro Bay estuary have given rise to a number of conservation efforts. The Bay achieved Natural Estuary status which affords a higher level of protection at the federal, State and local levels.

The Morro Bay watershed stretches inland to the foothills of the Santa Lucia Range. Coastal creeks and their tributaries, including Los Osos, Warden, Chorro and Morro Creeks, support rich riparian plant and animal communities.

4.2.1 - Topographic Features

Los Osos sits on a series of ancient dunes formed by centuries of wind-driven sand that accumulated at the south end of Morro Bay. The resulting topography is a series of gently-rolling hills stretching eastward from the Bay to the foothills of the Irish Hills. Although present day urban development masks the dynamic processes associated with dune formation; today the process continues, albeit at a much more arrested rate.

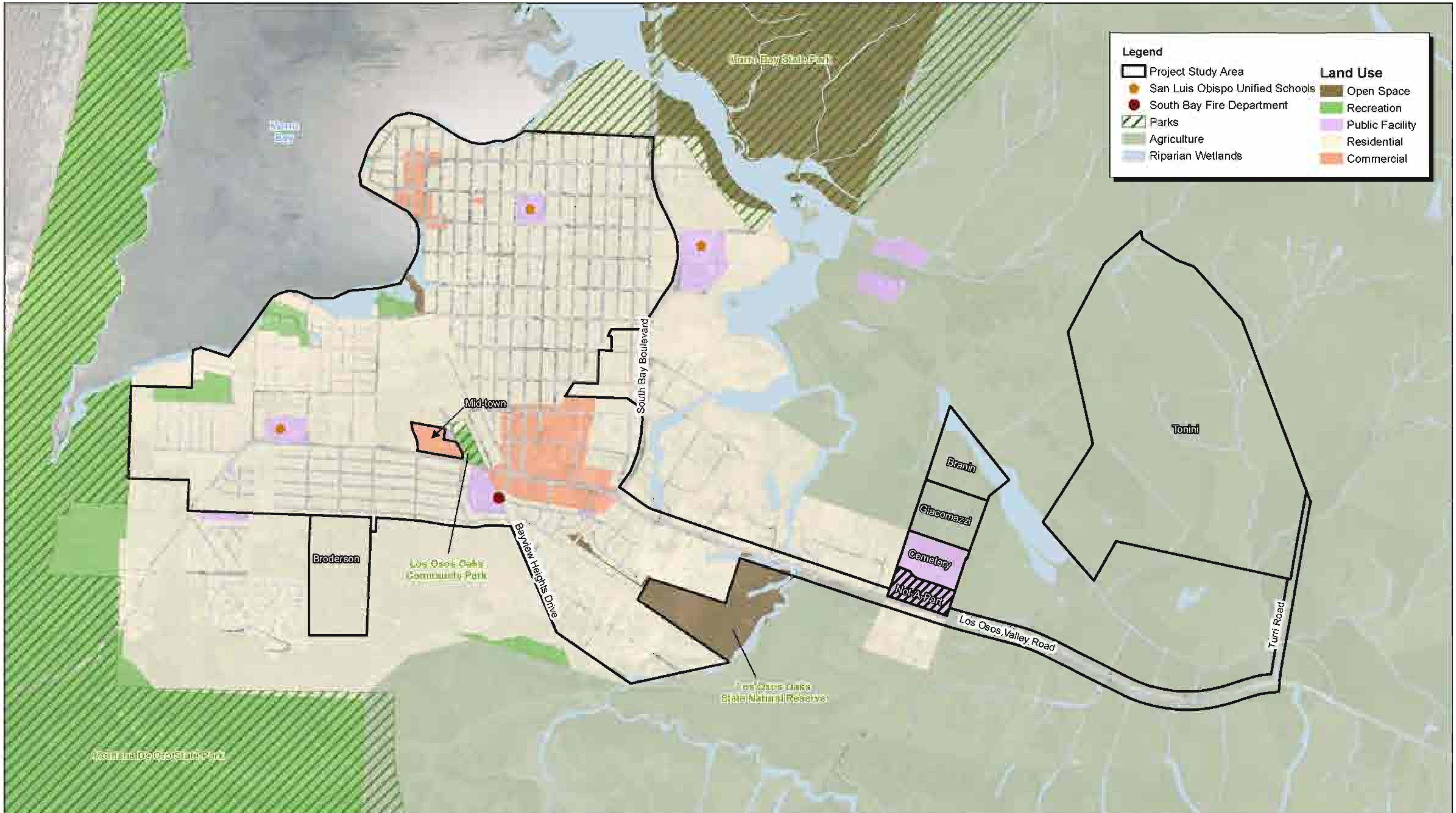
Stretching to the east from Morro Bay is a series of small peaks of volcanic origin, called Morros, which provide a unique scenic backdrop of regional significance. The westernmost morro, Morro Rock, guards the entrance to Morro Bay. The fertile soils of the Los Osos Valley, formed by the Morros to the north and the Irish Hills to the south, supports productive agricultural operations.

Detailed discussion of the Environmental Setting for Geology is in Section 5.4 and Appendix F-1.

4.2.2 - Land Use and Planning

Land use designations for the Community of Los Osos are identified in the Estero Area Plan. This plan gives high priority to maintenance of the watershed/estuary, coastal access, and preservation of scenic vistas. Consequently, there is an emphasis on retention of agricultural lands for both their water filtering and scenic value. Under the Estero Area Plan, the Los Osos area is divided into neighborhoods. The urban reserve line encompasses approximately 2,590 acres (approximately four square miles) of developed and developable property. Refer to Section 5.1, Land Use and Planning, for further discussion of these issues.

The Proposed Projects include three components: collection system; treatment plant facilities and sites; and disposal areas. The proposed collection system would be located along roadways throughout the community and includes pump stations that are primarily located underground. A central pump station is part of the gravity system and is located on a 0.1 acre site (referred to as the Mid-town Site in this Draft EIR). The proposed treatment plant sites are located east of the urban reserve line.



Source: AirPhoto USA, San Luis Obispo County GIS Data, and MBA GIS Data.

Michael Brandman Associates

NORTH

2,000 1,000 0 2,000 Feet

Exhibit 4-1
Environmental Setting Map

The two disposal sites have been identified. One is east of the urban reserve line, on the Tonini property, and the second is in the southern portion of the community, known as the Broderson site. More detail on each of the proposed projects for the LOWWP is contained in Section 3, Project Description.

Following is a specific discussion of each of the components of the proposed project.

- **Collection System -** There are two collection systems that are proposed. Both systems would include facilities on existing residential properties as well as within existing streets throughout the RWQCB Prohibition Zone. In addition, pipelines would be located within Los Osos Valley Road (LOVR) and extend to the proposed treatment plant sites and disposal area at Tonini.
- **Treatment Plant Facilities -** There are four treatment plant sites proposed. The treatment plant facilities for Proposed Project 1 would occupy portions of following three parcels:

  - **The Cemetery parcel** consists of a rectangular 47.4 parcel north of LOVR. The proposed facilities would be located on the northerly portion of parcel. The Los Osos Mortuary and Memorial Park occupies the southerly portion of the site (approximately 19 acres) and is not proposed for any use for the LOWWP. The site slopes gently downward to the north; the westerly boundary slopes downward to the west to a dirt road that provides access to surrounding farming operations. Approximately 6.5 acres in the northwest corner is cultivated with row crops. This parcel is currently designated as PF (Public Facility).
  - **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. There is a collection of farm-related buildings along the western border with numerous tall trees surround the buildings. The level areas of the site have been cultivated with crops. The parcel is currently designated AG (Agriculture).
  - **The Branin parcel** consists of an irregularly shaped 42.2-acre parcel north of LOVR and adjacent to Warden Lake. The site slopes to the north and contains two ephemeral drainages. A portion of this parcel is currently cultivated and is designated AG (Agriculture). In general, the northerly portion of this site is not proposed for use by the LOWWP due to environmental considerations.

  The treatment plant facilities and seasonal storage pond would occupy up to 27 acres on the approximately 128-acre area of the three sites combined.

  The treatment plant site for Proposed Project 2 would be located on approximately 10 acres of the Giacomazzi parcel. The characteristics of this parcel are described above.

The treatment plant site for Proposed Project 3 would be located on approximately 10 acres of the Giacomazzi while the seasonal storage pond would be located on approximately 8 acres of the Branin parcels. The combined total area of the Giacomazzi and Branin parcel encompass approximately 80 acres. The characteristics of these parcels are described above.

The treatment plant site for Proposed Project 4 would be located on the Tonini parcel. This parcel is approximately 645 acres in area. The proposed treatment facilities would be located in the southeastern portion of the parcel on approximately 22 acres. The Tonini parcel includes agriculture (i.e., row crops) and grazing activities. The seasonal storage pond would also be located in the southeastern portion of the Tonini parcel on approximately 8 acres. This parcel is currently designated AG (Agriculture).

- **Disposal Areas -** The disposal of treated effluent would require a combination of sprayfield (spraying of secondarily treated effluent on land to dispose of the water through evapotranspiration and percolation) and leachfield (percolation of treated effluent to recharge the groundwater basin).

The sprayfields would be located on approximately 175 acres on the 645-acre Tonini parcel. The leachfields would be constructed on approximately 8 acres of the approximately 80-acre Broderson parcel. While the purpose of the LOWWP is to develop a community wastewater system, implementation measures for effluent disposal at the Broderson site can enhance opportunities for the water purveyors to improve the local water resources. Access to the site would be by a gravel road that extends south from the south end of Broderson Avenue, and the site would be surrounded by fencing to limit public access.

4.2.3 - Hydrology, Water Quality, and Water Resources

Surface water features in the area include the Pacific Ocean, Morro Bay Estuary and Sweet Springs Marsh. Other surface water systems drain the hillsides and the surrounding farmland, namely Los Osos Creek, Warden Creek, Eto Creek, and several other unnamed, smaller tributaries. Warden Creek drains Los Osos Valley through Warden Lake, a marshy depression to the east of the community. Eto Creek is a well-defined waterway within the dune sands that drains to Eto Lake before reaching the ocean. Los Osos derives all of its drinking water from groundwater supplies. The nature of the groundwater system in the Los Osos area has been studied extensively since the Regional Board acted in 1988 to prohibit new septic systems. Generally, there are two distinct aquifers underlying the area, a more shallow aquifer that ranges in depth from 30 to 200 feet, and a deep aquifer, some 500 feet below the surface. The exact depth and shape of each aquifer is still under investigation.

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 water quality of the shallow aquifer has been compromised by the presence of septic tank systems and other sources of nitrogen. The LOWWP proposed projects evaluated by this DEIR address actions to develop the infrastructure for a wastewater collection and treatment system with a benefit to the community to alleviate groundwater contamination, primarily nitrates, which have occurred by the use of septic systems throughout the community of Los Osos.

Refer to Section 5.2 and 5.3 for further discussion of Groundwater Quality and Drainage/Surface Water issues.

4.2.4 - Biological Resources

Twelve vegetation communities/habitat types occur within the project study area: Urban/Developed, Disturbed Habitat/Ruderal, Eucalyptus Woodland, Extensive Agriculture, Non-Native Grassland, Coastal Sage Scrub, Central (Lucian) Coastal Scrub, Coast Live Oak Forest, Central Coast Live Oak Riparian Forest, Central Coast Arroyo Willow Riparian Forest, Vernal Marsh, and Freshwater Marsh. For a complete discussion of the environmental setting of the project site and each of the vegetation communities and habitat types that occur on the site, see Appendix G-1 and Section 5.5.2 of the Expanded Biological Resources Analysis.

Special Status Plant Species

Thirty-nine special status plant species were analyzed for their potential to occur within the study area. Twelve of these species were found to either be present, presumed present, or have a high potential to occur on site. For a complete discussion of these species their listed status, please refer to Appendix G-1, Expanded Biological Resources Analysis, Section 5.5.3.

Special Status Wildlife Species

Fifty-five special status wildlife species were analyzed for their potential to occur on the project study area. Nine special status wildlife species were determined present, presumed present, or have a high potential to occur within various portions of the survey area based on the results of protocol surveys conducted for the proposed project and best available scientific research that includes the results of recent protocol survey efforts for projects in the area. For a complete discussion of these species their listed status, please refer to Appendix G-1, Expanded Biological Resources Analysis, Section 5.5.4.

4.2.5 - Cultural Resources

The combination of mild coastal climate and abundant food and water resources made the Los Osos area an attractive location for native peoples. As a result, the entire Los Osos area is rich in artifacts of archaeological importance. Cultural resources are discussed in Appendix H-1, Expanded Cultural Resources Analysis.

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. During the 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 with development of Los Osos continuing into the 1960s.

4.2.6 - Public Health and Safety

This section provides an analysis of public health and safety based on extensive analysis documented in the Expanded Public Health and Safety Analysis found in Appendix I-1 and Section 5.7 of the Expanded Public Health and Safety Analysis. The Expanded section utilized numerous resources related to handling hazardous materials during construction and operation of the proposed projects, as well as in the event of reasonably foreseeable accident conditions. There is also relevant and pertinent discussion of the regulatory issues related to Public Health and Safety.

4.2.7 - Traffic and Circulation

This section provides an analysis of traffic and circulation issues related to each of the proposed LOWWP projects. The Estero Area Plan, Chapter 5 Circulation Element, establishes circulation goals and policies for the Los Osos area. Of particular concern is maintenance of Los Osos Valley Road at Level of Service D, or better, while keeping the road as a two-lane highway with operational improvements. While traffic impacts related to LOWWP in the long term are minimal, there are impacts to be addressed during the construction of any facilities due to excavation activities along roads and streets. Detailed analysis of traffic and circulation impacts may be found in Appendix J-1 and Section 5.8 of the Expanded Traffic and Circulation Analysis.

4.2.8 - Air Quality

The climate of San Luis Obispo can be described as semi-arid with warm, dry summers followed by a cool rainy period from November to March. Weather patterns are dominated by the eastern Pacific High Pressure System that persists off the California coast for much of the year, diverting storms northward. Dense morning fog followed by periods of afternoon sunshine is a pattern repeated daily during summer months near the coast and the numerous coastal valleys. Minimum temperatures in the Los Osos area range from a minimum average of 42 degrees Fahrenheit in January to 79 degrees Fahrenheit in September.

The project is located within the South Central Coast Air Basin (SCCAB), which covers the counties of San Luis Obispo, Santa Barbara, and Ventura. San Luis Obispo County (County) constitutes a land area of approximately 3,316 square miles with varied topography and climate. From a geographical and meteorological standpoint, the County can be divided into three general regions: the Coastal Plateau, the Upper Salinas River Valley, and the East County Plain. Air quality in each of these regions is characteristically different, although the physical features that divide them provide only limited barriers to the transport of pollutants between regions. The proposed projects are located in the Coastal Plateau region.

Local and regional weather conditions, including wind speed and direction, atmospheric stability, air temperature, and the presence or absence of temperature inversions can all contribute to the dispersion or concentration of air pollutants. The speed and direction of local winds are controlled by the location and strength of the Pacific High pressure system, local and regional topography, and by circulation patterns resulting from temperature differences between the land and sea. Air pollutants can become concentrated when the mixing height is at or below the elevation of the surrounding coastal hills. Under those conditions, the inversion limits vertical mixing and the hills trap the pollutants and prevent them from horizontally dispersing.

Detailed discussion of Air Quality issues and the environmental setting is found in Appendix K-1 and Section 5.9 of the Expanded Air Quality Analysis. This section also addresses Greenhouse Gasses (GHG)—such as Carbon Dioxide, Methane, Nitrous Oxide, and others—for each proposed project.

4.2.9 - Noise

Noise is defined as unwanted sound and that becomes unwanted when it interferes with normal activities, when it causes actual physical harm, or when it has adverse effects on health. Sound pressure levels are used to measure the intensity of sound and expressed in terms of decibels. Noise level measurements were monitored at specific locations in the community and in the vicinity of the locations for the LOWWP proposed projects. Noise level measurements were taken during both the peak morning and afternoon traffic periods at various locations in the community of Los Osos.

A second consideration under this section is ground vibration. Typically, developed areas are continuously affected by vibrations but these are not normally noticeable to humans. Offsite sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible groundborne noise or vibration. While traffic noise and vibration impacts related to LOWWP in the long term are minimal, there are impacts to be addressed during the construction of any facilities due to excavation and other construction activities along roads, streets, and adjacent to neighborhoods. The noise monitoring results and vibration analyses are shown and discussed in Appendix L-1, Expanded Noise Analysis.

4.2.10 - Agricultural Resources

Approximately 77 percent of the Estero Planning Area is designated for Agriculture and of that, an estimated 65 percent are 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. Refer to Section 5.11, Agricultural Resources, for further discussion of issues.

The continued viability of commercial agricultural production is essential to the planning area and the county as a whole. The California Coastal Act contains strict policies for the preservation of agriculture with particular emphasis on the maximum preservation of prime lands, even where mixed agricultural and non-agricultural uses occur. Thus, nearly all of the valley lowlands in the planning area can be regarded as important agricultural lands. The following discussion describes regional agricultural conditions and trends, and local conditions and trends.

Agriculture in the San Luis Obispo area including Los Osos has been extensive since the introduction of livestock in the 1860s. Raising livestock on large land grants and some production of grain under dry-farming methods were the chief agricultural pursuits until about 1880. Rapid agricultural development occurred after 1880 due to the development of irrigation, affordable land, favorable crop yields, the advent of two railroads, and access to markets.

The broad, flat valley known as the Los Osos Valley is mostly devoted to dry farm barley and garbanzo bean production and includes the Coastal Zone for the western half of the valley. Flatlands subject to poor drainage are commonly used as dry pasture. Row crops are grown in the Los Osos Valley bottomlands just east of the community of Los Osos. Previous general planning and zoning included portions of this land in suburban residential categories and allowed division of some of the area into parcels ranging from 2.5 to 20 acres. Uses such as nurseries and high value crop and animal specialties are encouraged on existing small parcels to help maintain the agricultural integrity of the area. Landowners are encouraged to participate in this program to stabilize land values and taxes for long-range agricultural use.

For a complete discussion of the regional environmental setting and crop trends and Agricultural resources, please refer to Appendix M-1, Expanded Agricultural Resources Analysis.

4.2.11 - Visual Resources

The natural setting of Los Osos is a place of unique beauty. The Los Osos urban area is located at the westerly end of the picturesque and agriculturally productive Los Osos Valley and is bound by the environmentally important Los Osos Creek and riparian corridor on the east and southeast, and the older coastal dunes to the north, south, and southwest. The creek and dune-covered hills form a natural edge and greenbelt for the community.

For a complete discussion of the environmental setting from a regional, local, and project site perspective, please refer to Appendix N-1, Expanded Visual Resources Analysis.

4.2.12 - 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 § 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.”

For a complete explanation of environmental justice and analysis, please refer to Appendix O-1, Expanded Environmental Justice analysis.

4.3 - CUMULATIVE ENVIRONMENTAL SETTING

Cumulative impacts refer to the combined effect of project impacts with the impacts of other past, present, and reasonably foreseeable future projects. As set forth in CEQA Guidelines, the discussion of cumulative impacts must reflect the severity of the impacts, as well as the likelihood of their occurrence attributable to the project alone. As stated in CEQA, Title 14, Section 21083(b), “a project may have a significant effect on the environment if the possible effects of a project are individually limited but cumulatively considerable.”

According to the State CEQA Guidelines:

“Cumulative impacts” refer to two or more individual effects which, when considered together, are considerable and which compound or increase other environmental impacts.

a. The individual effects may be changes resulting from a single project or a number of separate projects.
b. “The cumulative impact from several projects is the change in the environment, which results from the incremental impact of the project when added to other closely related past, present, and reasonable foreseeable probable future projects. Cumulative impacts can result from

> individually minor but collectively significant projects taking place over a period of time." (California Code of Regulations (CCR), Title 14, Division 6, Chapter 3, §15355.)

In addition, as stated in CEQA Guidelines, it should be noted that:

> "The mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the proposed project's incremental effects are cumulatively considerable." (CCR, Title 14, Division 6, Chapter 3, Section 15064[I][5]).

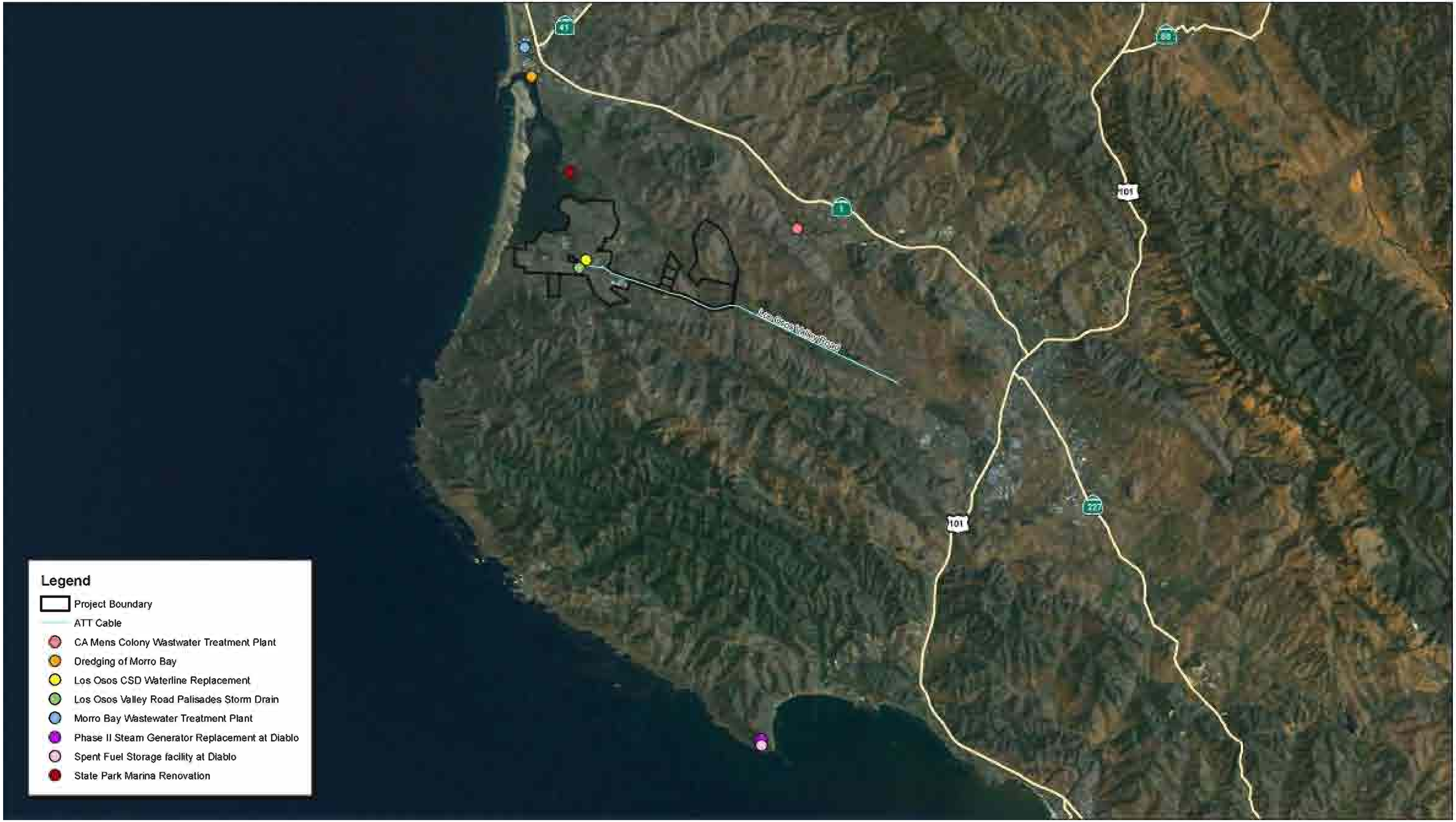
Cumulative impact discussions for each issue area are provided in the technical analyses contained within Section 5, Project and Cumulative Impacts.

As previously stated, and as set forth in the CEQA Guidelines, related projects consist of "closely related past, present, and reasonable foreseeable probable future projects that would likely result in similar impacts and are located in the same geographic area." (CCR, Title 14, Division 6, Chapter 3, Section 15355.)

The San Luis Obispo County Department of Public Works has identified related public works/ community facility projects that might contribute to cumulative impacts. Table 4-1 lists the related projects. Exhibit 4.2 shows related project locations. No private development projects are included in the list of related projects in Table 4-1. Since 1989, no new housing has been constructed within the non-excluded areas of the RWQCB Prohibition Zone, and there has only been a minor amount of growth that has occurred within excluded areas of the Prohibition Zone as well as outside the Prohibition Zone and within the Community of Los Osos. By imposing the Prohibition Zone, RWQCB effectively halted new construction or major expansions of existing development until the County could provide a solution to the water pollution problem. As discussed in Section 6 of this Draft EIR, the growth that has occurred within the Community of Los Osos between Year 1990 and Year 2000 includes an increase in 117 residential units, but a decrease in population of 223 people.

Table 4-1: 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.



Source: ESRI Resource Center World Imagery and San Luis Obispo County GIS.

Michael Brandman Associates

NORTH

2 1 0 2 Miles

Exhibit 4-2
Cumulative Projects Location Map

Table 4-1 (Cont.): Los Osos Wastewater Project - Cumulative Projects

#	Project Name	Description
3	Los Osos Community Service District Waterline Replacement	Waterline replacement project, currently in construction phase. Some streets undergoing waterline replacement will also receive wastewater collection pipelines as part of the Los Osos Wastewater Project, for which construction is expected to begin in 2010.
4	Los Osos Valley Road Palisades Storm Drain	Storm drain project proposed by the County of San Luis Obispo, extending approximately 0.12 miles west from Bush Drive to Palisades Avenue under Los Osos Valley Road. Protocol snail surveys at the NW corner of Los Osos Valley Road and Palisades Avenue (outlet) are being conducted. Provided surveys are negative, construction period would likely extend from Summer 2009 through November 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, scheduled for 2009. Phase I Steam Generator Replacement (replacement of the generators for one of the units) is complete.
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 at Morro Bay.
9	State Park Marina Renovation	City of Morro Bay project to renovate the existing marina in Morro Bay. Timing is currently unknown.

For the analysis of cumulative impacts, these related projects are viewed collectively in this Draft EIR as comprising the grouping of past, present, and reasonable foreseeable probable future projects against which the project’s contribution to cumulative impacts is assessed.

SECTION 5: PROJECT AND CUMULATIVE IMPACTS

ORGANIZATION OF THIS SECTION

Section 5 is composed of numerous subsections describing potential impacts of the proposed project alternatives analyzed for the Los Osos Wastewater Project (LOWWP). Section 5's subsections address subject areas of:

- Land Use and Planning
- Groundwater Quality and Water Supply
- Drainage and Surface Water Quality
- Geology
- Biological Resources
- Cultural Resources
- Public Health and Safety
- Traffic and Circulation
- Air Quality (and Greenhouse Gasses)
- Noise
- Agricultural Resources
- Visual Resources
- Environmental Justice

These subsections are summaries of detailed analysis in the Draft EIR Expanded Analysis material located in Appendices C through O, and are incorporated herein by reference (CEQA Guidelines Section 15150 et seq.). Only those areas of study that have potentially significant impacts are included within Section 5's subsections—all other areas of study for which no significant impact has been identified are, however, included in the related detailed Expanded Analysis Appendix. If conclusions in a particular Expanded Analysis indicate a potentially significant or unavoidable impact, then those conclusions, with supporting mitigation measures, are discussed in the corresponding Section 5 subsection. If there is no impact, then the discussion of that environmental topic in the Section 5 subsection is minimal. This organization assists readers to discern quickly where there may be impacts and what mitigation measures are proposed to deal with the impacts.

Common subject areas such as general Introduction and the Environmental Setting (with Regional and Local Conditions) are presented in Section 4 of this Draft EIR. Details pertinent to each environmental subject area (notably Regulatory Setting) are discussed in each subsection. Below there is a suggested method for reviewing and understanding this Draft EIR. Instructions on how to comment on this Draft EIR are located in Section 1, Introduction, and in Section 2, Executive Summary.

HOW TO READ AND UNDERSTAND THIS DRAFT EIR

This Draft EIR structure is somewhat different than other EIR documents. There are three levels of detail presented for public review: The Executive Summary; the main Draft EIR sections; and Expanded Analysis, Technical Memoranda, and Reports included in the Appendices. An overview of each level with the kind of information presented in each is as follows:

- The Executive Summary (Section 2): provides overview summary information of the proposed projects with a brief discussion of the project purpose, project background and history, project objectives, and alternatives developed and studied in the Draft EIR. It includes a brief summary of the alternatives screening process. There is information on responses to the Notice of Preparation (NOP) and the Supplemental NOP with cross-reference to sections of the Draft EIR where the comments are addressed. There is a summary of the environmental impacts identified in the analysis for the various proposed projects with appropriate measures or project design features to be implemented to mitigate impacts. This section gives readers the "flavor" of the Draft EIR and identifies the location where more detailed information is located.
- Draft EIR (Sections 3 through 7): These sections provide a more detailed description of the proposed projects and potential environmental impacts of each project. Sections 3 though 7 represent the "core" of the Draft EIR and form the basis of the review for reader comments.
  - Section 3, Project Description, provides specific detail of the various components of each proposed project (collection system, treatment process, treatment plant site, and effluent disposal details), discussion of Project Objectives, and construction activities.
  - This section, Section 5, provides detailed discussion of impacts that have been identified as potentially significant or significant and unavoidable.
  - Section 6, Growth Inducing Impacts, provides a discussion of the of the proposed projects and no significant impacts are noted.
  - Section 7, Alternatives to the Proposed Project, contains discussion about the process used to reach the four proposed projects studied in the Draft EIR and other projects that were considered, but not pursued for further study and analysis.
  - Appendices with Expanded Sections of the Draft EIR and various reports and technical memoranda provide extensive detail and discussion of the various study subjects that comprise this Draft EIR. The Expanded Sections should be consulted for further detailed information about the various subject areas covered by the environmental analysis. These sections provide the detailed analysis upon which the Draft EIR determines whether there are potentially significant impacts to be addressed by mitigation measures or project design features for implementation. The Expanded Sections are as follows:
    - Appendix C-1: Expanded Land Use Analysis
    - Appendix D-1: Expanded Groundwater Resources Analysis
    - Appendix E-1: Expanded Drainage and Surface Water Quality Analysis
    - Appendix F-1: Expanded Geology Analysis
    - Appendix G-1: Expanded Biological Resources Analysis
    - Appendix H-1: Expanded Cultural Resources Analysis
    - Appendix I-1: Expanded Public Health and Safety Analysis
    - Appendix J-1: Expanded Traffic and Circulation Analysis
    - Appendix K-1: Expanded Air Quality Analysis

- Appendix L-1: Expanded Noise Analysis
- Appendix M-1: Expanded Agricultural Resources Analysis
- Appendix N-1: Expanded Visual Resources Analysis
- Appendix O-1: Expanded Environmental Justice Analysis

5.1 - LAND USE AND PLANNING

5.1.1 - Introduction

This section provides an analysis of land use and planning based on extensive analysis performed in the Expanded Land Use and Planning Analysis found in Appendix C-1. The Expanded section utilized numerous resources to conduct the analysis, including the 2004 San Luis Obispo County General Plan and the Local Coastal Program Policy Document, as well as others.

5.1.2 - Environmental Setting

Regional Conditions

Land use decisions for the Community of Los Osos are identified in the Estero Area Plan. This plan gives high priority to maintenance of the watershed/estuary, coastal access, and preservation of scenic vistas. Consequently, there is an emphasis on retention of agricultural lands for both their water filtering and scenic value.

5.1.3 - Regulatory Setting

This section of the Draft EIR focuses on the project’s consistency with applicable County of San Luis Obispo Land Use Element goals and policies and Land Use Ordinance. The portions of the County of San Luis Obispo Land Use Element that apply to the Los Osos Community include the Estero Area Plan, the Framework for Planning Coastal Zone, and Coastal Plan Policies. The Land Use Ordinance that applies to the Los Osos Community is the Coastal Zone Land Use Ordinance. Other applicable General Plan goals and policies as well as applicable regional plans are discussed in other Expanded Analyses and portions of Section 5 of the Draft EIR.

5.1.4 - Thresholds of Significance

According to the CEQA Guidelines’ Appendix G Environmental Checklist, to determine whether land use and planning impacts are significant environmental effects, the following questions are analyzed and evaluated. Would the project:

a.) Physically divide an established community?

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

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

The above threshold regarding a conflict with applicable plans, policies, and regulations that are not related to land use is discussed within those portions of Section 5 of this Draft EIR that analyze those environmental issues; and therefore is not addressed below in Section 5.1.5, Impacts and Mitigation Measures. In addition, the above threshold regarding a conflict with any applicable habitat conservation plan or natural communities conservation plan is addressed in Section 5.3, Biological Resources, of this Draft EIR, and therefore, is not addressed below in Section 5.1.5, Analysis.

5.1.5 - Level of Significance Prior to Mitigation

All impacts associated with land use for each of the proposed projects (project-specific as well as cumulative) were found to be less than significant.

5.1.6 - Analysis

Because all impacts associated with land use for each of the proposed projects are less than significant, no further discussion is provided. The analysis and rationale for determining a less than significant or no impact for each of the thresholds of significance can be found in Appendix C-1.

5.1.7 - Mitigation Measures

No mitigation measures are required.

5.1.8 - Level of Significance After Mitigation

Project Specific

Proposed Projects 1 Through 4

Less than significant.

Cumulative

Proposed Projects 1 Through 4

No impact.

5.2 - GROUNDWATER RESOURCES

This section provides an analysis of groundwater quality and water supply based on extensive analysis performed in Expanded Groundwater Resources Analysis found in Appendix D-1. The Expanded Analysis was based on a Hydrological Impacts Study prepared for the project as well as Land Use Element of the County's General Plan and the Local Coastal Program Policy document.

5.2.1 - Environmental Setting

Los Osos Valley Groundwater Basin

The Los Osos Valley Groundwater Basin (Los Osos Basin) is an east/west trending syncline comprised of Tertiary and Quaternary age sediments that lie on top of Miocene and Jurassic age bedrock of the Pismo and Franciscan Formations, respectively.

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. Basin sediments are believed to extend close to three miles offshore, however the fresh water portion of the basin is defined by the saltwater/fresh water interface which has moved onshore.

Permeable basin sediments that comprise the shallow and deep aquifer zones consist of alluvial deposits, sand dunes, the Paso Robles Formation, and the Careaga Formation. In the deepest portions of the basin the fresh water-bearing deposits extend to depths of approximately 700 feet below sea level. Previous studies have identified six aquifer zones in the Los Osos Basin which include the unconfined alluvial aquifer in the Los Osos Creek Valley, and 5 interbedded aquifer zones designated in previous reports as Zones A through E. The aquifer zones include; (1) the unconfined perched aquifer (Zone A), (2) the upper transitional aquifer (Zone B), (3) the upper main supply aquifer (Zone C), and the lower aquifers (Zones D and E). The upper and lower aquifer systems are separated by a regional aquitard that averages approximately 50 feet in thickness. Details of the groundwater basin geometry and hydrogeology are discussed in detail in Appendix D-1.

Recent studies have discovered that the aquitard is permeable enough to allow a substantial amount of groundwater to move between the upper and lower aquifer zones. 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 recharge component to the lower aquifer system. In addition, recent hydraulic testing of the aquifer system, correlation of well geophysical logs, water quality analyses, and model simulation results indicate that either the Los Osos Fault Strand B does not exist or it is not an effective barrier to groundwater flow. These findings are considered a refinement to the understanding of the groundwater system.

Groundwater Occurrence and Movement

The majority of the recharge to 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,
- Subsurface inflow across basin boundaries.

Within the basin, individual aquifer zones may receive recharge directly from the above sources, or indirectly from aquitard leakage that allows inflow from an overlying or underlying aquifer zone. Movement of groundwater within alluvial, perched, and upper aquifer zones has been inferred from the groundwater gradients obtained from contouring historical measurements of groundwater elevations across the basin. Historical seasonal and climatic water level changes are indicated by hydrographs of water level measurements from wells constructed in individual aquifer zones across the basin.

Please refer to Appendix D-1 for a complete discussion of the various aquifers located in the project area.

Aquifer Recharge

Upper Aquifer Recharge

Historical groundwater study has identified that the main water supply aquifer zone (C Zone) is recharged primarily by sources that include; (1) precipitation, (2) irrigation return flows, (3) septic system percolation, (4) vertical leakage through the confining clay, and (5) subsurface inflow from the A and B Zones, the creek valley alluvium, and underlying bedrock. The basin model utilized for the seawater intrusion study has been subsequently revised to include changes in basin conditions that have occurred since 2005 (i.e., shifts in pumping patterns).

Direct percolation of precipitation and irrigation return flows is estimated at approximately 1,490 AFY. Septage return flow is estimated to contribute approximately 631 AFY and groundwater leakage through the perching clay layer is approximately 375 AFY. Subsurface inflow from the shallower A and B Zones aquifer, the creek compartment, and underlying bedrock is about 625 AFY.

Lower Aquifer Recharge

When groundwater is extracted from the lower aquifers, four potential sources of recharge are available for replenishment. These sources are: (1) subsurface inflow from underlying bedrock, and (2) the Los Osos Creek Valley, (3) leakage through the regional aquitard from the upper aquifer, and (4) seawater. Recent studies have combined the use of water quality characterization, water level information, metered and estimated groundwater production, and basin geometry and boundary conditions to investigate the sources of lower aquifer recharge. These studies have utilized both analytical and numerical methods of analysis.

Numerical groundwater models constructed for the groundwater basin have consistently shown that the main source of recharge to the lower aquifer was leakage from the upper aquifer through the regional aquitard. This conclusion has reportedly been supported by water quality characterization and radiocarbon age-dating of the groundwater. Under current basin conditions recharge to the lower aquifers west of the Los Osos Creek Valley is estimated to include 880 AFY of upper aquifer leakage through the regional aquitard, 370 AFY subsurface inflow from the Creek Valley Alluvial Aquifer (creek compartment), 470 AFY of seawater intrusion, and that recharge from underlying bedrock is negligible.

Groundwater Discharge

Groundwater Production

Groundwater production by pumpers in the Los Osos Basin has averaged approximately 3,500 AFY since 1985 and has remained relatively constant since implementation of the 1983 building moratorium. While purveyor production can be provided by actual meter readings, private domestic and agricultural irrigation production has historically been estimated from land use information.

Natural Groundwater Discharges

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 has been observed but remains largely unquantified by historical monitoring programs. These features are also believed to be in part supported by groundwater recharge that is provided from rainfall runoff which is retained on-site and percolated into the groundwater system by recent developments that include the Williams Bros. shopping center, the commercial uses near the post office, Bayridge Estates, and Vista de Oro and Cabrillo Estates. Please refer to Appendix D-1 for a complete discussion of groundwater discharge.

Sea Water Intrusion

A fresh water head of approximately 5 feet would be needed to prevent the seawater interface from moving onshore within the lowest zones of the upper aquifer. Similarly, a fresh water head of approximately 9 and 17.5 feet would be required to prevent landward movement of the seawater interface in lower aquifer D Zone and E Zone, respectively. At the present time, only upper aquifer water level elevations are sufficient to prevent seawater intrusion.

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. The study also found that seawater intrusion in lower aquifer D Zone has advanced at an average rate of 60 feet per year between 1985 and 2005, and is approximately located between Pecho Road and Doris Avenue. Seawater intrusion in lower aquifer E Zone was found to have advanced at an average rate of 54 feet per year between 1977 and 2005, and is approximately located between Broderson Avenue and Palisades Avenue.

Groundwater Quality

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). Historical studies have documented the quality of groundwater in the Los Osos Basin that is delineated by aquifer zone. The following sections provide a summary of the existing total dissolved solids and nitrate concentrations in the Los Osos Wastewater Project (LOWWP) area.

Salts

Historical data indicate that the chemical character of water in the lower aquifers is predominantly magnesium-calcium/magnesium-calcium bicarbonate, with an average total dissolved solids (TDS) concentration of 340 milligrams per liter (mg/l). Seawater intrusion in the western coastal portion of the basin has changed the lower aquifer quality from bicarbonate to chloride anion dominance.

The Los Osos Creek Valley groundwater is characteristically magnesium-calcium bicarbonate with TDS concentrations on the order of 520 mg/l. Historical groundwater quality from bedrock sources is generally magnesium-calcium bicarbonate with a median TDS concentration of 470 mg/l.

The chemical character of groundwater in the upper aquifers is generally sodium magnesium chloride-bicarbonate water. The areas of the basin with higher TDS concentrations in shallow groundwater have been found to correspond roughly to some of the areas of higher NO_3-N (nitrate) concentrations. This may result from brine reject from domestic water softeners or other normal salt loading from domestic water use that is subsequently discharged from septic disposal systems. The range of TDS in the shallow groundwater is generally between 200 and 400 mg/l, with a low of 67 mg/l along South Bay Boulevard and a high of 1,100 mg/l beneath Sunset Terrace.

Nitrate

Sample results from previous basin studies show that Nitrate concentrations measured in dedicated monitoring wells range from less than 1 mg/l to 28 mg/l with an overall average of 10 mg/l (NO_3-N).

There is an isolated area of low nitrate concentrations that is inferred to extend across the open space west of the South Bay Community Library where considerable surface runoff percolates to groundwater. The nitrate concentrations are inferred to decrease at the bay front and to the east, across South Bay Boulevard. Nitrates and other conservative constituents of basin return flows present in the upper aquifer that do not flow out into the bay or into other surface drainage courses will ultimately reach the lower aquifer. The total nitrogen in shallow groundwater samples often contained forms of nitrogen other than nitrate which included ammonia and organic nitrogen that are inferred to be contributed from septage return flows.

5.2.2 - Regulatory Setting

Numerous federal, state, and local laws and policies govern water quality. These include the Clean Water Act, California's Porter-Cologne Water Quality Control Act, California Environmental Quality Act, Water Quality Control Plan for the Central Coast Region, San Luis Obispo County General Plan, Local Coastal Program, and Coastal Zone Land Use Ordinance. For a complete discussion of the aforementioned, please refer to Appendix D-1.

5.2.3 - Thresholds of Significance

According to the CEQA Guidelines' Appendix G Environmental Checklist, to determine whether impacts to water supply and groundwater quality are significant environmental effects, the following questions are analyzed and evaluated.

For Hydrology and Water Quality Environmental Issues, would the project:

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

b. Otherwise substantially degrade water quality?

c. Conflict with local programs or policies related to groundwater quality or water supply?

5.2.4 - Level of Significance Prior to Mitigation

All impacts associated with groundwater quality and water supply for each of the proposed projects (project-specific as well as cumulative) were found to be Less Than Significant in Appendix D-1, this issue will not be discussed further. The analysis and rationale for determining a Less Than Significant or No Impact for each of the thresholds of significance can be found in Appendix D-1.

5.2.5 - Mitigation Measures

No mitigation measures are required.

5.2.6 - Level of Significance After Mitigation

Project Specific

Proposed Projects 1 Through 4

Less than significant.

Cumulative

Proposed Projects 1 Through 4

Less than significant.

5.3 - DRAINAGE AND SURFACE WATER QUALITY

This section provides an analysis of surface water quality, drainage, flooding, and water quality based on extensive analysis performed in Expanded Drainage and Surface Water Quality Analysis found in Appendix E-1. It also addresses certain utility service items that pertain to wastewater quality. The Expanded section utilized numerous resources to conduct the analysis. A complete list of resources used to prepare this section can be found in Appendix E-1.

5.3.1 - Environmental Setting

Background

Environmental Regional and Local Conditions.

Regional and Local Hydrology and Drainage

Los Osos/Baywood Park is located within the Central California Coastal Watershed. Nine watersheds cross San Luis Obispo County. The community of Los Osos-Baywood Park (together with the communities of San Luis Obispo, Cambria, and Oceano) is located within the Central Coastal watershed (United States Geological Survey [USGS] Hydrological Unit 18060006). Within this watershed, Los Osos Creek is located within the Estero Bay Sub-Hydrologic Unit number 310.

Annual average precipitation in the region is 17.62 inches, with average highs of 3.69 inches in February, and 0.03 inches in July. Rainfall increases further inland (the average annual precipitation at the San Luis Obispo Polytech rain gauge, located approximately 7 miles to the southeast, is 23.3 inches).

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.

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.

Regional and Local Stormwater Runoff

The definition of stormwater runoff is the amount of surface water produced from melted snow and precipitation, measured after evaporation, evapotranspiration, and percolation.

Flow paths of stormwater within the region are identified with separate geographical Hydrologic Sub-units. Within the Estero Bay unit, stormwater runoff originates from the communities of Oceano

(Arroyo Grande Creek and Meadow Creek), the urban fringe of San Luis Obispo (Perfumo Creek, Froom Creek, San Luis Obispo Creek), Cambria (Santa Rosa Creek, Monterey Bay National Marine Sanctuary), and the community of Los Osos (Los Osos Creek, Morro Bay).

Regional and Local Surface Water Quality

The 2006 Clean Water Act (CWA) Section 303(d) list of limited water quality segments indicates that thirteen of the 114 impaired water bodies in the Central Coastal Regional Water Quality Control Board (RWQCB) region are located within the Estero Bay Sub-Hydrologic Unit, ten of which are impaired due to pathogens. The source of pathogens within Chorro Creek is identified as agriculture; the source for Morro Bay is identified as upland range grazing, septage disposal, and urban runoff. Although livestock can be a source of pathogens, the Central Coast RWQCB principally describes the sources as unidentified.

Regional and Local Flooding

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 Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) identified regions that are adjacent to Los Osos Creek and Warden Creek within and adjacent to the community of Los Osos as being inundated during a 100-year storm.

The April 1998 County study titled Preliminary Engineering Evaluation, Los Osos/Baywood Park Community Drainage Project, County Service Area No. 9J, concluded that natural sumps cause much of the flooding in Los Osos. Sumps are small pits into which water can drain and which lack outlets. These exist in the region adjacent to Morro Bay due to the sandy soil. Whereas sumps usually drain naturally, that capacity has been reduced during the past two decades due to the diminished number of permeable regions caused by development, and due to rising groundwater levels. The study recommended constructing a community drainage system that would consist of surface improvements such as curbs, gutters, and pavements, as well as storm drains.

Project Site Conditions

Site Hydrology and Drainage

Stormwater runoff from the Cemetery, Giacomazzi, and Branin sites generally flows north and east into nearby Warden Creek and Warden Creek wetlands. Runoff on the Tonini site generally flows south and east to enter two drainages designated on site as Drainage T-1, and Drainage T-2, both of which are tributaries to Warden Creek.

Site Water Quality

The proposed projects sites are, or historically have 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. Cattle within a fenced region of the northwest portion of the Tonini site have denuded the grasslands immediately adjacent to Drainage T-1, destroyed the associated wetland vegetation, and have polluted surface waters within this drainage.

Site Flooding

For all proposed projects, the main raw wastewater collection pipeline and treated effluent conveyance pipeline would cross Los Osos Creek, which is located within the 100-year flood hazard area. Additionally, for all projects at least one of these conveyance pipelines would cross Warden Creek, which is also located within the 100-year flood hazard area.

None of the proposed treatment plant sites are located directly within a 100-year flood hazard area. However, for Proposed Projects 1, 2, and 3, the location of the treatment plant sites on the Giacomazzi and Branin properties are located in proximity to (within several hundred feet) the Warden Creek 100-year flood hazard area.

Site Wetlands and Streams

For all proposed projects, the raw wastewater collection pipeline and the treated effluent conveyance pipeline would cross Los Osos Creek and its associated, adjacent wetlands. For all projects at least one of these conveyance pipelines would cross Warden Creek (which does not have wetlands at the location of the crossing).

None of the proposed treatment plant sites would require that a wetland or stream be temporarily or permanently impacted (filled). For Proposed Projects 1, 2, and 3, the location of the treatment plant sites on the Giacomazzi and Branin properties are located in proximity to (within several hundred feet) of Warden Creek and Warden Creek wetland. For Proposed Project 4, the location of the treatment plant site on the Tonini property is located in proximity to (but greater than 100 feet away from) Drainage T-1 and Drainage T-2.

5.3.2 - Regulatory Setting

Each of the proposed projects will be subject to numerous federal, state, and local regulations aimed at protecting and improving water quality and reducing flooding hazards. The proposed projects are subject to the following laws and policy documents. See Appendix E-1 for a detailed discussion of each the following:

- San Luis Obispo County General Plan
- Coastal Zone Land Use Ordinance
- Coastal Zone Land Use Elements
- Coastal Plan Policies
- Los Osos/Baywood Park Community Services District Storm Water Management Plan
- Federal Water Pollution Control Act, or Clean Water Act (§§ 404 and 401)
- California Fish and Game Code Section 1602

- State Water Resources Control Board General Construction Permit
- National Pollutant Discharge Elimination System Permits

5.3.3 - Thresholds of Significance

According to the CEQA Guidelines' Appendix G Environmental Checklist, to determine whether impacts to drainage and surface water quality are significant environmental effects, the following questions are analyzed and evaluated. The alphabetic character preceding the question in the list below corresponds to that used by the CEQA Checklist for these environmental issues.

For Hydrology and Water Quality Environmental Issues:

Would the project:

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

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

d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

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

f. Otherwise substantially degrade water quality?

g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

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

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

j. Inundation by seiche, tsunami, or mudflow?

For Utilities and Service Systems Environmental Issues:

Would the project:

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

c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

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

5.3.4 - Level of Significance Prior to Mitigation

All impacts associated with drainage and surface water quality for each of the proposed projects (project-specific as well as cumulative) were found to be Less Than Significant in Appendix E-1, this issue will not be discussed further. The analysis and rationale for determining a Less Than Significant or No Impact for each of the thresholds of significance can be found in Appendix E-1.

5.3.5 - Mitigation Measures

No mitigation measures are required.

5.3.6 - Level of Significance After Mitigation

Project Specific

Proposed Projects 1 Through 4

Less than significant.

Cumulative

No impact.

5.4 - GEOLOGY

5.4.1 - Introduction

This section provides an analysis of geology and soils based on extensive analysis performed in the Expanded Geology Analysis found in Appendix F-1. The Expanded section utilized a geotechnical report and a viable project alternative screening analysis prepared for the project. A complete list of resources used to prepare this section can be found in Appendix F-1.

5.4.2 - Environmental Setting

Geologic Setting

The project is located in the Los Osos Valley and within the Coast Ranges geologic and geomorphic province. The province consists of north-northwest-trending sedimentary, volcanic, and igneous rocks extending from the Transverse ranges to the south into northern California. Rocks of the Coast Ranges province are predominantly of Jurassic and Cretaceous age; however, some pre-Jurassic, along with Paleocene-age to Recent rocks are present.

The Los Osos Valley and adjacent Irish Hills are the dominant geomorphic features within the project vicinity. The Los Osos Valley has formed in response to several tectonic processes that began prior to Pliocene time (more than 5 million years ago). Prior to the Pliocene, the bedrock strata in the Los Osos areas was folded into an east-west trending syncline (U-shaped fold) that has subsequently been filled with up to 1,000 feet of sediment during the Pliocene and Pleistocene periods. Concurrent with that deposition was uplift along the east-west striking Los Osos fault that forms the boundary between the Los Osos Basin and Adjacent Irish Hills.

The predominant geologic units exposed in the study area as surficial sediments comprised of dune sand deposits (Qs) and alluvium (Qal), and outcrops of Paso Robles Formation (Qpr) and Franciscan Formation. The Franciscan Formation materials are composed of greywacke (KJfg), metavolcanics (KJfmv), and mélange (KJfm). The dune sand (Qs) is referred to as eolian deposits (Qe). The alluvial sediments are associates with the Los Osos Creek, the floor of the Los Osos Valley, and Warden Lake. Surficial sediments are primarily composed of weakly consolidated units of the age-equivalent of Paso Robles Formation and Careaga Sandstone (Tca). The Paso Robles Formation and Careaga Formation are underlain by relatively impermeable basement rocks composed of Franciscan greywacke and metavolcanics; Pismo Formation (Tp) shale; and Cretaceous-age dacitic (Td) intrusives. Units of the Pismo Formation (Tpm) and Franciscan Formation (KJfm, KJfmv, KJfg) are exposed on the Irish Hills south of Los Osos.

Faulting

The majority of the faults within the Coast Ranges province and the Sierra de Salinas belt generally trend north-northwest. The California Geological Survey (CGS), formerly the California Division of Mines and Geology, considers major faulting within the project vicinity to include the Los Osos

Fault, San Simeon Fault, and the San Andreas Fault. The CGS fault database consists of active and potentially active faults that are considered by the CGS to be capable of affecting regional seismicity in California.

The fault search routine in FRISKSP was used to identify active and potentially active mapped faults and fault segments within a 62-mile radius of the project vicinity. They include: Los Osos, Hosgri, San Luis Range (S. Margin), Rinconada, Casmalia (Orcut Frontal Fault), Lions Head, San Juan, San Adreas (Cholame), and Los Alamos.

Geologic Units

The following is a list of general subsurface conditions mapped within the sites proposed to include facilities: Dune Sand Deposits (Qs), Alluvium (Qal), Paso Robles Formation (Qpr), and Franciscan Formation metavolcanics (KJfmv) and mélange (KJfm). Each of these units is discussed in detail in Appendix F-1.

Groundwater Conditions

Groundwater depths range from approximately near or at the ground surface to greater than 80 feet below the existing ground surface west of Los Osos Creek. Based on a boring drilled on Doris Avenue in the west-central portion of the Community of Los Osos, groundwater conditions in areas near Morro Bay appear to be influenced by tidal changes. Groundwater ranging in depths from 30 to 48 feet below the existing ground surface were recorded within the limits of the Cemetery, Giacomazzi, and Branin properties. During an exploration located east of the Cemetery, Giacomazzi, and Branin properties in 2004; groundwater was not recorded in any of the explorations advanced to depths ranging from 20 to 60 feet. However, vegetation suggestive of groundwater seeps/near surface groundwater was observed on the northeast-facing slope above the Warden Lake area, although active seeping was not observed in a 2008 reconnaissance. Based on published mapping, the Warden Lake area can be a marshy environment and has contained surface water in the past.

For a complete discussion of the environmental setting from a regional, local, and project site perspective, please refer to Appendix F-1.

5.4.3 - Regulatory Setting

California Building Code

The latest version of the California Building Code (CBC) is the 2007 edition. The CBC contains general building design and construction requirements relating to fire and life safety, structural safety, and access compliance. CBC provisions provide minimum standards to safeguard life or limb, health, property and public welfare by regulating and controlling design, construction, quality of materials, use and occupancy, location and maintenance of all buildings and structures, and certain equipment.

Alquist-Priolo Earthquake Fault Zoning Act

In 1975, the Alquist-Priolo Earthquake Fault Zoning Act was enacted with an amendment made in 1993. Its intent was to provide policies and criteria to assist cities, counties, and state agencies in exercising their responsibility to prohibit the location of development and structures for human occupancy across the trace of active faults. Further, it is the intent of this Act to provide the citizens of the state with increased safety and to minimize the loss of life during and immediately following earthquakes.

5.4.4 - Thresholds of Significance

In accordance with CEQA, the effects of a project are evaluated to determine if they will result in significant adverse impact on the environment. The criteria used to determine the significance of an impact to geology and soils are based on the initial study checklist in Appendix G of the CEQA Guidelines. Accordingly, geology and soils impacts resulting from the proposed project are considered significant through application of the following thresholds of significance:

Would the project:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
    - Rupture a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?
    - Strong seismic ground shaking?
    - Seismic-related ground failure, including liquefaction?
    - Landslides?
    - Result in substantial soil erosion or the loss of topsoil?
    - Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?
    - Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?
    - Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

5.4.5 - Level of Significance Prior to Mitigation

Less Than Significant or No Impacts were found related to the project being susceptible to fault rupture and landslides. These issues will not be discussed further. The complete analysis and rationale for determining a Less Than Significant or No Impact for each of the thresholds of significance can be found in Appendix F-1. Table 5.4-1 is a summary of Geology Significance Determination and provides a quick reference for items of No Impact, Less Than Significant Impact, and Potentially Significant Impact (for which mitigation measures are proposed).

Table 5.4-1: Geology Significance Determination

PS - Potentially Significant; LTS - Less Than Significant; NI - No Impact					
	Project 1	**Project 2**	**Project 3**	**Project 4**	**Cumulative**
Collection					
Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:					
Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	NI	NI	NI	NI	NI
Strong seismic ground shaking?	**PS**	**PS**	**PS**	**PS**	**PS**
Seismic-related ground failure, including liquefaction?	**PS**	**PS**	**PS**	**PS**	**PS**
Landslides?	NI	NI	NI	NI	NI
Would the project result in substantial soil erosion or the loss of topsoil?	**PS**	**PS**	**PS**	**PS**	**PS**
Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	**PS**	**PS**	**PS**	**PS**	**PS**
Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	**PS**	**PS**	**PS**	**PS**	**PS**
Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	**PS**	NI	NI	NI	NI
Treatment					
Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:					
Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	NI	NI	NI	NI	NI
Strong seismic ground shaking?	**PS**	**PS**	**PS**	**PS**	**PS**
Seismic-related ground failure, including liquefaction?	**PS**	**PS**	**PS**	**PS**	**PS**
Landslides?	NI	NI	NI	NI	NI

Table 5.4-1 (Cont.): Geology Significance Determination

PS - Potentially Significant; LTS - Less Than Significant; NI - No Impact					
	Project 1	**Project 2**	**Project 3**	**Project 4**	**Cumulative**
Would the project result in substantial soil erosion or the loss of topsoil?	**PS**	**PS**	**PS**	**PS**	**PS**
Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	**PS**	**PS**	**PS**	**PS**	**PS**
Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	**PS**	**PS**	**PS**	**PS**	**PS**
Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	NI	NI	NI	NI	NI
Disposal					
Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:					
Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	NI	NI	NI	NI	NI
Strong seismic ground shaking?	**PS**	**PS**	**PS**	**PS**	**PS**
Seismic-related ground failure, including liquefaction?	LTS	LTS	LTS	LTS	**PS**
Landslides?	NI	NI	NI	NI	NI
Would the project result in substantial soil erosion or the loss of topsoil?	**PS**	**PS**	**PS**	**PS**	**PS**
Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	**PS**	**PS**	**PS**	**PS**	**PS**
Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	LTS	LTS	LTS	LTS	LTS
Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	NI	NI	NI	NI	NI

Table 5.4-1 (Cont.): Geology Significance Determination

PS - Potentially Significant; LTS - Less Than Significant; NI - No Impact					
	Project 1	Project 2	Project 3	Project 4	Cumulative
Combined Project					
Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:					
Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?	NI	NI	NI	NI	NI
Strong seismic ground shaking?	**PS**	**PS**	**PS**	**PS**	**PS**
Seismic-related ground failure, including liquefaction?	**PS**	**PS**	**PS**	**PS**	**PS**
Landslides?	NI	NI	NI	NI	NI
Would the project result in substantial soil erosion or the loss of topsoil?	**PS**	**PS**	**PS**	**PS**	**PS**
Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	**PS**	**PS**	**PS**	**PS**	**PS**
Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	**PS**	**PS**	**PS**	**PS**	**PS**
Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	**PS**	NI	NI	NI	NI

Seismic Ground Shaking

Impact 5.4-B:	**The project could expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving a strong seismic ground-shaking.**

Project-Specific Analysis

Proposed Project 1

Strong seismic ground shaking can occur in response to local or regional earthquakes. The sites under Proposed Project 1 are located within a seismically active area, and the potential exists for strong ground motion to affect the proposed facilities at the sites under Proposed Project 1 during the design lifetime. In general, the primary effects will be those phenomena associated with shaking and/or ground acceleration. Given that it is likely for the proposed facilities to be impacted by strong ground motion, potential seismic ground shaking impacts are considered significant.

Proposed Project 2

The potential for strong seismic ground shaking to impact the proposed facilities for Proposed Project 2 would be the same as described above for Proposed Project 1.

Proposed Project 3

The potential for strong seismic ground shaking to impact the proposed facilities for Proposed Project 3 would be the same as described above for Proposed Project 1.

Proposed Project 4

The potential for strong seismic ground shaking to impact the proposed facilities for Proposed Project 4 would be the same as described above for Proposed Project 1.

Cumulative Impact Analysis

Proposed Project 1

Implementation of Proposed Project 1 may contribute to cumulative ground shaking impacts on people and/or structures. Therefore, Proposed Project 1 may contribute to cumulative fault rupture impacts; and this contribution is considered cumulatively considerable, therefore, significant.

Proposed Project 2

The contribution to cumulative ground shaking impacts from implementation of Proposed Project 2 would be the same as described for Proposed Project 1.

Proposed Project 3

The contribution to cumulative ground shaking impacts from implementation of Proposed Project 3 would be the same as described for Proposed Project 1.

Proposed Project 4

The contribution to cumulative ground shaking impacts from implementation of Proposed Project 4 would be the same as described for Proposed Project 1.

Seismic-Related Ground Failure

Impact 5.4-C:	**The project may expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving seismic-related ground failure, including liquefaction.**

Project-Specific Analysis

Proposed Project 1

Collection System

Loose sand blankets are located within the upper 5 to 10 feet of ground surface area over most of the collection system area. Portions of the collection system network traverse areas having a relatively high potential for liquefaction. The potential for liquefaction and seismic settlement to impact pipelines may be governed by the depth of the pipeline relative to the depth of liquefiable soils. The proposed collection system for Proposed Project 1 may experience significant liquefaction impacts. Furthermore, this potential significant impact could result in pipeline breaks and release of untreated and/or treated effluent along the proposed collection/conveyance system, including within Los Osos Creek and Warden Creek.

Treatment Plant Site

Based on an investigation of the treatment plant site that encompasses Cemetery, Giacomazzi and Branin properties, materials of undifferentiated Paso Robles Formation and/or alluvium were encountered. The upper 3 to 4 feet of materials appeared to be relatively loose/soft and likely represent topsoil/colluvial materials disturbed during previous agricultural/plowing activities. There appears to be a low potential for liquefaction to impact these sites based on currently available information. Although the potential is low, the proposed facilities at the treatment plant site may experience significant liquefaction impacts.

Disposal Sites

The spray field irrigation at Tonini would have little impact on the potential for liquefaction. Should liquefaction occur at the site, it is unlikely that the occurrence of liquefaction would impact the suitability of the site for spray irrigation.

The proposed effluent system at Broderson would be located on a relatively gently sloping hillside approximately 1,200 feet south of Highland Avenue. Based on previous investigations, the depth to groundwater is greater than 100 feet below the existing ground surface and except for the near-surface loose dune sand deposits, the deeper soils encountered beneath the site are generally dense and not susceptible to liquefaction or seismic settlement. The near-surface loose dune sand would not be considered potentially liquefiable.

Combined Effects

As discussed above, there are facilities that are part of Proposed Project 1 that may experience significant liquefaction impacts. Therefore, the combined liquefaction impacts are considered significant.

Proposed Project 2

Collection System

The potential for liquefaction to impact the proposed collection system facilities for Proposed Project 2 would be the same as described above for Proposed Project 1.

Treatment Plant Site

The potential for liquefaction to impact the proposed facilities at the treatment plant site for Proposed Project 2 would be the same as described above for Proposed Project 1.

Disposal System

The determination of no potential for liquefaction to impact the proposed disposal facilities for Proposed Project 2 would be the same as described above for Proposed Project 1.

Combined Effects

As discussed above, there are facilities that are part of Proposed Project 2 that may experience significant liquefaction impacts. Therefore, the combined liquefaction impacts are considered significant.

Proposed Project 3

Collection System

The potential for liquefaction to impact the proposed collection system facilities for Proposed Project 3 would be the same as described above for Proposed Project 1.

Treatment Plant Site

The potential for liquefaction to impact the proposed facilities at the treatment plant site for Proposed Project 3 would be the same as described above for Proposed Project 1.

Disposal System

The determination of no potential for liquefaction to impact the proposed disposal facilities for Proposed Project 3 would be the same as described above for Proposed Project 1.

Combined Effects

As discussed above, there are facilities that are part of Proposed Project 3 that may experience significant liquefaction impacts. Therefore, the combined liquefaction impacts are considered significant.

Proposed Project 4

Collection System

The potential for liquefaction to impact the proposed collection system facilities for Proposed Project 4 would be the same as described above for Proposed Project 1.

Treatment Plant Site

The lower, generally flat topography of the Tonini site is characterized primarily by alluvium, with queried deposits of dune sand and Paso Robles formation. The slopes along the western and northern portions of the site have been mapped as Franciscan mélange and metavolcanics. During a site visit on May 6, 2008, the presence of alluvial, surficial clayey soils on the generally flat portions of the site, and Franciscan units on the adjacent slopes were noted. As shown on Exhibit 5.4-1, the recent alluvial sediments are considered to have moderate to high potential for liquefaction if groundwater elevations are high. However, the presence of fine-grained cohesive materials within the soil profile suggests a lesser potential for liquefaction and seismic settlement than that typically associated with cohesionless soils. The majority of the Tonini site appears to have relatively shallow soil cover overlying Paso Robles Formation or Franciscan rocks. Due to the potential for liquefaction to occur, the proposed facilities at the treatment plant site may experience significant liquefaction impacts.

Disposal System

The determination of no potential for liquefaction to impact the proposed disposal facilities for Proposed Project 4 would be the same as described above for Proposed Project 1.

Combined Effects

As discussed above, there are facilities that are part of Proposed Project 4 that may experience significant liquefaction impacts. Therefore, the combined liquefaction impacts are considered significant.

Cumulative Impact Analysis

Proposed Project 1

The proposed facilities that are part of the collection system and at the treatment plant site for Proposed Project 1 may expose structures to liquefaction impacts. Therefore, implementation of Proposed Project 1 may contribute to cumulative liquefaction impacts within the vicinity of Los Osos. This contribution is considered cumulatively considerable, therefore, significant.

Proposed Project 2

The contribution to cumulative liquefaction impacts from implementation of the proposed facilities that are part of the collection system and at the treatment plant site for Proposed Project 2 would be the same as described for Proposed Project 1.

Proposed Project 3

The contribution to cumulative liquefaction impacts from implementation of the proposed facilities that are part of the collection system and at the treatment plant site for Proposed Project 3 would be the same as described for Proposed Project 1

Proposed Project 4

The contribution to cumulative liquefaction impacts from implementation of the proposed facilities that are part of the collection system and at the treatment plant site for Proposed Project 4 would be the same as described for Proposed Project 1

Soil Erosion or Loss of Topsoil

Impact 5.4-E: The project could result in substantial soil erosion or the loss of topsoil.

Project-Specific Impact Analysis

Proposed Project 1

The sites of the proposed facilities are located within a relatively flat topography. Construction activities associated with the proposed facilities will result in grading and excavation at the sites and these sites would be prone to erosion. Graded cut and fill slopes associates with the site development will be subject to sheet and rill erosion. Erosion of soils can be accelerated where soils are exposed directly to runoff and/or areas of concentrated storm runoff, such as at culvert outlets. Therefore, construction activities associated with the proposed facilities could result in substantial soil erosion or the loss of topsoil; thus, a significant impact would occur.

Periodic maintenance of the collection system, treatment plant facilities and disposal system could result in temporary increases in the potential for erosion. The periodic maintenance could range from minor maintenance of the pipelines and landscaping to major excavations every 5 to 10 years of the leach field at the Broderson site associated with need to reconstruct the leach field to maintain an effective flowrate. The potential for erosion during periodic maintenance could be significant.

Proposed Project 2

The potential for soil erosion or loss of topsoil to occur from construction and maintenance activities associated with the proposed facilities for Proposed Project 2 would be the same as described above for Proposed Project 1.

Proposed Project 3

The potential for soil erosion or loss of topsoil to occur from construction and maintenance activities associated with the proposed facilities for Proposed Project 3 would be the same as described above for Proposed Project 1.

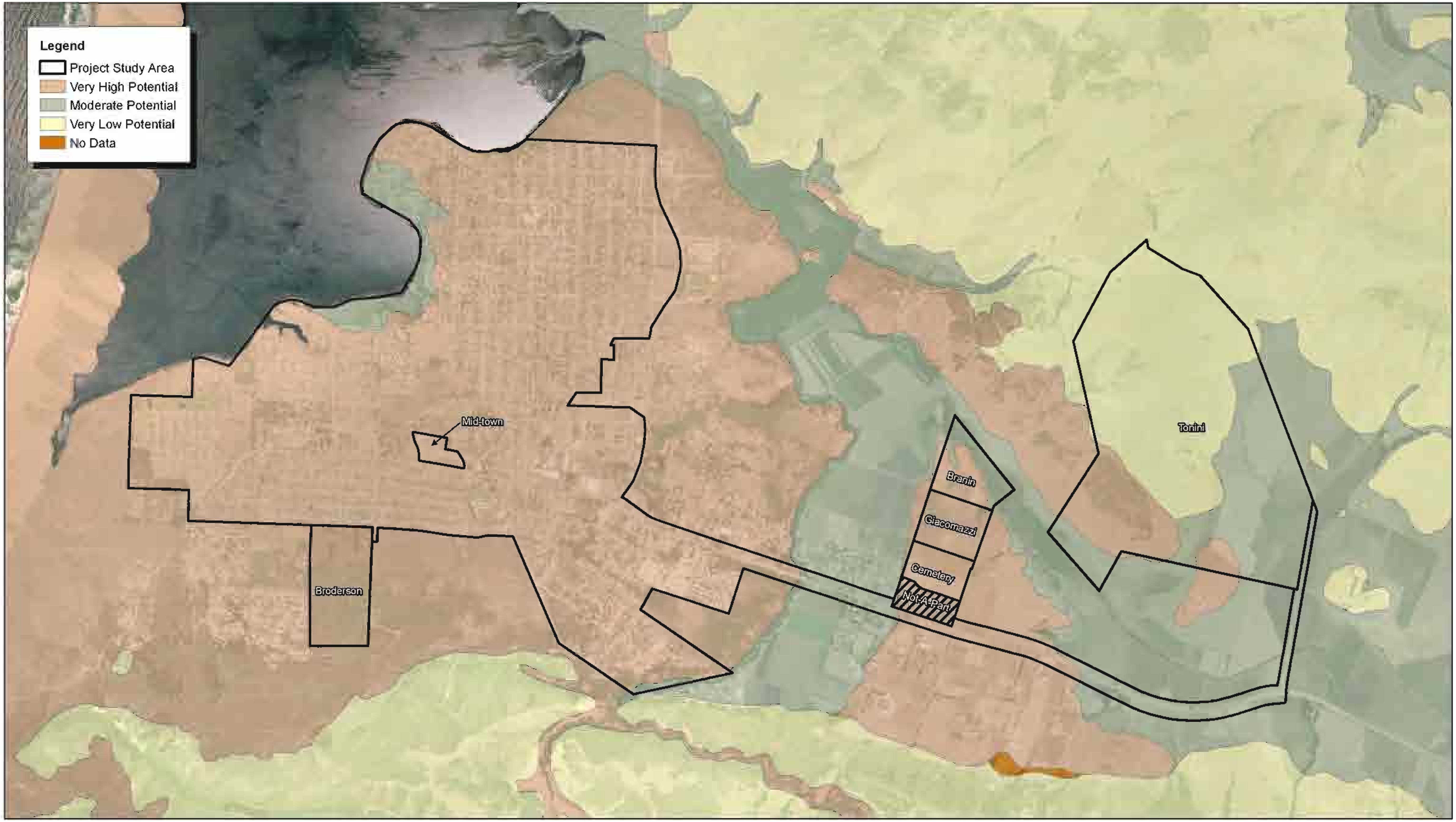
Proposed Project 4

The potential for soil erosion or loss of topsoil to occur from construction and maintenance activities associated with the proposed facilities for Proposed Project 4 would be the same as described above for Proposed Project 1.

Cumulative Impact Analysis

Proposed Project 1

Construction and maintenance activities associated with the facilities that are part of Proposed Project 1 could result in substantial soil erosion or the loss of topsoil. Therefore, implementation of Proposed Project 1 may contribute to cumulative impacts associated with soil erosion or loss of topsoil within the vicinity of Los Osos. This contribution is considered cumulatively considerable, therefore, significant.



Source: AirPhoto USA, San Luis Obispo County GIS Data, and MBA GIS Data.

2,000 1,000 0 2,000
Feet

Michael Brandman Associates

02240002 • 10/2008 | 5.4-1_liquefaction.mxd

Exhibit 5.4-1
Liquefaction Zones

Proposed Project 2

The contribution to cumulative impacts associated with soil erosion or loss of topsoil from construction and maintenance of the proposed facilities that are part of Proposed Project 2 would be the same as described for Proposed Project 1.

Proposed Project 3

The contribution to cumulative impacts associated with soil erosion or loss of topsoil from construction and maintenance of the proposed facilities that are part of Proposed Project 3 would be the same as described for Proposed Project 1.

Proposed Project 4

The contribution to cumulative impacts associated with soil erosion or loss of topsoil from construction and maintenance of the proposed facilities that are part of Proposed Project 4 would be the same as described for Proposed Project 1.

Unstable Geologic Location

Impact 5.4-F:	**The project could be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.**

Project-Specific Impact Analysis

Proposed Project 1

The proposed facilities in Proposed Project 1 may be exposed to unstable soils or geologic units. Lateral spreading is slope instability that can occur in response to liquefaction. Lateral spreading typically develops on ground underlain by liquefiable soils or where free-face conditions can develop in a liquefiable soil, such as along a river bank or drainage. The stream bank areas along Los Osos Creek are likely vulnerable to lateral spreading and could result in a significant impact on the collection system that crosses the creek. No additional lateral spreading impacts have been identified for the other areas of the collection system or the treatment plant site or disposal sites in Proposed Project 1.

The sites of the proposed facilities are not in an area where the withdrawal of subsurface fluids is known to have caused ground subsidence. The greatest potential for subsidence would be if potentially compressible soils were impacted by lowering of the groundwater table during construction dewatering. The buoyancy of the soil above a specific depth decreases as groundwater levels are lowered. Lowering of the groundwater level, therefore, increases the effective weight of the soil above that depth, which can cause the soil to subside (settle) under the increased weight of the ground above it. Although the proposed facilities are not in an area known to cause ground subsidence, there could be some areas where potentially compressible soils could be impacted by lowering of the groundwater table during construction dewatering. This potential for ground subsidence is, therefore, considered significant.

Ground lurching is another potential hazard to be considered. As evidenced by the Loma Prieta, Landers, Northridge, and San Simeon earthquakes, the effects of ground lurching can damage facilities and buried pipelines. Ground lurching occurs due to detachment of underlying stratigraphic units, allowing near-surface soil to move differentially from underlying soil. The site is within a seismically active region of central California that is prone to moderate to large earthquakes. Therefore, there is a potential for significant impacts to occur on the proposed facilities from ground lurching.

Proposed Project 2

The potential for lateral spreading, ground subsidence and ground lurching to impact the proposed facilities for Proposed Project 2 would be the same as described above for Proposed Project 1.

Proposed Project 3

The potential for lateral spreading, ground subsidence and ground lurching to impact the proposed facilities for Proposed Project 3 would be the same as described above for Proposed Project 1.

Proposed Project 4

The potential for lateral spreading, ground subsidence and ground lurching to impact the proposed facilities for Proposed Project 4 would be the same as described above for Proposed Project 1.

Cumulative Impact Analysis

Proposed Project 1

The proposed facilities for Proposed Project 1 may be exposed to unstable soils or geologic unit due to the potential for lateral spreading, ground subsidence, and ground learching. Therefore, implementation of Proposed Project 1 may contribute to cumulative impacts associated with lateral spreading, ground subsidence and ground lurching within the vicinity of Los Osos. This contribution is considered cumulatively considerable, therefore, significant.

Proposed Project 2

The potential for unstable soils or geologic units cumulative impacts associated with Proposed Project 2 would be the same as described above for Proposed Project 1.

Proposed Project 3

The potential for unstable soils or geologic units cumulative impacts associated with Proposed Project 3 would be the same as described above for Proposed Project 1.

Proposed Project 4

The potential for unstable soils or geologic units cumulative impacts associated with Proposed Project 4 would be the same as described above for Proposed Project 1.

Expansive Soil

Impact 5.4-G: The projects would be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.

Project-Specific Impact Analysis

Proposed Project 1

Soils mapped at the Cemetery, Giacomazzi, Branin, and Tonini sites have moderate to high potential for expansion. These soils are characterized as having slow to very slow permeability and high shrink-swell (expansion) potential. After swelling, water infiltration is typically low and surface water is more likely to runoff or pond. The facilities proposed at these sites could be significantly affected by the potential for expansive soil. The soils at the Broderson site have a low potential for expansive soil. Therefore, the potential impact from expansive soils on the proposed facilities at the Broderson site is considered less than significant.

Proposed Project 2

The potential for expansive soil to impact the proposed facilities for Proposed Project 2 would be the same as described above for Proposed Project 1.

Proposed Project 3

The potential for expansive soil to impact the proposed facilities for Proposed Project 3 would be the same as described above for Proposed Project 1.

Proposed Project 4

The potential for expansive soil to impact the proposed facilities for Proposed Project 4 would be the same as described above for Proposed Project 1.

Cumulative Impact Analysis

Proposed Project 1

The facilities proposed as part of the collection system and at the treatment plant site for Proposed Project 1 may be affected by expansive soils. Therefore, implementation of Proposed Project 1 may contribute to cumulative impacts associated with expansive soils within the vicinity of Los Osos. This contribution is considered cumulatively considerable, therefore, significant.

Proposed Project 2

The cumulative potential for expansive soils to impact the proposed facilities for Proposed Project 2 would be the same as described above for Proposed Project 1.

Proposed Project 3

The cumulative potential for expansive soils to impact the proposed facilities for Proposed Project 3 would be the same as described above for Proposed Project 1.

Proposed Project 4

The cumulative potential for expansive soils to impact the proposed facilities for Proposed Project 4 would be the same as described above for Proposed Project 1.

Wastewater Disposal Systems

Impact 5.4-H: **The project would not have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.**

Project-Specific Impact Analysis

Proposed Project 1

Proposed Project 1 includes the use of septic tanks as part of the proposed facilities. The new septic tanks would replace the existing septic tanks that currently provide service to the residents. The existing septic tanks are located in areas that are mapped as low, moderate, and high liquefaction potential. The proposed septic tanks would be generally located in the same area as the existing septic tanks. As identified in Impact 5.4-C, there is a potential for liquefaction to impact the collection system including the septic tanks.

Proposed Projects 2 through 4

There are no impacts to Proposed Projects 2, 3, and 4 because they do not propose the use of septic tanks.

Cumulative Impact Analysis

Proposed Project 1

The soils that are in the area of the proposed septic tanks are capable of adequately supporting the use of septic tanks under Proposed Project 1. Therefore, Proposed Project 1 would result in no cumulative impacts related to soils incapable of adequately supporting septic tanks.

5.4.6 - Mitigation Measures

Table 5.4-2: Geology Proposed Mitigation Measures

Project(s)	Proposed Mitigation Measure(s)- Project-Specific	Effects After Incorporation of Mitigation Measures
5.4-B: The project could expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving a strong seismic ground-shaking.		
1, 2, 3, and 4	**5.4-B1:** Prior to the approval of building plans for each proposed facility, the design of each facility shall be based on a facility-specific geotechnical report prepared by a California registered geotechnical engineer and professional geologist. The geotechnical report shall provide seismic data for use with at least the minimum requirements of the California Building Code (2007), as adopted by the County of San Luis Obispo.	Less Than Significant

Table 5.4-2 (Cont.): Geology Proposed Mitigation Measures

Project(s)	Proposed Mitigation Measure(s)- Project-Specific	Effects After Incorporation of Mitigation Measures
1, 2, 3, and 4	Implementation of Mitigation Measure 5.4-B1 is required.	Less Than Significant
5.4-C: The project may expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving seismic-related ground failure, including liquefaction.		
1, 2, 3, and 4	**5.4-C1:** Prior to approval of the improvement plans for the proposed facilities that are part of the collection system and at the treatment plant site, a geotechnical report that addresses liquefaction hazards shall be prepared and approved by the County of San Luis Obispo. The geotechnical report shall state the recommended actions for the collection system and treatment plant site so that potential impacts from seismically-induced liquefaction would be reduced to less than significant.	Less Than Significant
1, 2, 3, and 4	**5.4-C2:** Prior to approval of improvement plans, an Emergency Response Plan (ERP) shall be prepared as part of the operation and maintenance plan for the proposed collection system. The ERP shall recognize the potential for liquefaction, seismic hazards and ground lurching to impact the pipeline or other proposed facilities, and specific high hazard areas shall be inspected for damage following an earthquake. "Soft Fixes" shall be incorporated in the ERP. Soft Fixes typically consist of having a plan in-place to address the hazards, such as can be achieved by storing supplies and equipment for repair.	Less Than Significant
	Implementation of Mitigation Measures 5.7.B.1, 5.4-C1 and 5.4-C2 are required.	Less Than Significant
5.4-E: The project could result in substantial soil erosion or the loss of topsoil.		
1, 2, 3, and 4	**5.4-E1:** Prior to the approval of grading plans for each facility, erosion control measures shall be incorporated into the grading plans to minimize the potential for erosion or loss of top soil during grading to the satisfaction of the County of San Luis Obispo.	Less Than Significant
1, 2, 3, and 4	**5.4-E2:** Prior to the approval of grading plans for each facility, vegetation/landscaping shall be provided on the graded cut and fill slopes to reduce the long-term potential for soil erosion or loss of topsoil to the satisfaction of the County of San Luis Obispo.	Less Than Significant
1, 2, 3, and 4	**5.4-E3:** Prior to the approval of grading plans for each facility, the plans shall provide for the control of surface water away from slopes to the satisfaction of the County of San Luis Obispo.	Less Than Significant
5.4-F: The project could be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.		
1, 2, 3, and 4	**5.4-F1:** Prior to approval of the improvement plans for the proposed facilities, a geotechnical report that addresses the potential for lateral spreading, ground subsidence, and ground lurching and provides measures to reduce potential impacts to less than significant shall be prepared and approved by the County of San Luis Obispo.	Less Than Significant

Table 5.4-2 (Cont.): Geology Proposed Mitigation Measures

Project(s)	Proposed Mitigation Measure(s)- Project-Specific	Effects After Incorporation of Mitigation Measures
5.4-F: (cont.) **1, 2, 3, and 4**	Implementation of Mitigation Measure 5.4-F1 is required.	Less Than Significant
5.4-G: The projects would be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.		
1, 2, 3, and 4	**5.4-G1:** Prior to approval of improvement and building plans for the proposed collection system facilities and facilities at the treatment plant site, a design-level geotechnical report shall be prepared that addresses and reduces potential expansive soil impacts to less than significant. The expansive soil data shall be used with the requirements of the California Building Code (2007), as adopted by the County of San Luis Obispo.	Less Than Significant
1, 2, 3, and 4	Implementation of Mitigation Measure **5.4-G1** is required.	Less Than Significant
5.4-H: The project would not have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.		
1	Mitigation Measure **5.4-C1** (see above) is required.	Less Than Significant

5.4.7 - Level of Significance After Mitigation

Project-Specific

Proposed Projects 1 Through 4

Less than significant.

Cumulative

Proposed Projects 1 Through 4

Less than significant.

5.5 - BIOLOGICAL RESOURCES

5.5.1 - Introduction

This section provides an analysis of biological resources, including special status species, natural habitats, riverine and wetland resources, wildlife movement corridors and nursery sites, and local policies or ordinances protecting biological resources. The preparation of this section of the Draft EIR was based upon extensive analysis as documented in Appendix G-1, Expanded Biological Resource Analysis. The Expanded Analysis utilized numerous reports, plans, site surveys, ordinances, databases, and previously approved CEQA documents as a basis for its findings. A complete list of resources used to prepare this section are in Appendix G-1, Section 5.5-1. Standard practices were used for the analysis of biological resources that included a preliminary literature review and regulatory setting that establishes a baseline from which to evaluate potentially occurring biological resources on and around the project site, followed by field surveys.

5.5.2 - Environmental Setting

The four proposed projects include three distinct functions: raw wastewater collection, wastewater treatment, and conveyance and disposal of treated effluent. These facilities are all located in and along the eastern outskirts of the community of Los Osos, San Luis Obispo County. The community of Los Osos sits atop an ancient, now stabilized sand dune adjacent to Morro Bay, and lands east of the community are used for agriculture, open space, rural residential, grazing, and farming. For a complete discussion of the environmental setting from a regional, local, and project site perspective, please refer to Appendix G-1 Section 5.5.2 in the Expanded Biological Resources Analysis

Three major drainage features define the region and enter the Los Osos Valley area as tributaries or sub-tributaries to Morro Bay and the Pacific Ocean. These include Chorro Creek, Los Osos Creek, and Warden Creek. The unique ecosystems and resources in the region have given rise to a large number of narrow ranging species that are endemic to the area. A late Pleistocene and Holocene Dune complex overlies the majority of the community of Los Osos and portions of the study area that occur west of Los Osos Creek. These areas overlie young sand dunes along the coast at the beach, middle-aged dunes within the coastal valley, and old dunes at higher elevations and inland areas. These areas contain windblown sand deposits that host a unique ecosystem of dune and coastal scrub communities.

Twelve vegetation communities/habitat types occur within the project study area: Urban/Developed, Disturbed Habitat/Ruderal, Eucalyptus Woodland, Extensive Agriculture, Non-Native Grassland, Coastal Sage Scrub, Central (Lucian) Coastal Scrub, Coast Live Oak Forest, Central Coast Live Oak Riparian Forest, Central Coast Arroyo Willow Riparian Forest, Vernal Marsh, and Freshwater Marsh. For a complete discussion of the environmental setting of the project site and each of the vegetation communities and habitat types that occur on the site, see Appendix G-1 Section 5.5.2 of the Expanded Biological Resources Analysis.

5.5.3 - Special Status Plant Species

Thirty-nine special status plant species were analyzed for their potential to occur within the study area. Twelve of these species were found to either be present, presumed present, or have a high potential to occur on site. These include: Morro manzanita (*Arctostaphylos morroensis*), Monterey spineflower (*Chorizanthe pungens*), Blochman leafy daisy (*Erigeron blochmaniae*), Saint's daisy (*Erigeron sanctarum*), Indian knob mountainbalm (*Eriodictyon altissimum*), San Luis Obispo wallflower (*Erysimum capitatum* ssp. *lompocense*), curly-leafed monardella (*Monardella undulata*), dune almond (*Prunus fasciculate punctata*), non-vascular lichens; spiraled old man's beard (*Bryoria spiralifera*), Los Osos black and white lichen (*Hypogymnia mollis*), long-fringed parmotrema (*Parmotrema hypolecinum*), and splitting yarn lichen (*Sulcaria isidifera*). For a complete discussion of these species their listed status, please refer to Appendix G-1 Section 5.5.3 of the Expanded Biological Resources Analysis.

5.5.4 - Special Status Wildlife Species

Fifty-five special status wildlife species were analyzed for their potential to occur on the project study area. Nine special status wildlife species were determined present, presumed present, or have a high potential to occur within various portions of the survey area based on the results of protocol surveys conducted for the proposed project and best available scientific research that includes the results of recent protocol survey efforts for projects in the area. These species include Cooper's hawk (*Accipiter cooperi*), Monarch butterfly (*Danaus plexippus*), Morro Bay kangaroo rat (*Dipodomys heermanni morroensis*), white-tailed kite (*Elanus leucurus*), Morro shoulderband snail (*Helminthoglypta walkeriana*), southern steelhead (*Oncorhynchus mykiss irideus*), Morro blue butterfly (*Plebejus icariodes moroensis*), California red-legged frog (*Rana aurora draytonii*), and Allen's hummingbird (*Selasphorus sasin*). For a complete discussion of these species their listed status, please refer to Appendix G-1 Section 5.5.4 of the Expanded Biological Resources Analysis.

5.5.5 - Regulatory Setting

Federal Regulations

The principal federal regulations relating to the preservation of biological resources include: the Federal Endangered Species Act, Magnuson-Stevens Fishery Conservation and Management Act, Clean Water Act, and Migratory Bird Treaty Act. For a complete discussion of these regulations, please refer to Appendix G-1 Section 5.5.5 of the Expanded Biological Resources Analysis

State Regulations

The principal regulations required by the state of California for the protection of biological resources and their habitat include the California Environmental Quality Act (CEQA), California Endangered Species Act, California Fish and Game Code, and State Porter-Cologne Water Quality Act. For a complete discussion of these regulations, please refer to Appendix G-1 Section 5.5.5 of the Expanded Biological Resources Analysis.

Local Regulations

The principal regulations required by local agencies include the San Luis Obispo County General Plan (including the Estero Area Plan), Title 23 Coastal Zone Land Use Ordinance, and San Luis Obispo County Local Coastal Program. For a complete discussion of these regulations, please refer to Appendix G-1 Section 5.5.5 of the Expanded Biological Resources Analysis.

5.5.6 - Thresholds of Significance

According to the CEQA Guidelines' Appendix G Environmental Checklist, to determine whether impacts to biological resources are significant environmental effects, the following questions are analyzed and evaluated.

Would the project:

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

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

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

d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of wildlife nursery sites?

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

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

5.5.7 - Level of Significance Prior to Mitigation

No impacts were found related to conflicts with adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan, and this issue will not be discussed further. The complete analysis and rationale for determining a less than significant or no impact for each of the thresholds of significance can be found in Appendix G-1, Expanded Biological Resources Analysis. All other thresholds had a potentially significant impact prior to mitigation for at least one of the proposed projects. See Table 5.5-1 below.

Table 5.5-1: Biological Resources Proposed Mitigation Measures

PS - Potentially Significant; LTS - Less Than Significant; NI - No Impact					
	Project 1	**Project 2**	**Project 3**	**Project 4**	**Cumulative**
Collection					
Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	**PS**	**PS**	**PS**	**PS**	**PS**
Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	**PS**	**PS**	**PS**	**PS**	**PS**
Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	LTS	LTS	LTS	**PS**	**PS**
Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of wildlife nursery sites?	**PS**	**PS**	**PS**	**PS**	**PS**
Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	**PS**	**PS**	**PS**	**PS**	**PS**
Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	NI	NI	NI	NI	NI
Treatment					
Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	**PS**	**PS**	**PS**	**PS**	**PS**
Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	**PS**	**PS**	LTS	**PS**	**PS**
Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	**PS**	**PS**	**PS**	LTS	LTS

Table 5.5-1 (Cont.): Biological Resources Proposed Mitigation Measures

PS - Potentially Significant; LTS - Less Than Significant; NI - No Impact					
	Project 1	**Project 2**	**Project 3**	**Project 4**	**Cumulative**
Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of wildlife nursery sites?	NI	NI	NI	NI	**PS**
Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	**PS**	**PS**	**PS**	NI	**PS**
Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	NI	NI	NI	NI	NI
Disposal					
Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	**PS**	**PS**	**PS**	**PS**	**PS**
Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	NI	NI	NI	NI	NI
Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	LTS	LTS	LTS	LTS	**PS**
Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of wildlife nursery sites?	NI	NI	NI	NI	**PS**
Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	LTS	LTS	LTS	LTS	**PS**
Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	NI	NI	NI	NI	NI

Table 5.5-1 (Cont.): Biological Resources Proposed Mitigation Measures

PS - Potentially Significant; LTS - Less Than Significant; NI - No Impact					
	Project 1	**Project 2**	**Project 3**	**Project 4**	**Cumulative**
Combined Project					
Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	**PS**	**PS**	**PS**	**PS**	**PS**
Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	**PS**	**PS**	**PS**	**PS**	**PS**
Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	**PS**	**PS**	**PS**	**PS**	**PS**
Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of wildlife nursery sites?	**PS**	**PS**	**PS**	**PS**	**PS**
Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	**PS**	**PS**	**PS**	**PS**	**PS**
Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	NI	NI	NI	NI	NI

Special Status Species

5.5-A:	**The project would have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.**

Project-Specific Impact Analysis

Proposed Project 1

Collection System

Short Term Construction Impacts

The STEP/STEG collection system for Proposed Project 1 could result in significant direct and indirect short-term construction impacts to special status species and their habitat. The following provides a project-specific impact analysis of the short-term construction impacts on special status plant and wildlife species and their habitat for the collection system element of Proposed Project 1.

- **Special Status Plant Species**. The entire footprint of the collection system area and west of Los Osos Creek is supported by underlying Baywood fine sand soils. In appropriate undisturbed environments, and in association with stands of native vegetation and natural communities, Baywood fine sand soils are known to provide suitable substrate for numerous special status plant species known to the local area, including the Morro manzanita (*Arctostaphylos morroensis*). Despite Baywood fine sands being known to support special status plant species in appropriate environments, the underlying Baywood fine sands soils and substrate within the collection system area are disturbed as a result of urban land uses and developments that characterize the area. Because of these disturbances, collection system areas located west of Los Osos Creek do not generally provide highly suitable substrate conditions for special status plant species with the exception of Morro manzanita. Construction activities associated with the collection system component of Proposed Project 1 could result in significant direct impacts in isolated areas to a single special status plant, the Morro manzanita.
- **Special Status Wildlife Species**. The collection system component of Proposed Project 1 could result in significant direct and indirect impacts to special status wildlife species and their habitat, including federally-designated critical habitat, during project construction, including the Morro shoulderband snail (*Helminthoglypta walkeriana*), southern steelhead (*Oncorhynchus mykiss irideus*), and California red-legged frog (*Rana aurora draytonii*) (see Exhibit 5.5-1).
  - *Morro Shoulderband Snail.* The collection system component of Proposed Project 1 could result in significant direct impacts to this species. Despite the lack of all primary constituent elements and the absence of high quality habitats, a number of properties within the collection system are currently known to support this species, or have been known to support this species in the past prior to relocation activities. Although these and other areas in the community of Los Osos may not support (or have the capacity to support) native coastal dune scrub, they are supported by underlying Baywood fine sandy soils necessary for this species reproduction, slopes no greater than 10 percent to

facilitate movement and dispersal, and marginal non-native vegetation, leaf litter, or debris for foraging and sheltering. Given the presence of these marginal conditions, there are likely a number of properties that support this species or provide potential habitats for this species that have not been surveyed in the past. Without knowing the exact number and without comprehensive presence or absence data, it can be assumed that the total number of residential properties that currently support this species or provide potential habitats for this species is neither very low nor very high, but significant enough such that a potential encounter with the species could result during construction activities. Therefore, the collection system component of Proposed Project 1 within the community of Los Osos could result in a significant direct impact on this species during construction.

- *Southern Steelhead*. The collection system component of Proposed Project 1 could result in significant impacts to southern steelhead habitats within Los Osos Creek during project construction. The collection system component of Proposed Project 1 will include two crossings of Los Osos Creek within the Los Osos Valley Road rights-of-way (ROW), which will both be carried out through open-cut trenching methods for installation of pipelines. Open-cut trenching will be required for the crossing of the force main lines for wastewater conveyance, in addition to the crossing of the pipelines for treated effluent conveyance. These direct impacts will be temporary disturbances to the streambed (measured from bank-to-bank at the ordinary high water mark) for the relevant reach of Los Osos Creek. Open-cut trenching could also result in indirect impacts to this species habitat through adverse water quality related impairments caused by construction activities taking place during the wet or dry season. Activities in Los Osos Creek could result in an increase of spills of hazardous materials as well as increased turbidity. The streambed for the relevant reach of Los Osos Creek that is proposed for open-cut trenching for pipeline installation has been designated by the National Marine Fisheries Service (NMFS) as critical habitat for the south-central California coast Evolutionary Significant Unit (ESU) southern steelhead. The relevant reach of Los Osos Creek is characterized by a short run section of dry gravel/cobble streambed that conveys uninhibited intermittent flows downstream to Morro Bay throughout the wet season. There are no major impairments or dam structures downstream of the onsite reach that would inhibit fish passage or act as a migration barrier from Morro Bay and the Pacific Ocean to the relevant reach of the Creek.

  Based on the observed habitat suitability factors, the relevant reach of Los Osos Creek does not contain all of the primary constituent elements that have been identified for this species' critical habitat. The relevant reach would not likely be used as rearing habitat by this species due to the lack of floodplain connectivity and absence of important natural cover constituents.

Source: AirPhoto USA and San Luis Obispo County GIS.

Michael Brandman Associates

NORTH

2,000 1,000 0 2,000
Feet

02240002 • 11/2008 | 5.5-1_special_status_habitat.mxd

Exhibit 5.5-1
Special Status Species Habitat

COUNTY OF SAN LUIS OBISPO • LOS OSOS WASTEWATER PROJECT
ENVIRONMENTAL IMPACT REPORT

However, the reach could provide for a freshwater spawning site and a freshwater migration corridor during the winter rainy season and into spring until stream flows within the Creek subside to impassable levels. Therefore, the collection system component of Proposed Project 1 could result in a significant direct impact during construction to a functioning freshwater spawning site and freshwater migration corridor that could be used by this species in its designated critical habitat. The collection system component of Proposed Project 1 could also result in significant indirect impacts during construction to this species habitat relating to adverse water quality as well.

- *California Red-Legged Frog*. The collection system component of all Proposed Projects 1 through 4 could result in potential direct impacts to individuals of this species within Los Osos Creek and Warden Creek at the Turri Road crossing during project construction. These impacts would be considered significant. The relevant reach of Los Osos Creek receives flows from upstream reaches to the south, and from tributary waters and downstream reaches near its confluence with Morro Bay. Due to the presence of high quality habitats downstream to Morro Bay, there is a moderate probability that the relevant reach could support individuals of this species during favorable years. The relevant reach of Warden Creek recruits flows from upstream reaches to the east, and from tributary waters from the north, which include the downstream reach of the large drainage feature on the Tonini property that was determined to be occupied by the California red-legged frog. Additionally, California red-legged frogs have been recently observed and documented within the relevant reach of Warden Creek at the Turri Road crossing during surveys conducted in 2006. Although no California red-legged frogs were determined to occupy the relevant reach of Los Osos Creek during protocol surveys in 2008, given the fact that the relevant reach is directly connected with a drainage feature that currently supports occupied habitats, and given the fact that this species has recently been observed within the relevant reach in 2006, there is a high probability that the relevant reach could support individuals of this species during favorable years. Therefore, the collection system component of Proposed Project 1 could result in significant direct impacts to this species during construction. The collection system component of Proposed Project 1 could also result in significant indirect impacts to this species relating to adverse water quality as well.

- *Morro Bay Blue Butterfly*. Because the Mid-town property still supports this species larval host plant (silver lupine) and suitable coastal sage scrub habitat, proposed Projects 1 through 4 could result in potential significant impacts to this species and its habitat.

Long Term Operational Impacts

The STEP/STEG collection system for Proposed Project 1 could result in potential significant direct and indirect long-term operational impacts to special status species and their habitats. Wastewater facilities are a common feature of urban environments and generally are not considered to pose significant hazards. Because old septic tanks and laterals will be replaced with new high quality fixtures, the collection system represents a significant positive impact to the biological environment at individual properties. Operation and maintenance requirements of new STE tanks will be limited and are not anticipated to result in adverse effects to special status species and their habitat.

If not properly constructed, operated, and maintained, there is the potential for breakage and leakage in the pipelines of the collection system, releasing untreated sewage into the environment. This potential impact is addressed in Section 5.7 of the Draft EIR, specifically within Impact 5.7-A.

Treatment Plant Site

Short Term Construction Impacts

The treatment plant site component of Proposed Project 1 will include a facultative pond, storage pond, and appurtenance elements within the Cemetery, Giacomazzi, and Branin properties. The treatment plant site for Proposed Project 1 would require the construction of the following: a partially-mixed facultative pond wastewater treatment system that will include headworks to screen out organics and measure flow; partially-mixed facultative ponds; a septage receiving station to screen and process septic tank septage; an approximately 20-acre wastewater treatment facility site; a 4-acre site for appurtances; and an up to 8-acre seasonal storage pond for treated effluent storage onsite.

The treatment plant site for Proposed Project 1 could result in significant indirect short-term construction impacts to special status wildlife species and their habitat. The following provides a project-specific impact analysis of the short-term construction impacts on special status plant and wildlife species and their habitats for the treatment plant site component of Proposed Project 1.

- **Special Status Wildlife Species.** The treatment plant site component of Proposed Project 1 could result in significant direct impacts to the California red-legged frog, as well as significant indirect impacts to Cooper's hawk, white-tailed kite, and Allen's hummingbird during project construction. Additionally, the treatment plant site component of Proposed Project 1 could result in significant indirect impacts to foraging raptors.
  - *California Red-Legged Frog*. The treatment plant site component of Proposed Projects 1 through 4 could result in significant impacts to the California red-legged frog. Although none of the developments for the treatment plant sites would result in the removal of suitable breeding habitats for this species, they are proposed within areas that occur in the local vicinity of habitat that is known to be occupied by this species, including Warden Creek, Warden Lake, and unnamed tributaries on the Tonini property. Construction activities may result in the incidental mortality of individuals using areas adjacent to breeding sites during dispersal and aestivation. Direct impacts to this species during project construction would be considered significant.
  - *Cooper's Hawk*. The treatment plant site for Proposed Project 1 could result in significant indirect impacts to this species during its breeding activities. Although this

species was not observed during any of the habitat assessment surveys conducted in April or May 2008, this species is known to be a resident of deciduous riparian habitats in the local area. Suitable nesting habitat exists within the central coast arroyo willow riparian forest habitat in the northeastern portion of the Giacomazzi property and the northern portion of the Branin property. These areas are characterized by a dominance and dense arrangement of moderately tall arroyo willow trees (*Salix lasiolepis*), and occur adjacent to a perennial water source at Warden Lake. Although no direct impacts to these areas are anticipated, these areas occur within 500 feet of the proposed developments for the treatment plant site for Proposed Project 1. Due the fact that this species is protected by the federal Migratory Bird Treaty Act (MBTA) and CFG Code, there is a potential for these developments to result in adverse indirect impacts to this, and other species relating to construction noise, lighting, and other disturbances during its breeding season.

- *White-Tailed Kite*. The treatment plant site of Proposed Project 1 could result in significant indirect impacts to this species during its breeding activities. Suitable nesting habitat for this species occurs within the central coast arroyo willow riparian forest habitat in the northeastern portion of the Giacomazzi property and the northern portion of the Branin property. Although no direct impacts to these areas are anticipated, these areas occur within 500 feet of the proposed developments for the treatment plant site for Proposed Project 1. Due the fact that this species is fully protected by the CFG Code, and further protected during its breeding season by the federal MBTA, there is a potential for development to result in adverse indirect impacts to this species relating to construction noise, lighting, and other disturbances during its breeding season.
- *Allen's Hummingbird*. The treatment plant site of Proposed Project 1 could result in significant indirect impacts to this species during its breeding activities. Suitable nesting habitats for this species occur within the riparian habitat within the Giacomazzi and Branin properties. Although no direct impacts to these areas are anticipated, these areas occur within 250 feet of the proposed developments for the treatment plant site for Proposed Project 1. Due the fact that this species is protected during its breeding season by the federal MBTA and CFG Code, there is a potential for these developments to result in adverse indirect impacts to this species relating to construction noise, lighting, and other disturbances during its breeding season.

Long Term Operational Impacts

The treatment plant site for Proposed Project 1 could result in potential significant indirect long-term operational impacts to special status species. Wastewater facilities are a common feature of urban environments and generally are not considered to pose significant hazards. Operation and maintenance requirements of the treatment plant site will be routine and limited, and would not extend beyond the boundaries of developments. There are special status species that could occur in the immediate vicinity of the treatment plant site that have a potential to be adversely affected or indirectly impacted by operation and maintenance activities.

If not properly constructed, operated, and maintained, there is the potential for leakage in the treatment facility elements that will handle raw wastewater, releasing untreated sewage into the environment. This potential impact is addressed in Section 5.7 of the Draft EIR.

Disposal Sites

Short Term Construction Impacts

The disposal sites component for Proposed Project 1 will include two separate methodologies at two separate locations. These entail the use of leachfields methodologies within 8-acres of the Broderson property, and sprayfield methodologies within 175 acres on the Tonini property. The proposed location for leachfields on the Broderson property is unchanged for all Proposed Projects.

- **Special Status Plant Species.** The disposal sites component of Proposed Project 1 could result in significant direct and indirect impacts to special status plant and lichen species during project construction associated with the leachfields on the Broderson property, including Morro manzanita, Monterey spineflower, Blochman leafy daisy, saint's daisy, Indian Knob mountainbalm, San Luis Obispo wallflower, curly-leafed monardella, dune almond, non-vascular lichens; spiraled old man's beard, Los Osos black and white lichen, long-fringed parmotrema, and splitting yarn lichen.
    - *Morro Manzanita, Monterey Spineflower, and Indian Knob Mountainbalm*. The disposal sites component of Proposed Project 1, and specifically the development of leachfields, could result in significant direct impacts to these species through the direct taking of individuals on the Broderson property, and indirect impacts to these species through habitat removal on the Broderson property.
    - *Blochman Leafy Daisy, Saint's Daisy, San Luis Obispo Wallflower, Curley-Leafed Monardella, and Dune Almond*. Impacts to these species and their habitats would be limited to the removal of 8 acres of suitable habitat, and the potential removal of occupied habitats containing a limited number of individuals. Individuals potentially occurring within the proposed 8-acre impact area would not likely represent a substantial percentage of the overall populations of these species, and their removal would not likely jeopardize or pose a substantial threat to the survival or recovery of the overall populations of these species. Therefore, impacts to these species and their habitat are considered less than significant. For all Proposed Projects 1 through 4, mitigation measures 5.5-A14, 5.5-A15, and 5.5-A16 will further reduce potential impacts to California Native Plant Society (CNPS) listed plant species.
- **Special Status Wildlife Species.** The disposal sites component of Proposed Project 1 could result in significant direct and indirect impacts to special status wildlife species during project

construction associated with the leachfields on the Broderson property, including Morro shoulderband snail, Morro Bay kangaroo rat, monarch butterfly, and Morro Bay blue butterfly.

- *Morro Shoulderband Snail*. The disposal site component of Proposed Project 1 could result in significant impacts to Morro shoulderband snail habitat. The area proposed for leachfields on the Broderson property as part of the disposal sites component occur within U. S. Fish and Wildlife Service (USFWS) designated Critical Habitat Unit 2 for this species. The leachfield area contains all of the primary constituent elements that have been identified for this species' critical habitat, and are considered habitat areas of high value to the long-term survival and recovery of the species. Therefore, impacts to Morro shoulderband snail habitats resulting from the disposal site component of all Proposed Projects, including land within Critical Habitat Unit 2 for this species, would be considered significant.

- *Morro Bay Kangaroo Rat*. This fully protected species is not likely to occur within any portions of the impact areas for all Proposed Projects 1 through 4. However, every effort should be made toward the recovery of this endangered kangaroo rat, and any potential impact to this species that could result from a proposed project would be considered significant. Marginal habitat for this species currently exists within the leachfield area on the Broderson property, therefore all proposed Projects could result in potential significant impacts to this species and its habitat if this species is detected on or in the immediate vicinity of the proposed impact areas.

- *California Red-Legged Frog*. The disposal site component of all Proposed Projects could result in potential impacts to California red-legged frogs and its habitat during project construction of the proposed spray fields. Installation of the spray fields would occur in the vicinity of occupied habitat for the California red-legged frog. Areas that are proposed for the spray field will be setback a minimum of 100 feet from occupied habitat and other sensitive resource areas.

- *Monarch Butterfly*. The stands of eucalyptus and cypress trees that had previously been surveyed in 2004 remain on the Broderson property, therefore potential winter roosting habitats still remain, and Proposed Projects 1 through 4 could result in potential significant impacts to this species and its habitat.

- *Morro Bay Blue Butterfly*. Because the Broderson property still supports this species larval host plant (silver lupine) and suitable coastal sage scrub habitat, proposed Projects 1 through 4 could result in potential significant impacts to this species and its habitat.

Long Term Operational Impacts

The disposal sites for Proposed Project 1 could result in potential significant indirect long-term operational impacts to special status species and their habitats. The following provides a project-specific impact analysis of the long-term operational impacts on special status plant and wildlife species and their habitats for the disposal sites component of Proposed Project 1.

- **Special Status Plant Species.** The disposal sites component of Proposed Project 1 could result in significant impacts to special status plant species during project operation and maintenance of the leachfield element on the Broderson property. The primary operations and maintenance activities for the leachfield are maintaining the pumps and monitoring the rate at which the discharged treated effluent percolates into the ground. Leachfields often become clogged overtime. About every 5 to 10 years when this happens, the effective flow rate would decrease significantly and the leachfield would need to be excavated. The subsurface ground would be ripped or disked, and then the leachfield would be reconstructed. Excavation, ripping, and disking activities could result in potential direct impacts to individual species and indirect impacts to loss of habitat. These impacts would be considered significant.

The following includes the special status plant and lichen species that could be adversely affected during operation and maintenance activities of the leachfields on the Broderson property: Morro manzanita, Monterey spineflower, Blochman leafy daisy, saint's daisy, Indian knob mountainbalm, San Luis Obispo wallflower, curly-leafed monardella, dune almond, spiraled old man's beard, Los Osos black and white lichen, long-fringed parmotrema, and splitting yarn lichen. A detailed discussion of these species' recovery status and biological requirements is provided in the construction-related impacts discussion of Impact 5.5-A above.

- **Special Status Wildlife Species.** The disposal sites component of Proposed Project 1 could result in significant impacts to special status wildlife species and their habitats during project operation and maintenance of the leachfield element on the Broderson property, and the spray field element on the Tonini property.

As discussed above for special status plant species, about every 5 to 10 years the leachfield on the Broderson property would need to be excavated, ripped or disked, and then reconstructed. Excavation, ripping, and disking activities could result in potential direct impacts to individual species and indirect impacts to loss of habitat. These impacts would be considered significant. The following includes the special status wildlife species that could be adversely affected during operation and maintenance activities of the leachfields on the Broderson property: the Morro shoulderband snail, Morro Bay kangaroo rat, and Morro Bay blue butterfly. A detailed discussion of these species' recovery status and biological requirements is provided in the construction-related impacts discussion of Impact 5.5-A above.

Operation of the spray fields on the Tonini property could result in potential indirect impacts relating to water quality to the California red-legged frog and its habitat either through overspray or potential changes in water quality through percolation. A detailed discussion of this species recovery status and biological requirements is provided in the construction-related impacts discussion of Impact 5.5-

A above. Operation of the spray fields would occur within the upland areas adjacent to occupied habitat for this species. Areas that are proposed for the spray field will be setback a minimum of 100 feet from occupied habitat and other sensitive resource areas.

Combined Project Effects

The construction and operation of the proposed components for the collection system, treatment plant site, and disposal sites for Proposed Project 1 could result in a measurable combined effect on special status species and their habitats. The collection system could result in short-term construction impacts to special status plant and wildlife species through the installation of various components throughout the community of Los Osos and within the ROWs of roads that occur along the proposed alignments. Potential impacts associated with the collection system would be primarily temporary in nature and would not result in a substantial alteration of habitat or permanent displacement of most special status species. Treatment plant components could result in short- and long-term impacts to special status species through the permanent removal of habitat and development of permanent structures in the vicinity of suitable habitats for special status species. The leachfields component on the Broderson property could also result short- and long-term impacts to special status species and their habitats.

Proposed Project 2

Collection System

Short Term Construction Impacts

The collection system for Proposed Projects 2 through 4 will be similar to those Proposed Project 1. Changes in the collection system, between Proposed Project 1 and Proposed Projects 2 through 4 include the loss of disturbances associated with the construction of the STE tanks on residential properties and the inclusion of seven pump stations within the Urban Reserve Line, including one within the Mid-town property, and six within various parcels in the community of Los Osos, as well as twelve pocket pump stations throughout the community of Los Osos. The development of these pump stations could result in potential impacts to special status plant and wildlife species, including the Morro manzanita, Morro shoulderband snail, Morro Bay kangaroo rat, and Morro Bay blue butterfly. Additionally, removal of trees and shrubs during the breeding season could result in impacts to common and sensitive nesting birds and raptors protected under the MBTA and CFG Code. These impacts would be considered significant. See also impact analysis and proposed mitigation measures for the collection system for Proposed Project 1 above.

Treatment Plant Site

Short Term Construction Impacts

The treatment plant site component of Proposed Project 2 will include an approximately 10-acre oxidation ditch/biolac facility, a 6-acre biosolids facility, and up to 4-acres of appurtenance elements within the Giacomazzi property and an up to 8-acre storage pond on the Tonini property.

Development of the storage pond for Proposed Project 2 could result in potential impacts to the California red-legged frog and its habitat during construction. See impact analysis and proposed mitigation measures for disposal sites for Proposed Project 1 above.

Similar to Proposed Project 1, the treatment plant site for Proposed Project 2 would not result in direct impacts to any special status plant or wildlife species or their habitats on the Giacomazzi property. All proposed developments are setback from any habitat for special status species; therefore, no direct impacts are anticipated. The treatment plant site for Proposed Project 2 will occur within 500 feet of suitable nesting habitat and could result in potential indirect impacts during the breeding season to common and sensitive birds and raptors protected under the MBTA and CFG Code.

Disposal Sites

Short Term Construction Impacts

The disposal sites for Proposed Project 2 would be the same as that which is proposed for Proposed Project 1 with the addition of up to an 8-acre permanent loss of agricultural lands on the Tonini property for the placement of a storage pond. Development of the storage pond for Proposed Project 2 could result in potential impacts to the California red-legged frog and its habitat during construction. See impact analysis and proposed mitigation measures for disposal sites for Proposed Project 1 above.

Long Term Operational Impacts

Long term operational impacts associated with Proposed Project 2 would be essentially the same as those associated for Proposed Project 1 discussed above for the collection system, treatment plant site and disposal sites.

Combined Project Effects

Similar to Proposed Project 1, the construction and operation of the proposed components for the collection system, treatment plant site, and disposal sites for Proposed Project 2 could result in a measurable combined effect on special status species and their habitats.

Proposed Project 3

Collection System

The collection system for Proposed Project 3 would be the same as that which is proposed for Proposed Project 2. See impact analysis and proposed mitigation measures for the collection system for Proposed Project 2 above.

Treatment Plant Site

The treatment system for Proposed Project 3 would be the same as that which is proposed for Proposed Project 2. The facilities would be placed on the Giacomazzi and Branin properties and would consist of an approximately 10-acre oxidation ditch/biolac facility, a 6-acre biosolids facility, and up to 4-acres of appurtenance elements within the Giacomazzi property and an up to 8-acre storage pond on the Branin property. See impact analysis and proposed mitigation measures for the treatment system for Proposed Project 1 above.

Disposal Sites

The disposal sites for Proposed Project 3 would be the same as that which is proposed for Proposed Project 1. See impact analysis and proposed mitigation measures for the collection system for Proposed Project 1 above.

Combined Project Effects

Similar to Proposed Projects 1 and 2, the construction and operation of the proposed components for the collection system, treatment plant site, and disposal sites for Proposed Project 3 could result in a measurable combined effect on special status species and their habitats.

Proposed Project 4

Collection System

The collection system for Proposed Project 4 would be the similar to that which is proposed for Proposed Projects 2 and 3, with the exception of an additional crossing of Warden Creek, and two additional crossings of an unnamed drainage feature (herein referred to as drainage T-1) to accommodate the raw wastewater pipeline to the treatment plant and the removal of the lines to the Giacomazzi property. The proposed crossings within Warden Creek and drainage T-1 contain suitable habitat and occupied habitat for the California red-legged frog. Impacts associated with these crossings would be considered significant.

For Proposed Project 4, the crossings of Warden Creek include one for the raw wastewater pipeline to the treatment facilities, and another for the treated effluent conveyance pipeline out to the leachfield site. Impacts associated with these two crossings would be similar to those discussed for collection system in Proposed Project 1 with an incremental increase in temporary disturbance associated with the additional crossing.

As discussed in the impact analysis for Proposed Project 1, there is the potential for leakage in the wastewater conveyance pipelines for all Proposed Projects consequently releasing untreated sewage downstream into areas supporting this species and its habitat. This potential impact is addressed in Section 5.7 of the Draft EIR. See also impact analysis and proposed mitigation measures regarding potential collection system impacts to California red-legged frog for Proposed Project 1.

Treatment Plant Site

Development of the treatment plant site for Proposed Project 4 could result in potential impacts to approximately 32 acres of California red-legged frog and its habitat during construction. All construction access and staging would be restricted to existing disturbed upland areas.

All permanent developments have been sited and designed with adequate setbacks from California red-legged frog habitat and other sensitive resources. The closest developments that are proposed for

Proposed Project 4 include the appurtenance facilities, which are located at a minimum of 100 linear feet from portions of drainage T-1 that contain suitable and occupied habitat for this species.

As discussed in the impact analysis for Proposed Project 1, there is the potential for leakage in the treatment facility elements for all Proposed Projects consequently releasing untreated sewage downstream into areas supporting this species habitat. This potential impact is addressed in Section 5.7 of the Draft EIR.

Disposal Sites

The disposal sites for Proposed Project 4 would be essentially the same as that which is proposed for Proposed Projects 1 through 3, with the exception of a minor change in the location of the spray fields in order to accommodate the treatment plant site. The location of spray fields would still incorporate the minimum required setbacks (100 feet) from any sensitive resources.

All permanent developments have been sited and designed with adequate setbacks from California red-legged frog habitat and other sensitive resources. The closest developments that are proposed for Proposed Project 4 disposal site include the storage pond, which is located at a minimum of 100 linear feet from portions of drainage T-1 that contain suitable and occupied habitat for this species.

Combined Project Effects

Similar to Proposed Projects 1 through 3, the construction and operation of the proposed components for the collection system, treatment plant site, and disposal sites for Proposed Project 4 could result in a measurable combined effect on special status species and their habitat.

Cumulative Impact Analysis

As defined by CEQA, cumulative impacts refer to two or more individual effects which, when considered together, compound or increase other environmental impacts.

It is not possible to predict all future impacts to biological resources within the Los Osos Wastewater Project area. Once construction of the treatment plant, collection pipelines, pump stations, and standby power facilities are completed, likely no continued or cumulative impacts would occur to biological resources within the Project Area of Potential Effects from these aspects of the system.

Table 4-1 lists projects that are scheduled to occur during the same time frame as the Los Osos Wastewater Project. Impacts to biological resources could occur as a result of the Los Osos Valley Road Palisades Storm Drain Project. The proposed activities are at the southeastern corner of the Mid-town property. Impacts to sensitive species could occur with either this project or the LOWWP, depending on timing of construction.

Riparian Habitat

Impact 5.5-B:	The project would have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

Project-Specific Impact Analysis

Proposed Project 1

Collection System

Riparian Habitat

For all Proposed Projects, installation of the collection system pipelines for the wastewater and treated effluent would result in temporary impacts to riparian habitat associated with Los Osos Creek, Warden Creek, and unnamed drainages and seasonal wetlands within the Los Osos Valley Road ROW, herein referred to as drainages W-3, W-4, W-5, and W-5b, and an unnamed drainage within the Turri Road ROW, herein referred to as drainage T-2. As a result, the installation of pipelines for the raw wastewater and treated effluent pipeline systems for all Proposed Projects could result in significant impacts to riparian habitat (Exhibit 5.5-2).

The collection system for all Proposed Projects could result in potential significant impacts to riparian habitat during operation. If not properly constructed, operated, and maintained, there is the potential for leakage in the wastewater conveyance pipelines for all Proposed Projects, consequently releasing untreated sewage into areas supporting riparian habitat. This potential impact is addressed in Section 5.7 of the Draft EIR.

Sensitive Resource Area

A discussion of portions of the collection system for all Proposed Projects that are within an existing Sensitive Resource Area (SRA) as defined in Title 23 - Coastal Zone Land Use Ordinance of the County of San Luis Obispo County Code is provided in Impact 5.5-F and Table 5.5-2.

Environmentally Sensitive Habitat Area

A discussion of portions of the collection system for all Proposed Projects that are within an existing Environmentally Sensitive Habitat Area (ESHA) as defined in Title 23 - Coastal Zone Land Use Ordinance of the County of San Luis Obispo County Code is provided in Impact 5.5-F and Table 5.5-2. Impact 5.5-F and Table 5.5-2 also provides a discussion of lands that could be considered a potential ESHA based on the findings of this Draft EIR and its technical studies.

Treatment Plant Site

Riparian Habitat

Proposed Project 1 would include the development of facultative ponds, storage, and appurtenance facilities in the vicinity of riparian habitat on the Giacomazzi and Branin properties, including that which is contained within Warden Lake (Warden Creek wetlands) and two unnamed tributaries to Warden Lake (herein referred to as W-1 and W-2).

Proposed Project 1 could result in indirect impacts to riparian (central coast arroyo willow riparian forest) habitat through the filling of a reach of W-2 that occurs upstream of riparian resources. The permanent filling of this reach of W-2 would result from the construction and development of facultative ponds on the Giacomazzi property, and could result in increased sedimentation and other adverse water quality impacts to downstream stands of riparian habitat contained within W-1 and Warden Lake. Similarly, the filling of the relevant reach of W-2 may result in an adverse affect in the local hydrology that supports the stands. This riparian habitat provides suitable nesting and foraging habitats for special status wildlife species, including the Cooper's hawk and white-tailed kite, and could be considered an extension to larger stands that occur further to the north within Warden Lake.

If not properly constructed, operated, and maintained, there is the potential for leakage in the treatment plant facilities for all Proposed Projects, consequently releasing untreated sewage into areas supporting riparian habitat. This potential impact is addressed in Section 5.7 of the Draft EIR.

Sensitive Resource Area
A discussion of portions of the treatment plant sites for all Proposed Projects that are within an existing SRA as defined in Title 23 - Coastal Zone Land Use Ordinance of the County of San Luis Obispo County Code is provided in Impact 5.5-F and Table 5.5-2.

Environmentally Sensitive Habitat Area
A discussion of portions of the treatment plant sites for all Proposed Projects that are within an existing Environmentally Sensitive Habitat Area (ESHA) as defined in Title 23 - Coastal Zone Land Use Ordinance of the County of San Luis Obispo County Code is provided in Impact 5.5-F and Table 5.5-2. Impact 5.5-F and Table 5.5-2 also provides a discussion of lands that could be considered a potential ESHA based on the findings of this Draft EIR and its technical studies.

Disposal Sites
Sensitive Resource Area
A discussion of portions of the disposal sites for all Proposed Projects that are within an existing SRA as defined in Title 23 - Coastal Zone Land Use Ordinance of the County of San Luis Obispo County Code is provided in Impact 5.5-F and Table 5.5-2.

Environmentally Sensitive Habitat Area
A discussion of portions of the disposal sites for all Proposed Projects that are within an existing ESHA as defined in Title 23 - Coastal Zone Land Use Ordinance of the County of San Luis Obispo County Code is provided in Impact 5.5-F and Table 5.5-2. Impact 5.5-F and Table 5.5-2 also provides a discussion of lands that could be considered a potential ESHA based on the findings of this Draft EIR and its technical studies.

Combined Project Effects
The construction and operation of the proposed components for the collection system and treatment plant site for Proposed Project 1 could result in a measurable combined effect on riparian habitats. The collection system could result in temporary construction impacts to riparian habitats through the installation of various components within Los Osos Creek, Warden Lake, Warden Creek, and tributaries to Warden Creek located along Los Osos Valley Road and within the Giacomazzi and Tonini properties. Potential impacts associated with the collection system would be primarily

temporary in nature and would not result in a substantial removal, alteration, or degradation of riparian habitat. Treatment plant components could result in potential indirect impacts to riparian habitats located downstream and downslope of areas proposed for the filling of waters and development of permanent structures.

Proposed Project 2

Collection System

The collection system for Proposed Project 2 would be the similar as that which is proposed for Proposed Project 1 for riparian habitat, but could differ substantially with potential impacts to sensitive natural communities associated with the ESHA within the community of Los Osos. These differences are focused on the differences in disturbance associated with the lack of excavation and habitat disturbance associated with the STE tank installation. See riparian habitat impact analysis for collection system for Proposed Project 1 above.

Treatment Plant Site

Proposed Project 2 would include the development of oxidation ditch/biolac facilities and appurtenance facilities in the vicinity of riparian habitats on the Giacomazzi property, including that which occurs within an unnamed tributary to Warden Lake (herein referred to as W-1).

Similar to Proposed Project 1, treatment plant site developments for Proposed Project 2 could result in indirect impacts to riparian habitats through the filling of a reach of W-2 that occurs upstream of stands of riparian habitats contained within W-1 and Warden Lake. The permanent filling of this reach of W-2 would result from the construction and development of facultative ponds on the Giacomazzi property, and could result in increased sedimentation and other adverse water quality impacts to downstream riparian areas.

Disposal Sites

The disposal sites for Proposed Project 2 would be the same as that which is proposed for Proposed Project 1. The placement of the up to 8-acre storage pond on the Tonini property would not be within any riparian areas. See impact analysis for disposal sites for Proposed Project 1 above.

Combined Project Effects

Similar to Proposed Project 1, the construction and operation of the proposed components for the collection system and treatment plant site for Proposed Project 2 could result in a measurable combined effect on riparian habitats. The collection system could result in temporary construction impacts to riparian habitats through the installation of various components within and adjacent to Los Osos Creek, Warden Lake, Warden Creek, and tributaries to Warden Creek located along Los Osos Valley Road and within the Giacomazzi and Tonini properties. Potential impacts associated with the collection system would be primarily temporary in nature and would not result in a substantial removal, alteration, or degradation of riparian habitats. Treatment plant components could result in potential indirect impacts to riparian habitats located downstream and downslope of areas proposed for the filling of waters and development of permanent structures.

Source: AirPhoto USA and San Luis Obispo County GIS.

Michael Brandman Associates

NORTH

2,000 1,000 0 2,000 Feet

02240002 • 10/2008 | 5.5-2_jurisdictional_waters_wetlands.mxd

Exhibit 5.5-2
Jurisdictional Waters and Wetlands

COUNTY OF SAN LUIS OBISPO • LOS OSOS WASTEWATER PROJECT
ENVIRONMENTAL IMPACT REPORT

Proposed Project 3

Collection System

The collection system for Proposed Project 3 would be the same as that which is proposed for Proposed Project 2. See riparian habitat impact analysis and proposed mitigation measures for collection system for Proposed Project 2 above.

Treatment Plant Site

Proposed Project 3 would include the development of oxidation ditch/biolac facilities, biosolids storage, storage ponds, and appurtenance facilities in the vicinity of riparian habitat on the Giacomazzi and Branin properties, including that which occurs along the margins of Warden Lake (Warden Creek wetlands) and within an unnamed tributary to Warden Lake (herein referred to as W-1).

Similar to Proposed Projects 1 and 2, treatment plant site developments for Proposed Project 3 could result in indirect impacts to riparian habitat through the filling of a reach of W-2 that occurs upstream of stands of riparian habitat contained within W-1 and Warden Lake. The permanent filling of this reach of W-2 would result from the construction and development of oxidation ditch/biolac facilities and appurtenances on the Giacomazzi property, and could result in increased sedimentation and other adverse water quality impacts to downstream riparian areas.

Disposal Sites

The disposal sites for Proposed Project 3 would be the same as that which is proposed for Proposed Project 1. See impact analysis for disposal sites for Proposed Project 1 above.

Combined Project Effects

Similar to Proposed Projects 1 and 2, the construction and operation of the proposed components for the collection system and treatment plant site for Proposed Project 3 could result in a measurable combined effect on riparian habitats. The collection system could result in temporary construction impacts to riparian habitats through the installation of various components within and adjacent to Los Osos Creek, Warden Lake, Warden Creek, and tributaries to Warden Creek located along Los Osos Valley Road and within the Giacomazzi and Tonini properties. Potential impacts associated with the collection system would be primarily temporary in nature and would not result in a substantial removal, alteration, or degradation of riparian habitats. Treatment plant components could result in potential indirect impacts to riparian habitats located downstream and downslope of areas proposed for the filling of waters and development of permanent structures.

Proposed Project 4

Collection System

The collection system for Proposed Project 4 would be the similar to that which is proposed for Proposed Project 2 and 3. The raw wastewater pipeline would parallel the treated effluent pipeline along Los Osos Valley Road (LOVR) to Turri Road where an additional crossing of Warden Creek, and two additional crossings of an unnamed drainage feature (herein referred to as drainage T-1) would occur. The proposed crossings within Warden Creek contain additional riparian habitats, of which impacts would be considered significant. No riparian habitat occurs at the crossing location for drainage T-1; therefore, no impacts to riparian habitats would result in that area.

The two crossings of Warden Creek include one for the raw wastewater pipeline to the treatment facilities, and another for the treated effluent conveyance pipeline out to the leachfield site. The raw wastewater pipeline impacts associated with these two crossings would be similar as those discussed for effluent pipeline in Proposed Project 1, resulting in an incremental increase in impacts to riparian habitat.

As discussed in the impact analysis for Proposed Project 1, there is the potential for leakage in the wastewater conveyance pipelines for all Proposed Projects consequently releasing untreated sewage downstream into areas supporting riparian habitat.

See impact analysis for the collection system for Proposed Project 1 above.

Disposal Sites

The disposal sites for Proposed Project 4 would be the same as that which is proposed for Proposed Projects 1, 2, and 3 with the exception of minor changes in the location of the spray field area in order to accommodate the treatment plant site facilities. Despite the change in location, impacts associated with the spray fields would be fundamentally the same as those discussed for disposal sites for all of the Proposed Projects. Spray field activities would remain setback from existing wetlands, streams, and riparian habitat at or greater than the minimum required distance. See impact analysis for disposal sites for Proposed Project 1 above.

Combined Project Effects

Similar to Proposed Projects 1 through 3, the construction and operation of the proposed components for the collection system and treatment plant site for Proposed Project 4 could result in a measurable combined effect on riparian habitats. The collection system could result in temporary construction impacts to riparian habitats through the installation of components within and adjacent to Los Osos Creek, Warden Creek, and tributaries to Warden Creek located along Los Osos Valley Road and within the Tonini property. Potential impacts associated with the collection system would be primarily temporary in nature and would not result in a substantial removal, alteration, or degradation of riparian habitats. Treatment plant components could result in potential indirect impacts to riparian habitats located downstream and downslope of areas proposed for the filling of waters and development of permanent structures.

Federally Protected Wetlands

Impact 5.5-C:	**The project would have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.**

Project-Specific Impact Analysis

Proposed Project 1

Collection System

Impacts associated with the laying of pipelines across all drainages and wetlands will be temporary in nature, and will incorporate minimum required setbacks from wetlands to the maximum extent feasible. All development within or adjacent to wetland and non-wetland waters of the U.S. or any other areas subject to regulatory agency jurisdiction will be dependant on obtaining permits from United States Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and California Department of Fish and Game (CDFG).

The installation of pipelines for the raw wastewater and treated effluent systems for all Proposed Projects would also result in significant impacts to the following: non-wetland waters of the U.S. under the jurisdiction of the USACE pursuant to Section 404 of the CWA; waters of the State under the jurisdiction of the CCRWQCB pursuant to Section 401 of the CWA, and streambeds under the jurisdiction of the CDFG pursuant to CFG Code 1602. These impacts would be considered significant.

The collection system for all Proposed Projects could result in potential significant impacts to jurisdictional areas, including wetland waters of the U.S., during operation. Wastewater facilities are a common feature of urban environments and generally are not considered to pose significant hazards. Operation and maintenance requirements of the collection system will be routine and limited, and would not extend beyond the boundaries of developments. There are wetlands that occur within and downstream of the raw wastewater pipelines that have a potential to be adversely affected or indirectly impacted by operation and maintenance activities, or leakage in the system.

If not properly constructed, operated, and maintained, there is the potential for leakage in the wastewater conveyance pipelines for all Proposed Project, consequently releasing untreated sewage into jurisdictional areas. This potential impact is addressed in Section 5.7 of the Draft EIR.

Treatment Plant Site

Proposed Project 1 would include the development of facultative ponds, storage, and appurtenance facilities in the vicinity of wetlands on the Giacomazzi and Branin properties, including Warden Lake (Warden Creek wetlands) and two unnamed tributaries to Warden Lake (herein referred to as W-1 and W-2).

The proposed treatment plant site developments would result in the permanent filling of an upstream portion of W-2. Despite not containing any wetland waters of the U.S., the affected reach of W-2 was determined to contain the following: non-wetland waters of the U.S. under the jurisdiction of the USACE pursuant to Section 404 of the CWA; waters of the State under the jurisdiction of the CCRWQCB pursuant to Section 401 of the CWA, and streambeds under the jurisdiction of the CDFG pursuant to CFG Code 1602. These impacts would be considered significant.

The proposed treatment plant site developments for Proposed Project 1 could result in indirect impacts to wetlands through the filling of a reach of W-2 that occurs upstream of wetlands waters of the U.S. The permanent filling of this reach of W-2 could result in increased sedimentation and other adverse water quality impacts to downstream wetlands.

If not properly constructed, operated, and maintained, there is the potential for leakage in the treatment facility elements for all Proposed Projects that will handle raw waste, releasing untreated sewage into the environment. This potential impact is addressed in Section 5.7 of the Draft EIR.

Combined Project Effects

The construction and operation of the proposed components for the collection system and treatment plant site for Proposed Project 1 could result in a measurable combined effect on wetlands. The collection system could result in temporary construction impacts to wetlands through the installation of various components within and adjacent to Los Osos Creek, Warden Creek, and tributaries to Warden Creek located along Los Osos Valley Road and within the Giacomazzi and Tonini properties. Potential impacts associated with the collection system would be primarily temporary in nature and would not result in a substantial removal, alteration, or degradation of any wetlands. Treatment plant components could result in potential indirect impacts to wetlands located downstream and downslope of areas proposed for the filling of waters and development of permanent structures.

Proposed Project 2

Collection System

Impacts as a result of the collection system for Proposed Project 2 would be the same as that which is proposed for Proposed Project 1. See impact analysis and proposed mitigation measures for collection system for Proposed Project 1 above.

Treatment Plant Site

Similar to Proposed Project 1, the treatment plant site developments for Proposed Project 2 could result in indirect impacts to wetlands through the filling of a reach of W-2 that occurs upstream of wetlands waters of the U.S. The permanent filling of this reach of W-2 would result from the construction and development of oxidation ditch/biolac facilities on the Giacomazzi property, and could result in increased sedimentation and other adverse water quality impacts to downstream wetlands.

Despite not containing any wetland waters of the U.S., the affected reach of W-2 was determined to contain the following: non-wetland waters of the U.S. under the jurisdiction of the USACE pursuant to Section 404 of the CWA; waters of the State under the jurisdiction of the CCRWQCB pursuant to Section 401 of the CWA, and streambed under the jurisdiction of the CDFG pursuant to CFG Code 1602. As with Proposed Project 1, impacts to these features resulting from Proposed Project 2 would be considered significant.

Combined Project Effects

Similar to Proposed Project 1, the construction and operation of the proposed components for the collection system and treatment plant site for Proposed Project 2 could result in a measurable combined effect on wetlands. The collection system could result in temporary construction impacts to wetlands through the installation of various components within and adjacent to Los Osos Creek, Warden Lake, Warden Creek, and tributaries to Warden Creek located along Los Osos Valley Road and within the Giacomazzi and Tonini properties. Potential impacts associated with the collection system would be primarily temporary in nature and would not result in a substantial removal, alteration, or degradation of wetlands. Treatment plant components could result in potential indirect impacts to wetlands located downstream and downslope of areas proposed for the filling of waters and development of permanent structures.

Proposed Project 3

Collection System

Impacts to the collection system for Proposed Project 3 would be the same as that which is proposed for Proposed Project 1 and 2. See impact analysis and proposed mitigation measures for collection system for Proposed Project 1 above.

Treatment Plant Site

Similar to Proposed Projects 1 and 2, treatment plant site developments for Proposed Project 3 could result in indirect impacts to wetlands through the filling of a reach of W-2 that occurs upstream of wetlands waters of the U.S. The permanent filling of this reach of W-2 would result from the construction and development of oxidation ditch/biolac facilities on the Giacomazzi property, and could result in increased sedimentation and other adverse water quality impacts to downstream wetlands.

Despite not containing any wetland waters of the U.S., the affected reach of W-2 was determined to contain the following: non-wetland waters of the U.S. under the jurisdiction of the USACE pursuant to Section 404 of the CWA; waters of the State under the jurisdiction of the CCRWQCB pursuant to Section 401 of the CWA, and streambed under the jurisdiction of the CDFG pursuant to CFG Code 1602.

Combined Project Effects

Similar to Proposed Projects 1 and 2, the construction and operation of the proposed components for the collection system and treatment plant site for Proposed Project 3 could result in a measurable combined effect on wetlands. The collection system could result in temporary construction impacts to wetlands through the installation of various components within and adjacent to Los Osos Creek, Warden Lake, Warden Creek, and tributaries to Warden Creek located along Los Osos Valley Road and within the Giacomazzi and Tonini properties. Potential impacts associated with the collection system would be primarily temporary in nature and would not result in a substantial removal, alteration, or degradation of wetlands. Treatment plant components could result in potential indirect impacts to wetlands located downstream and downslope of areas proposed for the filling of waters and development of permanent structures.

Proposed Project 4

Collection System

The collection system for Proposed Project 4 would be the similar to that which is proposed for Proposed Project 2 and 3. The raw wastewater pipeline would parallel the treated effluent pipeline along LOVR to Turri Road where an additional crossing of Warden Creek, and two additional crossings of an unnamed drainage feature (herein referred to as drainage T-1) would occur. The proposed crossings within Warden Creek contain additional wetlands, of which impacts would be considered significant. Wetlands occur at the crossing location for drainage T-1; therefore, impacts to wetlands would be incrementally greater than with Proposed Projects 1, 2 or 3.

The two crossings of Warden Creek include one for the raw wastewater pipeline to the treatment facilities, and another for the treated effluent conveyance pipeline out to the leachfield site. The raw wastewater pipeline impacts associated with these two crossings would be similar as those discussed for effluent pipeline in Proposed Project 1, resulting in an incremental increase in impacts to wetland habitat.

Treatment Plant Site

As discussed in the impact analysis for Proposed Project 1, there is the potential for leakage in the treatment facility elements for all Proposed Projects that will handle raw waste, releasing untreated sewage into the environment. This potential impact is addressed in Section 5.7 of the Draft EIR.

Combined Project Effects

Similar to Proposed Projects 1 through 3, the construction and operation of the proposed components for the collection system and treatment plant site for Proposed Project 4 could result in a measurable combined effect on wetlands. The collection system could result in temporary construction impacts to wetlands through the installation of components within and adjacent to Los Osos Creek, Warden Creek, and tributaries to Warden Creek located along Los Osos Valley Road and within the Tonini property. Potential impacts associated with the collection system would be primarily temporary in nature and would not result in a substantial removal, alteration, or degradation of wetlands areas. Treatment plant components could result in potential indirect impacts to wetlands located downstream and downslope of areas proposed for the filling of waters and development of permanent structures.

Wildlife Corridors and Nursery Sites

Impact 5.5-D:	**The project would interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of wildlife nursery sites.**

Project-Specific Impact Analysis

Proposed Project 1

Collection System

For all Proposed Projects, the wastewater and treated effluent conveyance pipelines would include the crossing of a short reach of Los Osos Creek, a short reach of Warden Creek, and a short reach of an unnamed drainage feature on the Tonini property (herein referred to as drainage T-1). Los Osos Creek, Warden Creek, and drainage T-1 may function as local and regional migratory and dispersal corridors to and from nursery sites for special status wildlife species, including the southern steelhead (south-central California coast ESU) and California red-legged frog.

Southern Steelhead Wildlife Corridors and Nursery Sites

The raw wastewater and treated effluent pipelines for all Proposed Projects would result in significant direct impacts during construction to a potential nursery site and migration corridor that occurs within critical habitats for this species. The wastewater and treated effluent conveyance pipelines for all Proposed Projects could also result in significant indirect construction-related impacts relating to adverse water quality to downstream portions of Los Osos Creek that would also function as a migration corridor and/or a potential nursery site. Project-impacts to this species and its habitat are discussed in more detail in Impact 5.5-A.

California Red-Legged Frog Wildlife Corridors and Nursery Sites

The raw wastewater and treated effluent pipelines for all Proposed Projects would result in significant direct impacts during construction to a potential nursery site and migration corridor for this species. The raw wastewater and treated effluent pipelines for all Proposed Projects could also result in significant indirect construction-related impacts relating to adverse water quality to downstream portions of Warden Creek that would also function as a migration corridor and/or a potential nursery site. Project-impacts to this species and its habitat are discussed in more detail in Impact 5.5-A.

Combined Project Effects

The construction and operation of the proposed components for the collection system of Proposed Project 1 could result in a measurable combined effect on wildlife corridors and nursery sites. The collection system could result in temporary construction impacts to corridor habitats through the installation of various components within Los Osos Creek and Warden Creek. Potential impacts associated with the collection system would be primarily temporary in nature and would not result in a substantial removal, alteration, or degradation of corridor habitats.

Proposed Project 2

Collection System

The collection system impacts for Proposed Project 2 would be the same as that which is proposed for Proposed Project 1. See impact analysis and proposed mitigation measures for the collection system for Proposed Project 1 above.

Combined Project Effects

Similar to Proposed Project 1, the construction and operation of the proposed components for the collection system of Proposed Project 2 could result in a measurable combined effect on wildlife corridors and nursery sites. The collection system could result in temporary construction impacts to corridor habitats through the installation of various components within Los Osos Creek and Warden Creek. Potential impacts associated with the collection system would be primarily temporary in nature and would not result in a substantial removal, alteration, or degradation of corridor habitats.

Proposed Project 3

Collection System

The collection system impacts on for Proposed Project 3 would be the same as that which is proposed for Proposed Project 2. See impact analysis and proposed mitigation measures for the collection system for Proposed Project 1 above.

Combined Project Effects

Similar to Proposed Projects 1 and 2, the construction and operation of the proposed components for the collection system of Proposed Project 3 could result in a measurable combined effect on wildlife corridors and nursery sites. The collection system could result in temporary construction impacts to corridor habitats through the installation of various components within Los Osos Creek and Warden Creek. Potential impacts associated with the collection system would be primarily temporary in nature and would not result in a substantial removal, alteration, or degradation of corridor habitats.

Proposed Project 4

Collection System

The collection system impacts for Proposed Project 4 would be the same as that which is proposed for Proposed Projects 1, 2, and 3 with the exception of two crossings of Warden Creek, and two additional crossings of drainage T-1.

The two crossings of Warden Creek include one for the raw wastewater pipeline influent to the treatment facilities, and another for the treated effluent conveyance pipeline out to the leachfield site. Impacts associated with these two additional crossings would be fundamentally the same as those discussed for conveyance pipelines in Proposed Project 1. See impact analysis for conveyance pipeline crossing of Warden Creek for Proposed Project 1 above.

The two additional crossings of drainage T-1 include local crossings within the Tonini property in the immediate vicinity of the treatment plant site. These additional crossings also include one for the raw wastewater pipeline to the treatment facilities, and another for the treated effluent pipeline out to the leachfield site. Impacts associated with these two additional crossings would be fundamentally the same as those discussed for pipelines in Proposed Project 1. However, based on the habitat supported by the affected reach of drainage T-1, and based on the fact that this species was determined to currently occupy portions of this drainage feature, the affected reach and upstream and downstream areas could function as important nursery site and/or dispersal corridor for this species. The extent to which this species could use the relevant reach of drainage T-1 is discussed in more detail in Impact 5.5-A. Impacts associated with the installation of raw wastewater and treated effluent pipelines within drainage T-1 would be considered significant.

Combined Project Effects

Similar to Proposed Projects 1 through 3, the construction and operation of the proposed components for the collection system of Proposed Project 4 could result in a measurable combined effect on wildlife corridors and nursery sites. The collection system could result in temporary construction impacts to corridor habitats through the installation of various components within Los Osos Creek and Warden Creek. Potential impacts associated with the collection system would be primarily temporary in nature and would not result in a substantial removal, alteration, or degradation of corridor habitats.

Local Policies or Ordinances Protecting Biological Resources

5.5-E:	**The project would conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.**

Project-Specific Impact Analysis

Proposed Project 1

Collection System

County of San Luis Obispo Coastal Zone Land Use Ordinance (CZLUO)

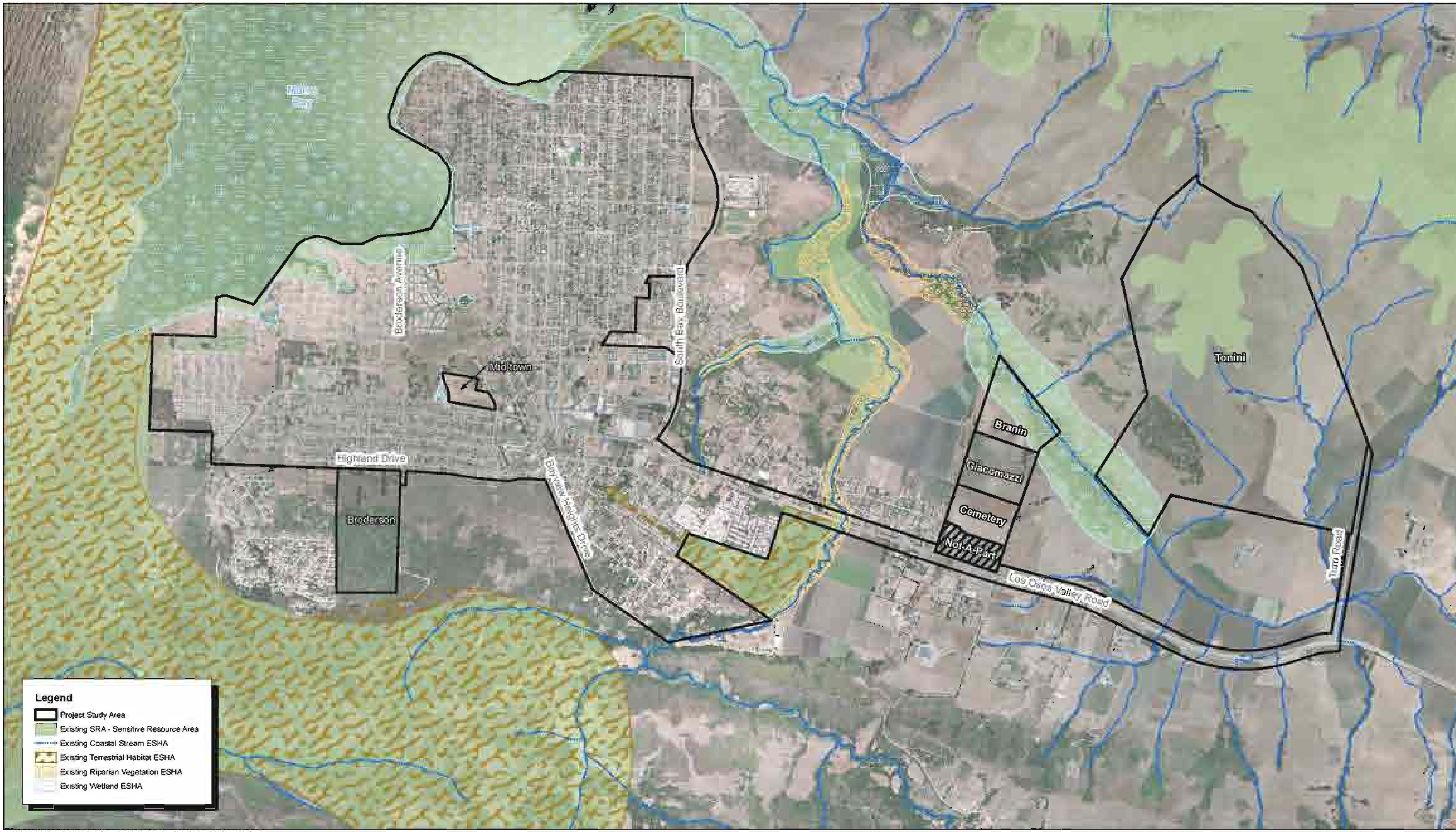
For all Proposed Projects, the collection system would include crossing of Los Osos Creek for the installation of raw wastewater and treated effluent pipelines. The proposed methodology for the installation of these pipelines includes open-cut trenching along straight linear sections. Open-cut trenching would result in the removal of riparian vegetation along the pipeline route and the temporary excavation of linear sections of the streambed of Los Osos Creek. These impacts would be considered significant within the Los Osos Creek SRA (Exhibit 5.5-3).

CZLUO Section 23.07.170: Environmentally Sensitive Habitat Area (ESHA)

The collection system for all Proposed Projects could result in indirect impacts to wetland ESHAs that occur in the immediate vicinity of proposed developments. Construction activities associated with the development and installation of collection system components could result in increased sedimentation and other adverse water quality impacts to adjacent wetlands. These impacts would be considered significant.

- **Existing Coastal Stream ESHA.** For all Proposed Projects, areas supporting existing coastal stream ESHAs that occur on or in the vicinity of the collection system include the coastal streams of Los Osos Creek and Warden Creek, and drainages W-3, W-4, W-5, W-5a, W-5b, T-1, and T-2. Development within these existing ESHA lands would result from the installation of raw wastewater and treated effluent pipelines using open-cut trenching methodologies. These impacts would be considered significant. Impacts associated with the laying of pipelines across all drainages will be temporary and consistent with the biological continuance of the habitat. All development within or adjacent to these coastal streams and other jurisdictional areas will be preceded by obtaining appropriate permits from regulatory agencies and implementing all preconstruction requirements and avoidance measures for special status species.

- **Existing Riparian Vegetation ESHA.** For all Proposed Projects, areas supporting existing riparian vegetation ESHAs that occur on or in the vicinity of the collection system including Los Osos Creek. As discussed above for the Los Osos Creek SRA, for all Proposed Projects, the collection system would include crossing of Los Osos Creek for the installation of raw wastewater and treated effluent pipelines. The proposed methodology for the installation of these pipelines includes open-cut trenching along straight linear sections. Open-cut trenching would result in the removal of riparian vegetation along the trench route and the temporary excavation of linear sections of the streambed of Los Osos Creek. These impacts would be considered significant within existing riparian vegetation ESHAs.
- **CZLUO Section 23.07.172 – Section 23.07.174: Wetlands, Streams, and Riparian Vegetation.** For all Proposed Projects, areas determined to contain wetlands, streams, and riparian vegetation that occur on or in the vicinity of the collection system (and conveyance pipelines therein) include Wetland MB-1 through Wetland MB-6 within the community of Los Osos, Los Osos Creek and Warden Creek, and drainages W-3, W-4, W-5, W-5a, W-5b, T-1, and T-2. All of these areas occur as existing ESHA lands and are discussed above. Further discussion of wetlands, streams, and riparian vegetation is also provided in Impact 5.5-C. In addition to being designated as existing wetland, coastal stream, and riparian vegetation ESHA lands, areas containing occupied habitat and suitable breeding habitat for California red-legged frog, including Los Osos and Warden Creeks, and their associated tributaries, would also qualify as potential ESHA lands within their wetland influence and suitable habitat areas. Further discussion regarding California red-legged frog and its habitat is provided in Impact 5.5-A.
- **CZLUO Section 23.07.176: Terrestrial Habitat Protection.** As part of the collection systems for Proposed Projects 2 through 4, pump station developments are proposed within potential ESHA lands containing terrestrial habitat associated with the Mid-town property and other parcels located within developed portions of the community of Los Osos. Impacts resulting from pump station developments would be permanent. Terrestrial habitats within these areas contain suitable habitats for the Morro manzanita, Morro Bay blue butterfly, and Morro shoulderband snail. All developments within or adjacent to terrestrial habitat within these areas will be preceded by formal consultation with the USFWS and CDFG.



Source: AirPhoto USA and San Luis Obispo County GIS.

Michael Brandman Associates

NORTH

2,000 1,000 0 2,000 Feet

Exhibit 5.5-3
SRA and ESHA Lands

02240002 • 11/2008 | 5.5-3_SRA_ESHA_lands.mxd

Treatment Plant

County of San Luis Obispo Coastal Zone Land Use Ordinance (CZLUO)

- **CZLUO Sections 23.07.160 – Section 23.07.166: Sensitive Resource Area (SRA).** The treatment plant site for Proposed Project 1 will occur within rural areas of the Coastal Zone and Estero Area Plan. A single area supporting existing SRA lands occurs in the vicinity of the treatment plant site for Proposed Project 1. This existing SRA is known as the Warden Lakes SRA. A discussion of the treatment plant site for Proposed Project 1 in relation to the Warden Lakes SRA is provided below.
- **CZLUO Section 23.07.172 – Section 23.07.174: Wetlands, Streams, and Riparian Vegetation.** Treatment plant site developments for Proposed Project 1 could result in indirect impacts to wetlands or riparian vegetation through the filling of a reach of W-2 that occurs upstream of wetlands waters of the U.S. The permanent filling of this reach of W-2 would result from the construction and development of facultative ponds on the Giacomazzi property, and could result in increased sedimentation and other adverse water quality impacts to downstream wetlands and riparian vegetation.

Disposal Sites

County of San Luis Obispo Coastal Zone Land Use Ordinance (CZLUO)

- **CZLUO Sections 23.07.160 – Section 23.07.166: Sensitive Resource Area (SRA).** The disposal sites for Proposed Project 1 will occur within both the Urban Reserve Lands and rural areas of the Coastal Zone and Estero Area Plan. A single area mapped as an existing SRA land occurs in the vicinity of the spray fields for Proposed Project 1. This existing SRA is known as the Peaks Area SRA.
- **CZLUO Section 23.07.172 – Section 23.07.174: Wetlands, Streams, and Riparian Vegetation.** Spray field developments for Proposed Project 1 could result in potential indirect impacts to wetlands and streams through the spraying of secondary treated water within adjacent upland areas. All spraying will be restricted within upland areas with adequate setbacks from wetlands, streams, or riparian vegetation that occur within the Tonini property.
- **CZLUO Section 23.07.176: Terrestrial Habitat Protection.** For all Proposed Projects, the leachfield component of the disposal sites will occur within terrestrial habitat on the Broderson property that supports, or has the potential to support, special status plant and wildlife species. As such, the area would be considered terrestrial habitat pursuant to this ordinance and could be considered a potential terrestrial habitat ESHA as well.

The 8-acre Broderson leachfield site is characterized by coastal sage scrub and eucalyptus woodland habitat supported by Baywood fine sands. The site provides suitable habitat for the following special status plant and lichen species: Morro manzanita, Monterey spineflower, Blochman leafy daisy, saint’s daisy, Indian knob mountainbalm, San Luis Obispo wallflower, curly-leafed monardella, dune almond, spiraled old man’s beard, Los Osos black and white lichen, long-fringed parmotrema, and splitting yarn lichen. The site also provides suitable habitat for the following special status wildlife species: Monarch butterfly, Morro Bay kangaroo rat, Morro shoulderband snail, Morro blue butterfly, and Allen's hummingbird. Impacts to terrestrial habitat that is determined to be occupied and/or suitable for these species would be significant. A detailed discussing of impacts associated with the leachfields to these species and their habitat is provided in Impact 5.5-A.

Combined Project Effects

The construction and operation of the proposed components for the collection system, treatment plant, and leachfields of Proposed Project 1 could result in a measurable combined effect on resources protected under local policies and ordinances.

Proposed Project 2

Collection System

County of San Luis Obispo Coastal Zone Land Use Ordinance (CZLUO)

- **CZLUO Sections 23.07.160 – Section 23.07.166: Sensitive Resource Area (SRA).** The collection system for Proposed Projects 2 and 3 would be the similar as that which is proposed for Proposed Project 1 but could differ substantially with potential impacts to sensitive natural communities associated with the ESHA within the community of Los Osos. These differences are focused on the differences in disturbance associated with the lack of excavation and habitat disturbance associated with the STE tank installation. The collection system for Proposed Projects 2 through 4 will also have the development of seven pump stations and 12 pocket pump stations within the Mid-town property and parcels within the community of Los Osos.
- **CZLUO Section 23.07.170: Environmentally Sensitive Habitat Area (ESHA).** The collection system for Proposed Projects 2 and 3 would be the similar as that which is proposed for Proposed Project 1 but could differ substantially with potential impacts to sensitive natural communities associated with the ESHA within the community of Los Osos. These differences are focused on the differences in disturbance associated with the lack of excavation and habitat disturbance associated with the STE tank installation. The collection system for Proposed Projects 2 through 4 will also have the development of seven pump stations and 12 pocket pump stations within the Mid-town property and parcels within the community of Los Osos.
- **CZLUO Section 23.07.172 - Section 23.07.174: Wetlands, Streams, and Riparian Vegetation.** The collection system for Proposed Projects 2 and 3 would be the similar as that which is proposed for Proposed Project 1 but could differ substantially with potential impacts to sensitive natural communities associated with the ESHA within the community of Los Osos. These differences are focused on the differences in disturbance associated with the lack of excavation and habitat disturbance associated with the STE tank installation. The collection system for Proposed Projects 2 through 4 will also have the development of seven pump stations and 12 pocket pump stations within the Mid-town property and parcels within the community of Los Osos. All additional pump station developments associated with the

collection system of Proposed Projects 2 through 4 will incorporate the minimum required setbacks from all wetland, streams, and riparian vegetation.

- **CZLUO Section 23.07.176: Terrestrial Habitat Protection.** As part of the collection systems for Proposed Projects 2 through 4, pump station developments are proposed within potential ESHA lands containing terrestrial habitat associated with the Mid-town property and other parcels located within the community of Los Osos. Impacts resulting from pump station developments would be permanent. Terrestrial habitats within these areas contain suitable habitats for the Morro manzanita, Morro Bay blue butterfly, and Morro shoulderband snail. All developments within or adjacent to terrestrial habitats within these areas will be preceded by formal consultation with the USFWS and CDFG.

Treatment Plant Site

The treatment plant site for Proposed Project 2 incorporates 450-linear foot setbacks of oxidation ditch/biolac facility ponds from wetlands and riparian vegetation within the existing Warden Lake SRA. Similar to Proposed Project 1, the treatment plant site for Proposed Project 2 would result in impacts to a stream and potential coastal stream ESHA (W-2), and potential indirect impacts to wetlands and riparian vegetation within W-1 and areas containing potential wetlands and riparian vegetation ESHA. See impact analysis and proposed mitigation for treatment plant site for Proposed Project 1 above for consistency determination.

Disposal Sites

The disposal sites for Proposed Project 2 would be the same as that which is proposed for Proposed Project 1 with the addition of an up to 8-acre storage pond on the Tonini site. See impact analysis and proposed mitigation for disposal sites for Proposed Project 1 above for consistency determination.

Combined Project Effects

The construction and operation of the proposed components for the collection system, treatment plant, and leachfields of Proposed Project 2 could result in a measurable combined effect on resources protected under local policies and ordinances.

Proposed Project 3

Collection System

The collection system for Proposed Project 3 would be the same as that which is proposed for Proposed Project 2. See impact analysis and proposed mitigation measures for the collection system for Proposed Project 2 above for consistency determination.

Treatment Plant Site

The treatment plant site for Proposed Project 3 incorporates 350-linear foot setbacks of appurtenance facilities from wetlands and riparian vegetation within the existing Warden Lake SRA. Similar to Proposed Project 1 and 2, the treatment plant site for Proposed Project 3 would result in impacts to a stream and potential coastal stream ESHA (W-2), and potential indirect impacts to wetlands and riparian vegetation within W-1 and areas containing potential wetlands and riparian vegetation ESHA. See impact analysis and proposed mitigation for treatment plant site for Proposed Project 1 above for consistency determination.

Disposal Sites

The disposal sites for Proposed Project 3 would be the same as that which is proposed for Proposed Projects 1. See impact analysis and proposed mitigation for disposal sites for Proposed Project 1 above for consistency determination.

Combined Project Effects

The construction and operation of the proposed components for the collection system, treatment plant, and leachfields of Proposed Project 3 could result in a measurable combined effect on resources protected under local policies and ordinances.

Proposed Project 4

Collection System

The collection system for Proposed Project 4 would be similar to that which is proposed for Proposed Projects 2 and 3, with the exception of an additional crossing of Warden Creek and two crossings of an unnamed drainage feature on Tonini property (herein referred to as T-1) to accommodate the raw wastewater pipeline to the treatment plant. See impact analysis and proposed mitigation measures for the collection system for Proposed Project 2 above for consistency determination.

Combined Project Effects

The construction and operation of the proposed components for the collection system and leachfields of Proposed Project 4 could result in a measurable combined effect on resources protected under local policies and ordinances.

5.5.8 - Mitigation Measures

Table 5.5-2: Biological Resources Proposed Mitigation Measures

Project(s)	Proposed Mitigation Measure(s) - Project-Specific	Effects After Incorporation of Mitigation Measures
5.5-A: Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?		
Wildlife Agency Consultation - USFWS		
1, 2, 3, and 4	**5.5-A1** The proposed project may result in a take of federally listed species and their habitat. Prior to project approval, the County shall enter into formal consultation with the USFWS and NMFS. A Biological Opinion (BO) will be prepared by the USFWS and NMFS for any proposed action that may result in the potential take of a listed species and its habitat. Pending the determinations made by the USFWS and NMFS in a	Less Than Significant

Table 5.5-2 (Cont.): Biological Resources Proposed Mitigation Measures

Project(s)	(Cont.) Proposed Mitigation Measure(s) - Project-Specific	Effects After Incorporation of Mitigation Measures
5.5-A1 (cont.)	forthcoming BO, the proposed project will be required to fulfill all mitigation obligations and conservation measures conditioned in the BO regarding federally-listed species and the their habitat. This will include preconstruction survey and avoidance measures, and compensatory mitigation for loss of occupied habitat to be incorporated and implemented prior to project development. Specific avoidance measures, preconstruction survey requirements, and mitigation measures, if required, will be provided by the USFWS consultation with regard to federally-listed species.	
Wildlife Agency Consultation - CDFG		
1, 2, 3, and 4	**5.5-A2** The proposed project may result in take of California state listed species and their habitat. Prior to project approval, the County shall enter into formal consultation with the CDFG to obtain a Memorandum of Understanding (MOU) and Management Authorization (MA) pursuant to Section 2050 et seq. of the CFG Code. Development of an MOU/MA for the project would be based upon the formal consultation with the USFWS and NMFS, and a forthcoming BO for the proposed action. The project will be required to fulfill all responsibilities in the project MOU/MA regarding any state-listed species and their habitat. Responsibilities will include preconstruction survey and avoidance measures, and compensatory mitigation for loss of occupied habitat to be incorporated and implemented prior to project development. Specific avoidance measures, preconstruction survey requirements, and mitigation measures, if required, will be provided by the CDFG through formal consultation with regard to state-listed species and fully protected species.	Less Than Significant
Worker Education Program for Listed species		
1, 2, 3, and 4	**5.5-A3:** A worker education program and clearly defined operations procedures shall be prepared prior to project construction. The worker education program and operations procedures shall be implemented by the County throughout the duration of construction. A biologist approved by the USFWS shall be retained to provide construction personnel specific instruction on general detection and avoidance of sensitive resources during construction. The worker education program shall include: descriptions and pictures of listed species; the provisions of the Endangered Species Act; those specific measures being implemented to conserve listed species as they relate to the project; and the project boundaries within which the work will occur.	Less Than Significant
Morro Shoulderband Snail		
1, 2, 3, and 4	**5.5-A4** Prior to project approval, a biologist authorized by the USWFS shall conduct intensive surveys to identify and relocate all snail specimens within the proposed impact area on the Broderson and Mid-town properties, and all suitable habitat areas within the proposed collection system. Only USFWS authorized biologists shall survey for, monitor, handle, or relocate Morro shoulderband snails.	Less Than Significant

Table 5.5-2 (Cont.): Biological Resources Proposed Mitigation Measures

Project(s)	(Cont.) Proposed Mitigation Measure(s) - Project-Specific	Effects After Incorporation of Mitigation Measures
	A biologist authorized by the USFWS shall be retained to monitor all construction activities that will take place within suitable habitat for the Morro shoulderband snail. Monitoring activities shall be required daily until completion of initial disturbance at each construction area. The monitoring biologist shall be granted full authority to stop work at his or her discretion. The monitoring biologist shall be responsible for implementing avoidance and minimization measures during construction. The monitoring biologist shall stop work if project-related activities occur outside the demarcated boundaries of the construction footprint. The monitoring biologist shall stop work if any Morro shoulderband snails are detected within the proposed construction footprint, and shall implement measures to relocate them to suitable habitat out of harms 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 offsite location approved by the USFWS. The County shall provide a written report to USFWS 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 snails' relocations, and the number of Morro shoulderband snails known to be killed or injured. The report shall 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.	
Morro Bay Kangaroo Rat		
1, 2, 3, and 4	**5.5-A5** Prior to project construction and pending determinations made by the USFWS, a biologist permitted by the USWFS shall conduct protocol trapping surveys for the Morro Bay kangaroo rat within all suitable habitat that occurs on and in the immediate vicinity of the proposed impact area. Protocol trapping efforts shall be conducted in coordination with the USFWS, CDFG, and the Endangered Species Recovery Program (ESRP), and all trapped specimens shall be retained for consideration of captive breeding by the USFWS, ESRP or other agency responsible for the recovery of extremely endangered species.	Less Than Significant
Southern Steelhead		
1, 2, 3, and 4	5.5-A6 Additional specific avoidance measures, preconstruction survey requirements, and mitigation measures, if required, shall be provided by the NMFS consultation with regard to southern steelhead. Any impacts within Los Osos Creek shall be minimized to the maximum extent feasible. If the project proposes to use open-cut trenching or bridge suspension methods for installation of the conveyance pipeline system, the project shall perform all construction associated with the crossing of Los Osos Creek during the dry months when the creek bed is entirely dry and there is no sign of standing water.	Less Than Significant

Table 5.5-2 (Cont.): Biological Resources Proposed Mitigation Measures

Project(s)	(Cont.) Proposed Mitigation Measure(s) - Project-Specific	Effects After Incorporation of Mitigation Measures
	Project activities shall be required to occur during times when there is the least potential for southern steelhead to occur in Los Osos Creek (July - September). If project construction is to occur within any portions of Los Osos Creek or any adjacent upland areas within 100 feet of the Creek, the project shall implement erosion, sediment, material stockpile, and dust control Best Management Practices (BMPs) at all times during construction to minimize the potential for fill or runoff to enter Los Osos Creek. Construction vehicles shall be restricted within Los Osos Creek to the maximum extent feasible required for either open-cut trenching or bridge suspension methods. All construction equipment shall be maintained to prevent leaks of fuel, lubricants, or other fluids into Los Osos Creek. Service and re-fueling procedures shall be restricted to disturbed or developed upland areas at least 50 feet from Los Osos Creek to prevent potential spills of hazardous materials. The project shall confine all heavy equipment, vehicles, and construction work to approved roads and work areas around Los Osos Creek. Stream channel work for open-cut trenching or activities associated with pipe suspension shall limit disturbance to Los Osos Creek to what is necessary for construction. If the project proposes to use HDD methods, the project shall implement a frac-out contingency plan to manage the inadvertent release of any drilling muds into Los Osos Creek. All project work areas within and around Los Osos Creek shall be restored to pre-existing contours upon completion of work. Any impacts to riparian and wetland habitat shall be mitigated for through replacement mitigation at a set ratio as determined through consultation with the regulatory and wildlife agencies. Where the mitigation requirements of separate policy under the CZLUO, or the requirements of the USACE, RWQCB, and CDFG or other agency with jurisdiction over an area are different, the more restrictive regulations shall apply.	
1, 2, 3, and 4	**5.5-A7** Implementation of trenchless technologies shall be considered as a feasible option for the installation of conveyance pipelines within and adjacent to areas containing wetlands, streams, and riparian vegetation. Trenchless technologies that are feasible for all Proposed Projects include microtunneling and horizontal directional drilling (HDD) within all areas along the proposed conveyance routes, and pipe suspension at areas supporting existing bridge crossings along the proposed conveyance routes (at the Los Osos Creek and Warden Creek crossings). Microtunneling and HDD entrance and exit locations shall be set back as far away from wetlands, streams, and riparian vegetation as feasible and consistent with the setback requirements of the CZLUO. Implementation of microtunneling and HDD methodologies shall incorporate a frac-out contingency plan and all relevant Best Management Practices during construction. Maintenance activities associated with pipe suspension that may result in activity within the streambed of Los Osos Creek shall be restricted to periods when the streambed is dry and does not support any flowing water or pooling water in the proposed maintenance area.	Less Than Significant

Table 5.5-2 (Cont.): Biological Resources Proposed Mitigation Measures

Project(s)	(Cont.) Proposed Mitigation Measure(s) - Project-Specific	Effects After Incorporation of Mitigation Measures
California Red-Legged Frog		
1, 2, 3, and 4	**5.5-A8** Additional specific avoidance measures, preconstruction survey requirements, and mitigation measures, if required, will be provided by the USFWS consultation with regard to California red-legged frog. Prior to project construction, the County shall retain a qualified biologist to conduct pre-construction surveys for the California red-legged frog according to protocol approved by the USFWS. Surveys shall be conducted within all areas that at are determined to contain suitable breeding habitats for this species and that occur within 100 feet of proposed construction, or at a distance determined through USFWS consultation.	Less Than Significant
	These areas shall include the following: wetlands within the community of Los Osos; tributaries T-1 and T-2 to Warden Creek on the Tonini property; tributaries W-3, W-4, W-5, W-5a, and W-5b to Warden Creek along the Los Osos Valley Road right-of-way; Warden Creek at the Turri Road crossing; Warden Lake on the Branin property; tributaries W-1 and W-2 to Warden Creek on the Giacomazzi property, and Los Osos Creek at the Los Osos Valley Road crossing. All areas that are determined to be occupied by California red-legged frog shall be avoided during all phases of the proposed project unless authorized and permitted by the USFWS. Construction avoidance and minimization measures will be required for all activities within or adjacent to suitable breeding habitat for this species, as determined through USFWS consultation. Additional conservation measures may be determined through the USFWS consultation.	
Monarch Butterfly		
1, 2, 3, and 4	**5.5-A9** The proposed project shall avoid Monarch butterfly winter roost habitats where feasible. If the proposed project will impact potential winter roost habitat, a qualified biologist with expertise in positively identifying the Monarch butterfly and winter roosting behavior shall conduct preconstruction surveys within all suitable habitat that occurs within the proposed impact area during the months of October through February. All potential roost sites that have a potential to be impacted as a result of construction activities shall be fenced and avoided. No construction activities shall be permitted in the vicinity (within 500 feet) of potential roost sites during the winter roosting months.	Less Than Significant
Morro Bay Blue Butterfly		
1, 2, 3, and 4	**5.5-A10** Construction activities on the Broderson and Mid-town properties shall be conducted in conjunction with relocation efforts for the Morro Bay blue butterfly. Prior to construction activities on the Broderson and Mid-town properties, a qualified biologist shall be retained to conduct relocation efforts for the Morro Bay blue butterfly. Relocation efforts shall include multiple capture and transport surveys of adult Morro Bay blue butterflies throughout the adult flight season (April to June), or according to other protocol recommended for similar blue butterfly species.	Less Than Significant

Table 5.5-2 (Cont.): Biological Resources Proposed Mitigation Measures

Project(s)	(Cont.) Proposed Mitigation Measure(s) - Project-Specific	Effects After Incorporation of Mitigation Measures
	Adult Morro Bay blue butterflies shall be relocated from the proposed impact areas within the Broderson and Mid-town properties to offsite locations to prevent any egg-laying and subsequent development of generation larvae within the proposed impact area. Construction activities shall commence immediately following the completion of the relocation activities. Prior to construction, all potential larval host plants in the immediate vicinity of the proposed impact area shall be fenced and avoided.	
Nesting Birds		
1, 2, 3, and 4	**5.5-A11** If the removal or trimming of any trees or shrubs is proposed during the general bird breeding season (February 1 through August 31), a pre-construction survey shall be conducted by a qualified biologist within 10 calendar days prior to grading activities within any project impact area to identify all active nests in areas impacted throughout project construction and implementation. If an active nest is identified during the pre-construction survey, no construction activity shall take place within a minimum of 250 feet of any active nest until the young have fledged (as determined by a qualified biologist) and/or the nest is no longer determined to be active. Construction activity in the vicinity of any active nest shall be conducted at the discretion of a qualified monitoring biologist. For sensitive species, including Allen’s hummingbird, yellow warbler, and loggerhead shrike, the distance and placement of the construction avoidance shall be a minimum of 250 feet unless otherwise determined through consultation with the CDFG.	Less Than Significant
Nesting Raptors		
1, 2, 3, and 4	**5.5-A12** If the removal or trimming of any trees or shrubs is proposed during the general raptor breeding season (April 1 through July 31), a pre-construction survey shall be conducted by a qualified biologist within 10 calendar days prior to grading activities within any project impact area to identify all active raptor nests in areas impacted throughout project construction and implementation. If an active raptor nest is identified during the pre-construction survey, no construction activity shall take place within a minimum of 500 feet of any active raptor nest until the young have fledged (as determined by a qualified biologist) and/or the nest is no longer determined to be active. Construction activity in the vicinity of any active nest shall be conducted at the discretion of a qualified monitoring biologist. Pursuant to Section 2050 of the CFG Code, the CDFG will not permit any impacts to the California state fully protected raptor white-tailed kite. If an active nest or breeding territory is detected during preconstruction surveys for nesting birds, no construction activities shall take place within 500 feet of the location of the active nest. The area shall be completely avoided and fenced to allow for an adequate buffer from construction activities. A qualified biologist shall be retained to monitor the activity of the nest during the breeding season until it is determined that the nest is no longer active (i.e. all young have fledged the nest and are no individual kites are dependent on the nest).	Less Than Significant

Table 5.5-2 (Cont.): Biological Resources Proposed Mitigation Measures

Project(s)	(Cont.) Proposed Mitigation Measure(s) - Project-Specific	Effects After Incorporation of Mitigation Measures
Morro Manzanita, Monterey Spineflower, and Indian Knob Mountainbalm		
1, 2, 3, and 4	**5.5-A13** Prior to project construction and within all areas on the Broderson and Mid-town properties that contain suitable habitat for Morro manzanita, Monterey spineflower, and Indian knob mountainbalm, a qualified biologist approved by the USFWS shall conduct botanical surveys to identify all sensitive plant species within and in the immediate vicinity of the proposed impact area. Surveys shall be conducted during the local blooming periods for each species and according to recommendations and guidelines prepared by the CDFG and CNPS. All specimens shall be clearly demarcated with flagging, and avoided to the maximum extent feasible during construction. A qualified monitoring biologist shall be retained to monitor all construction activities in the immediate vicinity (within 100 feet) of any flagged specimens. Any impacts that are proposed to the Morro manzanita, Monterey spineflower, and Indian knob mountainbalm shall proceed according to stipulations determined through wildlife agency consultation. Mitigation for Morro manzanita shall include replacement at a minimum ratio of 5:1, unless determined otherwise during wildlife agency consultation. Transplantation and relocation of salvaged specimens, if appropriate and feasible, should be considered during wildlife agency consultation. Salvaged specimens should be transported to an offsite location that is approved by the USFWS, and should be assessed against survival and reproduction success criteria according to a mitigation monitoring plan. The County shall provide a written report to USFWS within 90 days following the completion of the proposed project. The report must document the number of Morro manzanita, Monterey spineflower, and Indian knob mountainbalm removed and relocated from project areas, the locations of all Morro manzanita, Monterey spineflower, and Indian knob mountainbalm relocations, and the number of Morro manzanita, Monterey spineflower, and Indian knob mountainbalm known to be dead or damaged. The report shall 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.	Less Than Significant
Non-Listed Plant and Lichen Species		
1, 2, 3, and 4	**5.5-A14** The proposed project should minimize to the maximum extent feasible any potential impacts to non-listed plant and lichen species designated as sensitive by the CNPS, including Blochman leafy daisy, saint's daisy, San Luis Obispo wallflower, curly-leafed monardella, dune almond, spiraled old man's beard, Los Osos black and white lichen, long-fringed parmotrema, and splitting yarn lichen. A qualified biologist shall conduct botanical surveys within suitable coastal sage scrub habitat on the Broderson and Mid-town properties to identify all sensitive plant and lichen species within and in the immediate vicinity of the proposed impact area.	Less Than Significant

Table 5.5-2 (Cont.): Biological Resources Proposed Mitigation Measures

Project(s)	(Cont.) Proposed Mitigation Measure(s) - Project-Specific	Effects After Incorporation of Mitigation Measures
	Surveys shall be conducted during the local blooming periods for each species, where applicable, and according to recommendations and guidelines prepared by the CDFG and CNPS. All specimens shall be clearly demarcated with flagging and avoided to the maximum extent feasible during construction.	
Compensatory Mitigation		
1, 2, 3, and 4	**5.5-A15** Prior to project construction, land containing coastal sage scrub habitat and/or other habitat shall 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 proposed project shall be acquired within the remaining acres of land on the Broderson property that will not be impacted by the proposed leachfields. Mitigation lands within the Broderson property shall 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 shall 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 shall be prepared. The County shall 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.	Less Than Significant
Habitat Restoration Mitigation		
1, 2, 3, and 4	**5.5-A16** The existing coastal sage scrub within the Broderson property shall be restored 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 activities shall be conducted on the Broderson property by qualified personnel with expertise in restoration ecology and knowledge of sensitive plant and wildlife species in the area. Restoration activities shall be conducted according to a Restoration Plan or similar plan specifically prepared for the effort and approved by USFWS, CDFG, and/or the CNPS. Similarly, restorative measures and maintenance shall be implemented according to a Habitat Mitigation and Monitoring Plan or similar implementation plan that shall require a schedule and program for monitoring and reporting the progress of the restoration effort.	Less Than Significant

Table 5.5-2 (Cont.): Biological Resources Proposed Mitigation Measures

Project(s)	(Cont.) Proposed Mitigation Measure(s) - Project-Specific	Effects After Incorporation of Mitigation Measures
	The Restoration Plan shall 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 shall be least damaging to native species. Any disturbed portion of acquired mitigation lands should be appropriate for restoration into coastal sage scrub habitat and have the potential to support the functions and values necessary for the Morro shoulderband snail, the Morro Bay kangaroo rat, and other sensitive species. The restoration effort shall include the implementation of a seed collection program to gather seeds to be used during restoration from native sources. The seed collection program shall be prepared for approval by the County prior to project construction activities. The seed collection program shall include the use of native plants that will be removed as a result of the project. Collection shall take place by qualified personnel with expertise inbotanical resources during the appropriate time of year for seed production and harvesting. The County shall provide annual reports to the USFWS documenting the results of all restoration and monitoring activities. Annual reports shall 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 leachfields, in addition to other requirements as determined through USFWS consultation and stipulated within permit conditions.	
Project(s)	**Proposed Mitigation Measure(s) - Cumulative**	**Effects After Incorporation of Mitigation Measures**
1, 2, 3, and 4	The incorporation of Mitigation Measures **5.5-A1-- 5.5-A16**, above, would eliminate any cumulative impacts.	Less Than Significant
5.5-B: The project would have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.		
1, 2, 3, and 4	See **Mitigation Measures 5.5-C1** through **5.5-C3** below. See also Mitigation Measures **5.5-A7** and **PS-1.**	Less Than Significant
1, 2, 3, and 4	No additional mitigation is required. See Mitigation Measures **5.5-C1** through **5.5-C3, 5.5-A7, PDF 5.3A-1, PDF 5.3A-2, PDF 5.3A-3, PDF 5.3A-4, PDF 5.3A-5, PDF 5.3A-**6, and **PS-**1	Less Than Significant

Table 5.5-2 (Cont.): Biological Resources Proposed Mitigation Measures

Project(s)	Proposed Mitigation Measure(s) - Project Specific	Effects After Incorporation of Mitigation Measures
5.5-C: The project would have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.		
1, 2, 3, and 4	**5.5-C1** Prior to project approval, the County shall provide an application of a Nationwide or Individual Permit, depending upon the extent of impacts, to the United States Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act (CWA). If required, the County shall obtain a Nationwide or Individual Permit from the USACE for any impacts, temporary and permanent, to any areas within the proposed project which are determined to qualify as jurisdictional waters and wetlands of the U.S. The County shall implement all required conditions and special considerations stipulated within the Nationwide or Individual Permit during all relevant phases of development.	Less Than Significant
1, 2, 3, and 4	**5.5-C2** Prior to project approval, an application for a Water Quality Certification shall be submitted by the County to the Central Coast RWQCB pursuant to Section 401 of the CWA and State Porter-Cologne Water Quality Act. If required, a Water Quality Certification shall be obtained from the Central Coast RWQCB for any impacts, temporary and permanent, to any areas within the proposed project which are determined to qualify as jurisdictional waters of the State. The County shall implement all required conditions and special considerations stipulated within the Water Quality Certification during all relevant phases of development.	Less Than Significant
1, 2, 3, and 4	**5.5-C3** Prior to project approval, a Notification of Lake or Streambed Alteration shall be submitted by the County to the CDFG pursuant to CFG Code Section 1602. If required, a Streambed Alteration Agreement shall be obtained from the CDFG for any impacts, temporary and permanent, to any areas within the proposed project which are determined to qualify as jurisdictional streambed or riparian habitat. The County shall implement all required conditions and special considerations stipulated within the Streambed Alteration Agreement during all relevant phases of development.	Less Than Significant
2, 3, and 4	See also Mitigation Measures 5.5-A7 and PS-1.	Less Than Significant
Project(s)	**Proposed Mitigation Measure(s) - Cumulative**	**Effects After Incorporation of Mitigation Measures**
1, 2, 3, and 4	No additional mitigation is required. See Mitigation Measures **5.5-C1, 5.5-C2, 5.5-C3, 5.5-A7, PDF 5.3A-1, PDF 5.3A-2, PDF 5.3A-3, PDF 5.3A-4, PDF 5.3A-5, PDF 5.3A-6,** and **PS-1**.	Less Than Significant
5.5-D: The project would interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of wildlife nursery sites.		
1, 2, 3, and 4	See Mitigation Measures **5.5-A6, 5.5-A7**, and **5.5-A8**. See also Mitigation Measures **5.5-C1** through **5.5-C3**, and **PS-1**.	Less Than Significant

Table 5.5-2 (Cont.): Biological Resources Proposed Mitigation Measures

Project(s)	(Cont.) Proposed Mitigation Measure(s) - Cumulative	Effects After Incorporation of Mitigation Measures
	No additional mitigation is required. See Mitigation Measures **5.5-A6, 5.5-A7, 5.5-A8, 5.5-C1, 5.5-C2, 5.5-C3**, and PS-1.	Less Than Significant
5.5-E: The project would conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.		
Project(s)	**Proposed Mitigation Measure(s) - Project Specific**	**Effects After Incorporation of Mitigation Measures**
1,2,3 and 4	See Mitigation Measures **5.5-A1** through **5.5-A16**. See also Mitigation Measures **5.5-C1** through **5.5-C3**, and **PS-1**.	Less Than Significant
Project(s)	**Proposed Mitigation Measure(s) - Cumulative**	**Effects After Incorporation of Mitigation Measures**
	No additional mitigation is required. Mitigation Measures **5.5-A1** through **5.5-A16, 5.5-C1** through **5.5-C3, PDF 5.3A-1**, through **PDF 5.3A-6**, and **PS-1**.	

5.5.9 - Level of Significance After Mitigation

Project Specific

Proposed Projects 1 Through 4

Less than significant.

Cumulative

Less than significant.

5.6 - CULTURAL RESOURCES

5.6.1 - Introduction

This section provides an analysis of cultural resources, including Historic Resources (buildings and structures), Archaeological Resources (prehistoric and historic archaeological sites), Paleontological Resources or Geological Feature (unique paleontological or geologic resources), and Human Remains (Native American burials). The preparation of this section of the Draft EIR was based upon extensive analysis as documented in the Expanded Cultural Resource Analysis found in Appendix H-1. The Expanded section utilized recent research conducted by JRP Historical Consulting and Far Western Anthropological Research Group, Inc. Baseline information on previously recorded sites and surveys were acquired from the Central Coast Information Center, University of California Santa Barbara. In addition, field surveys were conducted on portions of the proposed project sites and information from previous studies were also used. Contact with the Native American Heritage Commission regarding human remains and sacred lands was used utilized as well. A complete list of resources used to prepare this section can be found in Appendix H-1 Section 5.6-1.

5.6.2 - Environmental Setting

The four proposed projects all include three distinct functions: raw wastewater collection, wastewater treatment, and conveyance and disposal of treated effluent. These facilities are all located within, south of, and along the eastern outskirts of the community of Los Osos, San Luis Obispo County. The community of Los Osos sits atop a sand dune adjacent to Morro Bay, and lands east of the community are used for agriculture, open space, recreation, rural residential, grazing, and farming. For a complete discussion of the environmental setting from a regional, local, and project site perspective, please refer to Appendix H-1 Section 5.6.2.

5.6.3 - 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 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 preceding 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.

5.6.4 - Regulatory Setting

The principal state regulations relating to preserving historic and archaeological properties are Public Resources Code Section 5020 et seq., California Environmental Quality Act (CEQA) Sections 21083.2 and 21084.1, and CEQA Guidelines Section 15064.5.

For CEQA purposes, “historical resources” include: a resource listed in, or determined eligible for listing in the California Register of Historical Resources; a resource included in a local register of historical resources adopted pursuant to a local ordinance or resolution, or included in a historical resource survey, meeting the requirements of California Public Resource Code Section 5024.1(g). Or, any resource that the lead agency deems to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California.

Paleontological resources may be considered "historically significant" in the scientific annals of California under the CEQA Guidelines section 15064.5[3]. An impact to an identified paleontologic resource is considered "historically significant” and would require mitigation if:

1. Project construction or operation would result in damage or loss of vertebrate or invertebrate fossils that are considered important by paleontologists and land management agency staff; or
2. The resource is considered to have scientific or educational value. A paleontological resource can be considered to have scientific or educational value if it:
    a. provides important information on the evolutionary trends among organisms, relating living inhabitants of the earth to extinct organisms;
    b. provides important information regarding development of biological communities or the interaction between botanical and zoological biota;
    c. demonstrates unusual or spectacular circumstances in the history of life;
    d. is in short supply and in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation and is not found in other geographic locations;
    e. is recognized as a natural aspect of our national heritage;
    f. lived prior to the Holocene (~11,000 BP); and is not associated with an archaeological resource, as defined in section 3(1) of the Archaeological Resources Protection Act of 1979 (16 USC section 470bb[1]).

For a complete discussion of the required regulatory compliance and evaluation criteria as it pertains to cultural resources, please refer to Appendix H-1.

5.6.5 - Thresholds of Significance

According to the CEQA Guidelines' Appendix G Environmental Checklist, to determine whether impacts to cultural resources are significant environmental effects, the following questions are analyzed and evaluated. Thresholds of significance their significance determinations are as follows:

Would the project:

a. Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?
d. Disturb any human remains, including those interred outside of formal cemeteries?

Other Thresholds

For the purpose of the proposed project, the following threshold has been added to evaluate the project's consistency with applicable goals, policies, and regulations related to cultural resources:

a. "Where development would adversely impact archaeological or paeolontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required" (California Coastal Act of 1976, Section 30244).

5.6.6 - Level of Significance Prior to Mitigation

No impacts were found related to historic resources and this issue will not be discussed further. The complete analysis and rationale for determining a Less Than Significant or No Impact for each of the thresholds of significance can be found in Appendix H-1. All other thresholds had a potentially significant impact prior to mitigation for at least one of the proposed projects. See Table 5.6-1 below.

Table 5.6-1: Cultural Resources Significance Determination

PS - Potentially Significant; LTS - Less Than Significant; NI - No Impact					
	Project 1	**Project 2**	**Project 3**	**Project 4**	**Cumulative**
Collection					
Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	NI	NI	NI	NI	NI
Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	**PS**	**PS**	**PS**	**PS**	**PS**
Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	**PS**	**PS**	**PS**	**PS**	NI
Disturb any human remains, including those interred outside of formal cemeteries?	**PS**	**PS**	**PS**	**PS**	**PS**
"Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required"(California Coastal Act of 1976, § 30244).	**PS**	**PS**	**PS**	**PS**	**PS**
Treatment					
Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	NI	NI	NI	NI	NI
Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	**PS**	**PS**	**PS**	**PS**	**PS**
Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	NI	NI	NI	NI	NI
Disturb any human remains, including those interred outside of formal cemeteries?	**PS**	**PS**	**PS**	NI	**PS**
"Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required"(California Coastal Act of 1976, § 30244).	**PS**	**PS**	**PS**	**PS**	**PS**
Disposal					
Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	NI	NI	NI	NI	NI

Table 5.6-1 (Cont.): Cultural Resources Significance Determination

PS - Potentially Significant; LTS - Less Than Significant; NI - No Impact					
	Project 1	**Project 2**	**Project 3**	**Project 4**	**Cumulative**
Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	**PS**	**PS**	**PS**	**PS**	**PS**
Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	NI	NI	NI	NI	NI
Disturb any human remains, including those interred outside of formal cemeteries?	NI	NI	NI	NI	**PS**
"Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required"(California Coastal Act of 1976, § 30244).	**PS**	**PS**	**PS**	**PS**	**PS**
Combined Project					
Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	NI	NI	NI	NI	NI
Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	**PS**	**PS**	**PS**	**PS**	**PS**
Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	NI	NI	NI	NI	NI
Disturb any human remains, including those interred outside of formal cemeteries?	**PS**	**PS**	**PS**	**PS**	**PS**
"Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required"(California Coastal Act of 1976, § 30244).	**PS**	**PS**	**PS**	**PS**	**PS**

Archaeological Resource

Impact 5.6-B: **The project would cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5.**

Project-Specific Impact Analysis

The various proposed projects have many impact areas in common (e.g., the main collection system within the community of Los Osos), while the proposed location for the treatment and storage facilities has the most options. The collection system in the streets of the community of Los Osos has the potential to impact many known, eligible sites if the design plan differs from the 2005 plan (Far Western Anthropological Group, Inc, 2001), while construction of the raw wastewater and treated effluent pipelines to the proposed treatment/storage facilities, as well as the treatment/storage facilities and disposal sites has the potential to significantly impact important sites, ranging from only one for Project 4 to as many as five for Project 1 (Table 5.6-2).

Table 5.6-2: Archaeological Sites, Sensitivity, and Potential Buried Deposits within Proposed Project Areas

Project	Collection System				Treatment Plant				Disposal Areas				Combined			
	H	L	S	B	H	L	S	B	H	L	S	B	H	L	S	B
1	2	3	•	•	4	0	—	—	1	3	—	•	5	6	•	•
2	2	3	•	•	2	0	—	—	1	3	—	•	4	6	•	•
3	2	3	•	•	3	1	—	—	1	3	—	•	5	7	•	•
4	0	3	•	•	1	1	—	—	1	2	—	•	1	6	•	•

Notes:
Sites within the collection system in Los Osos have not been counted;
Collection System count is sites within or adjacent to Los Osos Valley Road;
Combined count does not include duplicate sites;
H = moderate to high potential for site eligibility
L = low potential for site eligibility
S = high archaeological sensitivity area (does not include specific sites within the community of Los Osos)
B = buried site potential high
• = present.
Three previously evaluated non-contributing site areas (SLO-1212, -1795, and -2007) occur in each of the four projects.
Source: Jones and Mikkelsen, 2008.

Proposed Project 1

Collection System

The collection system within the community extends across areas of high archaeological sensitivity where trenching would have a significant impact, primarily on the dense midden deposits rimming the bay. The raw wastewater and treated effluent pipelines along Los Osos Valley Road to the Giacomazzi parcel would encounter five potentially significant deposits: SLO-2569, SLO-4, SLO-25, SLO-462, and SLO-1512. A portion of Los Osos Valley Road from Los Osos Creek eastward to the Cemetery parcel is of high sensitivity for buried archaeological sites that might also be affected by trenching (Exhibit 5.6-1 and 5.6-2).

Proposed Project 1 would include a combination Septic Tank Effluent Pumps (STEP)/Septic Tank Effluent Gravity (STEG) collection system. A key feature of the system is that it will require individual property owners to decommission their old septic tanks. Excavation for the STE tank as a replacement for the existing septic tanks at each property could result in an unknown amount of impact to potentially significant archaeological resources. All four proposed projects will require installation of a four-inch lateral onto private property. In the case of the STEP/STEG, it will connect to the new tank.

Treatment Plant Site

The placement of the treatment plant would have an effect on the prehistoric and historic-era archaeological site (SLO-2569) and prehistoric site (SLO-2570) situated on the Giacomazzi parcel. As no access to the Branin or Cemetery parcels was obtained, it is unknown whether there would be effects to previously recorded archaeological sites SLO-13 or SLO-25, described as burial and occupation deposits located on the Branin and Cemetery parcels, respectively.

Disposal Sites

Sprayfields proposed for the Tonini parcel would affect three prehistoric sites (SLO-2571, SLO-2572, and SLO-2573) and one historic-era site (SLO-2574H). There is a moderate to high potential for buried archaeological deposits on a portion of the sprayfields. These impacts would remain the same for all Proposed Projects.

Combined Project Effects

The project would potentially effect eleven recorded archaeological sites (access to two of these could not be obtained), encounter areas of high archaeological sensitivity surrounding the bay, and cross two areas of high sensitivity for potential buried resources – one along Los Osos Valley Road and one on the Tonini parcel.

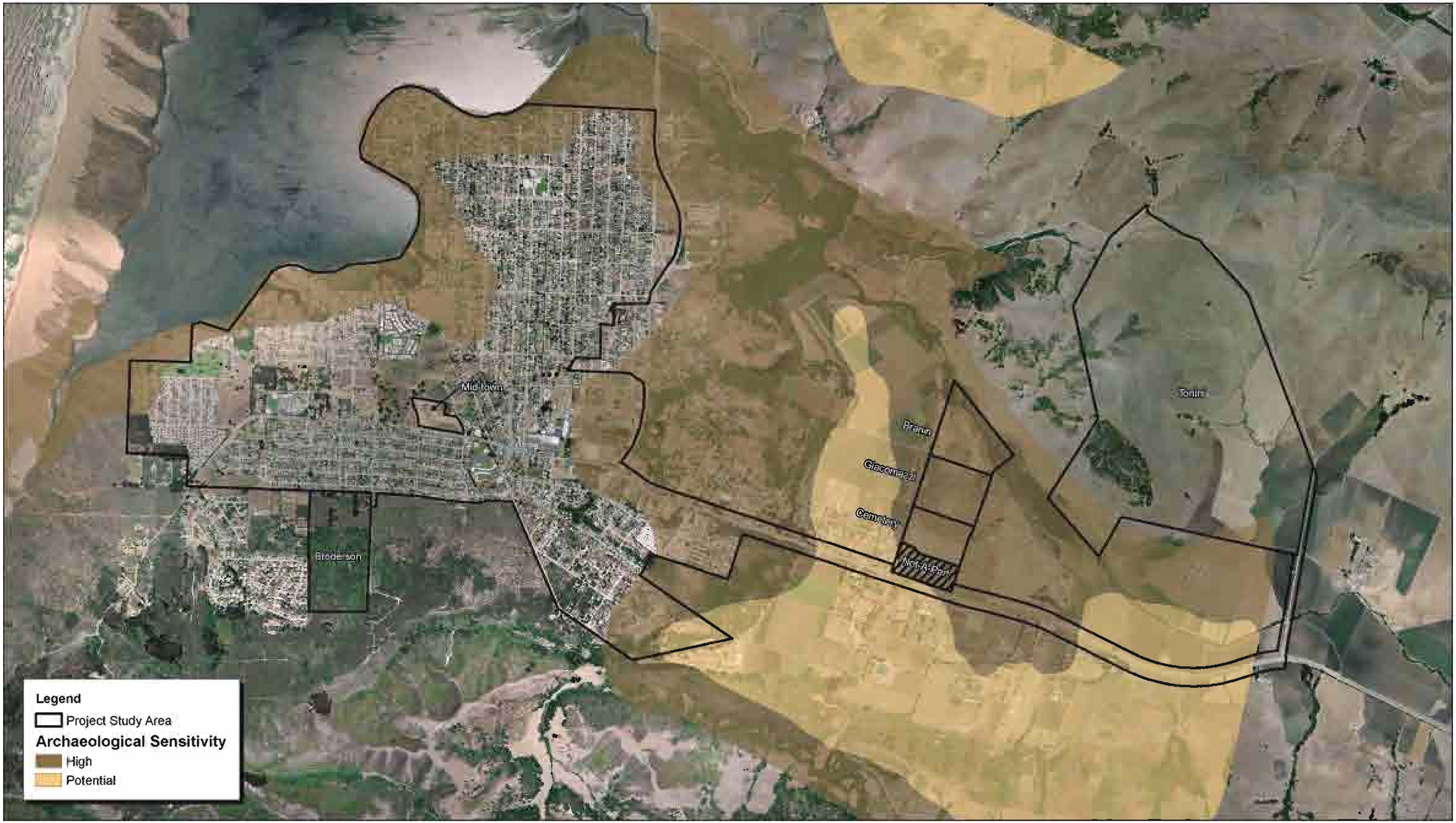
Proposed Project 2

Collection System

The impacts related to the collection system of Proposed Project 2, and 3 are the similar to those of Proposed Project 1. However, since Project 2 and 3 does not require the installation of a new STE tank at individual property sites, the amount of potential disturbance to unknown archaeological resources is reduced. Furthermore, the footprint of the lateral line into each house could be modified to reduce any potential impacts to significant archaeological resources.

Treatment Plant Site

The placement of the treatment plant would have an effect on the prehistoric and historic-era archaeological site (SLO-2569) and prehistoric site (SLO-2570) situated on the Giacomazzi parcel.



Source: AirPhoto USA, San Luis Obispo County GIS Data, Far Western GIS Data, and MBA GIS Data.

Michael Brandman Associates

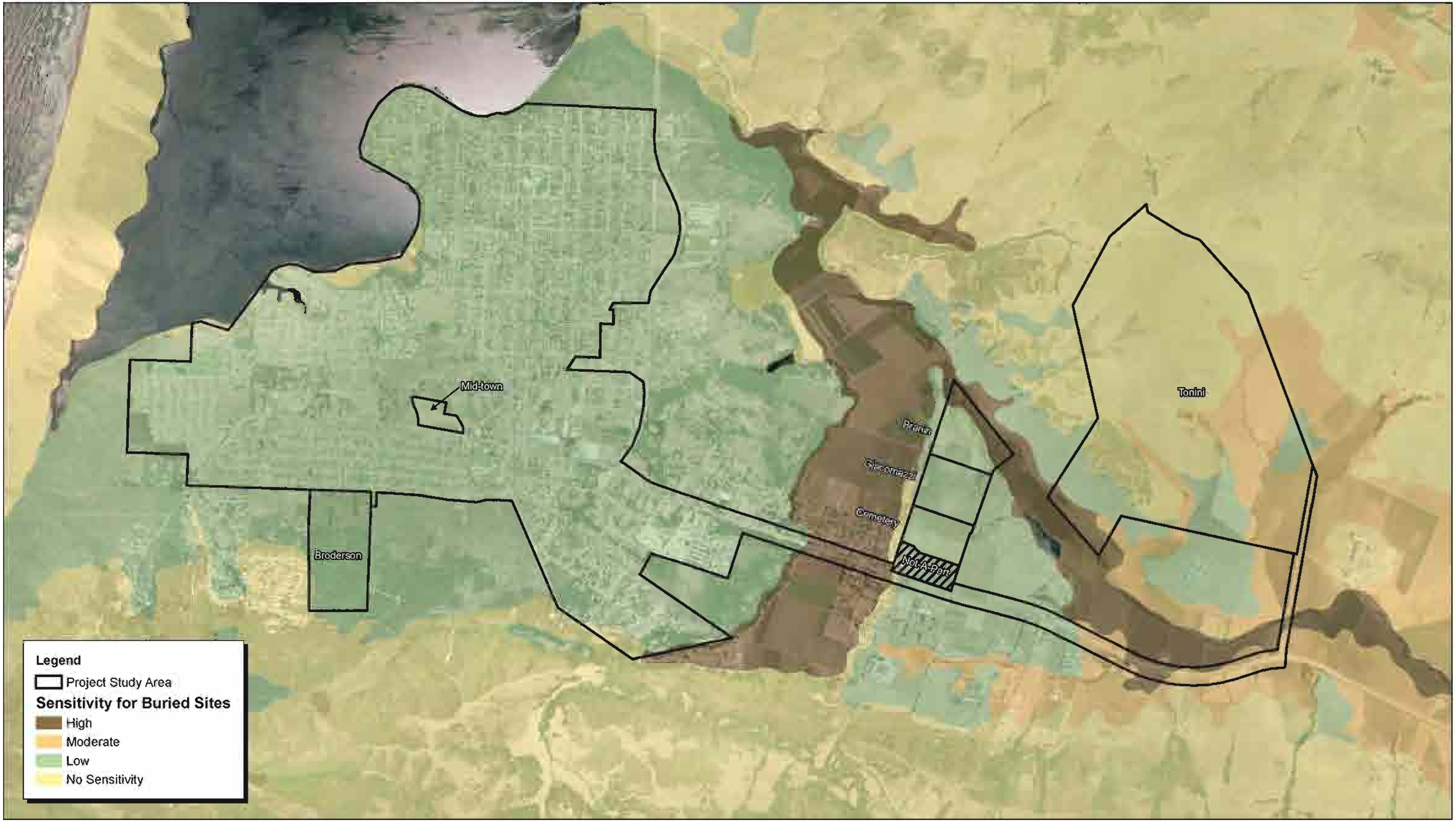
NORTH

2,000 1,000 0 2,000 Feet

Exhibit 5.6-1
Archaeological Sensitive Areas

02240002 • 11/2008 | 5.6-1_archaeo_sensitive_areas.mxd

COUNTY OF SAN LUIS OBISPO • LOS OSOS WASTEWATER PROJECT
ENVIRONMENTAL IMPACT REPORT



Source: AirPhoto USA, San Luis Obispo County GIS Data, Far Western GIS Data, and MBA GIS Data.

Michael Brandman Associates

NORTH

2,000 1,000 0 2,000 Feet

02240002 • 11/2008 | 5.6-2_buried_sensitive_areas.mxd

Exhibit 5.6-2
Sensitivity for Buried Archaeological Resources

COUNTY OF SAN LUIS OBISPO • LOS OSOS WASTEWATER PROJECT
ENVIRONMENTAL IMPACT REPORT

Combined Project Effects

The project would potentially effect ten recorded archaeological sites (access to one of these could not be obtained), encounter areas of high archaeological sensitivity surrounding the bay, and cross two areas of high sensitivity for potential buried resources – one along Los Osos Valley Road and one on the Tonini parcel.

Proposed Project 3

Treatment Plant Site

The placement of the treatment plant would have an effect on the prehistoric and historic-era archaeological site (SLO-2569) and prehistoric site (SLO-2570) situated on the Giacomazzi parcel. As no access to the Branin parcel was obtained, it is unknown whether there would be impacts to previously recorded archaeological site SLO-13 (a prehistoric burial and habitation deposit). A potential historic-era archaeological site (parcel 067-011-020), identified by archival research as a possible Azores immigrant ranch complex; historic features could be present.

Combined Project Effects

The project would potentially effect twelve recorded archaeological sites (access to two of these could not be obtained), encounter areas of high archaeological sensitivity surrounding the bay, and cross two areas of high sensitivity for potential buried resources – one along Los Osos Valley Road and the other on the Tonini parcel.

Proposed Project 4

Collection System

The collection system within the community extends across areas of high archaeological sensitivity where trenching would have a negative effect primarily on dense midden deposits rimming the bay. This impact is similar for all four Proposed Projects. The raw wastewater and treated effluent pipelines along Los Osos Valley Road to the Tonini parcel would encounter three potentially significant deposits, SLO-4, SLO-462, and SLO-1512, the same as for Proposed Projects 1, 2 and 3. Recorded sites that would not be significantly affected based on prior evaluation include CA-SLO-1212, SLO-1795, and SLO-2007. Two sites associated with Proposed Projects 1, 2 and 3 (G1/H and SLO-25) would be avoided. A portion of Los Osos Valley Road from Los Osos Creek eastward to the Cemetery parcel and portions of the Tonini parcel are of high sensitivity for buried archaeological sites and could be affected by trenching.

Treatment Plant Site

Placement of the treatment plant on the Tonini parcel would have potential effects on two prehistoric archaeological sites (SLO-2571 and SLO-2573).

Combined Project Effects

The project would potentially affect seven recorded archaeological sites, encounter areas of high archaeological sensitivity surrounding the bay, and cross two areas of high sensitivity for potential buried resources along Los Osos Valley Road and on the Tonini parcel.

Cumulative Impact Analysis

As defined by CEQA, cumulative impacts refer to two or more individual effects which, when considered together, compound or increase other environmental impacts.

It is not possible to predict all future impacts to cultural resources within the Los Osos Wastewater Project area. Once construction of the treatment plant, collection pipelines, pump stations, and standby power facilities are completed, likely no continued or cumulative impacts would occur to cultural resources within the Project Area of Potential Effects from these aspects of the system.

Table 4-1 lists projects that are scheduled to occur during the same time as the LOWWP. An unknown amount of impacts to archaeological resources could occur as a result of the Los Osos Valley Road Palisades Storm Drain Project; however Exhibits 5.6-1 and 5.6-2 do not place the storm drain project in an area with a high sensitivity. Potential impacts associated with the Los Osos Community Service District Water Pipeline Replacement should not result in any further impacts to cultural resources.

Paleontological Resource or Geologic Feature

Impact 5.6-C:	**The project would not directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.**

Project-Specific Impact Analysis

Proposed Project 1

The entire collection system within the community extends across areas of recent eolian and alluvial deposits and has an extremely low potential to contain fossils. Proposed Project 1 would include a combination STEP/ STEG collection system. A key feature of the STEP/STEG system is that it will require individual property owners to decommission their old septic tanks. All four proposed projects will require installation of a four-inch lateral onto private property. In the case of the STEP/STEG, it will connect to the new tank.

Treatment Plant Site

The placement of the treatment plant would have no effect on paleontologic resources. The shallow depths of foundations would be well above the depths to the fossil bearing deposits in the valley.

Disposal Sites

The leachfields at Broderson and sprayfields proposed for the Tonini parcel would not extend deeper than 6.5 feet and would have no impact on any potential fossil-bearing deposits.

Combined Project Effects

The project is not expected to affect any fossil-bearing deposits and therefore would have no combined project effect.

Proposed Project 2 through 4

Collection System

Impacts would be the same as Project 1.

Treatment Plant Site

Impacts would be the same as Project 1.

Disposal Sites

Impacts would be the same as Project 1.

Combined Project Effects

Impacts would be the same as Project 1.

Cumulative Impact Analysis

Since there are no impacts to paleontology associated with the project, no additional cumulative impacts would occur.

Human Remains

Impact 5.6-D:	**The project would disturb human remains, including those interred outside of formal cemeteries.**

Project-Specific Impact Analysis

Proposed Project 1

Collection System

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, 2001; 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. If the design plan varies in any way from the proposed 2005 plan, additional human remains could potentially be disturbed.

Proposed Project 1 would include a combination STEP/STEG collection system, which will require individual property owners to decommission their old septic tanks. Excavation for the STE tank as a replacement for the existing septic tanks at each property could result in an unknown amount of impact to human remains. The presence of human remains within individual properties is unknown at this time. Avoidance of burials in these situations would be difficult to attain due to limited space and the need for significant excavation to accommodate the STE tanks. All four proposed projects will require installation of a four-inch lateral onto private property. In the case of the STEP/STEG, it will connect to the new tank.

Site SLO-25 is a prehistoric habitation site with reported burials. This site could be potentially impacts by the raw wastewater pipeline associated with Proposed Project 1.

Treatment Plant Site

Three sites have the potential for human remains within the proposed Treatment Plant site location. Site SLO-2569 is described as a prehistoric habitation site, a site type which commonly has associated burials; no remains have been identified based on surface examination. Site SLO-13 is a prehistoric habitation site with known burials, and site SLO-25 is a prehistoric habitation site with reported burials. The remaining sites are flake scatters that are unlikely to have associated human remains.

Disposal Sites

No sites within the Disposal location are likely to have human remains as they are all identified as flake scatters. These impacts would remain the same for all Proposed Projects.

Combined Project Effects

Human remains would be disturbed at several sites within the Collection system, rimming the bay and Sweet Springs, and one site with the potential for human remains, and two sites with known or reported human remains would be disturbed within the Treatment Plant location.

Proposed Project 2

Collection System

The collection system associated with Proposed Projects 2, 3 and 4 would disturb human remains within the identified sensitive areas 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. If the design plan varies in any way from the proposed 2005 plan, human remains will be disturbed.

The gravity collection systems allow some flexibility in the placement of the lateral across private property. In areas of high archaeological sensitivity (e.g., within site boundaries or in the vicinity of known human burials) it may be possible to bore beneath the deposit for placement of the lateral.

Site SLO-25 is a prehistoric habitation site with reported burials. This site could be potentially impacts by the raw wastewater pipelines associated with either Proposed Projects 1, 2, or 3.

Treatment Plant Site

One site has the potential for human remains within the proposed Treatment Plant site location. Site SLO-2569 is described as a prehistoric habitation site, a site type that commonly has associated burials; no remains have been identified based on surface examination.

Combined Project Effects

Human remains would be disturbed at several sites within the Collection system, rimming the bay and Sweet Springs, and one site with the potential for human remains would be disturbed within the Treatment Plant location.

Proposed Project 3

Treatment Plant Site

Two sites have the potential for human remains within the proposed Treatment Plant site location. Site SLO-2569 is described as a prehistoric habitation site, a site type that commonly has associated burials; no remains have been identified based on surface examination. Site SLO-13 is a prehistoric habitation site with known burials. The remaining sites are flake scatters, which are unlikely to have associated human remains.

Combined Project Effects

Human remains would be disturbed at several sites within the Collection system, rimming the bay and Sweet Springs, and one site with the potential for human remains, and one site with known human remains would be disturbed within the Treatment Plant location.

Proposed Project 4

Collection System

Impacts associated with the collection system for Proposed Project 4 would be similar to those of Proposed Project 2 and 3, but would not impact the potential burials associated with SLO-25and SLO-2569 found on the Cemetery and Giacomazzi properties respectively.

Treatment Plant Site

There are no known sites that would be likely to contain human remains within the proposed Treatment Plant location.

Combined Project Effects

Human remains would be disturbed at several sites within the Collection system, rimming the bay and Sweet Springs.

Cumulative Impact Analysis

It is not possible to predict all future impacts to human remains within the Los Osos Wastewater Project area. Once construction of the treatment plant, collection pipelines, pump stations, and standby power facilities are completed, likely no continued or cumulative impacts would occur to cultural resources within the Project Area of Potential Effects from these aspects of the system.

Table 4-1 in Section 4, Environmental Setting, lists projects that are scheduled to occur during the same time as the Los Osos Wastewater Project. An unknown amount of impacts to archaeological resources could occur as a result of the Los Osos Valley Road Palisades Storm Drain Project; however Exhibits 5.6-1 and 5.6-2 do not place the storm drain project in an area with a high sensitivity. Potential impacts associated with the Los Osos Community Service District Water Pipeline Replacement should not result in any further impacts to cultural resources.

Local Policies or Ordinances Protecting Cultural Resources

Impact 5.6-E: The project would conflict with the California Coastal Act of 1976, Section 30244.

Project-Specific Impact Analysis

Proposed Project 1

Collection System

The collection system within the community extends across areas of high archaeological sensitivity where trenching and excavations associated with installation of the STE tanks would have a significant impact, primarily on the dense midden deposits rimming the bay. The raw wastewater and treated effluent pipelines along Los Osos Valley Road to the Giacomazzi parcel would encounter five potentially significant deposits: SLO-2569, SLO-4, SLO-25, SLO-462, and SLO-1512. Recorded sites that would not be significantly affected based on prior evaluation include SLO-1212, SLO-1795, and SLO-2007. A portion of Los Osos Valley Road from Los Osos Creek eastward to the Cemetery parcel is of high sensitivity for buried archaeological sites that might also be affected by trenching.

Treatment Plant Site

The placement of the treatment plant would have an effect on the prehistoric and historic-era archaeological site (SLO-2569) and prehistoric site (SLO-2570) situated on the Giacomazzi parcel. As no access to the Branin or Cemetery parcels was obtained, it is unknown whether there would be effects to previously recorded archaeological sites SLO-13 or SLO-25, described as burial and occupation deposits located on the Branin and Cemetery parcels, respectively.

Disposal Sites

Sprayfields proposed for the Tonini parcel would affect three prehistoric sites (SLO-2571, SLO-2572, and SLO-2573) and one historic-era site (SLO-2574H). There is a moderate to high potential for buried archaeological deposits on a portion of the sprayfields. These impact would be the same for all four Proposed Projects.

Combined Project Effects

The project would potentially effect eleven recorded archaeological sites (access to two of these could not be obtained), encounter areas of high archaeological sensitivity surrounding the bay, and cross two areas of high sensitivity for potential buried resources – one along Los Osos Valley Road and one on the Tonini parcel.

Proposed Project 2

Collection System

The collection system within the community extends across areas of high archaeological sensitivity where trenching would have a significant impact, primarily on the dense midden deposits rimming the bay. Raw wastewater and treated effluent pipelines along Los Osos Valley Road to the Giacomazzi parcel would encounter five potentially significant deposits SLO-2569, CA-SLO-4, SLO-25, SLO-

462, and SLO-1512. Recorded sites that would not be significantly affected based on prior evaluation include SLO-1212, SLO-1795, and SLO-2007. A portion of Los Osos Valley Road from Los Osos Creek eastward to the Cemetery parcel is of high sensitivity for buried archaeological sites that also could be affected by trenching.

The gravity collection systems allow some flexibility in the placement of the lateral across private property. In areas of high archaeological sensitivity (e.g., within site boundaries or in the vicinity of known human burials) it may be possible to bore beneath the deposit for placement of the lateral.

Treatment Plant Site

The placement of the treatment plant would have an effect on the prehistoric and historic-era archaeological site (SLO-2569) and prehistoric site (SLO-2570) situated on the Giacomazzi parcel.

Combined Project Effects

The project would potentially effect ten recorded archaeological sites (access to one of these could not be obtained), encounter areas of high archaeological sensitivity surrounding the bay, and cross two areas of high sensitivity for potential buried resources – one along Los Osos Valley Road and one on the Tonini parcel.

Proposed Project 3

Collection System

The collection system within the community extends across areas of high archaeological sensitivity where trenching would have a significant impact, primarily on the dense midden deposits rimming the bay. Treatment and effluent lines along Los Osos Valley Road to the Giacomazzi parcel would encounter five potentially significant deposits SLO-2569, CA-SLO-4, SLO-25, SLO-462, and SLO-1512. A portion of Los Osos Valley Road from Los Osos Creek eastward to the Cemetery parcel is of high sensitivity for buried archaeological sites that would be affected by trenching.

Treatment Plant Site

The placement of the treatment plant would have an effect on the prehistoric and historic-era archaeological site (SLO-2569) and prehistoric site (SLO-2570) situated on the Giacomazzi parcel. As no access to the Branin parcel was obtained, it is unknown whether there would be impacts to previously recorded archaeological site SLO-13 (a prehistoric burial and habitation deposit) and a potential historic-era archaeological site (parcel 067-011-020), identified by archival research as a possible Azores immigrant ranch complex; historic features could be present.

Combined Project Effects

The project would potentially effect twelve recorded archaeological sites (access to two of these could not be obtained), encounter areas of high archaeological sensitivity surrounding the bay, and cross two areas of high sensitivity for potential buried resources – one along Los Osos Valley Road and the other on the Tonini parcel.

Proposed Project 4

Collection System

The collection system within the community extends across areas of high archaeological sensitivity where trenching would have a negative effect primarily on dense midden deposits rimming the bay. Treatment and effluent lines along Los Osos Valley Road to the Tonini parcel would encounter three potentially significant deposits, SLO-4, SLO-462, and SLO-1512. Recorded sites that would not be significantly affected based on prior evaluation include CA-SLO-1212, SLO-1795, and SLO-2007. A portion of Los Osos Valley Road from Los Osos Creek eastward to the Cemetery parcel and portions of the Tonini parcel are of high sensitivity for buried archaeological sites and would be affected by trenching.

Treatment Plant Site

Placement of the treatment plant on the Tonini parcel would have potential effects on two prehistoric archaeological sites (SLO-2571 and SLO-2573).

Combined Project Effects

The project would potentially affect seven recorded archaeological sites, encounter areas of high archaeological sensitivity surrounding the bay, and cross two areas of high sensitivity for potential buried resources along Los Osos Valley Road and on the Tonini parcel.

Cumulative Impact Analysis

It is not possible to predict all future impacts to cultural resources within the Los Osos Wastewater Project area. Once construction of the treatment plant, collection pipelines, pump stations, and standby power facilities are completed, likely no continued or cumulative impacts would occur to cultural resources within the Project Area of Potential Effects from these aspects of the system.

Table 4-1 lists projects that are scheduled to occur during the same time frame as the Los Osos Wastewater Project. An unknown amount of impacts to archaeological resources could occur as a result of the Los Osos Valley Road Palisades Storm Drain Project; however Exhibits 5.6-1 and 5.6-2 do not place the storm drain project in an area with a high sensitivity. Potential impacts associated with the Los Osos Community Service District Water Pipeline Replacement should not result in any further impacts to cultural resources.

5.6.7 - Mitigation Measures

Table 5.6-3: Proposed Mitigation Measures

Project(s)	Proposed Mitigation Measure(s) - Project-Specific	Effects After Incorporation of Mitigation Measures
5.6-B: Archaeological Resources		
1, 2, 3, and 4	**5.6-B1:** Avoidance of cultural resources is the paramount mitigation measure to protect cultural resources potentially impacted during project development.	Less Than Significant
1, 2, 3, and 4	**5.6-B2:** A Treatment Plan shall be prepared that would detail the extensive scope of the proposed project, establish site types with corresponding levels of effort for mitigation, and detail data recovery and monitoring plans for the extent of the proposed project. The former Treatment Plan (Far Western 2001) prepared for the wastewater project shall be adapted and modified where appropriate for the current project.	Less Than Significant
1, 2, 3, and 4	**5.6-B3:** Any project components of the approved project design not previously surveyed for archaeological resources shall be subject to a pedestrian survey by a qualified archaeologist. For example, in the case of Proposed Project 1, if selected, survey of the Cemetery and Branin parcels shall be completed. Field survey shall establish the surface boundaries of the previously recorded sites (SLO-13 and SLO-25) and the potential historic-era ranch complex (Parcel #067-011-020), if these are found to exist within the parcels. Any newly identified sites shall be recorded.	Less Than Significant
1, 2, 3, and 4	5**.6-B4:** 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 shall be undertaken to establish boundaries and evaluate the resources' potential eligibility to the California Register of Historical Resources under CEQA and the National Register of Historic Places under NEPA. If a site is determined ineligible, no further work will be required. If a site is determined eligible, data recovery excavations shall be required to mitigate adverse effects incurred from project development.	Less Than Significant
1, 2, 3, and 4	**5.6-B5**: H Historic-era ranch/farm complexes may contain intact artifact deposits from early periods of occupation (in privies, trash pits, wells, etc.). Management of resources, such as the potential Azores immigrant farm complex located on the Branin parcel (Project 1), would require initial investigations to determine whether intact features are present. All historic artifact deposits on properties included in the preferred project alternative shall have detailed surface mapping showing the location of identified features; additional documentary research; and possible testing of the features to determine their data potential. Testing shall be performed by a qualified historical archaeologist and could include controlled backhoe trenching to search effectively for buried features.	Less Than Significant
1, 2, 3, and 4	**5.6-B6:** Preconstruction monitoring shall occur in areas ranked as high in sensitivity for buried deposits. Two such areas have been identified within the proposed project area: (1) along Los Osos Valley Road from Los Osos Creek east to the Cemetery Parcel; and (2) in the western portion of the Tonini Parcel. Mechanical backhoe trenching shall be conducted within the	Less Than Significant

Table 5.6-3 (Cont.): Proposed Mitigation Measures

Project(s)	Proposed Mitigation Measure(s) - Project-Specific	Effects After Incorporation of Mitigation Measures
	sensitive areas where any construction impacts will occur and shall 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 shall require project redesign to avoid impacts, or data recovery to mitigate unavoidable impacts.	
1, 2, 3, and 4	**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 addition testing, monitoring, and/or data recovery shall be required to reduce impacts to a less-than-significant level.	Less Than Significant
1, 2, 3, and 4	**5.6-B8:** As full analysis, processing, documentation, curation, and reporting of the project collections were not achieved because of the stop-work order on the 2005 wastewater project. These tasks shall 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 shall be made available to the general public and local Native Americans, as well as to the scientific community.	Less Than Significant
1, 2, 3, and 4	The incorporation of mitigation measures 5.6-B3, 5.6-B4, and 5.6-B6 will address cumulative impacts to Archaeological Resources.	Less Than Significant
5.6-C: Paleontological Resources or Geologic Feature		
1, 2, 3, and 4	**5.6-C1:** Although unlikely, should any vertebrate fossils or potentially significant finds (e.g., numerous well-preserved invertebrate or plant fossils) be encountered by anyone working on the site, all activities in the immediate vicinity of the find are to cease until a qualified paleontologist evaluates the find for its scientific value. If deemed significant, the paleontological resource(s) shall be salvaged and deposited in an accredited and permanent scientific institution where they will be properly curated and preserved for the benefit of current and future generations.	No Impact
5.6-D: Human Remains		
1, 2, 3, and 4	**5.6-D1:** A Memorandum of Agreement has been prepared for the treatment and disposition of human remains and associated burial items. 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 Descendents approved by the Native American Heritage Commission; these individuals are signatories on the Agreement.	Less Than Significant
1, 2, 3, and 4	**5.6-D2:** For sites with known human remains or which have a potential for human remains, pre-construction excavations shall take place within the direct impact areas to insure that no human remains are present.	Less Than Significant

Table 5.6-3 (Cont.): Proposed Mitigation Measures

Project(s)	Proposed Mitigation Measure(s) - Project-Specific	Effects After Incorporation of Mitigation Measures
1, 2, 3, and 4	**5.6-D3:** If human remains are encountered within the project area, the County shall 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 Assembly Bill 2641. Restrictions or procedures for excavation, treatment, or handling of human remains shall be established in consultation with the individuals designated by the Native American Heritage Commission as the Most Likely Descendents.	Less Than Significant

5.6.8 - Level of Significance After Mitigation

According to the analysis of environmental effects after the incorporation of the proposed mitigation measures found in Appendix H-1 and as shown in Table 5.6-2 above, all potential impacts related to cultural resource are expected to be less than significant.

Project Specific

Proposed Projects 1 Through 4

Less than significant.

Cumulative

Proposed Projects 1 Through 4

Less than significant.

5.7 - PUBLIC HEALTH AND SAFETY

5.7.1 - Introduction

This section provides an analysis of public health and safety based on extensive analysis documented in the Expanded Public Health and Safety Analysis found in Appendix I-1. The Expanded section utilized numerous resources related to handling hazardous materials during construction and operation of the proposed projects, as well as in the event of reasonably foreseeable accident conditions. A complete list of resources used to prepare this section can be found in Appendix I-1.

5.7.2 - Environmental Setting

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. The purpose of the Los Osos Wastewater Facilities project is to alleviate current threats to the domestic water supply, reduce frequent flooding, and comply with Regional Water Quality Control Board (RWQCB) Order No. R3-2003-0007.

5.7.3 - Regulatory Setting

Various regulations set forth criteria and specific requirements for the benefit of public health and safety from hazardous materials, including (but not limited to): the Federal Hazardous Materials Transportation Act; the Federal Resource Conservation and Recovery Act; the California Hazardous Substance Control Law; the State Emergency Response Act; the State Hazardous Materials Management Act; the California Health and Safety Code § 25550; the San Luis Obispo County Hazardous Materials Emergency Response Plan; and the San Luis Obispo County General Plan Safety Element. For a complete discussion of the regulatory setting, please refer to Appendix I-1.

5.7.4 - Thresholds of Significance

According to the CEQA Guidelines Appendix G Environmental Checklist, to determine whether hazards and hazardous materials impacts are significant environmental effects, the following questions are analyzed and evaluated.

Would the project:

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

b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the hazardous materials into the environment?

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

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

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

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

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

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

5.7.5 - Level of Significance Prior to Mitigation

Less Than Significant or No Impacts found related to the project were for: a project located within an airport land use plan; a project within the vicinity of a private airstrip; being on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5; a project that would impede the implementation of an emergency response or evacuation plan; or expose people or structures to hazards related to wildland fires. These issues will not be discussed further. The complete analysis and rationale for determining a Less Than Significant or No Impact for each of the thresholds of significance can be found in Appendix I-1.

Table 5.7-1: Public Health and Safety Significance Determination

PS - Potentially Significant; LTS - Less Than Significant; NI - No Impact					
	Project 1	**Project 2**	**Project 3**	**Project 4**	**Cumulative**
Collection					
Create a significant hazard to the residents, visitors, and construction personnel to health hazards from the routine transport, use, or disposal of hazardous materials during construction activities?	**PS**	**PS**	**PS**	**PS**	LTS
Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	LTS	LTS	LTS	LTS	LTS
Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the hazardous materials into the environment?	**PS**	**PS**	**PS**	**PS**	LTS
Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions?	**PS**	**PS**	**PS**	**PS**	LTS
Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	**PS**	**PS**	**PS**	**PS**	LTS
Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	NI	NI	NI	NI	NI
For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	NI	NI	NI	NI	NI
For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	NI	NI	NI	NI	NI
Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	NI	NI	NI	NI	NI
Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	LTS	LTS	LTS	LTS	LTS
Conflict with local goals and policies relating to public health and safety?	LTS	LTS	LTS	LTS	LTS

Table 5.7-1 (Cont.): Public Health and Safety Significance Determination

PS - Potentially Significant; LTS - Less Than Significant; NI - No Impact					
	Project 1	Project 2	Project 3	Project 4	Cumulative
Treatment					
Create a significant hazard to the residents, visitors, and construction personnel to health hazards from the routine transport, use, or disposal of hazardous materials during construction activities?	**PS**	**PS**	**PS**	**PS**	LTS
Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	**PS**	**PS**	**PS**	**PS**	LTS
Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the hazardous materials into the environment?	**PS**	**PS**	**PS**	**PS**	LTS
Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions?	**PS**	**PS**	**PS**	**PS**	LTS
Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	NI	NI	NI	NI	NI
Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	NI	NI	NI	NI	NI
For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	NI	NI	NI	NI	NI
For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	NI	NI	NI	NI	NI
Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	NI	NI	NI	NI	NI
Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	LTS	LTS	LTS	LTS	LTS
Conflict with local goals and policies relating to public health and safety?	LTS	LTS	LTS	LTS	LTS

Table 5.7-1 (Cont.): Public Health and Safety Significance Determination

PS - Potentially Significant; LTS - Less Than Significant; NI - No Impact					
	Project 1	**Project 2**	**Project 3**	**Project 4**	**Cumulative**
Disposal					
Create a significant hazard to the residents, visitors, and construction personnel to health hazards from the routine transport, use, or disposal of hazardous materials during construction activities?	**PS**	**PS**	**PS**	**PS**	LTS
Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	**PS**	**PS**	**PS**	**PS**	LTS
Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the hazardous materials into the environment?	**PS**	**PS**	**PS**	**PS**	LTS
Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions?	**PS**	**PS**	**PS**	**PS**	LTS
Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	NI	NI	NI	NI	NI
Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	NI	NI	NI	NI	NI
For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	NI	NI	NI	NI	NI
For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	NI	NI	NI	NI	NI
Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	NI	NI	NI	NI	NI
Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	LTS	LTS	LTS	LTS	LTS
Conflict with local goals and policies relating to public health and safety?	LTS	LTS	LTS	LTS	LTS

Table 5.7-1 (Cont.): Public Health and Safety Significance Determination

PS - Potentially Significant; LTS - Less Than Significant; NI - No Impact					
	Project 1	Project 2	Project 3	Project 4	Cumulative
Combined Project					
Create a significant hazard to the residents, visitors, and construction personnel to health hazards from the routine transport, use, or disposal of hazardous materials during construction activities?	**PS**	**PS**	**PS**	**PS**	LTS
Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	**PS**	**PS**	**PS**	**PS**	LTS
Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the hazardous materials into the environment?	**PS**	**PS**	**PS**	**PS**	LTS
Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions?	**PS**	**PS**	**PS**	**PS**	LTS
Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	**PS**	**PS**	**PS**	**PS**	LTS
Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	NI	NI	NI	NI	NI
For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	NI	NI	NI	NI	NI
For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	NI	NI	NI	NI	NI
Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	NI	NI	NI	NI	NI
Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	LTS	LTS	LTS	LTS	LTS
Conflict with local goals and policies relating to public health and safety?	LTS	LTS	LTS	LTS	LTS

Construction Activities

Impact 5.7-A:	**The proposed project could result in exposing residents, visitors, and construction personnel to health hazards from the routine transport, use, or disposal of hazardous materials during construction activities.**

Project-Specific Impact Analysis

Proposed Projects 1 through 4

Grading and construction activities 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 disposal 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 less than significant.

Past uses of pesticides and chemicals associated with agricultural operations can leave measurable residues in soils. The four treatment plant sites have been used for agricultural production in which agricultural chemicals could have been used. Potential hazardous impacts from the potential past application of chemicals to the sites are considered a potentially significant impact.

Operational Activities

Impact 5.7-B:	**The proposed wastewater facilities could result in exposing offsite residents and visitors to health hazards from the routine transport, use, or disposal of hazardous materials.**

Project-Specific Impact Analysis

Proposed Project 1

Treatment Plant Site

Proposed Project 1 would be located on a combination of the Cemetery, Giacomazzi, and Branin sites. Treatment options associated with this alternative consist of facultative ponds which could present potential public health and safety hazards. Facultative ponds are the most common form of wastewater lagoons. They are generally shallow in depth, with an aerobic layer which overlies an anaerobic layer that usually contains sludge deposits. Screening will be used ahead of partially mixed facultative ponds (PMFPs) to maintain active volume in the ponds and to make subsequent pond cleaning and biosolids processing more efficient by minimizing inorganic materials that must be removed from the biosolids. The collected materials consist of raw wastewater solids that are a major source of odors and could present a health and safety hazard for operations staff and, therefore, could cause a potential significant impact.

One of the project objectives is to reduce the nitrogen content of the wastewater in order to comply with RWQCB Waste Discharge/Recycled Water Requirements Order No. R3-2003-0007. Additional treatment processes are required to meet the discharge requirements. Secondary treatment through PMFPs perform some denitrification, but denitrification at the rates required of typical treatment facilities requires the support of mechanical systems. These systems consist of enclosed filtration systems that use granular media to provide an inorganic attachment point for biological growth. A carbon supplement is required, and it is usually supplied in the form of methanol, which must be delivered and stored onsite at the treatment facility. Methanol is highly flammable and is a mild irritant to skin and eyes. In addition, the operation and maintenance of the treatment facility would also include the storage, handling and use of hazardous materials such as sodium hydroxide, which is corrosive and can cause severe irritation to eyes, skin, mucous membranes, and sodium hypochlorite, which can result in a pronounced irritant effect and may cause severe burns to skin and eyes. These hazardous materials could result in potential significant impacts from handling and storage.

Combined Project Effects

A wastewater treatment system by its nature collects, transports, treats and disposes of hazardous material. The treatment process requires transport, storage, and use of methane, polymers, sodium hydroxide, and sodium hypochlorite. The hazardous materials impacts of this project are potentially significant. Long-term operational activities associated with the proposed facilities would result in a combined potentially significant effect related to public health and safety.

Proposed Projects 2 and 3

Treatment Plant Site

Proposed Projects 2 and 3 would use either oxidation ditch (Ox Ditch) or BioLAC treatment protocols. In Proposed Project 2, treatment facilities would be located at the Giacomazzi parcel with storage ponds on the Tonini site. In Proposed Project 3, treatment facilities would be located at the Giacomazzi and Branin parcels with storage ponds located onsite.

Both the Ox Ditch tanks or the BioLAC ponds have a smaller footprint than that of a facultative pond system, thereby reducing the risk of structural failure. They require the same screening, flow monitoring and biosolids processing as described under Proposed Project 1. Because these proposed projects include a gravity collection system, the OxDitch/BioLAC treatment would remove nitrogen without the need for supplementary 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. These hazardous materials could result in potential significant impacts from the storage, handling, and use.

Combined Project Effects

Except for the storage, handling, and use of methanol, the potential impacts associated with the operation of the facilities at the treatment plant site and disposal sites would be the same as described above for Proposed Project 1. Proposed Projects 2 and 3 would not use methanol during the treatment process.

Proposed Project 4

Treatment Plant Site

The potential impacts associated with the operation of the treatment facilities would be the same as described above for Proposed Project 1.

Combined Project Effects

The potential impacts associated with the operation of the facilities at the treatment plant site and disposal sites would be the same as described above for Proposed Projects 2 and 3.

Accident Conditions

Impact 5.7-C:	**The project could create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the hazardous materials into the environment.**

Project-Specific Impact Analysis

Proposed Projects 1 through 4

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. This untreated wastewater is considered hazardous; therefore, if there is a break, this potential impact is considered significant.

In addition, the collection system includes the collection lines connecting to pump stations. There is the potential for a break or malfunction of the collection system at the pump stations. This could result in an accidental release of untreated effluent. This potential accidental release is considered a potential significant public health and safety impact.

Other Accident Conditions

Impact 5.7-D:	**The project may create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions.**

Project-Specific Impact Analysis

Proposed Projects 1 through 4

The proposed projects may create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions. Construction activities could result in an accidental break in a main water supply line that could create a localized loss of water for fire fighting. This potential impact is considered significant.

Schools

Impact 5.7-E: The project could emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.

Project-Specific Impact Analysis

Proposed Projects 1 through 4

Proposed pipelines along roadways adjacent to existing schools would be located within a quarter mile of the school sites. In the event of any leakage from a pipeline, there is a potential for an accidental release of untreated wastewater. This potential impact is considered significant.

5.7.6 - Mitigation Measures

Table 5.7-2: Public Health and Safety Analysis Proposed Mitigation Measures

Project(s)	Proposed Mitigation Measure(s) - Project-Specific	Effects After Incorporation of Mitigation Measures
5.7.A. The proposed project could result in exposing residents, visitors, and construction personnel to health hazards from the routine transport, use, or disposal of hazardous materials during construction activities.		
1, 2, 3, and 4	**5.7-A1:** Prior to any onsite construction activities at the proposed treatment plant sites, soils shall be sampled and analyzed by a licensed engineer or geologist approved by the County of San Luis Obispo Health Department to determine the level of residue for pesticides, herbicides, chemicals, and associated metals. If residues are found to be within acceptable amounts per the San Luis Obispo County Health Department (SLOCHD) and Environmental Protection Agency/Department of Toxic Substance Control (DTSC) standards then grading and construction may begin. If the residue is found to be greater than the SLOCHD and DTSC standards, all contaminated soils exceeding the acceptable limits shall be remediated and/or properly disposed of per SLOCHD and DTSC requirements. An appropriate verification closure letter from SLOCHD and DTSC shall be obtained and submitted to the County of San Luis Obispo Planning Department. Depending on the extent of contaminated soils, a verification closure letter from the California Regional Water Quality Control Board may also need to be submitted to the County of San Luis Obispo Planning Department. Site remediation can occur by the use of on-site transportable thermal treatment units or bio-remediation. The soil can also be excavated and shipped off-site to fixed incineration or bio-remediation facilities.	Less Than Significant

Table 5.7-2 (Cont.): Public Health and Safety Analysis Proposed Mitigation Measures

Project(s)	Proposed Mitigation Measure(s) - Project-Specific	Effects After Incorporation of Mitigation Measures
5.7-B: The proposed wastewater facilities could result in exposing offsite residents and visitors to health hazards from the routine transport, use, or disposal of hazardous materials.		
1, 2, 3, and 4	**5.7-B.1:** Prior to operation of the wastewater project, a Hazardous Materials Management Plan shall be developed and submitted to the County of San Luis Obispo Environmental Health Services Division for approval. The plan shall identify hazardous materials utilized at the proposed wastewater facilities and their characteristics; storage, handling, training procedures, and spill contingency procedures. Additionally, the Hazardous Materials Management Plan shall identify procedures in the event of accidents such as the release of raw wastewater or secondary treated water into watercourses such as Los Osos Creek. These procedures shall include immediate response personnel to limit public access to spill areas, potentially shutting down pump stations, creating berms, use of vacuum trucks, and use of water booms to contain spills within open water areas. Furthermore, the Plan shall address response and containment of fuel at pump stations sites, when used.	Less Than Significant
5.7.C: The project could create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the hazardous materials into the environment.		
1, 2, 3, and 4	Implementation of Mitigation Measure **5.7.B.1** is required.	Less Than Significant
5.7-D: The project may create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions.		
1, 2, 3, and 4	**5.7.D.1:** To reduce the potential temporary loss of water for fire fighting that may occur as a result of construction activities, either of the following shall occur 1) acquiring a water tender, to the satisfaction of the County Fire Chief or 2) through some other equivalent means as determined by the County Fire Chief.	Less Than Significant
5.7-E: The project could emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school		
1, 2, 3, and 4	Implementation of Mitigation Measure 5.7.B.1 is required.	Less Than Significant

5.7.7 - Level of Significance After Mitigation

According to the analysis of environmental effects after the incorporation of the proposed mitigation measures found in the Expanded Public Health and Safety Analysis in Appendix I-1 and as shown in Table 5.12-2 above, all potential impacts related to public health and safety are expected to be less than significant.

Project-Specific

Proposed Projects 1 Through 4

Less than significant.

Cumulative

Proposed Projects 1 Through 4

Less than significant.

5.8 - TRAFFIC AND CIRCULATION

5.8.1 - Introduction

This section provides an analysis of traffic and circulation based on extensive analysis performed in the Expanded Traffic and Circulation Analysis found in Appendix J-1. The Expanded section utilized a traffic study prepared for the project. A complete list of resources used to prepare this section can be found in Appendix J-1.

5.8.2 - Environmental Setting

Methodology

The Traffic Study, prepared for the Los Osos Wastewater Project, utilizes existing traffic counts, published average daily traffic (ADT) volumes, and data from San Luis Obispo County Department of Public Works.

Performance Measures and Standards

A level of service (LOS) designation is the generally accepted measure utilized for determining the quality of operation of either a roadway segment or intersection. There are six LOS categories ranging from LOS A, free flowing traffic to LOS F, bumper-to-bumper traffic. The volume to capacity ratio (V/C) measures the percentage of actual traffic volume on a roadway compared to the total traffic capacity of that roadway and also corresponds with LOS designations. Existing peak hour volumes were counted in September 2008 for this study.

Street Network

The Los Osos area is served by a street network composed of arterial streets, collector streets, and local streets. The study area streets and intersections were selected based on their potential to accommodate a substantial amount of the projected project traffic volumes. The following provides a brief discussion of the street network.

Los Osos Valley Road - is a two-lane principal arterial that traverses the agricultural lands between Los Osos and the City of San Luis Obispo. Within the community of Los Osos the roadway widens to four lanes between Lariat Drive and Bush Drive. A combination of two-way left-turn lanes and left-turn pockets are provided along Los Osos Valley Road within the community. LOVR would provide access to the Proposed Project sites.

South Bay Boulevard - is a two-lane principal arterial that connects the community of Los Osos with the City of Morro Bay to the north. The LOVR/South Bay Boulevard intersection is controlled by a traffic signal.

Turri Road - is a two-lane rural roadway that extends north of LOVR and westerly to its connection to South Bay Boulevard. Turri Road would provide access to the Tonini sprayfield site on the west side of the roadway. Turri Road is controlled by stop-signs at the LOVR and South Bay Boulevard intersections and is located outside of the Urban Reserve Line.

Broderson Avenue - is a two-lane collector street that extends south of LOVR. Broderson Avenue serves the adjacent residential neighborhood and becomes a dirt road south of Highland Drive. Broderson Avenue would provide access to the proposed leachfield disposal site. Broderson Avenue is controlled by a stop-sign at the LOVR intersection.

9th Street - is a north-south two-lane collector street that extends between Santa Ysabel Avenue on the north and LOVR on the south. The roadway continues as Bayview Heights Drive south of LOVR. The LOVR/9th Street intersection is signalized.

10th Street - is a north-south two-lane collector street that extends between Santa Ysabel Avenue on the north and LOVR on the south. The LOVR/10th Street intersection is signalized.

Roadway Operations

Existing ADT volumes were obtained from the San Luis Obispo County Department of Public Works. Roadway capacities were derived from the Estero Area Plan prepared by San Luis Obispo County. Existing traffic volumes are within the design capacities of the area roadways.

Intersection Operations

San Luis Obispo County considers LOS D as the minimum acceptable operating standard for the planning area within the Urban Reserve Line. The County considers LOS C as the minimum acceptable operating standard for rural areas. Existing intersection operations are within the design capacities of the area intersections.

Except for the Los Osos Valley Road (LOVR)/Turri Road intersection, all of the study area intersections are located within the urban area (within the Urban Reserve Line). The intersection of LOVR/Turri Road is located within the rural area because it is located east of the Urban Reserve Line.

For a complete discussion of the environmental setting from a regional, local, and project site perspective, please refer to Appendix J-1.

5.8.3 - Regulatory Setting

Based on a review of the County of San Luis Obispo General Plan, there are is goal and one policy that address traffic and transportation related issues. These are presented below.

San Luis Obispo Regional Transportation Plan

Transportation Plan Goals and Policies

The goals and policies for the County Transportation Plan were taken from the Regional Transportation Plan. The following goals and policies were found to be applicable to Proposed Projects 1 through 4:

Bikeway Element:

The goal of this element is to serve as a guide to governmental agencies and private developers, to meet the following cyclist goal:

4 To increase the efficiency of facilities for the cyclist, as well as to lessen or eliminate the cyclist's conflict with the motorists for the use of the streets and highways of the County.

The applicable policy established in the Circulation Element of the Estero Area Plan is listed below:

B2 Maintain Los Osos Valley Road east of the urban reserve line as a two-lane highway with operational improvements.

5.8.4 - Thresholds of Significance

In accordance with CEQA, the effects of a project are evaluated to determine if they will result in significant adverse impact on the environment. According to the CEQA Guidelines' Appendix G Environmental Checklist, to determine whether transportation and traffic impacts are significant environmental effects, the following questions are analyzed and evaluated. Would the Proposed Project:

a.) Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system, either individually or cumulatively, exceed a level of service standard established by the county congestion management agency for designated roads or highways?

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

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

d.) Result in inadequate emergency access?

e.) Result in inadequate parking capacity?

f.) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g. bus turnouts, bicycle racks).

Other Thresholds

For the purpose of the Proposed Project, the following threshold has been added. To evaluate the Proposed Project's consistency with applicable goals, policies, and regulations related to traffic and circulation:

g.) Would the Proposed Project conflict with local goals and policies related to traffic and transportation?

The County of San Luis Obispo uses a performance standard to determine whether the projected traffic generation is substantial and therefore significant. A significant traffic impact occurs when the level of service (LOS) at roadways and intersections is at LOS D or worse for areas within the urban reserve line. This standard is a decrease of a level of service to LOS D or worse at roadways and intersections. A significant traffic impact occurs when the level of service at roadways and intersections is at LOS E or worse for urban areas and LOS D or worse for rural areas.

5.8.5 - Level of Significance Prior to Mitigation

Less Than Significant or No Impacts were found related to the project causing impacts related to air traffic, resulting in inadequate emergency access, and inadequate parking capacity. The complete analysis and rationale for determining a Less Than Significant or No Impact for each of the thresholds of significance can be found in Appendix J-1.

Table 5.8-1: Traffic Significance Determination

PS - Potentially Significant; LTS - Less Than Significant; NI - No Impact					
	Project 1	**Project 2**	**Project 3**	**Project 4**	**Cumulative**
Collection					
Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system, either individually or cumulatively, exceed a level of service standard established by the county congestion management agency for designated roads or highways?	**PS**	**PS**	**PS**	**PS**	LTS
Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	NI	NI	NI	NI	NI
Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	**PS**	**PS**	**PS**	**PS**	LTS
Result in inadequate emergency access?	LTS	LTS	LTS	LTS	NI
Result in inadequate parking capacity?	NI	NI	NI	NI	NI
Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g. bus turnouts, bicycle racks).	**PS**	**PS**	**PS**	**PS**	NI
Would the Proposed Project conflict with local goals and policies related to traffic and transportation?	**PS**	**PS**	**PS**	**PS**	NI
Treatment					
Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system, either individually or cumulatively, exceed a level of service standard established by the county congestion management agency for designated roads or highways?	**PS**	**PS**	**PS**	**PS**	LTS
Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	NI	NI	NI	NI	NI
Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	**PS**	**PS**	**PS**	**PS**	LTS
Result in inadequate emergency access?	LTS	LTS	LTS	LTS	NI
Result in inadequate parking capacity?	NI	NI	NI	NI	NI

Table 5.8-1 (Cont.): Traffic Significance Determination

PS Potentially Significant; LTS - Less Than Significant; NI - No Impact					
	Project 1	**Project 2**	**Project 3**	**Project 4**	**Cumulative**
Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g. bus turnouts, bicycle racks).	**PS**	**PS**	**PS**	**PS**	NI
Would the Proposed Project conflict with local goals and policies related to traffic and transportation?	**PS**	**PS**	**PS**	**PS**	NI
Disposal					
Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system, either individually or cumulatively, exceed a level of service standard established by the county congestion management agency for designated roads or highways?	**PS**	**PS**	**PS**	**PS**	LTS
Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	NI	NI	NI	NI	NI
Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	**PS**	**PS**	**PS**	**PS**	LTS
Result in inadequate emergency access?	LTS	LTS	LTS	LTS	NI
Result in inadequate parking capacity?	NI	NI	NI	NI	NI
Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g. bus turnouts, bicycle racks).	**PS**	**PS**	**PS**	**PS**	NI
Would the Proposed Project conflict with local goals and policies related to traffic and transportation?	**PS**	**PS**	**PS**	**PS**	NI
Combined Project					
Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system, either individually or cumulatively, exceed a level of service standard established by the county congestion management agency for designated roads or highways?	**PS**	**PS**	**PS**	**PS**	LTS
Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	NI	NI	NI	NI	NI

Table 5.8-1 (Cont.): Traffic Significance Determination

PS - Potentially Significant; LTS - Less Than Significant; NI - No Impact					
	Project 1	**Project 2**	**Project 3**	**Project 4**	**Cumulative**
Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	**PS**	**PS**	**PS**	**PS**	LTS
Result in inadequate emergency access?	LTS	LTS	LTS	LTS	NI
Result in inadequate parking capacity?	NI	NI	NI	NI	NI
Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g. bus turnouts, bicycle racks).	**PS**	**PS**	**PS**	**PS**	NI
Would the Proposed Project conflict with local goals and policies related to traffic and transportation?	**PS**	**PS**	**PS**	**PS**	NI

Traffic Increase and Level of Service Standards

Impact 5.8-A: **The project could cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system or either individually or cumulatively exceed a level of service standard established by the county congestion management agency for designated roads or highways.**

Project-Specific Impact Analysis

Proposed Project 1

Short-term Construction Impacts

The street network in the community of Los Osos currently operates at LOS C or better. The construction activities associated with Proposed Project 1 would be located throughout the entire community. Construction of the collection system, and facilities at the treatment plant site and disposal site, would generate additional traffic on the roadways and intersections within the community of Los Osos. Construction activities would be temporary, lasting 16-24 months throughout the community but construction activities at any specific location along the collection system may be a few weeks. The construction activities at the treatment plant and disposal sites could extend up to 16 to 24 months. Trips generated by the construction activities include employees traveling to and from the construction sites and material/equipment deliveries. Employee trips would typically occur during the A.M. and P.M. peak hour periods and generate approximately 286 average daily trips (ADT), while equipment and material deliveries would occur throughout the entire day with a total of approximately 289 ADT. These construction activities would result in temporary lane closures and limited access to residences and businesses that may cause short-term significant impacts on the existing capacity of the roadways and intersections.

Proposed Project 2

Short-term Construction Impacts

Construction of Proposed Project 2 would result in similar impacts as those discussed under Proposed Project 1. Employee trips would typically occur during the A.M. and P.M. peak hour periods and generate approximately 222 ADT, while equipment and material deliveries would occur throughout the entire day with a total of approximately 225 ADT. Similar to Proposed Project 1, the additional short-term daily trips generated by construction under Proposed Project 2 would result in temporary lane closures and limited access to residences and businesses that may cause short-term significant impacts on the existing capacity of the roadways and intersections.

Proposed Project 3

Short-term Construction Impacts

Construction of Proposed Project 3 would result in similar impacts as those discussed under Proposed Project 1. Employee trips would typically occur during the A.M. and P.M. peak hour periods and generate approximately 222 ADT, while equipment and material deliveries would occur throughout the entire day with a total of approximately 225 ADT. Similar to Proposed Project 1, the additional short-term daily trips generated by construction under Proposed Project 3 would result in temporary lane closures and limited access to residences and businesses that may cause short-term significant impacts on the existing capacity of the roadways and intersections.

Proposed Project 4

Short-term Construction Impacts

Construction of Proposed Project 4 would result in similar impacts as those discussed under Proposed Project 1. Employee trips would typically occur during the A.M. and P.M. peak hour periods and generate approximately 222 ADT, while equipment and material deliveries would occur throughout the entire day with a total of approximately 227 ADT. Similar to Proposed Project 1, the additional daily trips generated by construction would result in temporary lane closures and limited access to residences and businesses that may cause short-term significant impacts on the existing capacity of the roadways and intersections.

Traffic Hazards

Impact 5.8-C:	**The Proposed Project may substantially increase traffic hazards.**

Project-Specific Impact Analysis

Proposed Projects 1 through 4

The proposed facilities do not include any hazardous features and implementation of the Proposed Projects 1 through 4 would not affect public safety or increase hazards due to a design feature or incompatible uses. However, the construction of pipelines along roadways may generate short-term hazards to motorists and cyclists due to temporary lane closures, limited access to residences and businesses, and increase project truck traffic. It is noted that construction of the pipeline would affect limited areas for relatively short time periods (i.e. construction would not affect the entire street system within the community for the entire 2-year period). Therefore, short-term significant traffic impacts could occur during relatively short time periods at any one location during construction activities.

Conflict with Alternative Transportation

Impact 5.8-F:	**The project may conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).**

Project-Specific Impact Analysis

Proposed Projects 1 through 4

The construction of pipelines along roadways may conflict with the Route 12 bus route, due to temporary lane closures and short-term closures or displacement of bus stops. The following streets used by RTA Route 12 may be impacted by the construction of Proposed Projects 1 through 4 due to lane closures and limited access to residents and businesses:

- 2nd Street
- 7th Street
- 10th Street
- 11th Street
- Los Osos Valley Road
- Pine Street
- Ramona Avenue
- Santa Ynez
- Santa Ysabel Avenue
- South Bay Boulevard

It is noted that construction of the pipeline would affect limited areas for relatively short time periods (i.e., construction would not affect the entire street system within the community for the entire 2-year period). These impacts on existing bus stops along Route 12 would be temporary; however, they are considered potentially significant.

Conflict with Local Goals and Policies

Impact 5.8-G: **The project may conflict with local goals and policies relating to traffic and transportation.**

Project-Specific Impact Analysis

Proposed Projects 1 through 4

Table 5.8-2 provides a discussion of the project's consistency with the County's policies contained in the San Luis Obispo County General Plan and the Estero Area Plan. As discussed in Table 5.8-2, the proposed projects may not be consistent with the applicable goal and policy without mitigation, due to impacts associated with construction activities.

Table 5.8-2: Consistency of the Proposed Projects with Traffic and Transportation Goals and Policies

Goals and Policies	Proposed Project Consistency			
	Proposed Project 1	Proposed Project 2	Proposed Project 3	Proposed Project 4
Bikeway Element **Goal 4:** To increase the efficiency of facilities for the cyclist, as well as to lessen or eliminate the cyclist's conflict with the motorists for the use of the streets and highways of the County.	The construction of pipelines along roadways may conflict with cyclists due to temporary lane closures and limited access to residences and businesses. The proposed projects may not be consistent with this goal.			
Circulation Element **Estero Are Plan** **Policy B2**: Maintain Los Osos Valley Road east of the urban reserve line as a two-lane highway with operational improvements.	The construction of pipelines along roadways may result in the need for temporary lane closures along Los Osos Valley Road east of the Urban Reserve Line. Therefore, the proposed projects may conflict with this policy.			

5.8.6 - Mitigation Measures

Table 5.8-3: Traffic Mitigation Measures

Project(s)	Proposed Mitigation Measure(s)- Project-Specific	Effects After Incorporation of Mitigation Measures
5.8-A: The project could cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system or either individually or cumulatively exceed a level of service standard established by the county congestion management agency for designated roads or highways.		
1, 2, 3, and 4	**5.8-A1.** Prior to construction, a traffic management plan shall be prepared for review and approval by the County of San Luis Obispo Traffic Department. The traffic management plan shall be based on the type of roadway, traffic conditions, duration of construction, physical constraints, nearness of the work zone to traffic and other facilities (bicycle, pedestrian, driveway access, etc.). The traffic management plan shall include: a) Advertisement. An advertisement campaign informing the public of the proposed construction activities should be developed. Advertisements should occur prior to beginning work and periodically during the course of project construction. b) Property Access. Access to parcels along the construction area shall be maintained to the greatest extent feasible. Affected property owners shall receive advance notice of work adjacent to their property access and when driveways would be potentially closed. c) Schools. Any construction adjacent to schools shall ensure that access is maintained for vehicles, pedestrians, and bicyclists, particularly at the beginning and end of the school day. d) Buses, Bicycles and Pedestrians. The work zone shall provide for passage by buses, bicyclists and pedestrians, particularly in the vicinity of schools. e) Intersections. Traffic control (i.e. use of flag men) shall be used at intersections that are determined to be unacceptably congested due to construction traffic.	Less Than Significant
5.8-C: The Proposed Project may substantially increase traffic hazards.		
1, 2, 3, and 4	Implementation of **Mitigation Measure 5.8-A1** is required.	Less Than Significant
5.8-F: The project may conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).		
1,2,3 and 4	Implementation of **Mitigation Measure 5.8-A1** is required.	Less Than Significant
5.8-G: The project may conflict with local goals and policies relating to traffic and transportation.		
1, 2, 3, and 4	Implementation of **Mitigation Measure 5.8-A1** is required.	Less Than Significant

5.8.7 - Level of Significance After Mitigation

Project-Specific

Proposed Projects 1 Through 4

Less than significant.

Cumulative

Proposed Projects 1 Through 4

Less than significant.

5.9 - AIR QUALITY

5.9.1 - Introduction

This section provides an analysis of air quality based on extensive analysis performed in the Expanded Air Quality Analysis found in Appendix K-1. The Expanded section utilized an air quality and climate change report prepared for the project as well as various other resources. A complete list of resources used to prepare this section can be found in Appendix K-1.

5.9.2 - Environmental Setting

The project is located within the South Central Coast Air Basin (SCCAB), which covers the counties of San Luis Obispo, Santa Barbara, and Ventura. For a complete in-depth discussion of issues related to the project's environmental setting, including topography, climate, meteorology, please see Appendix K-1.

Pollutants of Concern

Pollutants are generally classified as either criteria pollutants or non-criteria pollutants. Federal ambient air quality standards have been established for criteria pollutants, whereas no ambient standards have been established for non-criteria pollutants. For some criteria pollutants, separate standards have been set for different periods. Most standards have been set to protect public health. For some pollutants, standards have been based on other values (such as protection of crops, protection of materials, or avoidance of nuisance conditions). A summary of the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) for criteria pollutants is shown in Appendix K-1.

SLOAPCD lists several ambient air pollutants of local concern in the County in their Annual Report (SLOAPCD 2007) ozone, particulate matter, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and carbon monoxide (CO). For a complete discussion of the above pollutants of concern, please refer to Appendix K-1.

Greenhouse Gases

Constituent gases of the Earth's atmosphere called atmospheric greenhouse gases (GHG) play a critical role in the Earth's radiation budget by trapping infrared radiation emitted from the Earth's surface, which would otherwise have escaped into space. Prominent GHGs contributing to this process include carbon dioxide, methane, nitrous oxide, chlorofluorocarbons, and sulfur hexafluoride. This phenomenon, known as the Greenhouse Effect is responsible for maintaining a habitable climate. Anthropogenic emissions of these GHGs that are in excess of natural ambient concentrations are responsible for the enhancement of the greenhouse effect and have led to a trend of unnatural warming of the Earth's natural climate, known as global warming or climate change. Emissions of these gases that induce global warming are attributable to human activities associated with industrial/manufacturing, utilities, transportation, residential, and agricultural sectors (CEC 2006).

Transportation is responsible for 41 percent of the State's GHG emissions, followed by electricity generation (CEC 2006).

GHGs are global pollutants, unlike criteria air pollutants and TACs, which are pollutants of regional and local concern. Worldwide, California is the 12th to 16th largest emitter of CO_2 and is responsible for approximately 2 percent of the world's CO_2 emissions (CEC 2006). In 2004, California produced 497 million gross metric tons of carbon dioxide-equivalent (CARB 2007). See Appendix K-1 for a complete discussion.

Other Pollutants of Concern

Appendix K includes a detailed discussion of other pollutants of concern including toxic air contaminants (TAC) and diesel particulate matter.

Local Air Quality

Emissions Inventory

California is a diverse state with many sources of air pollution. To estimate the sources and quantities of pollution, the CARB, in cooperation with local air districts and industry, maintains an inventory of California emission sources. Sources are subdivided into four major emission categories: stationary sources, area-wide sources, mobile sources, and natural sources. Stationary source emissions are based on estimates made by facility operators and local air districts. Emissions from specific facilities can be identified by name and location. The CARB and local air district staffs estimate area-wide emissions. Emissions from area-wide sources may be either from small individual sources, such as residential fireplaces, or from widely distributed sources that cannot be tied to a single location, such as consumer products and dust from unpaved roads. The CARB staff estimates mobile source emissions with assistance from air districts and other government agencies. Mobile sources include on-road cars, trucks, and buses and other sources such as boats, off-road recreational vehicles, aircraft, and trains. The CARB staff and the air districts also estimate natural sources. These sources include geogenic (e.g., petroleum seeps) and biogenic (vegetation) sources, and wildfires.

Table 5.9-1 summarizes estimated 2006 emissions of key criteria air pollutants from major categories of air pollutant sources. For each pollutant, estimated emissions are presented for San Luis Obispo County. No further spatial refinement is available (CARB 2008a).

Table 5.9-1: San Luis Obispo County 2006 Estimated Annual Emissions

Emission Category	2006 Emissions in tons per day					
	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Stationary Sources						
Fuel combustion	1.15	0.98	1.69	0.41	0.10	0.10
Waste disposal	0.04	0	0	0	0	0

Table 5.9-1 (Cont.): San Luis Obispo County 2006 Estimated Annual Emissions

Emission Category	2006 Emissions in tons per day					
	ROG	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Cleaning and surface coatings	1.52	0	0	0	0.01	0.01
Petroleum production and marketing	0.98	0.04	0.26	9.38	0.21	0.16
Industrial processes	0.38	0.07	0.03	0.02	0.40	0.18
Areawide Sources						
Solvent evaporation	3.62	0	0	0	0	0
Miscellaneous processes	4.77	37.68	0.68	0.03	26.87	7.64
Mobile Sources						
On-road motor vehicles	7.22	72.20	12.26	0.06	0.45	0.30
Other mobile sources	6.51	33.03	20.67	7.02	1.59	1.50
Natural Sources						
Biogenic Sources	31.08	0	0	0	0	0
Geogenic Sources	0.04	0	0	0	0	0
Wildfires	4.33	62.02	1.96	0.06	6.32	5.36
GRAND TOTAL	**61.64**	**206.02**	**37.55**	**16398**	**35.95**	**15.25**

Notes:
All values in tons per day. 2006 is estimated from a base year inventory for 2004 based on growth and control factors available from CARB. The sum of values may not equal total shown, due to rounding.
Source: CARB 2008a.

Air Quality Monitoring

Existing local air quality, historical trends, and projections of air quality are best evaluated by reviewing relevant air pollutant concentrations from near the project area. The nearest air monitoring station is the Morro Bay station, located at 899 Morro Bay Boulevard, approximately 5 miles north-northwest of the project. Appendix K-1 describes the published monitored data for the project area.

Local Sources of Air Pollution

Local sources of air pollution include the Morro Bay Power Plant located approximately 5 miles northwest of the project that has been in operation since 1955. The Power was granted a Prevention of Significant Deterioration (PSD) permit by the United States Environmental Protection Agency (EPA) on September 25, 2008. The PSD permit was needed because of a proposed modernization project which will increase the output of electricity while significantly decreasing air pollutant emissions.

In addition, State Highway 1 located approximately 3 miles north and northeast of the project site, contributes vehicle exhaust emissions to the region with approximately 46,500 to 48,500 annual average daily trips.

Approximately 7 miles south of the project is the Diablo Canyon Power Plant, an electricity-generating nuclear power plant that produces about 18,000 gigawatt hours (GWh) of electricity annually, supplying the electrical needs of more than 2.2 million people. However, since the Plant is on the other side of the Irish Hills, is it not deemed a significant local pollution source.

Elimination of Existing Sources

All the Proposed Projects include the elimination of the current method of septage handling in the Los Osos Area. Within the Prohibition Zone, there are currently 4,281 septic tanks serving homes, businesses, mobile home parks, and schools (Carollo 2008a). These septic tanks are currently pumped every five years and the septage is hauled to the Santa Maria Wastewater Treatment Plant. The existing tanks are estimated to be an average of 1,500 gallons each and typical septage hauler trucks have a capacity of approximately 3,000 gallons. The pumping frequency of once every five years would require an average of 428 loads per year.

In order to account for the reduction of emissions that would result in the elimination of this practice, current level of emissions for septage hauling and septic tanks needs to be subtracted from the estimated project totals. Table 5.9-2 shows the estimated criteria emissions for the existing operation. In addition, the septage hauling operations also emits 201,045 metric tons of carbon dioxide equivalents ($MTCO_2e$). Carollo (2008b) estimates that the existing septic tanks emit another 840 $MTCO_2e$.

Table 5.9-2: Estimated Criteria Emissions for Existing Operations

Pollutant	Pounds per Day	Tons per Quarter
ROG	0.12	0.00
CO	1.15	0.04
NO_X	5.54	0.17
PM_{10}	0.15	0.00
Source: MBA 2008.		

Sensitive Receptors

The location of a development project is a major factor in determining whether it will result in localized air quality impacts. The potential for adverse air-quality impacts increases as the distance between the source of emission and members of the public decreases. Impacts on sensitive receptors are of particular concern. Sensitive receptors are defined as facilities that house or attract children, the elderly, and people with respiratory illnesses, or others who are especially sensitive to the effects of air pollutants. Hospitals, schools, convalescent facilities, and residential areas are examples of sensitive receptors.

During construction activities, such as installation of pipes and septic tanks, sensitive receptors, such as family residences, would be in proximity to the construction activity. Operation of the project treatment facilities are proposed on either the Giacomazzi Site or the Tonini Site. The nearest residences to the Giacomazzi Site are approximately 0.2 mile southwest and the nearest residences to the Tonini Site are approximately 0.6 mile southwest. There are seven schools within 3 miles of either proposed treatment sites.

Alternative Forms of Transportation

Public transportation within the community of Los Osos is provided by San Luis Obispo Regional Transit Authority (SLORTA), which also serves the communities of Atascadero, Cambria, Cayucos, Grover Beach, Morro Bay, Paso Robles, San Miguel, San Luis Obispo, Santa Margarita, Shell Beach, and Templeton. The agency provides regional fixed route (RTA) service and local dial-a-ride (DAR) services to the Los Osos area. In addition, the Americans with Disabilities Act (ADA) paratransit dial-a-ride services are also available by the Runabout service for disabled persons and seniors. A division of the SLORTA operates San Luis Obispo (SLO) Rideshare.

For a complete discussion of the environmental setting from a regional, local, and project site perspective, please refer to Appendix K-1.

5.9.3 - Regulatory Setting

Air pollutants are regulated at the national, State, and air basin level; each agency has a different degree of control. The EPA regulates at the national level. The CARB regulates at the State level and the SLOAPCD (or District) regulates at the County level. In addition, land use decisions, policies, and guidance by the County of San Luis Obispo also regulate air quality through regulation of location, design, and operation of land uses that impact air quality. Please see Appendix K-1 for a complete discussion of the regulatory framework related to air quality, including climate change policy and regulation.

5.9.4 - Thresholds of Significance

According to the CEQA Guidelines' Appendix G Environmental Checklist, to determine whether impacts to air quality are significant environmental effects, the following questions are analyzed and evaluated.

> Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations.
>
> Would the project:
>
> a.) Conflict with or obstruct implementation of the applicable air quality plan?

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

c.) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?

d.) Expose sensitive receptors to substantial pollutant concentrations?

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

Other Thresholds

General Plan

Would the project conflict with any air quality related, applicable San Luis Obispo County General Plan goals and policies adopted for the purposes of avoiding or mitigating an environmental effect?

CEQA Air Quality Handbook

The CEQA Air Quality Handbook (SLOAPCD 2003) established four separate categories of evaluation for determining the significance of project impacts. Full disclosure of the potential air pollutant and/or toxic air emissions from a project is needed for these evaluations, as required by CEQA:

1. Comparison of calculated project emissions to District emission thresholds;
2. Consistency with the most recent Clean Air Plan (CAP) for San Luis Obispo County;
3. Comparison of predicted ambient pollutant concentrations resulting from the project to State and federal health standards, when applicable; and
4. The evaluation of special conditions, which apply to certain projects.

Comparison to District Thresholds

The CEQA Air Quality Handbook defines thresholds for long-term operational emissions and short-term construction related emissions. Depending on the level of exceedance of a defined threshold, the District has established varying levels of mitigation.

The threshold criteria established by the SLOAPCD to determine the significance and appropriate mitigation level follows a tiered approach based on the overall amount of emissions generated by the project. These levels are discussed below:

- For projects with estimated emissions less than 10 pounds per day (lbs/day) of ROG, NO_X, SO_2, or PM_{10} or less than 550 lbs/day for CO, there is no significant air quality impacts associated with the project.

- For projects that are estimated to emit 10 to 24 lbs/day of ROG, NO_X, SO_2, or if PM_{10} has the potential to cause significant air quality impacts, but application of on-site mitigation measures, following the guidelines provided by the District, these be considered feasible mitigation to achieve levels less than significant.
- For projects with estimated emissions greater than or equal to 25 lbs/day or more of ROG, NO_X, SO_2, or PM_{10} or greater than or equal to 550 lbs/day of CO, these are considered potentially significant and all feasible mitigation must be applied. CO emission levels equal to or exceeding 550 lbs/day should be modeled to determine their significance. Additional mitigation measures, including off-site mitigation, may be required depending on the level and scope of air quality impacts identified in the EIR.

Short-term Construction Emissions

Use of heavy equipment and earth-moving operations during project construction can generate fugitive dust and combustion emissions that may have substantial temporary impacts to local air quality. Fugitive dust emissions would result from land clearing, demolition, ground excavation, cut and fill operations, and equipment traffic over temporary roads at the construction site. Combustion emissions such as NO_X, and diesel particulate matter, are most significant when using large diesel fueled scrapers, loaders, dozers, haul trucks, compressors, generators, and other types of equipment. Any construction activities with estimated emissions greater than 185 lbs/day of ROG or NO_X require California Best Available Control Technology for construction equipment (CBACT). In addition, any construction project that is estimated to emit between 2.5 and 6.0 tons per quarter would also require CBACT. A project with more than 6.0 tons of ROG or NO_X per quarter requires further mitigation, including emission offsets

Consistency with the Clean Air Plan

At a project level, a consistency analysis with the CAP may be necessary depending on the project being considered. Examples of types of projects that would require a consistency analysis include subdivisions, large residential developments, and large commercial/industrial developments. It is unclear whether the proposed project would require a consistency analysis pursuant to District Guidelines but an analysis is required under CEQA Guidelines Appendix G.

Comparison to Standards

Industrial and large commercial projects are sometimes required to perform air quality dispersion modeling if the air district determines that project emissions may have the potential to cause an exceedance of these standards. In addition a specific modeling analysis is necessary to determine possible violation of CO standards when a project generates large enough vehicular activity that impacts intersections to the point that idling vehicles could cause a CO Hot Spot. The proposed project would not have the size or vehicle generation rate to require dispersion modeling.

Special Conditions

The District CEQA Guidelines also identifies special conditions that may need analysis of significance. The proposed project would not emit a significant amount of toxic or hazardous air pollutants; would not result in release of a significant quantity of diesel emissions during its operation; and does not involve any remodeling or demolition activities.

However, the proposed project is in a portion of the County that requires a geologic analysis for NOA, therefore requiring a determination of significance. One of the locations of the treatment plant is close to a preschool, therefore requiring a significance determination regarding sensitive receptors. In addition, the proposed project has the potential to cause an odor and would require a significance determination. These determinations are made in the significance thresholds listed in CEQA Guidelines Appendix G.

Greenhouse Gas/Climate Change

CEQA requires lead agencies to evaluate potential environmental effects based to the fullest extent possible on scientific and factual data. Significance conclusions must be based on substantial evidence, which includes facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts. Senate Bill 97 in 2007 set up a requirement for the Office of Planning and Research (OPR) to prepare, develop, and transmit guidelines to help establish thresholds for greenhouse gases. This has not yet been accomplished. In a recent Technical Advisory (OPR 2008), the OPR provides their perspective on the emerging role of addressing climate change in CEQA documents but fails to include a suggested threshold of significance. In lieu of OPR guidance, CEQA Guidelines Section 15064.7 indicates, “each public agency is encouraged to develop and publish thresholds of significance that the agency uses in the determination of the significance of environmental effects.”

Therefore, for the analyses used in this EIR to determine whether climate change impacts are significant environmental effects, the following threshold is used:

- Does the Project comply with the provisions of an adopted Greenhouse Gas Reduction Plan or Strategy? If no such Plan or Strategy is applicable, would the Project significantly hinder or delay the States ability to meet the reduction targets contained in AB 32?

5.9.5 - Level of Significance Prior to Mitigation

Less Than Significant or No Impacts were found related to the project causing impacts to an applicable air quality plan, violating an air quality standard or substantially contributing to an existing or projected air quality violation, creating objectionable odors, hindering a greenhouse Gas Emission Plan, or violating goals or policies of the County’s General Plan. The complete analysis and rationale for determining a Less Than Significant or No Impact for each of the thresholds of significance can be found in Appendix K-1.

Table 5.9-3: Air Quality Significance Determination

PS- Potentially Significant; LTS- Less Than Significant; NI- No Impact					
	Project 1	**Project 2**	**Project 3**	**Project 4**	**Cumulative**
Collection					
Conflict with or obstruct implementation of the applicable air quality plan?	LTS	LTS	LTS	LTS	NI
Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	LTS	LTS	LTS	LTS	NI
Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?	**PS**	**PS**	**PS**	**PS**	**PS**
Expose sensitive receptors to substantial pollutant concentrations?	**PS**	**PS**	**PS**	**PS**	LTS
Create objectionable odors affecting a substantial number of people?	LTS	LTS	LTS	LTS	NI
Does the Project comply with the provisions of an adopted Greenhouse Gas Reduction Plan or Strategy? If no such Plan or Strategy is applicable, would the Project significantly hinder or delay the States ability to meet the reduction targets contained in AB 32?	LTS	LTS	LTS	LTS	NI
Would the project would conflict with local goals and policies in the General Plan?	NI	NI	NI	NI	NI
Treatment					
Conflict with or obstruct implementation of the applicable air quality plan?	LTS	LTS	LTS	LTS	NI
Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	LTS	LTS	LTS	LTS	NI
Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?	**PS**	**PS**	**PS**	**PS**	**PS**
Expose sensitive receptors to substantial pollutant concentrations?	**PS**	**PS**	**PS**	**PS**	LTS
Create objectionable odors affecting a substantial number of people?	LTS	LTS	LTS	LTS	NI
Does the Project comply with the provisions of an adopted Greenhouse Gas Reduction Plan or Strategy? If no such Plan or Strategy is applicable, would the Project significantly hinder or delay the States ability to meet the reduction targets contained in AB 32?	LTS	LTS	LTS	LTS	NI
Would the project would conflict with local goals and policies in the General Plan?	NI	NI	NI	NI	NI

Table 5.9-3 (Cont.): Air Quality Significance Determination

PS- Potentially Significant; LTS- Less Than Significant; NI- No Impact					
	Project 1	**Project 2**	**Project 3**	**Project 4**	**Cumulative**
Disposal					
Conflict with or obstruct implementation of the applicable air quality plan?	LTS	LTS	LTS	LTS	NI
Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	LTS	LTS	LTS	LTS	NI
Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?	**PS**	**PS**	**PS**	**PS**	**PS**
Expose sensitive receptors to substantial pollutant concentrations?	**PS**	**PS**	**PS**	**PS**	LTS
Create objectionable odors affecting a substantial number of people?	LTS	LTS	LTS	LTS	NI
Does the Project comply with the provisions of an adopted Greenhouse Gas Reduction Plan or Strategy? If no such Plan or Strategy is applicable, would the Project significantly hinder or delay the States ability to meet the reduction targets contained in AB 32?	LTS	LTS	LTS	LTS	NI
Would the project would conflict with local goals and policies in the General Plan?	NI	NI	NI	NI	NI
Combined Project					
Conflict with or obstruct implementation of the applicable air quality plan?	LTS	LTS	LTS	LTS	NI
Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	LTS	LTS	LTS	LTS	NI
Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?	**PS**	**PS**	**PS**	**PS**	**PS**
Expose sensitive receptors to substantial pollutant concentrations?	**PS**	**PS**	**PS**	**PS**	LTS
Create objectionable odors affecting a substantial number of people?	LTS	LTS	LTS	LTS	NI
Does the Project comply with the provisions of an adopted Greenhouse Gas Reduction Plan or Strategy? If no such Plan or Strategy is applicable, would the Project significantly hinder or delay the States ability to meet the reduction targets contained in AB 32?	LTS	LTS	LTS	LTS	NI
Would the project would conflict with local goals and policies in the General Plan?	NI	NI	NI	NI	NI

5.9-C:	**The project may result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors).**

Project-Specific Impact Analysis

The following analysis of potential construction impacts are based on conservative assumptions such as the use of different pieces of on- and off-road equipment during various parts of the construction activities. However, contractors would be able to implement construction more efficiently using the same equipment for multiple construction activities. Therefore, the following emissions evaluation is considered very conservative.

Proposed Project 1

Collection System

Proposed Project 1 utilizes a Septic Tank Effluent (STE) Collection System that is comprised of both septic tank effluent pumps (STEP) and septic tank effluent gravity (STEG) collection lines. This is referred to as a STEP/STEG system. With this system, old septic tanks would be taken out of use and new septic tanks, together with effluent pumps and controls, would be installed at each connection. A total of 4,679 new septic tanks, together with associated pumps and controls, would be installed. The collection system also includes sewer lines laterally connecting the septic tanks to the street collection system, force main, pressure sewer collectors, isolation and air release valves, and flushing ports. Also included is a conveyance system to transmit raw wastewater from the Mid-Town site to the treatment plant.

Short-term Construction Impacts

The collection system of Proposed Project 1 would include the incorporation of approximately 129,000 linear feet of 4-inch sewer laterals from septic tanks to the street collection system; 31,600 linear feet of 6-, 8-, and 10-inch PVC force mains; 203,600 linear feet of pressure sewer collector, of which approximately half would be open trench and half would be horizontal drilling; 1,000 isolation and air release valves; 200 flushing ports, 4,679 new septic tanks with accompanying effluent pumps and controls, and 18,700 linear feet of force main to convey the raw wastewater from Mid-Town to the treatment plant. In addition, the disturbance associated with construction activity would frequently involve areas where there would be a need for the removal and replacement of existing pavement, thus additional impacts are associated with the asphalt activity associated with repaving.

Types and usage estimates of off-road construction equipment was developed based on typical equipment and operating levels. Assumed equipment included track-mounted excavators, front-end loaders, rubber-tired backhoes, drilling equipment, motor graders, pavers, and rollers. Emission factors derived from OFFROAD2007 were used to estimate emissions. Collection system construction off-road activities resulted in an estimated 80,394 gallons of diesel consumed at a rate of 315.5 gallons per day.

For on-road exhaust emissions from construction activities, emissions factors were developed from EMFAC2007 V2.3 for San Luis Obispo County in 2007. Assumptions made include all model years from 1997 to 2007 for each vehicle class. Average emission factors for speeds ranging from five (5) to 60 miles per hour were used. In addition, only vehicle travel within the boundaries of San Luis Obispo County was used. The following vehicle classes were used to establish appropriate emission factors:

- Employee commute - combination of light-duty auto and light-duty truck
- Excavation trips and construction waste trips - medium heavy-duty trucks
- Material trips to contractor's yard - heavy heavy-duty trucks
- Material trips to job site - light heavy-duty trucks

Use of heavy equipment and earth-moving operations during project construction would generate fugitive dust that could have substantial temporary impacts on local air quality. Fugitive dust emissions would result from land clearing, ground excavation, cut and fill operations, and equipment traffic over temporary dirt roads at construction sites. Fugitive dust emissions were estimated using the low level of detail fugitive dust estimation approach as defined in URBEMIS (SCAQMD 2007).

Table 5.9-4 shows short-term construction emissions associated with Proposed Project 1 in both pounds per day and tons per quarter in order to compare to various District thresholds. Emissions are provided for on-road sources that include material delivery, construction waste, excavation material delivery and disposal, and construction employee commute activity. Emissions are also estimated for exhaust from off-road construction equipment and fugitive dust that occurs through the relocating of soil.

As shown in Table 5.9-4, short-term construction emissions associated with the collection system would contribute to the potential to exceed the District's pounds per day and tons per quarter NO_X thresholds and the District's PM_{10} tons per quarter threshold for Proposed Project 1. Therefore, construction of the collection system in Proposed Project 1 would contribute to potential significant NO_X and PM_{10} emissions impacts.

Table 5.9-4: Proposed Project 1 Construction Emissions

System	Source	Pounds Per Day				Tons per quarter			
		ROG	CO	NO_X	PM_{10}	ROG	CO	NO_X	PM_{10}
Collection	On-road	1.7	22.5	45.6	1.4	0.04	0.67	1.27	0.04
	Off-road	26.9	101.8	213.1	18.0	4.34	16.88	34.37	2.95
	Fugitive	—	—	—	120.8	—	—	—	5.51

Table 5.9-4 (Cont.): Proposed Project 1 Construction Emissions

System	Source	Pounds Per Day				Tons per quarter			
		ROG	CO	NO_X	PM_{10}	ROG	CO	NO_X	PM_{10}
Conveyance	On-road	0.3	4.5	6.9	0.2	0.01	0.12	0.15	0.00
	Off-road	15.7	57.7	125.1	10.0	0.05	0.17	0.38	0.03
	Fugitive	—	—	—	29.7	—	—	—	1.35
Treatment	On-road	1.0	10.6	10.7	0.4	0.01	0.26	0.05	0.00
	Off-road	15.8	77.3	201.0	8.8	0.63	3.13	7.65	0.36
	Fugitive	—	—	—	72.2	—	—	—	3.29
Disposal	On-road	0.6	6.7	25.6	0.7	0.02	0.21	0.78	0.02
	Off-road	9.6	69.6	163.5	4.7	0.28	2.02	4.76	0.14
	Fugitive	—	—	—	102.7	—	—	—	4.68
TOTAL		**71.6**	**350.7**	**791.5**	**369.6**	**5.38**	**23.46**	**49.41**	**18.37**
District Threshold		185	N/A	185	N/A	6.0	N/A	6.0	2.5
Exceeds Threshold		No	N/A	**Yes**	N/A	No	N/A	**Yes**	**Yes**

N/A = no threshold
Source: MBA 2008.

Long-term Operational Impacts

Long-term operational emissions for the collection system for Proposed Project 1 would come from employee commute, maintenance activity, and regular transfer of septage from septic tanks to the treatment plant by tanker truck. Maintenance includes inspecting septic tanks and cleaning the effluent filters every two years and pumping the accumulated septage every five years. In addition, the pressure system would require maintenance and periodic replacement of the air-vacuum valve carbon filters and septic tank effluent pumps and controls. Table 5.9-5 shows long-term operational emissions associated with Proposed Project 1. Additionally, the reductions associated with the cessation of current operations of septage handling are also presented and the net change in emissions associated with the implementation of Proposed Project 1.

As shown in Table 5.9-5, the net resulting long-term emissions related to the collection system of Proposed Project 1 would not exceed any of the District's quantitative thresholds. Therefore, Proposed Project 1 would result in less than significant emissions of criteria pollutants.

Table 5.9-5: Proposed Project 1 Operational Emissions

System	Pounds Per Day			
	ROG	CO	NO_X	PM_{10}
Collection	0.04	1.52	0.66	0.02

Table 5.9-5 (Cont.): Proposed Project 1 Operational Emissions

System	Pounds Per Day			
	ROG	CO	NO_X	PM_{10}
Conveyance	0.01	0.39	0.05	0.00
Treatment	1.02	2.68	10.78	0.37
Disposal	0.00	0.00	0.00	0.00
TOTAL	**1.08**	**4.59**	**11.49**	**0.40**
Current Operations	0.12	1.15	5.54	0.15
NET DIFFERENCE	**0.96**	**3.44**	**5.95**	**0.25**
District Threshold	10	550	10	10
Exceeds Threshold	No	No	No	No
Source: MBA 2008.				

Treatment Plant Site

Proposed Project 1 utilizes a Partially-Mixed Facultative Pond (PMFP) Wastewater Treatment System to provide secondary treatment. The treatment plant would include headworks to screen out inorganics and measure flow; Partially Mixed Facultative Ponds; a septage receiving station; a Nitrogen Removal System with carbon addition, and a seasonal storage pond for treated effluent water.

Short-term Construction Impacts

The construction of the facilities at the treatment plant would include the construction of the headworks, ponds, and administration and maintenance structures on approximately 32 acres. Off-road construction equipment would include tracked and wheeled earth moving equipment, graders, compaction rollers, a backhoe, a trackhoe, and a crane. It would also include a water truck for dust suppression and asphalt paving equipment for the parking and vehicular maintenance.

As shown in Table 5.9-4, short-term construction emissions associated with the proposed facilities at the treatment plant site would contribute to the potential to exceed the District's pounds per day and tons per quarter NO_X thresholds and the District's PM_{10} tons per quarter threshold for Proposed Project 1. Therefore, Proposed Project 1 would result in potential significant NO_X and PM_{10} emissions impacts during construction of the facilities at the treatment plant site.

Long-term Operational Impacts

Long-term operational emissions for the treatment plant for Proposed Project 1 would come from employee commute, maintenance activity, and regular chemical deliveries. As shown in Table 5.9-5, the net resulting long-term emissions related to the treatment plant of Proposed Project 1 would not exceed any of the District's quantitative thresholds. Therefore, Proposed Project 1 would result in less than significant emissions of criteria pollutants at the treatment plant site.

Disposal Sites

Effluent disposal would have two components; a leachfield and a sprayfield. An approximately 8-acre leachfield would be located at the Broderson site and designed to discharge up to 448 ac-ft per year of treated wastewater effluent. Construction of the leachfield includes excavation to an average depth of 6.5 feet during construction, backfilled with a 4-foot layer of gravel for drainage, and then covered by geotextile fabric. Final cover would consist of a minimum of 2.5 feet of native soil backfill. Also included would be percolation piping consisting of 4-inch perforated PVC pipe. Sprayfields are also proposed at the Tonini site and would allow for the spraying of effluent on land to dispose of the water through evapotranspiration and percolation. Treated effluent from the treatment facility would be pumped to the Tonini property through a pressurized pipeline.

Short-term Construction Impacts

Proposed Project 1 would require approximately 17,000 linear feet of 12-inch diameter pipeline to transmit treated effluent to the Broderson Leachfield, and approximately 9,800 linear feet of 12-inch diameter pipeline to transmit effluent to the Tonini Sprayfields. Construction of a pump station at the treatment plant to pump treated effluent to the Broderson Leachfield and a possible second pump station at Broderson would be required to achieve equal distribution throughout the disposal field.

As shown in Table 5.9-4, short-term construction emissions associated with the disposal sites would contribute to the potential to exceed the District's pounds per day and tons per quarter NO_X thresholds and the District's PM_{10} tons per quarter threshold for Proposed Project 1. Therefore, Proposed Project 1 would result in potential significant NO_X and PM_{10} emissions impacts during construction of the facilities at the disposal sites.

.Long-term Operational Impacts

Long-term operational emissions for the disposal sites for Proposed Project 1 would primarily result from maintenance activity. As shown in Table 5.9-5, the emissions from maintenance activities are minimal due to the periodic nature of maintenance activities and are projected to be approximately 0 pounds per day. These maintenance activities would not exceed any of the District's quantitative thresholds. Therefore, Proposed Project 1 would result in less than significant emissions of criteria pollutants associated with the facilities at the disposal sites.

Combined Project Effects

Short-term Construction Impacts

As shown on Table 5.9-7, short-term construction emissions associated with the collection system and the facilities at the treatment plant site and disposal sites for Proposed Project 1 would exceed the District's pounds per day and tons per quarter NO_X thresholds and the District's PM_{10} tons per quarter threshold. Therefore, Proposed Project 1 would result in potentially significant NO_X and PM_{10} emissions impacts during construction of the facilities at the treatment plant site.

Long-term Operational Impacts

Table 5.9-5 shows that the net resulting long-term emissions related to the operation of Proposed Project 1 would not exceed any of the District's quantitative thresholds. Therefore, Proposed Project

1 would result in less than significant emissions of criteria pollutants associated with the collection system and the facilities at the treatment plant site and disposal sites.

Proposed Project 2

Collection System

Proposed Project 2 utilizes a Solids Handling (SH) Collection System that consists of a combination of conventional gravity sewers (GS) and low-pressure grinder pumps (LPGP) or 'pocket pumps'. With this system, old septic tanks would be taken out of use and either removed or abandoned.

Short-term Construction Impacts

The collection system of Proposed Project 2 would include the incorporation of approximately 230,000 linear feet of gravity sewers and force mains, 907 manholes, 5 duplex pump stations, 2 triplex pump stations, 12 pocket pump stations, and 4,679 (approximately 140,000 linear feet) of 4-inch diameter sewer laterals to join residences to the collection system. The sewer mains are proposed to be of PVC and would range from 8 inches to 18 inches in diameter. The sewer lines would be buried at an average depth of 8 feet, with some as deep as 20 feet. In addition, the disturbance associated with construction activity would frequently involve areas where there would be a need for the removal and replacement of existing pavement, thus additional impacts are associated with the asphalt activity associated with repaving.

Construction activities and equipment would be similar to Proposed Project 1. Additionally, assumptions used in the estimating of emissions were equal. Construction emissions are presented in Table 5.9-6 in both pounds per day and tons per quarter in order to compare estimated emissions to District thresholds.

As shown in Table 5.9-6, short-term collection system construction emissions would contribute to the potential to exceed the District's pounds per day and tons per quarter NO_X thresholds and the District's PM_{10} tons per quarter threshold for Proposed Project 2. Therefore, Proposed Project 2 would result in potentially significant NO_X and PM_{10} emissions impacts during construction of the collection system.

Table 5.9-6: Proposed Projects 2 and 3 Construction Emissions

System	Source	Pounds Per Day				Tons per quarter			
		ROG	CO	NO_X	PM_{10}	ROG	CO	NO_X	PM_{10}
Collection	On-road	0.9	13.5	31.1	0.9	0.02	0.41	0.92	0.03
	Off-road	14.7	53.9	121.7	9.5	1.16	4.20	8.75	0.78
	Fugitive	–	–	–	126.4	–	–	–	5.77

Table 5.9-6 (Cont.): Proposed Projects 2 and 3 Construction Emissions

System	Source	Pounds Per Day				Tons per quarter			
		ROG	CO	NO_X	PM_{10}	ROG	CO	NO_X	PM_{10}
Conveyance	On-road	0.6	5.3	10.1	0.3	0.01	0.13	0.16	0.00
	Off-road	15.7	63.2	135.6	11.1	0.05	0.20	0.43	0.04
	Fugitive	–	–	–	29.8	–	–	–	1.36
Treatment	On-road	0.2	8.7	2.6	0.1	0.01	0.26	0.04	0.00
	Off-road	35.8	168.0	439.8	20.4	0.78	3.72	9.13	0.46
	Fugitive	–	–	–	61.1	–	–	–	2.79
Disposal	On-road	0.6	7.3	26.2	0.7	0.02	0.22	0.79	0.02
	Off-road	9.6	69.6	163.5	4.7	0.28	2.02	4.76	0.14
	Fugitive	–	–	–	102.7	–	–	–	4.68
TOTAL		**78.1**	**389.5**	**930.6**	**367.7**	**2.33**	**11.16**	**24.98**	**16.07**
District Threshold		185	N/A	185	N/A	6.0	N/A	6.0	2.5
Exceeds Threshold		No	N/A	**Yes**	N/A	No	N/A	**Yes**	**Yes**
Notes: N/A = no threshold Source: MBA 2008.									

Long-term Operational Impacts

Long-term operational emissions for the collection system for Proposed Project 2 would come from employee commute and maintenance activity. Proposed Project 2 would not include the transfer of septage since Proposed Project 2 does not include septic tanks. Maintenance activity would be more than for Proposed Project 1 because the additional pumps would require inspecting septic tanks and cleaning the effluent filters every two years and pumping the accumulated septage every five years. In addition, the pressure system would require maintenance and periodic replacement of the air-vacuum valve carbon filters and septic tank effluent pumps and controls. Table 5.9-7 shows long-term operational emissions associated with Proposed Project 2.

As shown in Table 5.9-7, the net resulting long-term emissions related to the collection system of Proposed Project 2 would not exceed any of the District's quantitative thresholds. Therefore, Proposed Project 2 would result in less than significant emissions of criteria pollutants.

Table 5.9-7: Proposed Projects 2 and 3 Operational Emissions

System	Pounds Per Day			
	ROG	CO	NO_X	PM_{10}
Collection	0.03	1.24	0.28	0.01
Conveyance	0.01	0.48	0.07	0.00

Table 5.9-7 (Cont.): Proposed Projects 2 and 3 Operational Emissions

System	Pounds Per Day			
	ROG	CO	NO_X	PM_{10}
Treatment	0.90	2.48	10.04	0.34
Disposal	0.00	0.00	0.00	0.00
TOTAL	**0.95**	**4.20**	**10.38**	**0.36**
Current Operations	0.12	1.15	5.54	0.15
NET DIFFERENCE	**0.83**	**3.05**	**4.84**	**0.21**
District Threshold	10	550	10	10
Exceeds Threshold	No	No	No	No
Source: MBA 2008.				

Treatment Plant Site

Proposed Project 2 would utilize either an Oxidation Ditch or Biolac Wastewater Treatment System to provide secondary treatment. The treatment plant would include headworks to screen out inorganics, and de-grit and measure flow; an Oxidation Ditch or Biolac system; a secondary clarifier; and a Nitrogen Removal System integral to an Oxidation Ditch or Biolac system without carbon addition.

Short-term Construction Impacts

The construction of the treatment plant would include the construction of the headworks, secondary treatment, secondary clarification, and administration and maintenance structures on approximately 20 acres. The storage facility would be located at the Tonini sprayfield disposal site. Off-road construction equipment would include tracked and wheeled earth moving equipment, graders, compaction rollers, a backhoe, a trackhoe, and a crane. It would also include a water truck for dust suppression and asphalt paving equipment for the parking and vehicular maintenance.

As shown in Table 5.9-6, short-term construction emissions associated with the facilities at the treatment plant site would contribute to the potential to exceed the District's pounds per day and tons per quarter NO_X thresholds and the District's PM_{10} tons per quarter threshold for Proposed Project 2. Therefore, Proposed Project 2 would result in potentially significant NO_X and PM_{10} emissions impacts during construction of the treatment plant facilities.

Long-term Operational Impacts

Long-term operational emissions for the treatment plant for Proposed Project 2 would come from employee commute, maintenance activity, and regular chemical deliveries. As shown in Table 5.9-5, the net resulting long-term emissions related to the treatment plant of Proposed Project 2 would not exceed any of the District's quantitative thresholds. Therefore, Proposed Project 2 would result in less than significant emissions of criteria pollutants.

Disposal Sites

Similar to Proposed Project 1, Proposed Project 2 would include two effluent disposal components: a leachfield at Broderson and sprayfield at Tonini. In addition, Proposed Project 2 includes an approximately 8-acre seasonal storage pond that would be located on the Tonini site.

Short-term Construction Impacts

As shown in Table 5.9-4, short-term construction emissions associated with the disposal sites would contribute to the potential to exceed the District's pounds per day and tons per quarter NO_X thresholds and the District's PM_{10} tons per quarter threshold for Proposed Project 2. Therefore, Proposed Project 2 would contribute to potentially significant NO_X and PM_{10} emissions impacts during construction of facilities at the disposal sites.

Long-term Operational Impacts

Long-term operational emissions for the disposal sites for Proposed Project 2 would primarily result from maintenance activities. As shown in Table 5.9-5, the emissions from maintenance activities are minimal due to the periodic nature of maintenance activities and are projected to be approximately 0 pounds per day. These maintenance activities would not exceed any of the District's quantitative thresholds. Therefore, Proposed Project 2 would result in less than significant emissions of criteria pollutants associated with the facilities at the disposal sites.

Combined Project Effects

Short-term Construction Impacts

As shown on Table 5.9-9, short-term construction emissions associated with the collection system and the facilities at the treatment plant site and disposal sites for Proposed Project 2 would exceed the District's pounds per day and tons per quarter NO_X thresholds and the District's PM_{10} tons per quarter threshold. Therefore, Proposed Project 2 would result in potentially significant NO_X and PM_{10} emissions impacts during construction of the facilities at the treatment plant site.

Long-term Operational Impacts

Table 5.9-10 shows that the net resulting long-term emissions related to the operation of Proposed Project 2 would not exceed any of the District's quantitative thresholds. Therefore, Proposed Project 2 would result in less than significant emissions of criteria pollutants associated with the collection system and the facilities at the treatment plant site and disposal sites.

Proposed Project 3

Collection System

The potential construction and operation impacts associated with the proposed gravity collection system would generally be the same as described above for Proposed Project 2.

Treatment Plant Site

Proposed Project 3 would utilize either an Oxidation Ditch or Biolac Wastewater Treatment System to provide secondary treatment. The Treatment Plant would include headworks to screen out inorganics, and de-grit and measure flow; an Oxidation Ditch or Biolac system; a secondary clarifier;

and a Nitrogen Removal System integral to an Oxidation Ditch or Biolac system without carbon addition. In addition, Proposed Project 3 would also include a seasonal storage pond.

Short-term Construction Impacts

The construction of the treatment plant would include the construction of the headworks, secondary treatment, secondary clarification, administration and maintenance structures, and storage facility on approximately 28 acres. Off-road construction equipment would include tracked and wheeled earth moving equipment, graders, compaction rollers, a backhoe, a trackhoe, and a crane. It would also include a water truck for dust suppression and asphalt paving equipment for the parking and vehicular maintenance.

As shown in Table 5.9-6, short-term construction emissions associated with the facilities at the treatment plant site would contribute to the potential to exceed the District's pounds per day and tons per quarter NO_X thresholds and the District's PM_{10} tons per quarter threshold for Proposed Project 3. Therefore, Proposed Project 3 would contribute to potentially significant NO_X and PM_{10} emissions impacts during construction of the treatment plant facilities.

Long-term Operational Impacts

Long-term operational emissions at the treatment plant under Proposed Project 3 would come from employee commute, maintenance activity, and regular chemical deliveries. As shown in Table 5.9-5, the net resulting long-term emissions related to the treatment plant in Proposed Project 3 would not exceed any of the District's quantitative thresholds. Therefore, Proposed Project 3 would result in less than significant emissions of criteria pollutants.

Disposal Sites

The potential construction and operation impacts associated with the proposed disposal sites would be the same as described above for Proposed Project 1.

Combined Project Effects

Short-term Construction Impacts

As shown on Table 5.9-6, short-term construction emissions associated with the collection system and the facilities at the treatment plant site and disposal sites for Proposed Project 3 would exceed the District's pounds per day and tons per quarter NO_X thresholds and the District's PM_{10} tons per quarter threshold. Therefore, Proposed Project 3 would result in potentially significant NO_X and PM_{10} emissions impacts during construction of the facilities associated with Proposed Project 3.

Long-term Operational Impacts

Table 5.9-7 shows that the net resulting long-term emissions related to the operation of Proposed Project 3 would not exceed any of the District's quantitative thresholds. Therefore, Proposed Project 3 would result in less than significant emissions of criteria pollutants associated with the collection system and the facilities at the treatment plant site and disposal sites.

Proposed Project 4

Collection System

Short-term Construction Impacts

The potential construction and operation impacts associated with the proposed gravity collection system would be similar as described above for Proposed Project 2. However, Proposed Project 4 would include a longer force main from the Mid-Town Pump Station; 28,500 linear feet. Construction emissions for Proposed Project 4 are presented in Table 5.9-8 Short-term construction emissions associated with the collection system for Proposed Project 4 would contribute to the exceedance of the District's pounds per day and tons per quarter NO_X thresholds and the District's PM_{10} tons per quarter threshold. Therefore, Proposed Project 4 would contribute to potentially significant NO_X and PM_{10} emissions impacts during construction of the facilities associated with Proposed Project 4.

Long-term Operational Impacts

As shown in Table 5.9-7, the net resulting long-term emissions related to the collection system of Proposed Project 4 would not exceed any of the District's quantitative thresholds. Therefore, Proposed Project 4 would result in less than significant emissions of criteria pollutants

Table 5.9-8: Proposed Project 4 Construction Emissions

System	Source	Pounds Per Day				Tons per quarter			
		ROG	CO	NO_X	PM_{10}	ROG	CO	NO_X	PM_{10}
Collection	On-road	0.9	13.7	31.2	0.9	0.03	0.42	0.94	0.03
	Off-road	14.7	53.9	121.7	9.5	1.16	4.20	8.75	0.78
	Fugitive	—	—	–	126.4	—	—	—	5.77
Conveyance	On-road	0.5	5.1	9.4	0.3	0.01	0.13	0.18	0.01
	Off-road	15.7	57.7	125.1	10.0	0.07	0.24	0.43	0.04
	Fugitive	—	—	—	34.3	—	—	—	1.56
Treatment	On-road	1.6	12.2	17.3	0.6	0.01	0.27	0.06	0.00
	Off-road	15.4	73.3	191.8	8.6	0.61	2.91	7.14	0.35
	Fugitive	—	—	—	72.9	—	—	—	3.33
Disposal	On-road	0.6	6.7	25.6	0.7	0.02	0.21	0.78	0.02
	Off-road	9.6	69.6	163.5	4.7	0.28	2.02	4.76	0.14
	Fugitive	—	—	—	102.7	—	—	—	4.68
TOTAL		**59.0**	**292.2**	**685.6**	**371.6**	**2.19**	**10.40**	**23.04**	**16.71**
District Threshold		185	N/A	185	N/A	6.0	N/A	6.0	2.5
Exceeds Threshold		No	N/A	**Yes**	N/A	No	N/A	**Yes**	**Yes**
Source: MBA 2008.									

Table 5.9-9: Proposed Project 4 Operational Emissions

System	Pounds Per Day			
	ROG	CO	NO_X	PM_{10}
Collection	0.03	1.24	0.28	0.01
Conveyance	0.01	0.39	0.05	0.00
Treatment	1.33	3.51	14.13	0.49
Disposal	0.00	0.00	0.00	0.00
TOTAL	**1.38**	**5.14**	**14.46**	**0.51**
Current Operations	0.12	1.15	5.54	0.15
NET DIFFERENCE	**1.26**	**3.99**	**8.92**	**0.36**
District Threshold	10	550	10	10
Exceeds Threshold	No	No	No	No
Source: MBA 2008.				

Treatment Plant Site

The potential construction and operation impacts associated with the facilities at the proposed treatment plant site would be the same as described above for Proposed Project 1.

Disposal Sites

The potential construction and operation impacts associated with the proposed disposal sites would be the same as described above for Proposed Project 1.

Combined Project Effects

Short-term Construction Impacts

As shown on Table 5.9-8, short-term construction emissions associated with the collection system and the facilities at the treatment plant site and disposal sites for Proposed Project 4 would exceed the District's pounds per day and tons per quarter NO_X thresholds and the District's PM_{10} tons per quarter threshold. Therefore, Proposed Project 4 would result in potentially significant NO_X and PM_{10} emissions impacts during construction of the collection system and the facilities at the treatment plant site and disposal sites facilities.

Long-term Operational Impacts

Table 5.9-9 shows that the net resulting long-term emissions related to the operation of Proposed Project 4 would not exceed any of the District's quantitative thresholds. Therefore, Proposed Project 4 would result in less than significant emissions of criteria pollutants associated with the collection system and the facilities at the treatment plant site and disposal sites.

Cumulative Impact Analysis

Proposed Projects 1 through 4

Related projects within the greater cumulative project area are detailed in Section 4.2 and Exhibit 4.2-1 in the Draft EIR. Three of the nine 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 proposed project but are either completed or expected to be completed by the time construction of the proposed project is anticipated to begin (2010). Six of the nine 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 proposed project; however, they could contribute to the same air basin impacts. Since Proposed Projects 1 through 4 could result in exceeding District's pounds per day and tons per quarter NO_X thresholds and the District's PM_{10} tons per quarter threshold during construction activities, the implementation of any of the projects could contribute to significant cumulative NO_X and PM_{10} impacts.

Sensitive Receptors

Impact 5.9-D: The project may expose sensitive receptors to substantial pollutant concentrations.

Project-Specific Impact Analysis

Proposed Project 1

Collection System

The collection system for Proposed Project 1 would include a Septic Tank Effluent Collection System that is comprised of both STEP and STEG collection lines. Construction activities would occur on properties throughout the community that include sensitive land uses such as residential as well as along roadways that are adjacent to sensitive land uses. The construction activities have the potential to expose sensitive receptors to substantial pollutant concentrations during the construction phase. Therefore, this short-term exposure during construction activities is considered potentially significant.

Construction of the collection system for Proposed Project 1 would occur in an area that the SLOAPCD has identified as having the potential for containing NOA. Since the proposed collection system would disturb an area that is greater than one acre, an Asbestos Dust Mitigation Plan and an Asbestos Health and Safety Program would be typically required to be prepared and the District would be required to review it prior to approval. Compliance with this typical requirement would reduce the potential for exposing sensitive receptors to substantial NOA concentrations to a level of less than significant.

During operation, the collection system would be primarily underground and would not have the potential to expose sensitive receptors to substantial pollutant concentrations. Therefore, the sensitive receptors that are located near the collection system would experience less than significant impacts related to the long-term exposure to substantial pollutant concentrations.

Treatment Plant Site

The nearest sensitive receptors to the proposed facilities at the treatment plant site for Proposed Project 1 include residences that are approximately 0.2 mile west of the site and the Sonshine Preschool located approximately 0.4 mile southwest of the site. Construction activities associated with the proposed facilities at this site would have the potential to expose the nearby sensitive receptors to substantial pollutant concentrations. Therefore, this short-term exposure during construction activities is considered potentially significant.

Similar to the collection system area, the treatment plant site occurs in an area that the SLOAPCD has identified as having the potential for containing NOA. Since the proposed facilities at the treatment plant site would disturb an area that is greater than one acre, an Asbestos Dust Mitigation Plan and an Asbestos Health and Safety Program would be typically required to be prepared and the District would be required to review it prior to approval. Compliance with this typical requirement would reduce the potential for exposing sensitive receptors to substantial NOA concentrations to a level of less than significant.

Since the operation of the treatment plant would not result in the generation of substantial pollutants as shown in Table 5.9-5, no substantial pollutant concentrations would occur. Therefore, the sensitive receptors that are located nearby would experience less than significant impacts related to the long-term exposure to substantial pollutant concentrations.

Disposal Sites

Effluent would be disposed at two locations: on approximately 8 acres at the Broderson site and on approximately 175 acres at the Tonini site.

The nearest sensitive receptors to the proposed leachfield facilities at the Broderson site include residences that are approximately 0.2 mile west of the site and 0.3 mile south of the site. Construction activities associated with the proposed facilities at this site would have the potential to expose the nearby sensitive receptors to substantial pollutant concentrations. Therefore, this short-term exposure during construction activities is considered potentially significant.

The approximately 175-acre Tonini disposal site is not located near various sensitive receptors. Due to the site's remoteness from sensitive receptors, construction activities associated with the proposed facilities at this site would not have a potential to expose nearby sensitive receptors to substantial pollutant concentrations. Therefore, construction activities associated with the proposed facilities at Tonini would result in a less than significant impact related to the short-term exposure of sensitive receptors to substantial pollutant concentrations.

Similar to the collection system area and the treatment plant site, the disposal sites occur in areas that the SLOAPCD has identified as having the potential for containing NOA. Since the proposed facilities at the disposal sites would disturb areas that are greater than one acre, an Asbestos Dust Mitigation Plan and an Asbestos Health and Safety Program would be typically required to be prepared and the District would be required to review it prior to approval. Compliance with this typical requirement would reduce the potential for exposing sensitive receptors to substantial NOA concentrations to a level of less than significant.

Since the operation of the disposal sites would not result in the generation of substantial pollutants as shown in Table 5.9-5, no substantial pollutant concentrations would occur. Therefore, the sensitive receptors that are located nearby would experience less than significant impacts related to the long-term exposure to substantial pollutant concentrations.

Combined Project Effects

Proposed Project 1 includes facilities that would be located in close proximity to sensitive receptors. Construction activities associated with the proposed facilities would have the potential to expose the nearby sensitive receptors to substantial pollutant concentrations. Therefore, this short-term exposure during construction activities is considered potentially significant.

All of the proposed facilities in Proposed Project 1 are located in areas that the SLOAPCD has identified as having the potential for containing NOA. Since the proposed facilities would disturb areas that are greater than one acre, an Asbestos Dust Mitigation Plan and an Asbestos Health and Safety Program would be typically required to be prepared and the District would be required to review it prior to approval. Compliance with this typical requirement would reduce the potential for exposing sensitive receptors to substantial NOA concentrations to a level of less than significant.

Since the operation of the proposed facilities in Proposed Project 1 would not result in the generation of substantial pollutants as shown in Table 5.9-8, no substantial pollutant concentrations would occur. Therefore, the sensitive receptors that are located nearby the proposed facilities would experience less than significant impacts related to the long-term exposure to substantial pollutant concentrations.

Proposed Project 2

Collection System

The potential impacts associated with the short-term and long-term exposure of substantial pollutant concentrations to sensitive receptors that are nearby the proposed collection system facilities for Proposed Project 2 would be the same as the potential pollutant concentration impacts for Proposed Project 1 described above.

Treatment Plant Site

The potential impacts associated with the short-term and long-term exposure of substantial pollutant concentrations to sensitive receptors that are nearby the proposed treatment plant facilities for Proposed Project 2 would be the same as the potential pollutant concentration impacts for Proposed Project 1 described above.

Disposal Sites

The potential impacts associated with the short-term and long-term exposure of substantial pollutant concentrations to sensitive receptors that are nearby the proposed facilities at the disposal sites for Proposed Project 2 would be the same as the potential pollutant concentration impacts for Proposed Project 1 described above.

Combined Project Effects

The potential impacts associated with the short-term and long-term exposure of substantial pollutant concentrations to sensitive receptors that are nearby the proposed facilities for Proposed Project 2 would be the same as the potential pollutant concentration impacts for Proposed Project 1 described above

Proposed Project 3

Collection System

The potential impacts associated with the short-term and long-term exposure of substantial pollutant concentrations to sensitive receptors that are nearby the proposed collection system facilities for Proposed Project 3 would be the same as the potential pollutant concentration impacts for Proposed Project 1 described above.

Treatment Plant Site

The potential impacts associated with the short-term and long-term exposure of substantial pollutant concentrations to sensitive receptors that are nearby the proposed treatment plant facilities for Proposed Project 3 would be the same as the potential pollutant concentration impacts for Proposed Project 1 described above.

Disposal Sites

The potential impacts associated with the short-term and long-term exposure of substantial pollutant concentrations to sensitive receptors that are nearby the proposed facilities at the disposal sites for Proposed Project 3 would be the same as the potential pollutant concentration impacts for Proposed Project 1 described above.

Combined Project Effects

The potential impacts associated with the short-term and long-term exposure of substantial pollutant concentrations to sensitive receptors that are nearby the proposed facilities for Proposed Project 3 would be the same as the potential pollutant concentration impacts for Proposed Project 1 described above

Proposed Project 4

Collection System

The potential impacts associated with the short-term and long-term exposure of substantial pollutant concentrations to sensitive receptors that are nearby the proposed collection system facilities for Proposed Project 4 would be the same as the potential pollutant concentration impacts for Proposed Project 1 described above.

Treatment Plant Site

The proposed facilities at the treatment plant site for Proposed Project 4 are not located near various sensitive receptors. Due to the site's remoteness from sensitive receptors, construction activities associated with the proposed treatment plant facilities would not have a potential to expose nearby sensitive receptors to substantial pollutant concentrations. Therefore, construction activities associated with the proposed facilities at the treatment plant site would result in a less than significant impact related to the short-term exposure of sensitive receptors to substantial pollutant concentrations.

The potential impacts associated with the short-term exposure to soils containing NOA from construction activities at the treatment plant site are similar to the potential impact described above for Proposed Project 1.

Since the operation of the treatment plant would not result in the generation of substantial pollutants as shown in Table 5.9-5, no substantial pollutant concentrations would occur. Therefore, long-term operational activities would result in less than significant impacts related to the exposure of sensitive receptors to substantial pollutant concentrations.

Disposal Sites

The potential impacts associated with the short-term and long-term exposure of substantial pollutant concentrations to sensitive receptors that are nearby the proposed facilities at the disposal sites for Proposed Project 4 would be the same as the potential pollutant concentration impacts for Proposed Project 1 described above

Combined Project Effects

Except for the construction of proposed facilities at the treatment plant site, Proposed Project 4 would have the same short-term and long-term impacts associated with the exposure of sensitive receptors to substantial pollutant concentrations as Proposed Project 1. The proposed facilities at the treatment plant site would result in less short-term exposure impacts to sensitive receptors from substantial pollutant concentrations compared to Proposed Project 1 because the proposed treatment plant facilities are not located near various sensitive receptors.

5.9.6 - Mitigation Measures

Table 5.9-10: Air Quality Mitigation Measures

Project(s)	Proposed Mitigation Measure(s)- Project-Specific/Cumulative	Effects After Incorporation of Mitigation Measures
5.9-C: The project may result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors).		
1, 2, 3, 4, and Cumulative	**5.9-C1.** Prior to issuance of grading permits, the applicant shall submit a Construction Activities Management Plan for the review and approval of the SLOAPCD. This plan shall 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.	Less Than Significant

Table 5.9-10 (Cont.): Air Quality Mitigation Measures

Project(s)	Proposed Mitigation Measure(s)- Project-Specific/Cumulative	Effects After Incorporation of Mitigation Measures
	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.	
1, 2, 3, and 4	**5.9-C2.** Prior to initiating grading activities, the proponent's contractor or engineer shall: a. Include the following specifications on all project plans: One catalyzed diesel particulate filter (CDPF) shall 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 (DOC) shall 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.	Less Than Significant
1, 2, 3, 4, and Cumulative	**5.9-C3.** Prior to initiating grading activities, if it is determined that portable engines and portable equipment would be utilized, the contractor shall contact the SLOAPCD and obtain a permit to operate portable engines or portable equipment, and shall be registered in the statewide portable equipment registration program. The SLOAPCD Compliance Division shall be contacted in order to determine the requirements of this mitigation measure.	
1, 2, 3, 4, and Cumulative	**5.9-C4.** Project contract documents would 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. Reclaimed (non-potable) water should be used whenever possible.	Less Than Significant

Table 5.9-10 (Cont.): Air Quality Mitigation Measures

Project(s)	Proposed Mitigation Measure(s)- Project-Specific/Cumulative	Effects After Incorporation of Mitigation Measures
	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 APCD. 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 CVC 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 reclaimed 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 shall 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.	
1, 2, 3, 4, and Cumulative	**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.	Less Than Significant

Table 5.9-10 (Cont.): Air Quality Mitigation Measures

Project(s)	Proposed Mitigation Measure(s)- Project-Specific/Cumulative	Effects After Incorporation of Mitigation Measures
	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 would be required to meet the reduction in NO_X to less than a total of 185 lbs per day or 6.0 tons per quarter over the term of construction and would be finalized and mutually agreed to by the Applicant and appropriate staff of the SLOAPCD prior to commencement of construction of the project.	
5.9-D: The project may expose sensitive receptors to substantial pollutant concentrations.		
1, 2, 3, and 4	Mitigation Measures **5.9-C1, 5.9-C2** and **5.9-C4** are required.	Less Than Significant

5.9.7 - Level of Significance After Mitigation

Project-Specific

Proposed Projects 1 Through 4

Less than significant/

Cumulative

Proposed Projects 1 Through 4

Less than significant.

5.10 - NOISE

5.10.1 - Introduction

This section provides an analysis of noise based on extensive analysis performed in the Expanded Noise Analysis in Appendix L-1. The Expanded section utilized a noise study prepared for the project. A complete list of resources used to prepare this section can be found in Appendix L-1.

5.10.2 - Environmental Setting

Noise Fundamentals

Noise is defined as unwanted sound. Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm, or when it has adverse effects on health. Sound is produced by the vibration of sound pressure waves in the air. Sound pressure levels are used to measure the intensity of sound and are described in terms of decibels. The decibel (dB) is a logarithmic unit that expresses the ratio of the sound pressure level being measured to a standard reference level. A-weighted decibels (dBA) approximate the subjective response of the human ear to a broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies that are audible to the human ear.

Please refer to Appendix L-1 for a complete description of Noise Descriptors, Noise Propagation, Ground Absorption, Traffic Noise Prediction, Noise Barrier Attenuation, and Construction Noise Assumptions.

Groundborne Vibration Fundamentals

Groundborne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of groundborne vibrations typically only cause a nuisance to people, but at extreme vibration levels, damage to buildings may occur. Although groundborne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Groundborne noise is an effect of groundborne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room and may consist of the rattling of windows or dishes on shelves.

Please refer to Appendix L-1 for a complete description of Vibration Descriptors, Vibration Perception, Vibration Propagation, and Construction-level Vibration Prediction.

To determine the existing noise level environment, short-term peak-hour noise measurements were taken at four locations in the project study area and two 24-hour noise measurements were taken in the project study area. Exhibit 5.10-2 depicts the noise measurement locations.

Short-Term Peak Noise Measurements

The results of the short-term peak hour noise level measurements are presented Appendix L-1. The noise level measurements were monitored for a minimum time of 15 minutes. The noise level measurements were taken during both the peak morning and afternoon traffic periods. The existing noise level measurements ranged from 37.8 to 60.2 dBA L_{eq}. According to Section N-2230 of the California Department of Transportation (Caltrans) Technical Noise Supplement, the community noise equivalent level (CNEL) values are generally within plus or minus 2 dBA of the measured peak hour L_{eq} dBA.

The noise measurement results show that only one site has the potential to exceed the City's exterior noise standards of 60 dBA CNEL for noise sensitive residential areas.

24-Hour Noise Measurement Results

The two 24-hour noise measurements were taken from 11:20 a.m. on September 3, 2008 and ran until 12:00 p.m. on September 4, 2008 for Site A and from 11:50 a.m. on September 3, 2008 and ran until 12:05 p.m. on September 4, 2008 for Site B. Site A was positioned on the Cemetery/Giacomazzi/ Branin project site approximately 100 feet east of the western property line and approximately a quarter mile north of Los Osos Valley Road. Site B was positioned in the vicinity of the West Paso pump station, approximately 100 feet east of the centerline of 3rd Street and the approximate center of Paso Robles.

The measured sound pressure levels in dBA have been used to calculate; the minimum and maximum Leq averaged over 10-minute intervals, and the 24-hour L_{dn} and CNEL. The noise measurement results show that Site A and B do not exceed the County's exterior noise standards of 60 dBA CNEL for noise sensitive areas. See Appendix L-1 for a complete description.

5.10.3 - Regulatory Setting

There are various federal, State, and local agencies and policies regulating noise emissions. These include, but are not limited to: the US Department of Transportation, the Federal Highway Administration; the California Department of Health Services, the California Administrative Code and Government Code; and the County of San Luis Obispo General Plan and Municipal Code. For a complete discussion of the aforementioned and how they apply to the project, please refer to Appendix L-1.

5.10.4 - Thresholds of Significance

According to the CEQA Guidelines' Appendix G Environmental Checklist, to determine whether noise impacts are significant environmental effects, the following questions are analyzed and evaluated. Would the project result in:

a.) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies and result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

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

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

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

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

To control transportation-related noise sources such as arterial roads, freeways, airports, and railroads, the County has established guidelines for acceptable community noise levels in the General Plan Noise Element. The Noise Element outlines the land use compatibility for community noise exposure by land use category. For development of a site with exterior noise levels less than 65 dBA CNEL, development near residential is normally acceptable, with typically no noise analysis or mitigation required. For development of a site with exterior noise levels in the 60- to 70-dBA CNEL range, development near residential is conditionally acceptable upon further analysis through a noise impact analysis and possible mitigation. For development of a site with exterior noise levels in the 70- to 75-dBA CNEL range, development near residential is normally unacceptable unless a detailed analysis shows that noise reduction features are included in the design. For exterior noise levels in excess of 75 dBA CNEL, development of a site near residential uses is clearly unacceptable.

For the residential areas nearby, Policy 3.3.3 from the General Plan Noise Element provides an interior noise level standard of 45 dBA CNEL or less and an exterior noise standard of 60 dBA CNEL. In the context of this noise impact analysis, the noise impacts from transportation-related noise associated with the proposed project are controlled by the County Noise Element.

The CEQA Guidelines and the County's General Plan provide no definition of what constitutes a substantial noise increase; however, the California Department of Transportation provides guidance that can be used to define substantial changes in noise levels that may be caused by a project. The thresholds below generally apply to transportation noise that is usually expressed in terms of average noise exposure during a 24-hour period, such as the L_{dn} or CNEL. Project-generated increases in noise levels that exceed those outlined in the thresholds below and that affect existing noise-sensitive land uses (receptors) are considered substantial; therefore, they would constitute a significant noise impact. The project will create a significant noise-related impact if it would:

- Increase noise levels by 5 dB or more where the without project noise level is less than 60 dB.
- Increase noise levels by 3 dB or more where the without project noise level is 60 to 65 dB.
- Increase noise levels by 1.5 dB or more where the without project noise level is greater than 65 dB.

The County Noise Element has also established performance standards to control stationary source/non-transportation related noise impacts. General Plan Policy 3.3.5 stipulates that the maximum allowable noise exposure for a stationary noise source be maintained at 50 dBA L_{eq} and 70 dBA L_{max} or less during the daytime (7 a.m. to 10 p.m.) and 45 dBA L_{eq} and 65 dBA L_{max} or less during the nighttime (10 p.m. to 7 a.m.).

Pursuant to Section 22.10.120 of the County's Municipal Code, construction noise is considered a nuisance and the Municipal Code places restrictions on the time when construction noise may occur. However, since neither the General Plan nor the Municipal Code provides quantitative construction noise, construction noise impacts have been analyzed according to the same regulations as stated above for stationary noise.

For the purposes of this noise impact analysis, construction-related and operations-related vibration impacts would be considered significant if it involves any on-going operations activities that would create a vibration in excess of 0.01inches per second or 80 VdB at the nearby sensitive receptors or any construction-related activities that would create a vibration in excess of 0.2 inches per second or 94 VdB onto nearby structures.

Other Thresholds

For the purpose of the proposed project, the following threshold has been added. To evaluate the project's consistency with applicable goals, policies, and regulations related to noise impacts:

a) Would the project conflict with policies in the General Plan?

5.10.5 - Level of Significance Prior to Mitigation

No Impacts were found related to the project resulting from impacts related to air traffic noise caused by either a public or a private airport/airstrip. The complete analysis and rationale for determining a Less Than Significant or No Impact for each of the thresholds of significance can be found in Appendix L-1.

Table 5.10-1: Noise Significance Determination

PS - Potentially Significant; LTS - Less Than Significant; NI - No Impact					
	Project 1	**Project 2**	**Project 3**	**Project 4**	**Cumulative**
Collection					
Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies and result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	LTS	**PS**	**PS**	**PS**	LTS
Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	LTS	**PS**	**PS**	**PS**	NI
A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	**PS**	**PS**	**PS**	**PS**	NI
For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	NI	NI	NI	NI	NI
For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	NI	NI	NI	NI	NI
Would the project conflict with policies in the General Plan?	**PS**	**PS**	**PS**	**PS**	NI
Treatment					
Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies and result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	**PS**	**PS**	**PS**	LTS	LTS
Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	LTS	LTS	LTS	LTS	NI
A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	**PS**	**PS**	**PS**	**PS**	NI

Table 5.10-1 (Cont.): Noise Significance Determination

PS - Potentially Significant; LTS- Less Than Significant; NI - No Impact					
	Project 1	**Project 2**	**Project 3**	**Project 4**	**Cumulative**
For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	NI	NI	NI	NI	NI
For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	NI	NI	NI	NI	NI
Would the project conflict with policies in the General Plan?	**PS**	**PS**	**PS**	**PS**	NI
Disposal					
Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies and result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	LTS	LTS	LTS	LTS	LTS
Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	LTS	LTS	LTS	LTS	NI
A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	**PS**	**PS**	**PS**	**PS**	NI
For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	NI	NI	NI	NI	NI
For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	NI	NI	NI	NI	NI
Would the project conflict with policies in the General Plan?	**PS**	**PS**	**PS**	**PS**	NI

Table 5.10-1 (Cont.): Noise Significance Determination

PS - Potentially Significant; LTS - Less Than Significant; NI - No Impact					
	Project 1	**Project 2**	**Project 3**	**Project 4**	**Cumulative**
Combined Project					
Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies and result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	**PS**	LTS	**PS**	**PS**	LTS
Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	LTS	LTS	LTS	LTS	NI
A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	**PS**	LTS	LTS	LTS	NI
For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	NI	NI	NI	NI	NI
For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	NI	NI	NI	NI	NI
Would the project conflict with policies in the General Plan?	**PS**	**PS**	**PS**	**PS**	NI

Noise Levels in Excess of Standards and Substantial (Permanent) Increase in Noise Levels

Impact 5.10-A: **The project would result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies and result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.**

Project-Specific Impact Analysis

The on-going operation of the proposed project may result in a long-term increase in ambient noise levels created from both an increase in vehicular traffic on the nearby roadways and from stationary noise sources.

Stationary Noise

The collection system, treatment plant sites, and disposal sites may generate stationary noise impacts from the ongoing operation of the proposed project. In order to determine if the proposed project would exceed the County standards, stationary-only noise levels created by the proposed project were calculated at the nearby homes.

Roadway Noise

The ongoing operations of the collection system, treatment plant sites, and disposal sites would all generate additional vehicular trips on roadways in the project vicinity. Since the different systems would add vehicular traffic to the same roadways, the vehicular noise impacts have been analyzed based on the combined traffic noise impacts for each proposed project.

In order to quantify the traffic noise impacts along the analyzed roadways, the roadway noise contours were calculated. Noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway. For analysis comparison purposes, the L_{dn} and CNEL noise levels are calculated at 100 feet from the centerline. In addition, the distance from the centerline to the 55-, 60-, 65-, and 70-dBA noise levels are calculated for both L_{dn} and CNEL standards. The noise contours for the existing traffic condition have been calculated using the HAW Model and provided below in Table 5.10-2 in order to provide a baseline condition against which to compare the proposed project impacts. The Federal Highway Administration (FHWA) Model calculations printouts are provided in Appendix J-2.

Table 5.10-2: Existing Traffic Noise Contours

Roadway	Segment	CNEL at 100 feet (dBA)	Distance to Contour (feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Los Osos Valley Road	West of Broderson Avenue	63.0	RW	74	159	343
Los Osos Valley Road	East of Broderson Avenue	63.3	RW	77	165	356

Table 5.10-2 (Cont.): Existing Traffic Noise Contours

Roadway	Segment	CNEL at 100 feet (dBA)	Distance to Contour (feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Los Osos Valley Road	West of 9th Street/Bayview Heights Drive	64.9	RW	98	211	455
Los Osos Valley Road	East of 9th Street/Bayview Heights Drive	65.8	53	113	245	527
Los Osos Valley Road	East of 10th Street	66.0	54	116	251	540
Los Osos Valley Road	East of South Bay Boulevard	65.9	53	114	247	531
Los Osos Valley Road	West of Turri Road	65.7	51	111	238	514
Los Osos Valley Road	East of Turri Road	65.7	52	112	241	520
Broderson Avenue	South of Los Osos Valley Road	42.5	RW	RW	RW	RW
9th Street	North of Los Osos Valley Road	51.6	RW	RW	RW	60
Bayview Heights Drive	South of Los Osos Valley Road	48.1	RW	RW	RW	34
10th Street	North of Los Osos Valley Road	51.0	5	RW	RW	54
South Bay Boulevard	North of Los Osos Valley Road	64.1	40	87	187	402
South Bay Boulevard	South of Los Osos Valley Road	44.6	RW	RW	RW	RW
Turri Road	North of Los Osos Valley Road	42.5	RW	RW	RW	RW
Notes: RW = Noise contour is located within right-of-way of roadway. Source: Michael Brandman Associates, 2008.						

The calculated existing noise levels in Table 5.10-2 show that currently all roadway segments of Los Osos Valley Road and South Bay Boulevard north of Los Osos Valley Road would exceed the County's 60-dBA CNEL traffic noise standard. The existing noise levels from all analyzed roadway segments range from 42.5 to 66.0 dBA CNEL.

Proposed Project 1

Treatment Plant Site

The treatment of the raw wastewater for Proposed Project 1 would consist of the raw wastewater being transported to the combined Cemetery/Giacomazzi/Branin site where the raw wastewater would then be treated through the use of facultative ponds. The facultative pond would consist of an approximately 12 acre pond with a mechanical aeration system and a backup diesel generator which would be the primary sources of stationary noise.

Based on the Los Osos Wastewater Project Final EIR prepared Crawford, Multari, and Clark in 2001, a treatment plant site that utilized facultative ponds would produce a noise level of 52 dBA at 100 feet from the plant. The mechanical aeration system for the facultative pond on the Cemetery/ Giacomazzi/Branin site could be located as near as 200 feet to the nearest residence. Based on geometric spreading of noise, the facultative pond could produce a noise level of 46.0 dBA at the nearest residence. This noise level would exceed the County stationary noise standard of 45 dBA L_{eq} during the nighttime.

The backup generator would be located inside a structure and would only be operated during power failures. The backup generator could be located as near as 200 feet to the nearest residence. According to the RCNM, a diesel generator would produce a noise level of 65.6 dBA at 200 feet. The structure would provide a minimum of 20 dB attenuation, however even with including this attenuation, this noise level produced by the diesel generator would exceed the County stationary noise standard of 45 dBA L_{eq} during the nighttime. Therefore, stationary noise impacts associated with the on-going operations of the treatment plant site for Proposed Project 1 could create a significant noise impact.

Combined Project Effects

The collection system, treatment plant site, and disposal sites for the most part are not near one another. The stationary noise created by the simultaneous on-going operations of multiple portions of Proposed Project 1 would not create a noticeable increase over the operational noise levels calculated above for the different sites. However, the on-going operations associated with each site would produce additional on-road vehicular traffic, which may create a combined traffic noise impact. The combined on-going operations of the collection system, treatment plant site, and disposal site for Proposed Project 1 would generate approximately 58 trips per day. The calculated existing plus Proposed Project 1 condition noise contours are shown below in Table 5.10-3.

Table 5.10-3: Existing Plus Proposed Project 1 Traffic Noise Contours

Roadway	Segment	CNEL at 100 feet (dBA)	Distance to Contour (feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Los Osos Valley Road	West of Broderson Avenue	63.1	RW	74	160	345
Los Osos Valley Road	East of Broderson Avenue	63.3	RW	77	166	359
Los Osos Valley Road	West of 9th Street/ Bayview Heights Drive	64.9	RW	99	212	457
Los Osos Valley Road	East of 9th Street/ Bayview Heights Drive	65.8	53	113	245	527

Table 5.10-3 (Cont.): Existing Plus Proposed Project 1 Traffic Noise Contours

Roadway	Segment	CNEL at 100 feet (dBA)	Distance to Contour (feet)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Los Osos Valley Road	East of 10th Street	66.0	54	117	251	542
Los Osos Valley Road	East of South Bay Boulevard	65.9	54	115	249	535
Los Osos Valley Road	West of Turri Road	65.7	52	111	239	516
Los Osos Valley Road	East of Turri Road	65.7	52	112	241	520
Broderson Avenue	South of Los Osos Valley Road	43.3	RW	RW	RW	RW
9th Street	North of Los Osos Valley Road	51.6	RW	RW	RW	60
Bayview Heights Drive	South of Los Osos Valley Road	48.1	RW	RW	RW	34
10th Street	North of Los Osos Valley Road	51.0	RW	RW	RW	54
South Bay Boulevard	North of Los Osos Valley Road	64.1	RW	87	187	402
South Bay Boulevard	South of Los Osos Valley Road	44.6	RW	RW	RW	RW
Turri Road	North of Los Osos Valley Road	42.5	RW	RW	RW	RW

Notes:
RW = Noise contour is located within right-of-way of roadway.
Source: Michael Brandman Associates, 2008.

Table 5.10-3 shows that at 100 feet from the centerline, compared with the existing baseline condition shown in Table 5.10-3, no additional roadway segments would exceed the County's 60-dBA CNEL standard in addition to those already existing. The noise levels from all analyzed roadway segments would range from 42.5 to 66.0 dBA CNEL.

The noise levels calculated in each roadway segment for the existing plus Proposed Project 1 condition have been compared against the existing condition below in Table 5.10-4 in order to show any potential increases in traffic noise.

Table 5.10-4: Proposed Project 1 Existing Traffic Noise Contributions

Roadway	Segment	CNEL at 100 feet			
		No Project	With Project	Project Contribution	Potential Significant Impact?
Los Osos Valley Road	West of Broderson Avenue	63.0	63.1	0.1	No
Los Osos Valley Road	East of Broderson Avenue	63.3	63.3	0.0	No
Los Osos Valley Road	West of 9th Street/Bayview Heights Drive	64.9	64.9	0.0	No
Los Osos Valley Road	East of 9th Street/Bayview Heights Drive	65.8	65.8	0.0	No
Los Osos Valley Road	East of 10th Street	66.0	66.0	0.0	No
Los Osos Valley Road	East of South Bay Boulevard	65.9	65.9	0.0	No
Los Osos Valley Road	West of Turri Road	65.7	65.7	0.0	No
Los Osos Valley Road	East of Turri Road	65.7	65.7	0.0	No
Broderson Avenue	South of Los Osos Valley Road	42.5	43.3	0.8	No
9th Street	North of Los Osos Valley Road	51.6	51.6	0.0	No
Bayview Heights Drive	South of Los Osos Valley Road	48.1	48.1	0.0	No
10th Street	North of Los Osos Valley Road	51.0	51.0	0.0	No
South Bay Boulevard	North of Los Osos Valley Road	64.1	64.1	0.0	No
South Bay Boulevard	South of Los Osos Valley Road	44.6	44.6	0.0	No
Turri Road	North of Los Osos Valley Road	42.5	42.5	0.0	No
Source: Michael Brandman Associates, 2008.					

The results of this comparison shown in Table 5.10-4 indicate that the noise level contributions from the proposed project to the study area roadways would range from 0.0 to 0.8 dBA CNEL. The County of San Luis Obispo's threshold of significance is 60 dBA CNEL or a 3 dBA CNEL increase for roadways when the no project noise level is greater than 60 dBA CNEL. The greatest project contribution of 0.8 dBA would occur at Broderson Avenue south of Los Osos Valley Road. A 0.8-dBA noise increase would below the County's thresholds of significance. Therefore, for the existing conditions and based on thresholds of significance defined above, no significant, long-term combined noise impacts from Proposed Project 1 vehicle noise would occur along the study area roadways segments.

In addition, the treatment plant would have back up generators for on-going operations. These back-up generators could exceed the County's stationary noise standards described above. Therefore, stationary noise impacts associated with the back-up generator at the treatment plant site could create a significant noise impact.

Proposed Project 2

Collection System

The collection system for Proposed Project 2 would consist of a conventional gravity collection system. A gravity system would consist of; (1) on-lot improvements; (2) gravity collection system; and (3) out-of-town conveyance system.

The in-town collection system for Proposed Project 2 would consist of both gravity sewers and force mains that would convey the wastewater to the Mid-town site. The in-town collection system would consist of 230,000 linear feet of pipe, 907 manholes, 5 duplex pump stations, 2 triplex pump stations, 12 pocket pump stations, standby power facilities, and 4,769 laterals. The sewer mains would range from 8- to 18-inch diameter pipe. The potential stationary noise sources associated with the collection system would occur from the pump stations and standby power facility; however, only the standby power facility has a potential to generate potential significant noise impacts as discussed below.

The standby power facilities would consist of a structure that would house electrical panels and a backup diesel generator. Since the standby power facilities would be located adjacent to a public roadway, the nearest residences would be located approximately 25 feet away from the facility. According to the RCNM, a diesel generator would produce a noise level of 80.6 dBA at 25 feet. The standby power facility structure would provide a minimum of 20 dB attenuation, however even with including this attenuation, this noise level produced by the diesel generator would exceed the County stationary noise standards of 50 dBA L_{eq} during the daytime and 45 dBA L_{eq} during the nighttime. Therefore, stationary noise impacts associated with the on-going operations of the backup diesel generators for the in-town collection system for Proposed Project 2 could create a significant noise impact.

Treatment Plant Site

The treatment of the raw wastewater for Proposed Project 2 would use a Oxidation Ditch or BioLac. In addition, the treatment plant site would include appurtenance facilities on 4 acres and a biosolids handling area on approximately 6 acres. On-going operations associated with the treatment plant facilities would include a backup diesel generator similar to Proposed Project 1. The analysis above found that the on-going operations of the backup diesel generator used for the treatment plant site for Proposed Project 1 would create a significant noise impact. Therefore, stationary noise impacts associated with the on-going operations of the treatment plant site for Proposed Project 2 would create a significant impact.

Proposed Project 3

Collection System

The collection system for Proposed Project 3 would be the same system as described for Proposed Project 2.

The analysis above found that the on-going operations of the backup diesel generator used for the in-town collection system for Proposed Project 2 would create a significant noise impact. Therefore, noise impacts during the on-going operations of the collection system's in-town collection system for Proposed Project 3 would create significant impact.

Treatment Plant Site

The treatment of the raw wastewater for Proposed Project 3 would be the same system as described for Proposed Project 2 with the addition of a seasonal storage pond on the Branin site. No stationary noise sources are anticipated to occur from the ongoing operation of the seasonal storage pond. The analysis above found that the on-going operations of the backup diesel generator used for the treatment plant site for Proposed Project 2 would create a significant noise impact. Therefore, stationary noise impacts associated with the on-going operations of the treatment plant site for Proposed Project 3 would create a significant impact.

Proposed Project 4

Collection System

The collection system for Proposed Project 4 would be the same system as described for Proposed Project 2.

The analysis above found that the on-going operations of the backup diesel generator used for the in-town collection system for Proposed Project 2 could create a significant noise impact. Therefore, noise impacts during the on-going operations of the collection system's in-town collection system for Proposed Project 4 could create significant impact.

Excessive Groundborne Vibration

Impact 5.10-B:	**The project could expose people to or generation of excess groundborne vibration or groundborne noise levels.**

Project-Specific Impact Analysis

Proposed Project 2

Collection System

The collection system for Proposed Project 2 would consist of a conventional gravity collection system. Construction of a gravity system would consist of; (1) on-lot improvements; (2) gravity collection system; and (3) out-of-town conveyance system.

The in-town collection system for Proposed Project 2 would consist of both gravity sewers and force mains that would convey the wastewater to the Mid-town site. In addition, the collection system would require construction of 19 pump stations. The construction of the pump stations would take approximately 90 to 120 days per station and would require cranes and possibly pile driving equipment in addition to the equipment listed above. Pile driving would be limited to only the pump stations where the groundwater fills the area being excavated quicker than the pumps can drain it. The pile driving would consist of either driving steel sheets down on the edge of the excavation area to slow the water down or to drive concrete caissons into the ground and where a precast pump station is placed on top of the caissons. Homes are located as near as 25 feet to the proposed pump stations. An impact pile driver would typically produce a vibration level of 104 VdB or 0.644 inches per second at 25 feet. This vibration level would exceed the 0.2 inches per second or 94 VdB construction vibration threshold discussed above. Therefore, construction of the pump stations for the in-town collection system for Proposed Project 2 would create a significant vibration impact.

Proposed Project 3

Collection System

The collection system for Proposed Project 3 would be the same system as described for Proposed Project 2.

The analysis above found that the pile driving associated with construction of the pump stations for the in-town collection system for Proposed Project 2 would create a significant vibration impact. Therefore, vibration impacts during construction of the collection system’s in-town collection system for Proposed Project 3 would create significant impact.

Proposed Project 4

Collection System

The collection system for Proposed Project 4 would be the same system as described for Proposed Project 2.

The analysis above found that the pile driving associated with construction of the pump stations for the in-town collection system for Proposed Project 2 would create a significant vibration impact. Therefore, vibration impacts during construction of the collection system’s in-town collection system for Proposed Project 4 would create significant impact.

Temporary or Periodic Increase in Ambient Noise Levels

Impact 5.10-C: **The project could result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.**

Project-Specific Impact Analysis

Construction noise represents a short-term increase in ambient noise. Noise impacts from construction activities associated with the proposed project would be a function of the noise generated by construction equipment, equipment location, sensitivity of nearby land uses, and the timing and duration of the construction activities.

The construction activities for the proposed project have been analyzed below separately for the collection system, treatment plant site, and disposal site as well as the combined project traffic noise impacts for each of the four proposed projects.

Proposed Project 1

Collection System

The on-lot improvements would consist of re-routing house laterals, abandoning or re-purposing the existing septic tank and installing new STEP/STEG tanks. An analysis of the lots to be served by the proposed system found that the 95 percent of the STEP/STEG tanks could be placed in the front yards of the lots and the remaining 5 percent would have to have the STEP/STEG tank located in the backyard. The installation of each tank would require the excavation of approximately 40 cubic yards per site, and would result in 15 cubic yards of export material. Given the swell characteristics of the sandy soil, it can be estimated that three truckloads of excavated material would have to be hauled off each site. Although the construction equipment would vary for the installation of the tanks it would generally consist of one rubber tired backhoe, a crane, and various service vehicles. The total system would require the installation of 4,679 STEP/STEG tanks that would require 6,000 material delivery truck trips, 7,200 truck trips for excavated material, and 4,000 miscellaneous truck trips for a total of 17,200 truck trips.

The in-town collection system and out-of-town conveyance system would consist of the installation of approximately 50,300 linear feet of 6-, 8-, and 10-inch sewer line and 203,600 linear feet of 2- and 3-inch line. The larger diameter pipe would be installed through conventional cut techniques, which would result in the excavation of approximately 28,000 cubic yards and would require the export of 4,200 cubic yards or 420 truckloads. The smaller diameter lines would be installed utilizing directional drill techniques that would limit the surface disruption to the individual lot connections and for air relief valves and flushing ports, which would result in the excavation of 18,000 cubic yards and would require the export of 2,700 cubic yards or 270 truckloads. Although the construction equipment would vary between crews it would generally consist of one track-mounted excavator, one front-end loader, one rubber-tired backhoe with front-end loader, one service truck, and one directional drill.

The out of town conveyance system for Proposed Project 1 would consist of a line that would transport the wastewater from Los Osos to the Giacomazzi treatment plant site and another line that would convey the treated effluent from the Giacomazzi treatment plant site to the Broderson Leachfield, and the Tonini Sprayfield. The wastewater line would be 18,700 feet long and would require the excavation of 10,400 cubic yards of material and export of 1,600 cubic yards or 160 truckloads. The treated effluent line would be 26,800 feet long and would require the excavation of 15,000 cubic yards of material and export of 2,400 cubic yards or 240 truckloads. Although the construction equipment would vary between crews it would generally consist of one track-mounted excavator, one front-end loader, one rubber-tired backhoe with front-end loader, one service truck, a dewatering pump, and various pickup trucks.

Construction noise impacts onto the nearby sensitive receptors have been calculated according to the methodology presented above and through use of the RCNM. The construction noise has been analyzed separately for the construction of the STEP/STEG tanks, collection system, and conveyance system and have been based on the construction equipment assumptions stated above. The construction equipment was spread out over 50 feet with the equipment located as near as 10 feet to the sensitive receptors for the installation of the tanks and as near as 25 feet to the sensitive receptor for the installation of the collection and conveyance system. The construction noise impacts associated with the construction of the STE system are shown below in Table 5.10-5 and the RCNM printouts are provided in Appendix J-2.

Table 5.10-5: Noise Impacts from Construction of the STE Collection System

Construction Activity	Nearest Distance from Sensitive Receptor	Construction Equipment Noise Levels	
		dBA L_{eq}	dBA L_{max}
Installation of Tanks	10 feet	88.0	91.5
Installation of Collection System	25 feet	84.5	86.7
Installation of Conveyance System	25 feet	85.5	87.0
Source: Roadway Construction Noise Model (RCNM) Version 1.00.			

Table 5.10-5 above shows that the greatest noise impacts associated with the construction of the STE collection system would occur during the installation of the STEP/STEG tanks at the residences, with an average noise level of 88.0 L_{eq} and a peak noise level of 91.5 dBA L_{max}. The STE collection system construction noise would exceed the County stationary noise standards of 50 dBA L_{eq} and 70 dBA L_{max}, therefore a significant temporary noise impact would occur.

Treatment Plant Site

The treatment of the raw wastewater for Proposed Project 1 would consist of the raw wastewater being transported to the combined Cemetery/Giacomazzi/Branin site where the raw wastewater would then be treated through the use of facultative ponds. The area required for the ponds is estimated to be 20 acres. Approximately 32 acres would be disturbed during construction of the treatment plant site and would include excavation for the new facilities, site grading for stormwater drainage, and staging areas for construction equipment and supplies. The greatest construction noise impacts are anticipated to occur during the grading operations when the simultaneous operation of two tracked earthmovers, three wheeled earthmovers, two graders, one compaction roller, three backhoes, two excavators, two mobile cranes, 10 pickup trucks (two onsite), three small dump trucks, one water truck, and one asphalt compactor may operate simultaneously.

Construction noise impacts onto the nearby sensitive receptors have been calculated according to the methodology presented above and through use of the RCNM. The nearest residence is located approximately 200 feet west of the Giacomazzi site. The construction noise has been analyzed based on the construction equipment assumptions stated above. The construction equipment was spread out over 1,000 feet with the equipment located as near as 200 feet to the sensitive receptor. The RCNM found that construction of the Cemetery/Giacomazzi/Branin treatment plant site would create a noise level of 70.9 dBA L_{eq} at the nearest residence. This would exceed the County stationary noise standards of 50 dBA L_{eq} and 70 dBA L_{max}, therefore a significant temporary noise impact would occur.

Disposal Sites

The effluent disposal for Proposed Project 1 would occur at both the Broderson Leachfield and Tonini Sprayfield. The Tonini Sprayfield would dispose of the water through evapotranspiration and percolation. The sprayfield would consist of irrigation lines with detachable sprinklers that are approximately 30 feet apart and would cover the approximately 175-acre area. At the bottom of the sprayfield a drain would be constructed to collect the run-off, which would then be reapplied to the sprayfield. Construction of the sprayfield would require the simultaneous operation of one dozer and one grader.

The Broderson Leachfield would dispose of the effluent through percolation, which has a capacity of 448-acre feet per year. The leachfield would consist of an 8- acre area excavated to an average depth of 6.5 feet and backfilled with a 4-foot layer of gravel for drainage, which would be covered geotextile fabric. Final cover would consist of a minimum of 2.5 feet of native soil back fill. The percolation piping would consist of 4-inch perforated pipe that would be installed beneath the geotextile fabric. Construction of the leachfield would require the simultaneous operation of one dozer and two scrappers.

Construction noise impacts onto the nearby sensitive receptors have been calculated according to the methodology presented above and through use of the RCNM. The construction noise has been analyzed separately for the construction of the Tonini Sprayfield and the Broderson Leachfield and have been based on the construction equipment assumptions stated above. The nearest residence is located approximately 350 feet south of the Tonini Sprayfield and approximately 100 feet west of the Broderson Leachfield. The construction noise impacts associated with the construction of the disposal sites are shown below in Table 5.10-6.

Table 5.10-6: Noise Impacts from Construction of the Disposal Sites

Construction Activity	Nearest Distance from Sensitive Receptor	Construction Equipment Noise Levels	
		dBA L_{eq}	dBA L_{max}
Tonini Sprayfield	350 feet	65.2	66.7
Broderson Leachfield	100 feet	75.4	77.6
Source: Roadway Construction Noise Model (RCNM) Version 1.00.			

Table 5.10-6 above shows that the greatest noise impacts associated with the construction of the disposal sites would occur during construction of the Broderson Leachfield, with an average noise level of 75.4 L_{eq} and a peak noise level of 77.6 dBA L_{max} at the nearest residence. The construction noise from both disposal sites would exceed the County stationary noise standards of 50 dBA L_{eq} and 70 dBA L_{max}, therefore a significant temporary noise impact would occur.

Proposed Project 2

Collection System

The collection system for Proposed Project 2 would consist of a conventional gravity collection system. Construction of a gravity system would consist of; (1) on-lot improvements; (2) gravity collection system; and (3) out-of-town conveyance system.

The on-lot improvements for Proposed Project 2 would consist of abandoning existing septic tank and rerouting house lateral pipes to connect to the sewer system. Approximately 75 percent of the homes currently have their septic tank in the front yard and the remainder have the septic tank in the backyard. Construction of a new lateral from the front yard would require the installation of approximately 25 feet of 4-inch pipe, while the from the backyard it would require the installation of approximately 75 feet of 4-inch pipe and for 5 percent of the homes a low pressure grinder pump would have to be installed as well. Each homeowner would be responsible for the onsite rerouting of the sewer lateral. Construction equipment used during the installation of the onsite sewer laterals would most likely include a rubber-tired backhoe and service vehicles.

The in-town collection system for Proposed Project 2 would consist of both gravity sewers and force mains that would convey the wastewater to the Mid-town site. Construction of the in-town collection system would consist of 230,000 linear feet of pipe, 907 manholes, 5 duplex pump stations, 2 triplex pump stations, 12 pocket pump stations, standby power facilities, and 4,679 laterals. The sewer mains would range from 8- to 18-inch diameter pipe and would be buried at an average depth of 8 feet and a maximum depth of 18 feet. Approximately 270,000 cubic yards of material would be excavated during the trenching operations and would require the export of approximately 40,500 cubic yards or 4,050 truck trips. In addition the construction of the 19 pump stations would require the export of approximately 1,200 cubic yards or 150 truck trips. Although the construction equipment would vary between crews it would generally consist of one track-mounted excavator, one front-end loader, one rubber-tired backhoe with front-end loader, one service truck, dewatering pumps, and various pickup trucks. The construction of the pump stations would require cranes and possibly pile driving equipment in addition to the equipment listed above. The pile driving equipment would be necessary when groundwater fills the area being excavated quicker than the pumps can drain it. The pile driving would consist of either driving steel sheets down on the edge of the excavation area to slow the water down or to drive concrete caissons into the ground and where a precast pump station is placed on top of the caissons.

The out of town conveyance system for Proposed Project 2 would be the same system as described for Proposed Project 1, which found that construction activities would create an average noise level of 85.5 L_{eq} and a peak noise level of 87.0 dBA L_{max}. The construction noise from the out of town conveyance system would exceed the County stationary noise standards of 50 dBA L_{eq} and 70 dBA L_{max}, therefore a significant temporary noise impact would occur.

Construction noise impacts onto the nearby sensitive receptors have been calculated according to the methodology presented above and through use of the RCNM. The construction noise has been analyzed separately for the construction of the onsite laterals, the collection system, and pump stations and have been based on the construction equipment assumptions stated above. The construction equipment was spread out over 50 feet with the equipment located as near as 10 feet to the sensitive receptors for the installation of the onsite laterals and as near as 25 feet to the sensitive receptor for the installation of the collection system and pump stations. The construction noise impacts associated with the construction of the conventional gravity collection system are shown below in Table 5.10-7.

Table 5.10-7: Noise Impacts from Construction of the Gravity Collection System

Construction Activity	Nearest Distance from Sensitive Receptor	Construction Equipment Noise Levels	
		dBA L_{eq}	dBA L_{max}
Installation of Onsite Lateral	10 feet	87.9	91.5
Installation of Collection System	25 feet	85.4	87.0
Installation of Pump Stations	25 feet	100.4	107.3
Installation of Conveyance System	25 feet	85.5	87.0
Source: Roadway Construction Noise Model (RCNM) Version 1.00.			

Table 5.10-7 above shows that the greatest noise impacts associated with the construction of the gravity collection system would occur during the installation of the pump stations, when pile driving is utilized, with an average noise level of 100.4 L_{eq} and a peak noise level of 107.3 dBA L_{max}. The gravity collection system construction noise would exceed the County stationary noise standards of 50 dBA L_{eq} and 70 dBA L_{max}, therefore a significant temporary noise impact would occur.

Treatment Plant Site

The treatment of the raw wastewater for Proposed Project 2 would consist of the raw wastewater being transported to the Giacomazzi site where the raw wastewater would then be treated through the use of an oxidation ditch or biolac. An oxidation ditch and biolac are different process systems but they share similar area requirements, which is estimated to be 10 acres. Approximately 6 acres at the Giacomazzi site would be utilized for biosolid processing and 4 acres would be utilized for appurtenant structures. The treatment plant site would require the excavation of approximately 28,600 cubic yards of material and the export of approximately 3,177 cubic yards or 353 truckloads. The greatest construction noise impacts are anticipated to occur during the grading operations when the simultaneous operation of two tracked earthmovers, three wheeled earthmovers, two graders, one compaction roller, three backhoes, two excavators, two mobile cranes, 15 concrete trucks (two onsite), one concrete pumper truck, 10 pickup trucks (two onsite), three small dump trucks, one water truck, and one asphalt compactor may operate simultaneously.

Construction noise impacts onto the nearby sensitive receptors have been calculated according to the methodology presented above and through use of the RCNM. The nearest residence is located approximately 200 feet west of the Giacomazzi site. The construction noise has been analyzed based on the construction equipment assumptions stated above. The construction equipment was spread out over 1,000 feet with the equipment located as near as 200 feet to the sensitive receptor. The RCNM found that construction of the Giacomazzi treatment plant site would create a noise level of 71.0 dBA L_{eq} at the nearest residence. This would exceed the County stationary noise standards of 50 dBA L_{eq} and 70 dBA L_{max}, therefore a significant temporary noise impact would occur.

Disposal Sites

The effluent disposal for Proposed Project 2 would be the same system as described for Proposed Project 1 with the addition of a seasonal storage pond at the Tonini Sprayfield. The construction of the storage pond would be constructed at the same time as the rest of the sprayfield and would require similar construction equipment. Therefore the construction noise impacts would be similar to what was calculated above for Proposed Project 1. The analysis of Proposed Project 1 found that the greatest noise impacts associated with the construction of the disposal sites would occur during construction of the Broderson Leachfield, with an average noise level of 75.4 L_{eq} and a peak noise level of 77.6 dBA L_{max} at the nearest residence. The construction noise from both disposal sites would exceed the County stationary noise standards of 50 dBA L_{eq} and 70 dBA L_{max}, therefore a significant temporary noise impact would occur.

Proposed Project 3

Collection System

The collection system for Proposed Project 3 would be the same system as described for Proposed Project 2, which would consist of a conventional gravity collection system. The analysis of Proposed Project 2 found that the greatest noise impacts associated with the construction of the gravity collection system would occur during the installation of the pump stations, when pile driving is utilized, with an average noise level of 100.4 L_{eq} and a peak noise level of 107.3 dBA L_{max}. The gravity collection system construction noise would exceed the County stationary noise standards of 50 dBA L_{eq} and 70 dBA L_{max}, therefore a significant temporary noise impact would occur.

Treatment Plant Site

The treatment of the raw wastewater for Proposed Project 3 would be the same system as described for Proposed Project 2 with the addition of a seasonal storage pond on the Branin site. The construction of the storage pond would be constructed at the same time as the rest of the treatment plant site and would require similar construction equipment. In addition, no sensitive receptors are located adjacent to the Branin site. Therefore the construction noise impacts would be similar to what was calculated above for Proposed Project 2. The analysis of Proposed Project 2 found that construction of the Giacomazzi treatment plant site would create a noise level of 71.0 dBA L_{eq} at the nearest residence. The construction noise from the Giacomazzi and Branin sites would exceed the County stationary noise standard of 50 dBA L_{eq}, therefore a significant temporary noise impact would occur.

Disposal Sites

The effluent disposal for Proposed Project 3 would be the same system as described for Proposed Project 1. The analysis of Proposed Project 1 found that the greatest noise impacts associated with the construction of the disposal sites would occur during construction of the Broderson Leachfield, with an average noise level of 75.4 L_{eq} and a peak noise level of 77.6 dBA L_{max} at the nearest residence. The construction noise from both disposal sites would exceed the County stationary noise standards of 50 dBA L_{eq} and 70 dBA L_{max}, therefore a significant temporary noise impact would occur.

Proposed Project 4

Collection System

The collection system for Proposed Project 4 would be the same system as described for Proposed Project 2, which would consist of a conventional gravity collection system. The analysis of Proposed Project 2 found that the greatest noise impacts associated with the construction of the gravity collection system would occur during the installation of the pump stations, when pile driving is utilized, with an average noise level of 100.4 L_{eq} and a peak noise level of 107.3 dBA L_{max}. The gravity collection system construction noise would exceed the County stationary noise standards of 50 dBA L_{eq} and 70 dBA L_{max}, therefore a significant temporary noise impact would occur.

Treatment Plant Site

The treatment of the raw wastewater for Proposed Project 4 would consist of the raw wastewater being transported to the Tonini site where the raw wastewater would then be treated through the use of facultative ponds. The area required for the ponds is estimated to be 20 acres. Approximately 32 acres of the Tonini site would be disturbed during construction of the treatment plant site and would include excavation for the new facilities, site grading for stormwater drainage, and staging areas for construction equipment and supplies. The greatest construction noise impacts are anticipated to occur during the grading operations when the simultaneous operation of two tracked earthmovers, three wheeled earthmovers, two graders, one compaction roller, three backhoes, two excavators, two mobile cranes, 10 pickup trucks (two onsite), three small dump trucks, one water truck, and one asphalt compactor may operate simultaneously.

Construction noise impacts onto the nearby sensitive receptors have been calculated according to the methodology presented above and through use of the RCNM. The nearest residence is located approximately 350 feet south of the Tonini site. The construction noise has been analyzed based on the construction equipment assumptions stated above. The construction equipment was spread out over 1,000 feet with the equipment located as near as 200 feet to the sensitive receptor. The RCNM found that construction of the treatment plant portion of the Tonini site would create a noise level of 60.0 dBA L_{eq} at the nearest residence. This would exceed the County stationary noise standard of 50 dBA L_{eq}, therefore a significant temporary noise impact would occur.

Disposal Sites

The effluent disposal for Proposed Project 4 would be the same system as described for Proposed Project 1. The analysis of Proposed Project 1 found that the greatest noise impacts associated with the construction of the disposal sites would occur during construction of the Broderson Leachfield, with an average noise level of 75.4 L_{eq} and a peak noise level of 77.6 dBA L_{max} at the nearest residence. The construction noise from both disposal sites would exceed the County stationary noise standards of 50 dBA L_{eq} and 70 dBA L_{max}, therefore a significant temporary noise impact would occur.

Consistency with General Plan Goals and Policies

Impact 5.10-F: The project would be consistent with the General Plan goals and policies.

Project-Specific Impact Analysis

The County of San Luis Obispo General Plan contains goals and policies to protect people from the harmful effects of excessive noise. The goals and policies that are relevant to the Los Osos Wastewater Project are identified in Table 5.10-8. As discussed in Table 5.10-8, the project would not be consistent will all of the relevant goals and policies set forth in the General Plan prior to the implementation of mitigation measures.

Table 5.10-8: Consistency of the Proposed Projects with General Plan Noise Goals and Policies

Noise Element Goals, Policies, and Ordinances	Proposed Project Consistency			
	Proposed Project 1	Proposed Project 2	Proposed Project 3	Proposed Project 4
Goal 1 To protect the residents of San Luis Obispo County	The long-term operation of the treatment plant may result in substantial noise from power generators without the implementation of mitigation measures. Therefore,			

Table 5.10-8 (Cont.): Consistency of the Proposed Projects with General Plan Noise Goals and Policies

Noise Element Goals, Policies, and Ordinances	Proposed Project Consistency			
	Proposed Project 1	Proposed Project 2	Proposed Project 3	Proposed Project 4
from the harmful and annoying effects of exposure to excessive noise.	implementation of Proposed Projects 1 through 4 would not be consistent with this goal.			
Goal 3 To preserve the tranquility of residential areas by preventing the encroachment of noise-producing uses.	The long-term operation of the treatment plant may result in substantial noise from power generators without the implementation of mitigation measures. Therefore, implementation of Proposed Projects 1 through 4 would not be consistent with this goal.			
Goal 5 To avoid or reduce noise impacts through site planning and project design, giving second preference to the use of noise barriers and/or structural modifications to buildings containing noise-sensitive land uses.	The long-term operation of the treatment plant may result in substantial noise from power generators without the implementation of mitigation measures. Therefore, implementation of Proposed Projects 1 through 4 would not be consistent with this goal.			
Policy 3.3.1 The noise standards in this chapter represent <u>maximum acceptable</u> noise levels. New development <u>should</u> <u>minimize</u> noise exposure and noise generation.	The long-term operation of the treatment plant may result in substantial noise from power generators without the implementation of mitigation measures. Therefore, implementation of Proposed Projects 1 through 4 would not be consistent with this goal.			
Policy 3.3.2 New development of noise-sensitive land uses (see Section 1.5 – Definitions of the County of San Luis Obispo Noise Element) shall not be permitted in areas exposed to existing or projected future levels of noise from transportation noise sources which exceed 60 dB LDN or CNEL (70 LDN or CNEL for outdoor sports and recreation) unless the project design includes effective mitigation measures to reduce noise in outdoor activity areas and interior spaced to or below the levels specified for the given land use in Table 3-1.	Proposed Projects 1 through 4 would increase noise levels in the project area; however, the increase in those levels from transportation noise sources would be less than significant. Therefore, Proposed Projects 1 through 4 would be consistent with this policy.			
Policy 3.3.5 Noise created by new proposed stationary noise sources or existing stationary noise sources which undergo modifications that may increase noise levels shall be mitigated as follows and shall				

Table 5.10-8 (Cont.): Consistency of the Proposed Projects with General Plan Noise Goals and Policies

Noise Element Goals, Policies, and Ordinances	Proposed Project Consistency			
	Proposed Project 1	Proposed Project 2	Proposed Project 3	Proposed Project 4
be the responsibility of the developer of the stationary noise source:				
b) Noise levels shall be reduced to or below the noise level standards in Table 3-2 where the stationary noise source will expose an existing noise-sensitive land use (which is listed in the Land Use element as an allowable use within its existing land use category) to noise levels which exceed the standards in Table 3-2. When the affected noise-sensitive land use is Outdoor Sports and Recreation, the noise level standards in Table 3-2 shall be increased by 10 Db.	The long-term operation of the treatment plant may result in substantial noise from power generators without the implementation of mitigation measures. Therefore, implementation of Proposed Projects 1 through 4 would not be consistent with this goal.			
c) Noise levels shall be reduced to or below the noise level standards in Table 3-2] where the stationary noise source will expose vacant land in the Agriculture, Rural Lands, Residential rural, Residential Suburban, Residential Single-Family, Residential Multi-Family, Recreation, Office and Professional, and Commercial Retail land use categories to noise levels which exceed the standards in Table 3-2.	The long-term operation of the treatment plant may result in substantial noise from power generators without the implementation of mitigation measures. Therefore, implementation of Proposed Projects 1 through 4 would not be consistent with this goal.			
Source: County of San Luis Obispo, General Plan Noise Element, May 5, 1992.				

5.10.6 - Mitigation Measures

Table 5.10-9: Noise Mitigation Measures

Project(s)	Proposed Mitigation Measure(s)- Project-Specific	Effects After Incorporation of Mitigation Measures
5.10-A: The project would result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies and result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.		
1	**5.10-A1** The project applicant shall require that the treatment plant be designed so that the mechanical aeration system is located a minimum of 250 feet away from the nearest residence**.**	Less Than Significant
1, 2, 3	**5.10-A2** The project applicant shall require that the treatment plant be designed so that the backup diesel generator is enclosed in a structure and is located a minimum of 250 feet away from the nearest residence.	Less Than Significant
2, 3, 4	**5.10-A3.** The project applicant shall require that the backup power facility structures for the in-town collection system be designed so that the noise created from the backup diesel generator that would be located inside the structure would not exceed 45 dBA Leq at the nearest residence. The noise from the backup diesel generator may be attenuated through the use of a "manufacturer enclosure" or through incorporation of noise attenuation design features into the backup power facility structure	Less Than Significant
5.10-B: The project could expose people to or generation of excess groundborne vibration or groundborne noise levels.		
2, 3, and 4	**5.10-B1**. The construction contractor shall notify all property owners and tenants adjacent to the proposed pile driving activities of the days and hours of operation. Prior to construction activities associated with the pile driving, the construction contractor shall inspect all structures within 100 feet of the proposed pile driving to document existing characteristics of the structures. If damages to structures (i.e., residences and pools) occur during the pile driving, the property owner shall be financially compensated by the construction contractor to remediate damages. These provisions shall be placed on all construction documents.	Less Than Significant
5.10-C: The project could result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.		
1, 2, 3, 4	**5.10-C1**. The project applicant shall require construction contractors to adhere to the following noise attenuation requirements: • Construction activities shall be limited to between the hours of 7 a.m. to 9 p.m. on any day except Saturday or Sunday or between the hours of 8 a.m. to 5 p.m. on Saturday or Sunday. All construction equipment shall use noise-reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.	Less Than Significant

Table 5.10-9 (Cont.): Noise Mitigation Measures

Project(s)	Proposed Mitigation Measure(s)- Project-Specific	Effects After Incorporation of Mitigation Measures
	• Construction staging and heavy equipment maintenance activities shall be performed a minimum distance of 300 feet from the nearest residence, unless safety or technical factors take precedence. • Stationary combustion equipment such as pumps or generators operating within 100 feet of any residence shall be shielded with a noise protection barrier.	
2, 3, 4	**5.10-C2.** The construction contractor shall notify all property owners and tenants adjacent to the proposed pile driving activities of the days and hours of operation. The construction contractor shall also require that a noise damper be utilized between the pile driver and the object that is being driven into the ground.	Less Than Significant
5.10-F: The project would be consistent with the General Plan goals and policies.		
1, 2, 3, and 4	Implementation of Mitigation Measures **5.10-A1, 5.10-A2, and 5.10-A3** are required.	Less Than Significant

5.10.7 - Level of Significance After Mitigation

Project-Specific

Proposed Projects 1 Through 4

Less than significant.

Cumulative

Proposed Projects 1 Through 4

Less than significant.

5.11 - AGRICULTURAL RESOURCES

5.11.1 - Introduction

This section provides an analysis of agricultural resources based on extensive analysis performed in the Expanded Agricultural Resources Analysis found in Appendix M-1. The Expanded section utilized numerous documents and resources as the basis for analysis. A complete list of resources used to prepare this section can be found in Appendix M-1.

5.11.2 - Environmental Setting

Regional Conditions

Approximately 77 percent of the Estero Planning Area is designated for Agriculture and of that, an estimated 65 percent are 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 continued viability of commercial agricultural production is essential to the planning area and the county as a whole. The California Coastal Act contains strict policies for the preservation of agriculture with particular emphasis on the maximum preservation of prime lands, even where mixed agricultural and non-agricultural uses occur. Thus, nearly all of the valley lowlands in the planning area can be regarded as important agricultural lands. The following discussion describes regional agricultural conditions and trends, and local conditions and trends.

Regional Conditions and Trends

Agriculture in the San Luis Obispo area including Los Osos has been extensive since the introduction of livestock in the 1860s. Raising livestock on large land grants and some production of grain under dry-farming methods were the chief agricultural pursuits until about 1880. Rapid agricultural development occurred after 1880 due to the development of irrigation, affordable land, favorable crop yields, the advent of two railroads, and access to markets.

According to a representative from the San Luis Obispo Agriculture Commission, the broad, flat valley known as the Los Osos Valley is mostly devoted to vegetable row crops and seed production and includes the Coastal Zone for the western half of the valley. Flatlands subject to poor drainage are commonly used as dry pasture. Row crops are grown in the Los Osos Valley bottomlands just east of South Bay, also known as the community of Los Osos. Previous general planning and zoning included portions of this land in suburban residential categories and allowed division of some of the area into parcels ranging from 2.5 to 20 acres. Uses such as nurseries and high value crop and animal specialties are encouraged on existing small parcels to help maintain the agricultural integrity of the area. Landowners are encouraged to participate in this program to stabilize land values and taxes for long-range agricultural use.

For a complete discussion of the regional environmental setting and crop trends, please refer to Appendix M-1.

Local Conditions

Soils

The project site consists of soils in various proportions. The Broderson parcel is comprised entirely of Baywood Fine Sand. On the Branin and the Giacomazzi parcels, Concepcion Loam is the predominant soil type. On the Tonini parcel, Cropley Clay is the predominant soil type. For a complete discussion of the specific soil types and their quantities, please refer to Appendix M-1.

Classification of Agricultural Land

The Coastal Act and the San Luis Obispo Certified Local Coastal Plan (LCP) distinguish between prime and non-prime agricultural lands. While both are protected, the development constraints and requirements differ dependent on whether land is prime or non-prime. However, the Coastal Act definition of prime agricultural land differs from the definition used by other agencies, including the Department of Conservation. The Farmland Mapping and Monitoring Program (FMMP) and the Coastal Act define prime agricultural lands in the same manner. Following are the definitions used by various agencies to classify agricultural lands.

In the LCP for San Luis Obispo County, based on Coastal Commission guidelines, prime farmland is defined by any of the following five criteria: 1) Land rated as Class I or Class II in the Soil Conservation Service land use capability classifications. 2) Land rated as 80 through 100 in the Storie Index Rating. 3) Land which supports livestock used for the production of food and fiber with an annual carrying capacity equivalent to at least one animal unit per acre as defined by the U.S. Department of Agriculture. 4) Land planted with fruit or nut bearing trees, vines, bushes, or crops which have a nonbearing period of less than five years and which will normally yield at least $200 per acre annually from the production of unprocessed agricultural plant production. 5) Land that yielded at least $200 per acre annually from the production of unprocessed agricultural plant products for three of the previous five years.

5.11.3 - Regulatory Setting

The proposed project is governed by agricultural and farmland regulations established by the State of California and the County of San Luis Obispo. The primary agricultural regulatory mechanisms within the County come from the California Department of Conservation (Williamson Act), the County's General Plan, County's Coastal Zone Land Use Ordinance, County's Estero Area Plan, the Right to Farm Ordinance, and the Coastal Act. For a complete discussion of each of the aforementioned, please see Appendix M-1.

Project Site Farmland Designations

Based on a review of the FMMP, 2002-2004 data, the project area has multiple designations of farmland. The designations included Prime Farmland, Farmland of State Importance, Farmland of Local Importance, Farmland of Potentially Local Importance, and Grazing Land. The project area also includes the designations of Urban and Built-Up Land and Other Land that are not considered farmland. Both the Branin and Giacomazzi parcels are comprised of at least one farmland designation, but do not have any designated grazing lands. Most of the Cemetery parcel is comprised of at least one farmland designation. For the largest parcel (Tonini), 60 percent of the land is in grazing land, and the balance is in some other category (Prime, Locally Important, or Potentially Locally Important). The Broderson parcel has no farmland designations.

5.11.4 - Thresholds of Significance

According to the CEQA Guidelines' Appendix G Environmental Checklist, to determine whether impacts to agricultural resources are significant environmental effects, the following questions are analyzed and evaluated.

Would the project:

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

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

c.) Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?

Other Thresholds

For the purpose of the proposed project, the following threshold has been added. To evaluate the project's consistency with applicable goals, policies, and regulations related to agricultural resources:

d.) Would the project conflict with any local goals and policies protecting agricultural resources?

5.11.5 - Level of Significance Prior to Mitigation

No impacts were found related to the projects' potential for other changes resulting in farmland conversion to non-agricultural uses, and no impacts were found related to the projects' potential conflict with local goals and policies protecting agricultural resources. These issues will not be discussed further. The complete analysis and rationale for determining a less than significant or no impact under these thresholds of significance can be found in Appendix N-1. All other thresholds had a potentially significant impact prior to mitigation for at least one of the proposed projects. See Table 5.12-1 below.

Table 5.11-1: Agricultural Resource Significance Determination

PS - Potentially Significant; LTS - Less Than Significant; NI - No Impact					
	Project 1	Project 2	Project 3	Project 4	Cumulative
Collection					
Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency and standards set by the California Coastal Commission, to non-agricultural use?	NI	NI	NI	NI	NI
Conflict with existing zoning for agricultural use, or a Williamson Act contract?	NI	NI	NI	NI	NI
Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	NI	NI	NI	NI	NI
Would the project conflict with any local goals and policies protecting agricultural resources?	NI	NI	NI	NI	NI
Treatment					
Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency and standards set by the California Coastal Commission, to non-agricultural use?	**PS**	**PS**	**PS**	**PS**	**PS**
Conflict with existing zoning for agricultural use, or a Williamson Act contract?	**PS**	**PS**	**PS**	**PS**	**PS**
Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	NI	NI	NI	NI	NI
Would the project conflict with any local goals and policies protecting agricultural resources?	NI	NI	NI	NI	NI
Disposal					
Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency and standards set by the California Coastal Commission, to non-agricultural use?	**PS**	**PS**	**PS**	**PS**	**PS**
Conflict with existing zoning for agricultural use, or a Williamson Act contract?	**PS**	**PS**	**PS**	**PS**	**PS**
Involve other changes in the existing environment that, due to their location or nature could result in conversion of Farmland, to non-agricultural use?	NI	NI	NI	NI	NI

Table 5.11-1 (Cont.): Agricultural Resource Significance Determination

PS - Potentially Significant; LTS - Less Than Significant; NI - No Impact					
	Project 1	Project 2	Project 3	Project 4	Cumulative
Would the project conflict with any local goals and policies protecting agricultural resources?	NI	NI	NI	NI	NI
Combined Project					
Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency and standards set by the California Coastal Commission, to non-agricultural use?	**PS**	**PS**	**PS**	**PS**	**PS**
Conflict with existing zoning for agricultural use, or a Williamson Act contract?	**PS**	**PS**	**PS**	**PS**	**PS**
Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	NI	NI	NI	NI	NI
Would the project conflict with any local goals and policies protecting agricultural resources?	NI	NI	NI	NI	NI

Convert Farmland to Non-Agricultural Use

5.11-A:	**The project would convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use, and pursuant to standards established by the California Coastal Commission.**

Project-Specific Impact Analysis

Proposed Project 1

Treatment Plant Site

The treatment plant site consists of three parcels: Cemetery, Giacomazzi, and Branin. As depicted in Exhibit 5.11-2, the Cemetery parcel is located midway between Los Osos Creek and Turri Road on Los Osos Valley Road at the northeast corner of Los Osos Valley Road and Sombrero Drive. The Giacomazzi parcel is adjacent to the Cemetery parcel to the north and the Branin parcel is adjacent to the Giacomazzi parcel to the north. Both the Giacomazzi and Branin parcels are accessible from Sombrero Drive and an undedicated and unimproved access road adjoining the east property line of all three parcels. The proposed facilities at the treatment plant site would include an approximately 20-acre treatment facility on the Giacomazzi parcel, an approximately 8-acre seasonal storage pond on the Cemetery parcel, and an approximately 4-acre appurtenant facility on the Branin parcel. Table 5.11-7 shows the farmland designations for the Branin, Giacomazzi, and Cemetery parcels. Depending on the final design and siting of the facility, approximately 20 acres of Prime Agricultural land and or Farmland of Statewide Importance as defined by the FMMP as well as the California Coastal Commission would be affected (Table 5.11-7). The acres removed from agricultural production on the Cemetery, Giacomazzi, and Branin parcels due to infrastructure development would be 8, 20, and 4 acres, respectively. Impacts to the acreages on these three parcels are all direct impacts. There also would be indirect impacts to acreages on these parcels that are adjacent to the proposed facility footprints. Indirect impacts are based on the need to establish buffers around the proposed facility footprints. Using a worst case approach, direct and indirect impacts are assumed to occur on the entire acreages with capability to support agriculture for the Cemetery, Branin, and Giacomazzi parcels. The Tonini parcel would not be subject to indirect impacts since the County would acquire the entire parcel and maintain agricultural uses under a long-term easement. Given the readily available supply of irrigation water in the Los Osos Valley, it is assumed that even lands that are currently fallow could support agricultural production. These potential acreages that could support agricultural production are reported in Table 5.11-8. The Cemetery parcel is currently fallow (28.45 acres), Giacomazzi is used for dryland farming (38.02 acres), and the Branin parcel is currently fallow (19.48 acres).

The highest and best use for these three parcels is assumed to be vegetable crops. According to the 2007 Crop Report for San Luis County the average annual value for all vegetable crops was $5,888.76 per acre, so the potential lost revenue associated with direct and indirect impacts of using these parcels for treatment plant facilities is $506,139, with the highest amount of potential loss occurring on the Giacomazzi parcel at $223,891. Therefore, there would be a significant and unavoidable impact.

Disposal Sites

Disposal from the treatment plant is proposed on the Broderson site in the southwest portion of the Los Osos urban village, and spray field irrigation is proposed at the Tonini site located less than a half-mile north of Los Osos Valley Road on the west side of Turri Road. The Broderson site is located within the urban village reserve area with no agricultural activity and is therefore locating a disposal site at this location would result in a less than significant impact. However, 27 percent of the Tonini site is composed of Prime Agricultural land (Table 5.11-7). On this site, 175 acres would be removed from agricultural production for infrastructure development. On the Tonini parcel this acreage represents direct impacts. However, direct and indirect impacts would be represented by the entire parcel acreage. The current land use on the portion of the parcel where disposal facilities would be located is dryland farming (Table 5.11-8). The highest and best use of the Tonini parcel that can support agricultural production within the boundaries of the spray fields area is assumed to be vegetable crops on 171 acres, and rangeland grazing on the remaining 4 acres. According to the 2007 Crop Report for San Luis County, vegetable crops had a per acre value of $5888.76 and rangeland grazing had a per acre value of $10. Therefore, the annual potential lost revenue associated with direct and indirect impacts for using the Tonini parcel as a disposal site is $1,008,398 (Table 5.11-9). Therefore, locating a disposal site specifically on the Tonini parcel would result in a significant and unavoidable impact.

Combined Project Effects

The treatment site on the Branin parcel would occur on either Prime Farmland, or State Important Farmland, on the Giacomazzi parcel the treatment site would occur on a combination of Prime Farmland and State Important Farmland, resulting in a significant and unavoidable impact. In terms of lost potential revenue, the combined direct effect of removing 32 acres (Cemetery, Giacomazzi, and Branin parcels) from agricultural production for the treatment facility and 175 acres for disposal facilities (Tonini parcel), and indirect impacts that would occur to all lands on the Cemetery, Giacomazzi, and Branin parcels capable of agricultural production, would result in a potential loss of $1,514,537 per year. This figure represents 0.64 percent of the county's vegetable crop revenue in 2007. For the Tonini parcel there would not be indirect impacts to agriculture land use on adjacent properties since the County would publicly acquire this entire parcel and maintain agricultural use under a long-term easement. There would be indirect impacts within the Tonini parcel due to accidental spray dispersing beyond the direct affected areas (refer to Mitigation Measure 5.11-B1 below) into grazing or stream buffer areas. However, these indirect impacts would be less than significant.Disposal would involve pumping treated effluent from the treatment plant to the disposal sites at Broderson and Tonini via a pipeline that mostly follows the alignment of Los Osos Valley Road with one part of the pipeline heading east to Turri Road and turning north along Turri Road to the Tonini site for use in irrigation sprayfields. Another pipeline would head west along Los Osos Valley Road to Broderson Avenue and heading south to the Broderson site for dispersion in leach fields. The Broderson site is within the Urban Village boundary and classified as Other Land by the FMMP, so there would not be any impacts to FMMP designated lands. Tonini is a large site with hills on more than half of the approximately 650 acres that would be too steep for sprayfields and is considered Grazing Land by the FMMP. However, the remaining portion of the parcel is designated as either Prime Farmland or State Important Farmland. On the Tonini parcel approximately 175 acres would be removed from agricultural production and the current use on the portion of the parcel where disposal facilities would be located is dry land farming. The highest and best use of the approximately 175 acres is assumed to be a combination of vegetable crops on 171 acres and rangeland grazing on the remaining 4 acres. According to the 2007 Crop Report for San Luis County, this crop had a per acre value of $5,888.76, and rangeland grazing had a value of $10 per acre. Therefore, the potential lost revenue associated with using the Tonini parcel as a disposal site is $1,008,398 per year. Therefore, locating the disposal sites on the Tonini parcel would result in a significant and unavoidable impact.

Proposed Project 2

Treatment Plant Site

The treatment plant site consists of the Giacomazzi parcel. The cemetery is adjacent to the south of the Giacomazzi parcel and the Branin parcel is adjacent to the Giacomazzi parcel to the north. The Giacomazzi is accessible from Sombrero Drive and an undedicated and unimproved access road adjoining the east property line of all three parcels. The treatment plant would remove 20 acres from agricultural production on the Giacomazzi parcel. This parcel is used for dryland farming. The highest and best use of the Giacomazzi parcel is assumed to be vegetable crops. According to the 2007 Crop Report for San Luis County vegetable crops had a per acre value of $5,888.76, so the potential annual lost revenue associated with using the Giacomazzi parcel as a treatment site is $223,891.00 per year. Treatment plant facilities would occupy about 20 acres and be constructed on land identified as either Prime Agricultural land or Farmland of Statewide importance. There would be a significant impact.

Disposal Sites

Disposal from the treatment plant is at the Broderson site in the southwest portion of the Los Osos urban village, spray field irrigation at the Tonini site located less than a half-mile north of Los Osos Valley Road on the west side of Turri Road. The proposed seasonal storage pond would encompass approximately 8 acres at the Tonini site. The spray fields would occupy approximately 175 acres. Within the boundaries of the spray fields, the highest and best use of the Tonini parcel is assumed to be for vegetable crops on 163 acres, and rangeland grazing on the remaining 12 acres. According to the 2007, Crop Report for San Luis County this crop had an average annual per acre value of $5888.76, so the potential lost revenue associated with the direct and indirect impacts of using the Tonini parcel as a disposal site is $961,288 per year. The Broderson site is located within the urban village reserve area with no agricultural activity and therefore locating disposal sites on this site would result in a less than significant impact. However, 27 percent of the Tonini site is composed of

Prime Agricultural land and locating disposal sites on this parcel would result in a significant and unavoidable impact.

Combined Project Effects

The treatment site and the disposal sites would include Prime Farmland, State Important Farmland, Locally Important Farmland, Locally Potential Important Farmland, Unique Farmland, Grazing Land, and Urban and Built-up Land as defined and referenced by the California FMMP.

Proposed Project 3

Treatment Plant Site

The treatment plant site consists of the Branin and Giacomazzi parcels. The Giacomazzi parcel is adjacent to the cemetery to the north and the Branin parcel is adjacent to the Giacomazzi parcel to the north. Both Giacomazzi and Branin are accessible from Sombrero Drive and an undedicated and unimproved access road adjoining the east property line of all three parcels. The proposed seasonal storage pond would encompass approximately 8 acres at the Branin site. The number of acres removed from production would be 20 acres on the Giacomazzi parcel and 8 acres on the Branin parcel. The Giacomazzi parcel is used for dryland farming and the Branin parcel is fallow (Table 5.11-8). The highest and best use for these parcels is assumed to be vegetable crops. According to the 2007 Crop Report for San Luis County, vegetable crops had an average annual per acre value of $5,888.76, so the potential lost revenue associated with direct and indirect impacts of using these parcels is $338,604 per year (Table 5.11-9). Since the actual treatment plant and seasonal storage pond would be constructed on land identified as Prime Agricultural land or Farmland of Statewide Importance, there would be a significant and unavoidable impact.

Disposal Sites

Disposal from the treatment plant is at the Broderson site in the southwest portion of the Los Osos urban village, spray field irrigation at the Tonini site located less than a half-mile north of Los Osos Valley Road on the west side of Turri Road. The Broderson site is located within the urban village reserve area with no agricultural activity and is therefore a less than significant impact. However, the Tonini parcel is composed of Prime Agricultural land covering approximately 27 percent in area. Lands removed from agricultural production would be approximately 175 acres, and the current land uses on this parcel are grazing and dryland farming. Within the boundaries of the spray fields, the highest and best use of the Tonini parcel is assumed to be vegetable crops on 171 acres, and rangeland grazing on the remaining 4 acres. According to the 2007 Crop Report for San Luis County, vegetable crops had an average annual per acre value of $5888.76, and rangeland grazing had an average annual value of $10 per acre. Therefore, the potential lost revenue associated with the direct and indirect impacts of using the Tonini parcel as a disposal site is $1,008,398 per year. Therefore, there would be a significant and unavoidable impact. Finally, Proposed Project 3 would be consistent with CZLUO 23.08.288(d) because there are no other feasible locations for sprayfields and it minimizes impacts to prime agricultural lands.

Combined Project Effects

The treatment site and the disposal sites would include Prime Farmland or State Important Farmland as defined and referenced by the FMMP.

Disposal would involve pumping treated effluent from the treatment plant at the disposal sites at Broderson and Tonini via a pipeline flowing mostly along Los Osos Valley Road with one part of the pipeline heading east to Turri Road and turning north along Turri Road to the Tonini site for use in irrigation sprayfields. Another pipeline would head west along Los Osos Valley Road to Broderson Avenue and heading south to the Broderson site for dispersion in leach fields. The Broderson site is within the Urban Village boundary and classified as Other Land by the FMMP. Tonini is a large site with hills on more than half of the approximately 650 acres that would be too steep for sprayfields and considered Grazing Land by the FMMP. Lands removed from agricultural production would total approximately 175 acres, and the current land uses are for grazing and dryland farming. Within the spray field boundaries, the highest and best use of the Tonini parcel is assumed to be for vegetable crops on 171 acres, and rangeland grazing on 4 acres. According to the 2007 Crop Report for San Luis County, vegetable crops had an average annual per acre value of $5,888.76, and rangeland grazing had a value of $10 per acre. Therefore, the potential lost revenue associated with direct and indirect impacts of using the Tonini parcel as a disposal site is $1,008,398 per year. Therefore, on the Tonini parcel there would be a significant and unavoidable impact. The combined effect of potential lost revenue from direct impacts associated with the treatment and disposal facilities would be $1,347,002 per year and would result in a significant and unavoidable impact. This figure represents about 0.57 percent of the county's agricultural revenue for vegetable crops in 2007.

Proposed Project 4

Treatment Plant Site

The treatment plant site consists of the Tonini parcel. The treatment site located less than a half-mile north of Los Osos Valley Road on the west side of Turri Road. The proposed treatment plant facilities at the Tonini parcel would encompass approximately 32 acres, and the current land uses are for grazing and dryland farming. The highest and best use of the 32 acres on the Tonini parcel is assumed to be for vegetable crops. According to the 2007 Crop Report for San Luis County, vegetable crops had an average annual per acre value of $5,888.76, so the potential lost revenue associated with direct and indirect effects of using the Tonini parcel for treatment facilities is $135,531 per year. Since the actual treatment plant could be built on land identified as Prime Agricultural land, and due to the potential loss of agricultural revenue, there would be a significant and unavoidable impact.

Disposal Sites

Disposal from the treatment plant is at the Broderson site in the southwest portion of the Los Osos urban village, spray field irrigation at the Tonini site located less than a half-mile north of Los Osos Valley Road on the west side of Turri Road. The Broderson site is located within the urban village reserve area with no agricultural activity and is therefore a less than significant impact. However, the

Tonini parcel is composed of Prime Agricultural land covering approximately 27 percent in area. Lands removed from agricultural production due to the disposal facilities would total approximately 175 acres, and the current land uses are for grazing and dryland farming. Within the spray field boundaries, the highest and best use of the Tonini parcel is assumed to be for vegetable crops, on 148 acres, and rangeland grazing on 27 acres. According to the 2007 Crop Report for San Luis County vegetable crops had an average annual per acre value of $5,888.76, so the potential lost revenue associated with direct and indirect impacts of using the Tonini parcel as a disposal site is $1,008,398 per year, and would therefore result in a significant and unavoidable impact.

Combined Project Effects

Disposal would involve pumping treated effluent from the treatment plant to the disposal sites at Broderson and Tonini via a pipeline flowing mostly along Los Osos Valley Road with one part of the pipeline heading east to Turri Road and turning north along Turri Road to the Tonini site for use in irrigation spray fields. Another pipeline would head west along Los Osos Valley Road to Broderson Avenue and heading south to the Broderson site for dispersion in leach fields. The Broderson site is within the Urban Village boundary and classified as Other Land by the FMMP. Tonini is a large site with hills on more than half of the approximately 645 acres that would be too steep for spray fields and considered Grazing Land by the FMMP. Lands removed from agricultural production would total approximately 175 acres, and the current land uses are for grazing and dryland farming (Table 5.11-8). Within the spray field boundaries, the highest and best use of the Tonini parcel is assumed to be for vegetable crops on 1630 acres and rangeland grazing on 12 acres. According to the 2007 Crop Report for San Luis County, vegetable crops had an average annual per acre value of $5888.76, and rangeland grazing had a value of $10 per acre. Therefore, potential lost revenue associated with the direct and indirect impacts of using the Tonini parcel for both treatment and disposal facilities would result in an annual potential revenue loss of $1,347,002. This combined effect amount is the same as for treatment and disposal since the worst case acreage was used in all three cases. This amount represents 0.43 percent of the annual revenue for vegetable crops in the county in 2007. This is a significant and unavoidable impact. Proposed Project 4 would be consistent with CZLUO 23.08.288(d) because there are no other feasible locations for sprayfields and it minimizes impacts to prime agricultural lands. Therefore, there would be no impact with regard to consistency with CZLUO 23.08.288(d).

Mitigation Measure AG-1: Prior to the issuance of grading permits, the County Department of Public Works shall provide evidence to the County Planning and Building Department that a farmland conservation easement, a farmland deed restriction, or other farmland conservation mechanism has been granted in perpetuity to the County or a qualifying entity approved by the County Agricultural Commissioner (or designee). The easement shall provide conservation acreage at a ratio of 1:1 for direct impacts and 0.5:1 for indirect impacts. Additionally, the project proponent shall provide appropriate funds (as determined by the County Planning Department) to compensate for reasonable administrative costs incurred by the easement holder. The area conserved shall be minimally sized at 175 acres, may consist of no more than three noncontiguous parcels, and shall be of a quality that is reasonably (as determined by the County Agricultural Commissioner or designee) similar to that of the farmland to within the project limits. The area to be conserved shall be located within San Luis Obispo County within a reasonable proximity to the project site.

This mitigation measure is proposed to reduce significant impacts from all four projects but would not reduce impacts to less than significant. Therefore, impacts to conversion of Prime Farmland, Unique Farmland, and Farmland of Statewide Importance would remain significant and unavoidable.

Cumulative Impact Analysis

Proposed Project 1

For this analysis, it is assumed that historic trends in farmland conversion would continue. Proposed Project 1 would result in the direct and indirect loss of approximately 361 acres of agricultural land (crop land and grazing land), which is not a substantial deviation from historic patterns. However, since this loss would contribute to the historic pattern of farmland conversion, this would be a significant and unavoidable impact for Proposed Project 1.

Proposed Project 2

Proposed Project 2 would result in the direct and indirect loss of approximately 351 acres of agricultural land (crop land and grazing land), which is not a substantial deviation from historic patterns. However, since this loss would contribute to the historic pattern of farmland conversion, this would be a significant and unavoidable impact for Proposed Project 2.

Proposed Project 3

Proposed Project 3 would result in the direct and indirect loss of approximately 370 acres of agricultural land (crop land and grazing land), which is not a substantial deviation from historic patterns. However, since this loss would contribute to the historic pattern of farmland conversion, this would be a significant and unavoidable impact for Proposed Project 3.

Proposed Project 4

Proposed Project 4 would result in the direct and indirect loss of approximately 313 acres of agricultural land (crop land and grazing land), which is not a substantial deviation from historic patterns. However, since this loss would contribute to the historic pattern of farmland conversion, this would be a significant and unavoidable impact for Proposed Project 4.

Conflict with Existing Zoning or Williamson Act Contract

Impact 5.11-B: **The project would not conflict with existing zoning for agricultural use, or a Williamson Act contract.**

Project-Specific Impact Analysis

Proposed Project 1

Disposal Sites

Disposal from the treatment plant is at the Broderson site in the southwest portion of the Los Osos urban village, spray field irrigation at the Tonini site located less than a half-mile north of Los Osos

Valley Road on the west side of Turri Road. The Broderson site is located within the urban village reserve area with no agricultural activity and no Williamson Act contract and is currently zoned Single Family Residential. Therefore, there would be no impact. The Tonini site is zoned AG and is under a Williamson Act contract. Implementation of this proposed project would require acquisition of the property by the County and termination of a Williamson Act Contract following the process outlined in Government Code Section 51290 through 51295, and 51296.6. Two required findings would be made to allow public acquisition to occur under the Williamson Act, and include: a) the location is not based primarily on a consideration of the lower cost of acquiring land in an agricultural preserve (Section 51292(a)), and (b) If the land is agricultural land covered under a contract pursuant to this chapter for any public improvement, that there is no other land within or outside the preserve on which it is reasonably feasible to locate the public improvement (Section 51292 (a)(b)).

The feasibility study of suitable locations for sprayfields as well as other project components is in Appendix C-1. The feasibility study considered a number of factors, however, least economic cost, was not one of those factors. Therefore, Proposed Project 1 is consistent with finding “a” above. The study evaluated factors such as the need to avoid ESHAs and SRAs, must be located on lands with less than 10 percent slope, and limit impacts to prime agricultural lands to the extent feasible. It would be possible to locate sprayfields on other lands not under a Williamson Act contract that are south of the Tonini parcel. However, as reported in Section 5.1, Land Use and Planning, siting the sprayfields on the parcel south of Tonini would impact a larger amount of prime agricultural land acreage (181 versus 179 acres on the Tonini parcel) of lands classified as prime farmlands. As a result, the parcel to the south of Tonini was not chosen. Therefore, it would not be reasonably feasible to locate Proposed Project 1 on lands not covered by a Williamson Act contract. As a result, Proposed Project 1 is consistent with finding “b” above.

Regarding consistency with AG zoned parcels, as stated under Rural Standards for the Estero Area Plan, public utility facilities are an allowable use on agricultural lands. Therefore, there would be no impact on the Tonini parcel with regard to consistency with AG zoning.

Combined Project Effects

The collection system is almost entirely in non-agricultural areas with the exception of the final alignment from Sombrero Road to the treatment plant facility. The final portion of the alignment crosses land zoned AG. The Branin and Giacomazzi parcels where treatment facilities would occur is zoned AG, and regarding disposal sites the Tonini parcel is under a Williamson Act contract. As stated above Proposed Project 1 is consistent with the Williamson Act. Therefore, there would be no impact. Since pipelines and public utility facilities are allowed uses on AG zoned lands, there is no conflict on the AG zoned parcels, and therefore no impact. While the proposed facilities would not conflict with existing zoning for agricultural use or a Williamson Act contract, the facilities may have a potentially significant and unavoidable impact from Proposed Project 1 since the proposed facilities would result in the direct loss of approximately 175 acres of land on the Tonini parcel currently under a Williamson Act contract.

Proposed Project 2

Disposal Sites

The conversion effects related to the existing Williamson Act contract from the implementation of Proposed Project 2 would be similar as Proposed Project 1. Proposed Project 2 would include an additional 8 acres of conversion.

Combined Project Effects

The conversion effects related to the existing Williamson Act contract from the implementation of Proposed Project 2 would be similar as Proposed Project 1. Proposed Project 2 would include an additional 8 acres of conversion.

Proposed Project 3

Disposal Sites

The conversion effects related to the existing Williamson Act contract from the implementation of Proposed Project 3 would be the same as Proposed Project 1.

Combined Project Effects

The conversion effects related to the existing Williamson Act contract from the implementation of Proposed Project 2 would be the same as Proposed Project 1.

Proposed Project 4

Treatment Plant Site

The proposed treatment plant facilities would result in the direct loss of approximately 32 acres of Williamson Act contract lands. This conversion is considered significant and unavoidable.

Disposal Sites

The proposed disposal site facilities would result in the direct loss of approximately 175 acres of Williamson Act contract lands. This conversion is considered significant and unavoidable.

Combined Project Effects

The proposed treatment plant and disposal facilities would result in the direct loss of approximately 207 acres of Williamson Act contract lands. This conversion is considered significant and unavoidable.

Cumulative Impact Analysis

Similar to the approach for analysis of cumulative impacts for criterion “a,” analysis for significance criterion “b” relies on historic data on Williamson Act contracts. The analysis assumes a continuation in this trend.

Proposed Projects 1 through 4

Cumulative impacts consider the effects of past, present, and reasonably foreseeable projects with regard to biological resources within the cumulative study area. Since a moratorium on growth was imposed on the community of Los Osos in 1988, there has been a limitation on the number and type of projects approved within the community. As a result of the moratorium and the subsequent reduction in developments, past impacts on agricultural lands would have been limited, and any potential impacts resulting from current and future projects are expected to be limited until the moratorium is lifted. However, all four proposed projects would result in the loss of Williamson Act contract property. This would contribute to the cumulative loss of Williamson Act contract land and is considered significant and unavoidable.

5.11.6 - Mitigation Measures

Table 5.11-2: Agricultural Resources Proposed Mitigation Measures

Project(s)	Proposed Mitigation Measure(s)- Project-Specific	Effects After the Incorporation of Mitigation Measures
5.11-A: The project would convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use, and pursuant to standards established by the California Coastal Commission.		
1, 2, 3, 4 and Cumulative	**5.11-A1:** Prior to the issuance of grading permits, the County Department of Public Works shall provide evidence to the County Planning and Building Department that a farmland conservation easement, a farmland deed restriction, or other farmland conservation mechanism has been granted in perpetuity to the County or a qualifying entity approved by the County Agricultural Commissioner (or designee). The easement shall provide conservation acreage at a ratio of 1:1 for direct impacts and 0.5:1 for indirect impacts. Additionally, the project proponent shall provide appropriate funds (as determined by the County Planning Department) to compensate for reasonable administrative costs incurred by the easement holder. The area conserved shall be minimally sized at 175 acres, may consist of no more than three noncontiguous parcels, and shall be of a quality that is reasonably (as determined by the County Agricultural Commissioner or designee) similar to that of the farmland within the project limits. The area to be conserved shall be located within San Luis Obispo County within reasonable proximity to the project site.	Significant and Unavoidable
Project(s)	**Proposed Mitigation Measure(s)- Cumulative**	**Effects After Incorporation of Mitigation Measures**
Impact 5.11-B: The project would not conflict with existing zoning for agricultural use, or a Williamson Act contract.		
1,2,3, 4 and Cumulative	5.11-B1: Provide fencing of areas currently grazed on the Tonini parcel, and a buffer between the boundary of the disposal area and areas currently grazed. The width of the buffer shall be determined in consultation with the San Luis Obispo County Agricultural Commissioner's office.	Significant and Unavoidable.

Table 5.11-2 (Cont.): Agricultural Resources Proposed Mitigation Measures

Project(s)	Proposed Mitigation Measure(s)- Project-Specific	Effects After Incorporation of Mitigation Measures
Impact 5.11-C. The project would not involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use.		
1, 2, 3, and 4	Implementation of **Mitigation Measure 5.11-B1** is required**.**	Less Than Significant
1, 2, 3, and 4	**5.11-C1:** On the Giacomazzi parcel, provide a buffer between the boundary of the treatment facility and areas currently in agricultural production. The width of the buffer shall be determined in consultation with the SLOCO Agricultural Commissioner's office.	Less Than Significant
1, 2, 3 and 4	**5.11-C2:** For all adjacent agricultural parcels, the County needs to ensure that traffic associated with the WWTP does not prevent access to these parcels.	Less Than Significant
Impact 5.11-D: The proposed project would not conflict with the local goals and policies protecting agricultural resources.		
1,2,3, and 4	**Implementation on Mitigation Measures 5.11-A1 through C1 is required.**	Less Than Significant

5.11.7 - Level of Significance After Mitigation

Project Specific

Proposed Project 1 Through 4

Significant and unavoidable.

Cumulative

Proposed Project 1 Through 4

Significant and unavoidable.

All potential impacts related to significance threshold Impact 5.11-C and D are less than significant with the incorporation of mitigation measures. All other impacts to agricultural resources are considered Significant and Unavoidable with the incorporation of the proposed mitigation measures and will require a Statement of Overriding Considerations.

5.12 - VISUAL RESOURCES

5.12.1 - Introduction

This section provides an analysis of visual resources based on extensive analysis as documented in the Expanded Visual Resource Analysis found in Appendix N-1. The Expanded section utilized existing policies related to visual character and scenic beauty from the County of San Luis Obispo General Plan, the Estero Area Plan, the Local Coastal Plan, and the Coastal Zone Land Use Ordinance. A complete list of resources used to prepare this section can be found in Section 5.12-1 of the aforementioned report.

5.12.2 - Environmental Setting

The natural setting of Los Osos is a place of unique beauty. The Los Osos urban area is located at the westerly end of the picturesque and agriculturally productive Los Osos Valley and is bound by the environmentally important Los Osos Creek and riparian corridor on the east and southeast, and the older coastal dunes to the north, south, and southwest. The creek and dune-covered hills form a natural edge and greenbelt for the community. Morro Bay and its tidelands towards the north, the scenic Irish Hills towards the south, Montaña de Oro State Park towards the southwest, and Morro Bay State Park towards the northwest form natural, scenic backdrops.

For a complete discussion of the environmental setting from a regional, local, and project site perspective, please refer to Appendix N-1.

5.12.3 - Regulatory Setting

Various local regulations set forth criteria and specific requirements for the definition and preservation of visual resources, including (but not limited to) the County of San Luis Obispo General Plan, the Estero Area Plan, the Local Coastal Plan, and the Coastal Zone Land Use Ordinance. For a complete discussion of the regulatory setting, please refer to Appendix N-1.

5.12.4 - Thresholds of Significance

According to the CEQA Guidelines' Appendix G Environmental Checklist, to determine whether impacts to visual resources are significant environmental effects, the following questions are analyzed and evaluated. Thresholds of significance determinations are as follows:

Would the project:

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

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

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

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

Other Thresholds

For the purpose of the proposed project, the following thresholds have been added based on local policies pertaining to open space and agricultural resources and the project's compliance therewith:

Would the project:

e. Affect views from Los Osos Valley Road (LOVR), a highway that has potential to be designated as a Scenic Corridor Design Area in the Estero Area Plan Update?

f. Locate features on portions of AG zoned parcels that result in visual impacts to LOVR?

5.12.5 - Level of Significance Prior to Mitigation

Less Than Significant or No impacts were found related to the project having a substantial adverse effect on a scenic vista or adverse effect on views from LOVR that has potential to be designated as a Scenic Corridor Design Area in the Estero Area Plan. These issues will not be discussed further. The complete analysis and rationale for determining a less than significant or no impact for each of the thresholds of significance can be found in Appendix N-1.All other thresholds had a potentially significant impact prior to mitigation for at least one of the proposed projects. See Table 5.12-1 below.

Table 5.12-1: Visual Resources Significance Determination

PS - Potentially Significant; LTS - Less Than Significant; NI - No Impact					
	Project 1	**Project 2**	**Project 3**	**Project 4**	**Cumulative**
Collection					
Have a substantial adverse effect on a scenic vista?	LTS	LTS	LTS	LTS	NI
Damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	NI	NI	NI	NI	NI
Substantially degrade the existing visual character or quality of the site and its surroundings?	**PS**	**PS**	**PS**	**PS**	NI
Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	LTS	LTS	LTS	LTS	NI
Locate features on portions of AG zoned parcels that result in visual impacts to LOVR?	LTS	LTS	LTS	LTS	NI
Affect views from LOVR, a highway that has potential to be designated as a Scenic Corridor Design Area in the Estero Area Plan Update?	LTS	LTS	LTS	LTS	NI
Conflict with local goals, policies and ordinances relating to visual resources?	LTS	LTS	LTS	LTS	NI
Treatment					
Have a substantial adverse effect on a scenic vista?	LTS	LTS	LTS	LTS	NI
Damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	NI	NI	NI	NI	NI
Substantially degrade the existing visual character or quality of the site and its surroundings?	**PS**	**PS**	**PS**	**PS**	NI
Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	**PS**	**PS**	**PS**	**PS**	NI
Locate features on portions of AG zoned parcels that result in visual impacts to LOVR?	**PS**	**PS**	**PS**	**PS**	NI
Affect views from LOVR, a highway that has potential to be designated as a Scenic Corridor Design Area in the Estero Area Plan Update?	LTS	LTS	LTS	LTS	NI
Conflict with local goals, policies and ordinances relating to visual resources?	LTS	LTS	LTS	LTS	NI

Table 5.12-1 (Cont.): Visual Resources Significance Determination

PS - Potentially Significant; LTS - Less Than Significant; NI - No Impact					
	Project 1	Project 2	Project 3	Project 4	Cumulative
Disposal					
Have a substantial adverse effect on a scenic vista?	LTS	LTS	LTS	LTS	NI
Damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	NI	NI	NI	NI	NI
Substantially degrade the existing visual character or quality of the site and its surroundings?	**PS**	**PS**	**PS**	**PS**	NI
Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	**PS**	**PS**	**PS**	**PS**	NI
Locate features on portions of AG zoned parcels that result in visual impacts to LOVR?	**PS**	**PS**	**PS**	**PS**	NI
Affect views from LOVR, a highway that has potential to be designated as a Scenic Corridor Design Area in the Estero Area Plan Update?	LTS	LTS	LTS	LTS	NI
Conflict with local goals, policies and ordinances relating to visual resources?	LTS	LTS	LTS	LTS	NI
Combined Project					
Have a substantial adverse effect on a scenic vista?	LTS	LTS	LTS	LTS	NI
Damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	NI	NI	NI	NI	NI
Substantially degrade the existing visual character or quality of the site and its surroundings?	**PS**	**PS**	**PS**	**PS**	NI
Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	**PS**	**PS**	**PS**	**PS**	NI
Locate features on portions of AG zoned parcels that result in visual impacts to LOVR?	**PS**	**PS**	**PS**	**PS**	NI
Affect views from LOVR, a highway that has potential to be designated as a Scenic Corridor Design Area in the Estero Area Plan Update?	LTS	LTS	LTS	LTS	NI
Conflict with local goals, policies and ordinances relating to visual resources?	LTS	LTS	LTS	LTS	NI

Visual Character

Impact 5.12-C: The project would substantially degrade the existing visual character or quality of the site and its surroundings.

Project-Specific Impact Analysis

Proposed Project 1

Collection System

Proposed Project 1 will include the incorporation of 4,769 new septic tanks and approximately 315,000 linear feet of various types and sizes of pipelines and numerous valves and other appurtenant equipment. Short-term construction impacts would temporarily change the appearance of the residences where old septic tanks would be removed. Construction activities would create dust, expose soil from grading, and create soil piles from trenching and excavation. These short-term impacts would occur on the Mid-town and Broderson parcels and would substantially degrade the existing visual character of their surroundings. The Mid-town parcel is located across the street from the Los Osos Community Park. The Broderson parcel is located near a publicly accessible trail that bisects the Morro Ecological Preserve. Changes to the surroundings in these areas near the Broderson parcel would result in a short-term significant impact. Following construction, the Mid-town parcel would include a pump station that would be above grade with the approximate dimensions of 25 by 14 feet, and approximately 17 feet in height. However, the size of this facility would not be sufficient to degrade views of the surrounding area. Therefore, long-term impacts would be less than significant at the Mid-town parcel.

Treatment Plant Site

Facultative ponds would be located on the Giacomazzi property and would occupy approximately 20 acres. Approximately four acres on the Branin property to the north would be occupied by appurtenant structures. Appendix N-1 found that viewing distances of the structures would range from approximately 1.1 miles to 1.5 miles from the Key Observation Point (KOP) to the center of each parcel. Facultative ponds would be at grade, most other components (headworks, and clarifiers) of the treatment plant would not exceed 20 feet in height, and the height of the tallest treatment plant component would not exceed 35 feet in height. At 0.4 miles, the treatment facilities would be noticeable from LOVR and would change the visual character of the Giacomazzi parcel. Therefore, there would be a significant impact.

Disposal Sites

Disposal sites are the same for all projects, and would occur on the Broderson and Tonini sites. Construction activities on these two parcels such as trenching and excavating would alter the visual character of the surrounding parcels and would result in significant short-term impacts.

Combined Project Effects

The combination of collection, treatment, and disposal would alter the visual character of the areas surrounding the parcels during construction. These would result in short-term significant impacts.

Proposed Project 2

Collection System

The proposed collection system for this project would be a combination of gravity with facilities for pipelines, pump stations, blow-offs and clean-outs located entirely within roadway dedicated rights-of-way and within the urban village reserve area. Impacts associated with construction would visually alter surroundings throughout the community of Los Osos, resulting in significant short-term impacts.

Treatment Plant Site

Impacts would be the same as for Proposed Project 1.

Disposal Sites

Impacts would be the same as for Proposed Project 1.

Combined Project Effects

Impacts would be the same as for Proposed Project 1.

Proposed Project 3

Collection System

Impacts would be the same as for Proposed Projects 1 and 2.

Treatment Plant Site

Impacts would be the same as for Proposed Projects 1 and 2.

Disposal Sites

Impacts would be the same as for Proposed Projects 1 and 2.

Combined Project Effects

Impacts would be the same as for Proposed Project 1.

Proposed Project 4

Collection System

Impacts would be the same as for Proposed Project 1.

Treatment Plant Site

The treatment plant site is located on the Tonini parcel. The treatment site is located less than a half-mile north of LOVR on the west side of Turri Road. Storage of treated effluent is expected to be approximately 46 acre-feet. Facilities would be visible, but barely noticeable at this distance. However, when viewed at closer distances by adjacent landowners the visual character of the site would be altered. Therefore, impacts would be significant.

Disposal Sites

Impacts would be the same as for Proposed Projects 1, 2, and 3.

Combined Project Effects

Impacts would be the same as for Proposed Projects 1, 2, and 3.

Cumulative Impact Analysis

Cumulative impacts consider the effects of past, present, and reasonably foreseeable projects on scenic vistas in the project vicinity. There are no planned projects in the project vicinity that would change conditions of visual resources.

Proposed Project 1

There would be no cumulative impacts since there are no past, present, or reasonably foreseeable projects that have or could affect visual character of the areas surrounding the parcels.

Proposed Project 2

Cumulative impacts would be the same as for Proposed Project 1.

Proposed Project 3

Cumulative impacts would be the same as for Proposed Projects 1 and 2.

Proposed Project 4

Cumulative impacts would be the same as for Proposed Projects 1, 2, and 3.

Light or Glare

Impact 5.12-D:	**The project would create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.**

Project-Specific Impact Analysis

Proposed Project 1

Collection System

Development of the collection system would require security lighting at the pump station. However new lighting would occur within the urban village boundary and would not adversely affect day or nighttime views in the project vicinity. Therefore, impacts would be less than significant.

Treatment Plant Site

Facultative ponds would be located on the Giacomazzi property and would occupy approximately 20 acres. Approximately four acres on the Branin property to the north would be occupied by appurtenant structures. The treatment plant would require lighting and is located in an area with little or no lighting and would therefore affect nighttime views of the hills north of the community of Los Osos. Therefore, potentially significant impacts may occur.

Disposal Sites

Disposal options would be the same for all proposed projects, and would occur on the Tonini and Broderson parcels. Both parcels would require lighting. The Tonini parcel is located outside the community of Los Osos in an area with little or no nighttime lighting. The Broderson parcel is located adjacent to several residences at the end of Broderson Avenue. There is currently no lighting on the Morro Ecological Preserve. Therefore, there would be significant impacts.

Combined Project Effects
The combination of the collection, treatment, and disposal facilities would all require nighttime lighting on parcels that currently do not have lighting. Since lighting could affect nighttime views of the area there would be significant impacts.

Proposed Project 2
Collection System
Impacts would be the same as discussed for Proposed Project 1.

Treatment Plant Site
Impacts would be the same as for Proposed Projects 1 and 2.

Disposal Sites
Disposal sites would be the same as for Proposed Project 1.

Combined Project Effects
Impacts would be the same as for Proposed Projects 1 and 2.

Proposed Project 3
Collection System
Impacts would be the same as discussed for Proposed Projects 1 and 2.

Treatment Plant Site
Impacts would the same as discussed for Proposed Projects 1 and 2.

Disposal Sites
Disposal sites would be the same as for Proposed Projects 1 and 2.

Combined Project Effects
Impacts would be the same as discussed for Proposed Projects 1 and 2.

Proposed Project 4
Collection System
Impacts would be the same as discussed for Proposed Projects 1, 2, and 3.

Treatment Plant Site
Impacts would be the same as for Proposed Projects 1, 2, and 3.

Disposal Sites
Disposal sites would be the same as for Proposed Projects 1, 2, and 3.

Combined Project Effects
Impacts would be same as for Proposed Projects 1, 2, and 3.

Cumulative Impact Analysis

Cumulative impacts consider the effects of past, present, and reasonably foreseeable projects on scenic vistas in the project vicinity. There are no planned projects in the project vicinity that would change conditions of visual resources.

Proposed Project 1

Since there are no past, present, or reasonably foreseeable projects that have changed day or nighttime views of the project vicinity, there would be no cumulative impacts.

Proposed Project 2

Impacts would be same as for Proposed Project 1.

Proposed Project 3

Impacts would be the same as for Proposed Projects 1 and 2.

Proposed Project 4

Impacts would be same as for Proposed Projects 1, 2, and 3.

Visual Impacts to Ag Zoned Parcels

Impact 5.12-F:	**The project would locate structures that would disrupt views of Ag zoned parcels from Los Osos Valley Road.**

Project-Specific Impact Analysis

Proposed Project 1

Collection System

The Collection System would occur within the urban village boundary and would not adversely affect the views of Ag zoned parcels (Cemetery, Giacomazzi, Branin, or Tonini parcels). Therefore, impacts would be less than significant.

Treatment Plant Site

Facultative ponds would be located on the Giacomazzi property and would occupy approximately 20 acres. The distance from LOVR to the treatment facilities is approximately 0.4 0.6 miles, depending on whether the viewer is east or west of the direct line of sight for the Cemetery parcel. Approximately four acres on the Branin property to the north would be occupied by appurtenant structures. Appendix N-1 lists viewing distances from key observation points along LOVR (a potentially designated Scenic Corridor Design Area) to the Cemetery, Giacomazzi, and Branin parcels. As shown, project features would be visible at both foreground and background distances. This would change the views that currently exist from an undeveloped, agricultural setting to a developed setting. Therefore, impacts would be significant.

Disposal Sites

Disposal options would be the same for all proposed projects, and would occur on the Tonini and Broderson parcels. The Tonini parcel is located outside the community of Los Osos and disposal facilities would be located near LOVR, depending on whether the viewer is east or west of the direct line of sight for the Cemetery parcel. The Broderson parcel is located adjacent to several residences at the end of Broderson Avenue, but is located in an area not zone for Agriculture. Disposal infrastructure includes ponds and leach fields. The only features that would be evident would be fencing and lighting. However, this would change the views that currently exist from an undeveloped, agricultural setting to a developed setting. Therefore, impacts would be significant.

Combined Project Effects

As stated above, both the treatment, and disposal facilities would alter views from LOVR to Ag zoned parcels. Therefore, impacts would be significant.

Proposed Project 2

Collection System

Impacts would be the same as for Proposed Project 1.

Treatment Plant Site

Impacts would be the same as for Proposed Projects 1 and 2.

Disposal Sites

Impacts would be the same as for Proposed Projects 1 and 2.

Combined Project Effects

Impacts would be the same as for Proposed Projects 1 and 2.

Proposed Project 3

Collection System

Impacts would be the same as for Proposed Projects 1 and 2.

Treatment Plant Site

Impacts would be the same as for Proposed Projects 1 and 2.

Disposal Sites

Impacts would be the same as for Proposed Projects 1 and 2.

Combined Project Effects

Impacts would be the same as for Proposed Projects 1 and 2.

Proposed Project 4

Impacts would be the same as for Proposed Projects 1, 2, and 3.

Treatment Plant Site

Impacts would be the same as for Proposed Projects 1, 2, and 3.

Disposal Sites

Impacts would be the same as for Proposed Projects 1, 2, and 3. Impacts to views of Ag zoned parcels from LOVR would be the same as for Proposed Projects 1, 2, and 3.

Combined Project Effects

Impacts would be the same as for Proposed Projects 1, 2, and 3.

Cumulative Impact Analysis

Cumulative impacts consider the effects of past, present, and reasonably foreseeable projects on views of Ag zone parcels from LOVR. There are no planned projects in the project vicinity that would change conditions of visual resources on Ag zoned parcels viewed from LOVR.

Proposed Project 1

Since there are no past, present, or reasonably foreseeable projects that have changed views of Ag zoned parcels from LOVR, there would be no cumulative impacts.

Proposed Project 2

Impacts would be the same as for Proposed Project 1.

Proposed Project 3

Impacts would be the same as for Proposed Projects 1 and 2.

Proposed Project 4

Impacts would be the same as for Proposed Projects 1, 2, and 3.

5.12.6 - Mitigation Measures

Table 5.12-2: Visual Resources Proposed Mitigation Measures

Project(s)	Proposed Mitigation Measure(s) - Project-Specific	Effects After Incorporation of Mitigation Measures
5.12-C: The project would substantially degrade the existing visual character or quality of the site and its surroundings.		
1, 2, 3, and 4	**5.12-C1:** Aesthetic Policy AES 1 (construction staging area) from the Estero Area Plan shall apply. For all aspects of the project, construction staging areas shall be located away from sensitive viewing areas to the extent feasible. Before construction activities begin, an area of construction equipment storage away from direct views of sensitive viewing corridors (e.g. residences and major roads in the project area) shall be designated	Less Than Significant
1, 2, 3, and 4	**5.12-C2:** A final landscaping plan shall be prepared for the entire project site and approved by the County prior to building permit issuance. Said landscaping plan shall emphasize native plant materials and shall include sufficient planting to screen views of the project from nearby roads and residential developments. The landscaping plan shall be to visually integrate the project into the rural landscape, while preserving and enhancing existing views.	Less Than Significant
1, 2, 3, and 4	**5-12-C3:** Any buildings associated with collection facilities at the Broderson and Mid-Town parcels shall be designed in such a manner so they are architecturally compatible with other buildings in the vicinity.	Less Than Significant

Table 5.12-2 (Cont.): Visual Resources Proposed Mitigation Measures

Project(s)	Proposed Mitigation Measure(s) - Project-Specific	Effects After Incorporation of Mitigation Measures
5.12-D: The project would create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.		
1, 2, 3, and 4	**5.12-D1:** Aesthetic Policy AES-5 (lighting plan) from the Estero Area Plan shall apply. A final lighting plan shall be prepared for the treatment and disposal facilities. The lighting plan shall meet County design standards. This shall include proper shielding, proper orientation, and applicable height standards. All lighting fixtures shall be shielded so that neither the lamp nor the related reflector interior surface is visible from adjacent properties. Light hoods shall be dark-colored.	Less Than Significant
5.12-F: The project would locate structures that would disrupt views of Ag zoned parcels from LOVR.		
1, 2, 3, and 4	**5.12-F1:** Any building (equipment areas, pumping stations) associated with treatment and disposal facilities shall be designed to conform to an agricultural landscape. Buildings shall be designed to appear as barns or other farm related structures.	Less Than Significant
1, 2, 3, and 4	**5.12-F2:** Mitigation Measure 5.12-C-2 shall be required.	Less Than Significant
1, 2, 3, and 4	**5.12-F3:** Aesthetic Policy AES 4 (Revegetation Plan) from the Estero Area Plan shall apply. A revegetation plan shall be to the satisfaction of the US Fish and Wildlife Service, California Department of Fish and Game and San Luis Obispo County for the portion of the Broderson site that will be disturbed by the installation of the disposal leach fields. The plan shall be prepared by a qualified landscape architect and/or botanist and shall, to the extent feasible, restore the site to its condition prior to disturbance	Less Than Significant

5.12.7 - Level of Significance After Mitigation

Project Specific

Proposed Projects 1 Through 4

Less than significant.

Cumulative

Proposed Projects 1 Through 4

No impact.

5.13 - ENVIRONMENTAL JUSTICE

5.13.1 - Introduction

This section provides an analysis of environmental justice based on extensive analysis performed in the Expanded Environmental Justice Analysis, found in Appendix O-1. The Expanded section utilized numerous resources to conduct the analysis, including the Housing Element of the 2004 San Luis Obispo County General Plan and the Environmental Justice Action Plan prepared by the California Environmental Protection Agency, as well as others. A complete list of resources used to prepare this section can be found in Appendix O-1.

5.13.2 - Environmental Setting

Background

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 § 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."

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. The State of California and the federal government are in pursuit of efforts to address this issue. Consequently, this Draft EIR documents the proposed project's compliance with the basic principles of environmental justice.

For a complete explanation of environmental justice and important definitions, please refer to Appendix O-1.

5.13.3 - Regulatory Setting

Federal

Executive Order 12898

On February 11, 1994, President Clinton issued Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low income Populations," Order 12898 is designed to focus attention on environmental and human health conditions in areas of high minority and low-income communities and to prevent discrimination in programs and projects substantially affecting human health and the environment. The Order requires that the U.S. EPA and all other federal agencies (as well as State agencies receiving Federal funds) to develop strategies to address this issue. The agencies are required to identify and address any disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and/or low-income populations.

State

California Government Code Section 65040.12

California Government Code, Section 65040.12 (e), defines environmental justice as “the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies.” California Government Code Section 65040.12 (a), designates the Governor’s Office of Planning and Research (OPR) as the coordinating agency in state government for environmental justice programs, and requires OPR to develop guidelines for incorporating environmental justice into general plans.

Title 14 California Code of Regulations (CCR) Section 15131

Title 14, CCR Section 15131 provides that economic or social information may be included in an EIR, but those economic or social effects shall not be considered significant effects on the environment. In an EIR, the lead agency is responsible for researching economic or social changes resulting from a Project, which may eventually lead to physical changes in the environment. These economic or social changes can be used to determine the significance of physical changes on the environment.

Senate Bill No. 115

Senate Bill (SB) No. 115 provides OPR as the coordinating agency in state government for Environmental Justice programs. SB 115 requires the Director of Planning and Research to consult with secretaries of specified state agencies and other parties in order to coordinate OPR’s efforts, share specified information with certain federal agencies, and to review and evaluate other federal information. SB 115 defines Environmental Justice to mean “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.”

5.13.4 - Thresholds of Significance

In accordance with CEQA, the effects of a project are evaluated to determine if they will result in significant adverse impact on the environment. This Project will have a significant adverse environmental justice impact if it will:

a. Result in adverse effects or impacts that are appreciably more severe in magnitude or are predominately borne by any segment of the population, for example, household population with low income or a minority population in comparison with a population that is not low income or minority.

Other Thresholds

For the purpose of the Proposed Project, the following threshold has been added to evaluate the Project’s consistency with applicable goals and policies related to environmental justice.

Would the project:

a. Conflict with any applicable environmental justice goals or policies of an agency with jurisdiction over the project?

5.13.5 - Level of Significance Prior to Mitigation

This section summarizes the analyses, 1 through 4, of the proposed projects as set forth in Section 5.12.5 of Appendix O-1. The referenced analyses include a discussion of project-specific and cumulative impacts, and provides mitigation measures where required. In this Draft EIR section, only impacts that were found to be potentially significant are discussed. Since all impacts associated with environmental justice for each of the proposed projects (project-specific as well as cumulative) were found to be less than significant in Appendix O-1, this issue will not be discussed further. The analysis and rationale for determining a less than significant or no impact for each of the thresholds of significance can be found in Appendix O-1.

5.13.6 - Mitigation Measures

No mitigation measures are required.

5.13.7 - Level of Significance After Mitigation

According to the analysis of environmental effects found in Appendix O-1, impacts for all proposed projects were found to be less than significant and no mitigation measures were required.

Project-Specific

Proposed Projects 1 Through 4

Less than significant.

Cumulative

Proposed Projects 1 Through 4

No impacts.

SECTION 6: GROWTH INDUCING IMPACTS

Section 15126.2(d) of the State CEQA Guidelines requires that an EIR assess a project's potential to foster economic or population growth, or the construction of additional housing in the surrounding environment.

A project may have two types of growth-inducing impacts: direct and indirect. To assess the potential for growth-inducing impacts, the project characteristics that may encourage and facilitate activities that individually or cumulatively may affect the environment must be evaluated.

Direct growth-inducing impacts occur when the development of a project imposes new burdens on a community that directly induces population growth or the construction of additional developments in the same area of the proposed project, thereby triggering related growth-associated impacts. Included in this analysis are projects that would remove physical obstacles to population growth (such as a new road into an undeveloped area or a wastewater treatment plant that could allow more construction in the service area). Construction of these types of infrastructure projects cannot be considered isolated from the development they trigger. In contrast, projects that physically remove obstacles to growth and projects that indirectly induce growth are those which may provide a catalyst for future unrelated development in an area (such as a new residential community that requires additional commercial uses to support residents).

Construction and operation of the Los Osos Wastewater Project could result in direct growth inducement because the project will lead to the removal of the discharge moratorium within the Regional Water Quality Control Board (RWQCB) Prohibition Zone. Since 1988, no new housing has been constructed within the non-excluded areas of the RWQCB Prohibition Zone, and there has been a minor amount of growth that has occurred within excluded areas of the Prohibition Zone as well as outside the Prohibition Zone and within the Community of Los Osos. Although the discharge moratorium would be removed after development of the LOWWP, further development of houses in the Prohibition Zone would be subject to numerous other regulatory requirements, such as compliance with Coastal Development Permit conditions, implementation of water conservation measures, recognition of environmental mitigation measures (for example, maintenance of endangered Morro Shoulderband Snail habitat), and overall water availability from water purveyors.

As shown on Table 6-1, the growth that has occurred within the Community of Los Osos between Year 1990 and Year 2000 includes an increase in 117 residential units, but a decrease in population of 223 people.

Table 6-1: Year 1990 and Year 2000 Population and Housing Data for Community of Los Osos

Community of Los Osos	Year 1990[a]	Year 2000[a]	Change
Population	14,377	14,154	-223
Housing	6,094	6,214	117

a Housing Element of the San Luis Obispo County General Plan, Pages 5-1 and 5-23 (Adopted October 12, 1982 and Amended July 20, 2004).

The proposed Los Osos Wastewater Project will provide a new wastewater system that would allow housing and population growth within the RWQCB Prohibition Zone of Los Osos. This increase in housing and population would occur within areas of the RWQCB Prohibition Zone that are vacant or underdeveloped. Many areas that are vacant include undeveloped lots that are scattered throughout the community. Many of these lots are 0.05 to 0.01 acre in size and are currently served by roads. There are utilities within the rights-of-way of these roads that can serve future infill development.

Based on data provided within Table 6-2, buildout within the RWQCB Prohibition Zone could result in a population of approximately 19,306 and a buildout of approximately 8,400 housing units. In addition, the buildout outside of the RWQCB Prohibition Zone could include approximately 9,382 persons and approximately 4,100 housing units. Based on the projected future population of approximately 18,428 that will be served by the proposed project (Carollo Engineers February 2008), this projected population is less than the Estero Plan projected buildout population within the RWQCB Prohibition Zone. This is due to a number of reasons; there are areas within the Prohibition Zone that have existing wastewater systems serving tract of houses and will not receive service from the developed LOWWP; some areas have been placed into Open Space since the Estero Plan population numbers were updated; and habitat issues will reduce density on other open lands.

Table 6-2: Buildout Population and Housing Data for Inside and Outside the RWQCB Prohibition Zone in the Community of Los Osos

Community of Los Osos	Buildout Within RWQCB Prohibition Zone	Buildout Outside of RWQCB Prohibition Zone	Buildout Within the Community of Los Osos
Population	19,306[a]	9,382[b]	28,688[c]
Housing	8,400[d]	4,100[d]	12,500[d]

[a] Draft Environmental Impact Report for the Los Osos Community Services District, Wastewater Facilities Project, Page 61, November 2000.
[b] Based on the remaining population after the buildout population within the RWQCB prohibition zone is subtracted from the total buildout population in the Community of Los Osos.
[c] Land Use Element of the San Luis Obispo County General Plan, Estero Area Plan, Page 2-15, (Approved November 2004 and Amended July 2006).
[d] Based on 2.32 persons per housing unit which is the combined average persons per housing unit that occurred in 1990 and 2000 in the Community of Los Osos, as described above and rounded to the nearest hundred.

Although the operation of the Los Osos Wastewater Project could increase population and housing within the RWQCB Prohibition Zone, this increase is consistent with the planned growth identified in the Estero Area Plan. As identified above, the growth that the Los Osos Wastewater Project would accommodate includes approximately 18,428 persons, which is substantially less than the approximately 28,688 persons projected at buildout within the Community of Los Osos. The portions of the community that the project would not serve are located south and east of the RWQCB Prohibition Zone. Therefore, implementation of the proposed project would accommodate a portion of the growth that has been planned for the Los Osos Community; however, the project would not induce growth that is outside of the RWQCB prohibition zone because these areas would not be served by the project.

Other factors that will influence and limit future growth of the community include:

- The construction of wastewater treatment facilities out of town will not accommodate or induce growth east of the community and wastewater facilities. 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, not to any out-of-town areas. Expansion of the service area would require amendments to the legislation along with numerous other regulatory steps.
- The area served by LOWWP facilities is set by Coastal Development Permit conditions. Expansion of the treatment plant capacity or expansions in the wastewater service area would require amendments to the permit or issuance of a new permit.
- The area served by LOWWP facilities is limited by treatment plant capacity, thus limiting capabilities to serve any areas out of town. Adding capacity would require amendments to the Coastal Development Permit, addressing financing issues, and amendments to land use planning and coastal plan documents.
- Mitigation measures from the previous Coastal Development Permit carried forward into the current project approach limit vacant lot development until after the Habitat Conservation Plan is prepared and adopted, the Local Coastal Plan amendments are incorporated, and water supply issues are addressed.
- 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.

Finally, the increase in population and housing that could directly occur as a result of the project could also increase the economic development (i.e., commercial and office uses). However, this increase would be consistent with the planned growth identified in the Estero Area Plan and have a beneficial economic impact on the community. The economic development objectives of the Estero Area Plan that call for a greater balance between employment and housing can only be accomplished after the discharge moratorium is removed.

SECTION 7: ALTERNATIVES TO THE PROPOSED PROJECT

7.1 - CEQA Requirements for Alternatives

Since 1988, the Los Osos Wastewater Project (LOWWP) has had several proposed project predecessors that included a range of wastewater treatment technologies and sites. This section summarizes several activities that the County and the Los Osos Community Services District have taken since 1988 to identify, screen and develop LOWWP project alternatives. More detail is provided on the recent steps the County has taken beginning in 2006 to develop alternatives for a community wastewater collection and treatment system in Los Osos and evaluate each alternative's technical feasibility and environmental impacts. The results of this technical and environmental analysis have formed the basis for screening project alternatives and selecting the LOWWP Proposed Projects and alternatives presented in this Draft EIR.

7.1.1 - Introduction

Section 15126.6 (a) of the State CEQA Guidelines states that:

> An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision making and public participation. An EIR is not required to consider alternatives which are infeasible.

According to the "rule of reason" in CEQA Guidelines Section 15126.6 (f), and EIR need "set forth only those alternatives necessary to permit a reasoned choice. The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project."

CEQA Guidelines Section 15126.6 (e) (3) (C) also requires consideration of the "No Project" alternative " by projecting what would reasonably be expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services."

To select the alternatives evaluated in this Draft EIR, the County conducted a lengthy screening process. CEQA Guidelines Section 15126.6 (c) sets forth the parameters for an alternatives screening process, and states that:

> The EIR should briefly describe the rationale for selecting the alternatives to be discussed. The EIR should also identify any alternatives that were considered by the

> lead agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the lead agency's determination." "Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts.

In accordance with these CEQA Guidelines, the County conducted a screening analysis to limit the number of alternatives evaluated in this Draft EIR, and to document the factual basis upon which certain alternatives were excluded from further consideration. This screening analysis was conducted as part of the environmental assessment process with input from several parallel actions: a thorough technical engineering feasibility assessment of the LOWWP requirements and alternatives that produced a series of Technical Memoranda and the LOWWP Technical Advisory Committee's detailed review and guidance for each Technical Memorandum.

7.2 - Steps in the Alternatives Screening Process

7.2.1 - History of Project Alternatives

In 1983 the Regional Water Quality Control Board (RWQCB) issued a discharge moratorium for a portion of the Los Osos area known as the RWQCB Prohibition Zone. (See Exhibit 3-2.) The moratorium prohibited discharge from additional individual and community sewage disposal systems and, thereby, effectively halted new construction or major expansions of existing development until the County could provide a solution to the water pollution problem. In the late 1980's to address the issues that concerned the RWQCB, the County developed a wastewater collection and treatment project at a rural site northeast of the Los Osos community known as the Turri Road site and shown on Exhibit 7-1. The County also prepared an Environmental Impact Report (EIR) and a Supplemental EIR. In the mid-1990's, the project was modified to relocate the proposed wastewater treatment facility within the partially developed Los Osos area; this site change necessitated preparation of a second supplemental EIR (1997).

In 1998 the newly created Los Osos Community Services District (LOCSD) developed a wastewater collection and treatment project with the treatment facilities located in the west-central Los Osos on the Tri-W site. This Draft EIR refers to the Tri-W site as the Mid-town site. The LOCSD 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 a majority of the LOCSD board members in a special election and the new board immediately suspended construction of the wastewater project. In August 2006, the LOCSD rescinded certification of the 2001 EIR and filed for federal bankruptcy protection.

On September 20, 2006, Governor Arnold Schwarzenegger signed Assembly Bill (AB) 2701, which authorized transfer of wastewater authority from the LOCSD to the County.

Source: AirPhoto USA, San Luis Obispo County GIS Data, and MBA GIS Data.

Michael Brandman Associates

NORTH

4,000 2,000 0 4,000
Feet

Exhibit 7-1
Wastewater Treatment Plant Site Alternatives

Based on policies established by the 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. Those documents focused on identifying a set of viable project alternatives that were the basis for the Proposition 218 cost estimates. By approving an assessment under Proposition 218 in the October 2007 election, Los Osos voters authorized LOWWP funding.

Since 2006, the County's LOWWP efforts have followed an interdisciplinary team approach involving responsible and trustee agencies, consultants, and County staff members. The current project team, composed of over 20 individuals representing several departments and divisions of the County, four engineering, environmental, and hydro-geotechnical consulting firms, and five public agencies. The County continued and expanded this approach in 2008 by adding an interdisciplinary environmental consulting team to analyze the LOWWP's environmental impacts under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) as well as the permitting requirements. Since the environmental team is conducting their analysis in parallel with the preliminary engineering design and the Technical Advisory Committee (TAC) activities, information developed by each LOWWP participant is integrated with the other participants' efforts. This process will continue through the environmental, design, regulatory permitting, and construction phases of the project.

The LOWWP consists of three main components: wastewater collection; wastewater treatment, which includes solids processing and disposal; and effluent disposal. Using conceptual design information and the CEQA/NEPA process, which is coinciding with on-going efforts to define project costs and consider community preferences, the County project team is moving through an alternatives analysis process that will result in a preferred project for the final design.

Based upon the volumes of documentation produced for the project over the past two decades, the most recent County work produced, and the clear project purposes of wastewater treatment and protecting water resources, the County has been examining a wide range of alternatives on a co-equal basis. Technical Appendices B-1: Alternatives Development and Descriptions and B-2: Systems Component Evaluation, and the Fine Screening Report (Carollo Engineers 2007a) and Rough Screening Report (Carollo Engineers 2007b) summarize the process followed to identify the four Proposed Projects discussed in this Draft EIR and to set aside other alternatives from further consideration.

The detailed environmental analysis considers four preliminary Proposed Projects on an equal basis as described later in this Section. The preferred LOWWP Project selected could be any one of the four alternatives or a different combination of project components. Public review of this Draft EIR will coincide with a community preferences survey and the continuing design process. Having the Draft EIR available will enable Los Osos community residents, the project team and County elected officials to consider the LOWWP's potential environmental impacts as the County identifies the preferred alternative using environmental, economic, and community preferences information; incorporates appropriate mitigations; and moves forward with the final design and permitting process.

The County will ultimately certify a Final EIR based on the preferred alternative identified through this process and make findings that support the final project decision. Supplemental environmental documentation may be required to evaluate some aspects of the final Proposed Project and provide adequate public review of the Proposed Project's environmental impacts. The County has committed to consider thoroughly the final Proposed Project's potential environmental impacts and public comments before completing and certifying the Final EIR.

7.2.2 - Project Screening Criteria

Project Goals and Objectives

The primary goal of the LOWWP is to construct and operate a community wastewater collection, treatment and disposal system and, thereby, comply with the RWQCB's WDR Resolution 83-13. Eliminating discharges from onsite wastewater, as directed by the RWQCB, will also help accomplish the LOWWP's second primary goal: alleviating groundwater contamination, primarily nitrates, that has occurred at least partially because of the use of septic systems throughout the community.

One of the wastewater project's secondary objectives involves water resources issues. Water resources issues are important because of seawater intrusion that is contaminating the Los Osos groundwater basin. On March 27, 2007, the County Board of Supervisors certified a "Level of Severity (LOS) III" for the community of Los Osos while adopting a Resource Capacity Study of the Los Osos groundwater basin. The LOS III determination is the highest determination of a resource problem under the County's Resource Management System. The wastewater project can be an important first step to solving water resource problems. While the primary purpose of the Los Osos Wastewater Project is to construct a community wastewater system and, thereby, to alleviate groundwater contamination, how that goal is met can create or hinder opportunities for the water purveyors to improve the local water resources.

The specific objectives of the Los Osos Wastewater Project are:

1. **RWQCB Waste Discharge Requirements.** Address the issues of water quality defined by the Waste Discharge Requirements (WDR) for discharge limits issued by the RWQCB.
2. **Groundwater Quality.** Alleviate groundwater contamination—primarily nitrates—that has occurred at least partially because of the use of septic systems throughout the community.
3. **Secondary Objectives**
    a) **Water Resources.** Address water resource issues by mitigating the project's impacts on water supply and saltwater intrusion. Further, the wastewater project will maintain the widest possible options for beneficial reuse of treated effluent.
    b) **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 emissions, social and economic sustainability, wetlands and estuary preservation or enhancement, cultural resources protection, and agricultural land enhancements).

c) **Project Costs.** Meet the project water quality requirements while minimizing life-cycle costs and the related affordability impacts to residents.

d) **Regulatory Compliance.** Comply with applicable local, State, and federal permits, land uses, and other requirements including the Local Coastal Plan, Environmentally Sensitive Habitat Areas (ESHA standards), State Marine Reserve, and archeological concerns.

Discharge Objectives

The RWQCB issued “Waste Discharge/Recycled Water Requirements Order No. R3-2003-0007” for the LOCSD when it was moving forward with the last abandoned Los Osos wastewater project. After completing the EIR for that project in 2001, the LOCSD had obtained all the requisite permits, such as a Coastal Development Permit (CDP) and the RWQCB Waste Discharge Requirements (WDR). The currently proposed LOWWP must also meet the RWQCB treated effluent and recycled water limitations from that order. The WDR discharge limitations, which are summarized in Table 3-1 in Draft EIR Section 3, cover effluent characteristics such as Suspended Solids, BOD 5 Day, Turbidity, Nitrogen and pH.

7.2.3 - Prior Screening of LOWWP Project Alternatives

Rough Screening Report

When the County of San Luis Obispo assumed responsibility for the LOWWP in 2006, the County embarked on a process to develop a community wastewater collection and treatment system in Los Osos. Based on policies established by County Board of Supervisors in June 2006, the Project Team began by preparing the “Potential Viable Project Alternatives Rough Screening Analysis Report” (Carollo Engineers March 2007). The Rough Screening Report focused on potential wastewater project component alternatives to the Tri-W Project with a Membrane BioReactor (MBR) that had been under construction at the Mid-town site in 2006. A wide array of potential project components was examined for the collection system, treatment technologies, treatment facility sites, effluent reuse and disposal, and solids treatment and disposal. Table 7-1 presents the project components that passed through the rough screening analysis.

Table 7-1: Potentially Viable LOWWP Project Components that Passed Rough Screening

Potential Collection System Alternatives	Potential Treatment Plant Sites	Potential Treatment Processes	Potential Solids Disposal Alternatives	Potential Effluent Reuse/Disposal Alternatives
• STEP/STEG • Gravity/ Vacuum/ Low Pressure Combination	• Cemetery • Giacomazzi/ • Branin • Mid-town • Andre 2 • Morosin/FEA • Gorby (Los Osos Valley farm) • Robbins 1 • Robbins 2	• Membrane Bioreactor (MBR) • Extended Aeration • Sequencing Batch Reactor (SBR) • Oxidation Ditch • Biolac™ Extended Aeration • Trickling Filter Solids Contact • Partially Mixed Facultative Ponds	• Recycling of Digested/ Composted Class A Biosolids • Recycling of Composted Class A Biosolids • Hauling of Digested Class B Biosolids • Hauling of Composted Class B Biosolids • Hauling of Sub-Class B Dewatered Biosolids	• Leachfields • Percolation • Sprayfields • Agricultural Reuse • Urban Reuse • Constructed Wetlands
Source: Carollo Engineers March 2007, Potential Viable Project Alternatives Rough Screening Analysis Report				

In order to pass through the rough screening process, each of the proposed alternatives had to meet basic minimum feasibility criteria, including technical, institutional, regulatory, and cost considerations. These criteria had been based on guidance from the County Board of Supervisors and, in part, on the Guiding Principles and Findings and Recommendations that the National Water Research Institute (NWRI) set forth during their December 2006 independent advisory panel review of the LOWWP. (NWRI 2006)

Fine Screening Report

The LOWWP Project Components that passed through the rough screening analysis were screened further in the “Potential Viable Project Alternatives Fine Screening Analysis Report” (Carollo Engineers August 2007). A key issue addressed in the Fine Screening Report was the relationship between the LOWWP and seawater intrusion. On March 27, 2007, the San Luis Obispo County Board of Supervisors certified that seawater intrusion in the Los Osos groundwater basin had reached Level of Severity III, the highest resource problem level in the County’s Resource Management System (RMS). Removing the groundwater recharge provided by the current septic tanks could increase seawater intrusion unless the impact is mitigated by using some or all of the treated wastewater treatment plant effluent to recharge the groundwater basin. Any project alternative that would make the seawater intrusion worse was screened out of further consideration. Although higher capital expenditures could produce higher levels of seawater intrusion mitigation, the Fine Screening

Report recommended that the County select a project that provided Level 2 benefits. Level 2 is equivalent to the maximum mitigation of seawater intrusion possible without water purveyor participation in project development and implementation. This decision also recognized that the Project must first meet the WDR set forth by the RWQCB and only secondly help solve the community's water resources problem. Options should be kept open for future water purveyor participation. (Carollo Engineers August 2007)

Three other important considerations in the Fine Screening Report were sustainability, future adaptability and project costs. Sustainability, a stated goal for the Los Osos community, is defined in the Fine Screening Report as minimizing the LOWWP's energy consumption and reusing the treated wastewater effluent as a resource to benefit the community. Providing future adaptability means designing a project that meets the community's present needs but provides flexibility to cost-effectively upgrade the wastewater treatment and disposal facilities in response to potential regulatory changes such as wastewater treatment upgrades or changes in biosolids processing and disposal methods. To the extent possible, project facility alternatives that provide flexibility to meet future regulatory requirements or provide capacity to serve the buildout population were preferred over facilities that would have to be demolished and replaced to accomplish the same future requirements. For instance, treated effluent conveyance pipelines should be sized to serve the build-out population rather than constructing a smaller pipeline now but having to construct an additional pipeline in the future at a considerably higher combined construction cost. To evaluate project costs, the engineering consultant developed conceptual-level capital and operations and maintenance cost estimates and identified the apparent low cost alternatives. (Carollo Engineers August 2007.)

From the final list of potential project components remaining after completing the fine screening process, the Department of Public Works and its consultants created project component combinations known as "Viable Project Alternatives" that represent permitable, constructible and fundable project alternatives. A total "Viable Project Alternative" requires a collection system, a wastewater treatment facility, a treatment plant site, an effluent reuse/disposal system, and a solids processing and disposal system.

Technical Advisory Committee

In March 2007, the San Luis Obispo County Board of Supervisors appointed thirteen local experts in engineering, water resources, finance, and the environment as the Los Osos Wastewater Project Technical Advisory Committee (TAC). The TAC's first priority was to make recommendations on the Pros and Cons of the "Viable Project Alternatives." They began by agreeing upon the five core values presented in Table 7-2 that the TAC "felt needed to be addressed in any project for Los Osos."

Table 7-2: Los Osos Wastewater Project Core Community Values

Core Values	Major Criteria
Affordability	• Capital and construction costs • O&M costs • Financing factors • Grant eligibility • Engineering and project management costs
Environmental Stewardship	• Environmental impacts • Potential risks due to system failure • Carbon footprint
Flexibility	• Flexibility to meet future needs and opportunities, including: expansion, future higher regulations, regional opportunities, etc. • Potential alternative energy opportunities
Sustainability	• Restoring and protecting our groundwater resources • Mitigating seawater intrusion and achieving groundwater balance in the basin • Minimizing energy use • Minimizing sludge production
Community	• Impacts on individual homeowners, residents, and businesses • Stakeholder support • Community acceptance
Controllability	• Risks of third party decisions, policies • Financial risks associated with wastewater projects • Design for maximum system control

Source: Los Osos Wastewater Project Technical Advisory Committee, San Luis Obispo County Department of Public Works, Pro/Con Analysis on Project Component Alternatives, August 2007.

Basing their analysis on the draft Fine Screening Report, their own experience and public comments received in writing and at the open public meetings, the TAC prepared its report entitled, Pro/Con Analysis on Project Component Alternatives (LOWWP Technical Advisory Committee, San Luis Obispo County Department of Public Works, August 2007). Their detailed comments were carried forward into the screening process used to identify the Proposed Projects and Project Alternatives included in this Draft EIR. During 2008 the TAC has been reviewing and commenting on a series of preliminary engineering Technical Memoranda prepared by the County's LOWWP engineering consultant.

Preliminary Engineering and Environmental Review

After LOWWP funding under Proposition 218 was approved by Los Osos voters in October 2007, the County continued its interdisciplinary team approach involving responsible and trustee agencies, consultants, County staff members and the Technical Advisory Committee. Two parallel activities were initiated: preliminary engineering design of the proposed LOWWP and an environmental assessment in accordance with CEQA requirements. In early 2008 the County began the preliminary engineering design by developing a series of Technical Memoranda prepared by its engineering consultant. The Technical Memoranda covers the following range of issues:

- AB 32 Greenhouse Gas
- Decentralized Treatment
- Effluent Reuse and Disposal Alternatives
- Flow and Loads
- Imported Water
- Low Pressure Collection System
- Onsite Treatment
- Out-of-Town Conveyance
- Partially Mixed Facultative Pond Options
- Regional Treatment
- Septage Receiving Station Option
- Solids Handling Options

Each Technical Memorandum analyzed in detail a potential project approach or project component alternative that the prior rough screening and fine screening reports may or may not have covered in less detail. Draft reports were reviewed by the LOWWP interdisciplinary team members, including the TAC and the environmental consultant, and the final reports were revised in response to the comments received.

In parallel with preparation of the Technical Memoranda, the County also contracted with an interdisciplinary environmental consulting team to initiate the environmental review process under CEQA. The environmental review process began with further alternatives screening by the County's Project Team to identify the Proposed Projects and Alternatives presented in this Draft EIR. The next section summarizes the environmental screening process.

7.2.4 - Screening Process to Identify Draft EIR Proposed Projects

Methodology

Since the late 1980's, extensive engineering and environmental analysis efforts have endeavored to develop the LOWWP and identify a project that would meet the complex and sometimes conflicting goals and objectives listed in Section 7.2.1: meeting regulatory requirements, including the RWQCB waste discharge requirements; improving water quality; enhancing water resources and protecting the environment, all at an affordable cost. Several times in the past, project proponents have selected what appeared to be a reasonable alternative only to find that it did not meet all of the community's goals and objectives. In an effort to avoid a similar outcome this time, the County Project team revisited the wide array of project alternatives proposed over the years and identified several new technological and location alternatives not considered before.

After the multidisciplinary team evaluated the engineering, environmental, economic and institutional feasibility of the alternatives, the project team assembled for a Charrette to evaluate the potential alternatives, identify any fatal flaws reducing the viability of some alternatives, compare how well the remaining alternatives met the project criteria and agree upon a range of Proposed Projects to consider in the Draft EIR.

Project Screening Criteria

The LOWWP project alternatives screening criteria used to conduct the Project Screening Charrette were derived from the project goals and objectives described in Section 7.2.1. The project screening criteria, summarized in Table 7-3, built upon the current and past LOWWP screening efforts, engineering analysis, environmental investigations and responses to the EIR Notice of Preparation.

Table 7-3: Summary of Project Screening Evaluation Criteria

Baseline Criteria	Sub-criteria	Comments
RWQCB Waste Discharge Requirements	A. Meet RWQCB requirements for WDR (discharge limits)	Project must be effective in meeting effluent discharge levels for: BOD, total suspended solids (TSS), nitrogen, viruses, and bacteria.
	B. Address emerging contaminants: pharmaceutical and other constituents	Project is required to be consistent with EPA standards for emerging contaminants.
Groundwater Quality	A. Meet RWQCB requirements for elimination of pollution to groundwater	Project must mitigate potential effects of effluent discharge on domestic water wells.
	B. Environmental Risk	Project should provide maximum system control and minimize environmental risk of system failure.
Water Resources	A. Salinity Management	Project must contribute to mitigation of seawater intrusion into lower aquifer.
	B. Groundwater Recharge	Project must contribute to recharging groundwater resources in lower aquifer.
	C. Create options for water supply improvement	Project should create options for future cooperative projects with water purveyors to enhance local water supplies.
Energy	A. Contribute to air quality improvements	Project should minimize particulate emissions and minimize release of airborne pathogens and exposure to vectors.
	B. Promote sustainability	Project should optimize energy efficiency and reduce overall use of natural resources.
	C. Reduce greenhouse gas emissions	Project should minimize carbon footprint.

Table 7-3 (Cont.): Summary of Project Screening Evaluation Criteria

Baseline Criteria	Sub-criteria	Comments
Costs	A. Life Cycle Costs	Project should involve: • Efficient use of funds for capital improvements • Lowest feasible and practical operations and maintenance costs necessary to meet WDR discharge limits.
	B. Staffing Requirements	Project should minimize number of required management and staff positions.
	C. Community Acceptance	Project selection should consider affordability, private property values and aesthetics.
Permitability	A. California Coastal Act	Project must comply with California Coastal Act provisions regarding Local Coastal Plan (LCP) consistency, limiting improvements in Environmentally Sensitive Habitat Areas (ESHAs), drainage and sedimentation control, and California Coastal Commission review.
	B. Environmental	Project must comply with permitting requirements: • Endangered Species Protection Act Section 7 consultations with US Fish and Wildlife Service/National Marine Fisheries Service • Cultural Resources • Sensitive species/habitat • State Marine Reserve • Creek Crossings(US Army Corps of Engineers 404 permit, California Department of Fish & Game, RWQCB Section 401 Permit.)
	C. Land Uses	Project should demonstrate that there is no other feasible alternative for facilities located within ESHA areas or on Prime agricultural land
	D. Engineering	Project design should consider: • Health and Safety • Drainage • Noise • Odor • Traffic Trips • Operational Dependability
Source: Based on Appendix P-1, Kennedy/Jenks Consultants, 2008, Technical Memorandum 2.1, The Alternatives Development and Descriptions Index, 2008.		

During the Charrette, engineering members of the Project team also presented the results of their technical assessment and comparison of the project component alternatives using the more detailed preliminary engineering assessment criteria listed below:

1. Environmental:
    - Nitrogen Considerations
    - Upper Aquifer Impacts - Quantity
    - Lower Aquifer Impacts - Quantity
    - Upper Aquifer Impacts - Quality
    - Lower Aquifer Impacts - Quality
    - Salinity Management (Seawater Intrusion and root zone salt buildup)
    - Emerging Contaminants
2. Public Health
    - Virus Considerations - Surface
    - Virus Considerations - Subsurface
    - Bacteria Considerations - Surface
    - Bacteria Considerations - Subsurface
    - Nitrogen Considerations - Subsurface
    - Airborne Pathogens
    - Vector Exposure
    - Impact on existing domestic water wells
3. Socio-Economic
    - Capital Costs
    - Annual Costs (O&M)
    - Life Cycle Costs (Capital and O&M)
    - Staffing Requirements - Management
    - Staffing Requirements - O&M
    - Energy Use/Efficiency
    - Carbon Footprint (Greenhouse Gas [GHG])
    - Private Property Impacts - Construction
    - Private Property Impacts - Long-term O&M
    - Private Property Impacts - Land Value/Taxes
    - Aesthetics
4. Engineering
    - Health and Safety
    - Drainage
    - Noise
    - Odor
    - Air Emissions
    - Traffic Impacts to Trips
    - Treatment Process Effectiveness in Achieving Compliance
    - Operational Dependability/Redundancy
    - Depth to Groundwater (including seasonal considerations)
    - Property Setbacks

- Conformance with Existing Land Use (special permitting requirements)
- Conformance with Coastal Planning
- Geologic/Seismic Hazards

Application of Screening Criteria

Initial Feasibility Screening Evaluation of Viable Components

To prepare for the Charrette, the engineering and environmental team members identified and evaluated potential project component alternatives using the baseline criteria and corresponding sub-criteria listed in Table 7-3. Project components that are needed for each part of the LOWWP project include the collection and conveyance systems, a wastewater treatment plant process and site, biosolids processing and disposal, and effluent disposal facilities.

Team members had first met in a January 2008 partnering meeting to develop an integrated approach to the preliminary engineering, environmental assessment and community input from the Technical Advisory Committee that were occurring in parallel. With guidance from team members that have been involved with the LOWWP for many years, the full team reviewed the extensive library of documents from the prior efforts to design and build a wastewater treatment plant for the Los Osos area as well as the Rough Screening Report, Fine Screening Report and the first few Technical Memoranda that had been prepared by Carollo Engineers and Kennedy/Jenks Consultants for the current LOWWP. Each team member brought their initial lists of potential project components and their component evaluations to the Charrette to share with the other participants. A summary of the initial list of potential project components considered and the project screening criteria is provided as Appendix P-1, Alternatives Development and Descriptions Index.

Project Component Ranking System

In order to sort through the long list of alternatives for each of the project components, the initial project screening categorized the project component alternatives into Level A, B and C priorities.

Level A – Project components that best meet the project goals and objectives. These are viable project component alternatives selected for evaluation in the Draft EIR.

Level B - Project components that meet the project objectives but have some limitation such as cost or institutional issues that make them difficult to implement at this time. Level B components could also be expensive project upgrades that are not necessary to meet the basic project objectives. These potentially viable alternatives should be held for future consideration by the community.

Level C - Project components that do not meet one or more project objectives or are non-viable due to a “fatal flaw.” These alternatives have been dropped from consideration.

Charrette

Members of the County LOWWP project team met with County staff on March 11, 2008, to share and consider the multidisciplinary screening process results. Charrette attendees included 20 experts in engineering, environmental analysis, biological and cultural resources, hydrogeology, land use and public works administration. During the charrette, the full project team worked together to share their varied perspectives regarding the technical, environmental, economic and institutional feasibility of the project component alternatives. Each project component alternative was evaluated one by one to identify its benefits and limitations, consider how well it meets the project objectives and classify it as either a Level A, B or C alternative.

Once all the project components were classified, the Level A project components were grouped together into viable Proposed Projects that could be evaluated and compared in the Draft EIR. Each proposed project had components for wastewater collection and conveyance, treatment site selection, wastewater treatment process, biosolids processing and disposal, and effluent disposal. The Proposed Projects were moved forward into the Draft EIR environmental analysis. Level C alternatives were dropped from further consideration.

Level B alternatives provide project benefits that are not necessary to meet the current project goal, which is to treat the Los Osos community wastewater in order to alleviate groundwater contamination and to mitigate the LOWWP's potential impact on seawater intrusion into the groundwater aquifer. Consequently, Level B alternatives are outside the scope of authority transferred to the County by AB 2701. Although the Level B alternatives were not carried forward into the proposed projects, in the future, other agencies such as the water purveyors, could pursue the Level B alternatives as separate projects.

On April 22, 2008, the project team met to review draft project descriptions for the Proposed Projects that had been developed in the Charrette. As the environmental team had begun collecting and evaluating detailed environmental data, it became apparent that the Tonini site that was under consideration as the effluent sprayfield site would also be a viable wastewater treatment plant site. Since the County would have to acquire the entire site in order to use it for the sprayfields, there would be sufficient land available to locate both the sprayfields and a treatment plant on the Tonini site. The project team agreed to modify the Proposed Projects and create Proposed Project 4 with the wastewater treatment plant, sprayfields and storage pond together on the Tonini site.

7.2.5 - Proposed Projects Development

The four proposed projects were created to provide a range of feasible alternatives. Rather than limit the detailed environmental analysis to a single alternative, the project team decided to evaluate all four proposed projects on an equal basis. This was appropriate since the preliminary engineering is still in the conceptual phase. A final decision on the preferred alternative will not be made until more detailed information on the preliminary engineering design criteria, environmental analysis and community preferences can be integrated after the Draft EIR is released.

A summary of the four proposed projects is provided in Table 3-1 in Section 3: Project Descriptions elsewhere in this Draft EIR. The discussion below describes how the four proposed projects were created.

Level A Proposed Projects

The above section summarizes the screening process the County used to consider a range of alternative project components and designate each project component as a Level A, B or C, with Level "A" alternatives best meeting the project objectives and screening criteria. The various Level A Project components have been assembled into viable projects that contain a wastewater collection system, treatment plant site, wastewater treatment plant, effluent disposal facilities and a biosolids processing and disposal program. The four proposed projects described below have been evaluated in this Draft EIR. The final Proposed Project could be any one of the four Proposed Projects or a different combination of the Level A project components.

Proposed Project 1

Proposed Project #1 includes constructing a secondary treatment process consisting of partially mixed facultative ponds, appurtenant facilities, and a 46 AF treated effluent storage pond on a combined site made up of the Cemetery, Giacomazzi, and Branin sites. Because facultative ponds require the largest land area, it was necessary to use three adjacent candidate sites to provide sufficient space for the wastewater treatment facility, storage pond and ancillary facilities. This proposed project was also created to assess the environmental effects of installing a STEP/STEG collection system. Effluent disposal would be accomplished using conservation, leachfields at the Broderson site, and sprayfields at the Tonini site. Biosolids would be dredged from the facultative ponds every 15 to 20 years, dewatered in portable dewatering equipment, and hauled to a landfill for disposal.

Proposed Project 2

This proposed project will be used to assess the effects of combining a gravity collection system with a treatment facility that requires less land area than facultative ponds, thus allowing the treatment facility to be constructed on a single site. Proposed Project #2 consists of constructing a secondary treatment facility (oxidation ditch/Biolac™) and appurtenant facilities on the Giacomazzi site. A gravity collection system would be used, and effluent disposal would be accomplished using conservation, leachfields at the Broderson site, and sprayfields at the Tonini site, where 46 AF of treated effluent storage would be located.

Proposed Project 3

This proposed project will be used to assess the effects of combining onsite storage with the treatment facility, eliminating the need to pump to a remote storage facility. Proposed Project #3 is similar to Proposed Project #2 except that 46 AF of treated effluent storage would be located onsite with treatment facility. The Branin site would be combined with Giacomazzi to provide the required storage basin area onsite.

Proposed Project 4

This proposed project will provide the opportunity to evaluate the effects of using a gravity collection system and the most remote site for the treatment facility location. Proposed Project 4 involves constructing partially mixed facultative ponds, appurtenant facilities, and 46 AF of treated effluent storage on the Tonini site. This is the same site where the sprayfields will be located. A gravity collection system would be used, and effluent disposal would be accomplished using conservation, leachfields at the Broderson site, and sprayfields adjacent to the treatment facility at the Tonini site.

National Water Resource Institute (NWRI)

The National Water Resource Institute (NWRI) recently completed a peer review of the LOWWP conceptual design (NWRI 2008). They recommended that the County consider six project combinations as defined in Table 3-5. Some are the same combinations as the four proposed projects evaluated in this Draft EIR; others are new combinations. The different combinations of project components suggested by NWRI is an example of how the project components could be grouped in many different ways when the final LOWWP preferred alternative is selected.

Table 7-4: National Water Resource Institute Recommended Project Options for Consideration

Collection System	Treatment Technology	Biosolids Management	Effluent Management
Hybrid gravity sewer	Oxidation ditch/Biolac™	Mechanical dewatering with landfill disposal	Spray application
STEP/STEG	Oxidation ditch/Biolac™	Mechanical dewatering with landfill disposal	Spray application
Hybrid gravity sewer	Facultative Ponds	Hauling	Spray application
STEP/STEG	Facultative Ponds	Hauling	Spray application
Hybrid gravity sewer	Oxidation ditch/Biolac™	Solar drying and co-composting with landfilling as needed.	Spray application
STEP/STEG	Oxidation ditch/Biolac™	Solar drying and co-composting with landfilling as needed.	Spray application
[1] Source: NWRI. 2008.			

Community Survey

The County is preparing to conduct a community survey that will ascertain community preferences regarding the LOWWP. Since the County assumed responsibility for the LOWWP in 2006, the County has conducted an ongoing effort to provide Los Osos community residents with information regarding the LOWWP engineering and environmental assessment process. The Technical Advisory Committee is a group of local experts in engineering and water resources, environmental planning and public finance that have carefully reviewed and commented on the draft Technical Memoranda prepared by the County's engineering consultant. The public had an opportunity during the TAC public meetings to ask questions and comment on the LOWWP progress.

The election that approved the Proposition 218 assessment district demonstrated community support for the LOWWP. The community survey will provide another opportunity to consider community preferences for the LOWWP. The survey will be based on the preliminary engineering analysis, Draft EIR, and a Public Works Project Memo describing the current LOWWP project status and plans for the final design, permitting and Design/Build process.

7.3 - Project Alternatives

This section briefly describes and compares the feasibility and environmental impacts of alternative project components for the LOWWP. More detailed descriptions of the Level A alternatives appear in Section 3, Project Description and Appendix B, Project Description Data by Kennedy/Jenks Consultants. For additional detail describing and comparing the Level A, B and C alternatives, refer to Appendix P, Alternatives Information, the Fine Screening Report (Carollo Engineers 2007b) and the Rough Screening Report (Carollo Engineers 2007a). Carollo Engineers and Kennedy/Jenks Consultants have provided further details in the various Technical Memoranda (TMs) on particular project components.

7.3.1 - No Project/No Action Alternative

The No Project/No Action alternative would maintain existing conditions, which involve septic systems and onsite leachfields for most of the Los Osos Community. The negative effects from the continued discharge of septic effluent to area groundwater resources have been well documented, including continued nitrate discharge to the upper groundwater aquifer, continued salt-water intrusion, and a continuing decline in potable water quality. Since the community derives all of its domestic water supply from groundwater resources, continued degradation is considered a significant unavoidable impact associated with the No Project/No Action Alternative. Additionally, the No Project//No Action Alternative would not achieve the basic objectives of the proposed project and would result in noncompliance with the legally binding RWQCB Cease and Desist Order No. 83-13. (Crawford, Multari and Clark Associates, 2001) With the possibility of RWQCB enforcement action against the Los Osos community if existing conditions are maintained, the "No Project" alternative was designated a Level C alternative and dropped from consideration as a non-viable option.

If the County implements the No Project/No Action Alternative, the proposed LOWWP wastewater treatment plant, collection and conveyance system, effluent disposal system and biosolids handling facilities would not be constructed and operated. Therefore, the LOWWP would not cause impacts to the project area during the construction or operation phases. Potentially significant impacts related to the permanent losses of habitat for endangered species and Prime Farmland, geologic hazards, public health and safety, traffic and circulation, construction noise, air quality, groundwater resources, visual resources, and cultural resources would not occur. Actions to mitigate these potentially significant impacts to a level that is less than significant would not be required. The impacts to prime farmland that cannot be mitigated and, therefore, are significant and unavoidable, would not occur.

7.3.2 - Raw Wastewater Collection System

Collection System Alternatives

Alternatives to collect the raw wastewater from the individual residences and buildings include: gravity, STEP, STEG, combined STEP/STEG, Low Pressure or vacuum collection systems. After the brief project descriptions provided below, the various alternatives are compared and designated as Level A, B or C alternatives.

Gravity Collection System

Gravity collection systems are the most common wastewater collection systems. These systems utilize gravity to transport wastewater to final treatment facilities and/or pump stations. They consist of gravity sewer lines with a minimum diameter of 6- or 8-inches and manholes at change of grade or direction, or at intervals of approximately 350 feet. Gravity collection systems convey both solids and liquids. A conventional gravity system requires pump stations to move sewage from low lying areas to a treatment plant site. The gravity collection system proposed for the LOWWP may also include a low pressure collection system in subareas with high groundwater and difficult excavation conditions.

Septic Tank Effluent Pumping System (STEP)

STEP systems convey septic tank effluent (STE) only; they do not convey solids. They utilize septic tanks at individual service connections to retain the solids. STEP systems use pumps at each septic tank to pressurize the collection system and convey the STE to a main pump station or treatment facility. The collector lines are small diameter (2- to 4-inch) that can be located closer to the ground surface and feed into larger interceptors. At least every five years, septage haulers will pump out the accumulated septage in each septic tank and haul the septage to the wastewater treatment plant.

Septic Tank Effluent Gravity System (STEG)

STEG systems are similar to STEP systems, but do not have individual pumps at each septic tank; conveyance is by gravity. However, since solids remain in the septic tanks, pipe diameters are smaller than for gravity systems and manholes are not used in the system. At least every five years, septage haulers will pump out the accumulated septage in each septic tank and haul the septage to the wastewater treatment plant.

STEP/STEG Collection System

A combined STEP/STEG collection system is one of the alternatives proposed for the LOWWP. It has a combination of STEP systems that have individual pumps at each septic tank and STEG systems that flow by gravity from some of the septic tanks. Since solids remain in the septic tanks, pipe diameters are smaller than for conventional gravity systems and manholes are not used in the system. The collection system is a combination of pipelines that flow by gravity and pipelines pressurized by the accumulated pressure from the individual STEP tank pumps. At least every five years, septage haulers will pump out the accumulated septage in each septic tank and haul the septage to the wastewater treatment plant.

Low Pressure Collection System

Low Pressure Collection Systems (LPCS) utilize individual grinder pumps at each connection that grind up solids and convey the resulting slurry to the collection system and then to a treatment site or pump station. LPCS are similar in design and operation to STEP systems, except that no individual septic tanks are used and both solids and liquids are conveyed through the collection system to the wastewater treatment plant.

Vacuum Sewer

Vacuum sewer systems rely on vacuum stations to create a collection system that operates under a vacuum. A small retention facility is located at each service connection. When the retention facility is full, a vacuum/interface valve opens and allows the solids and liquids to be conveyed to the main vacuum station. Since vacuum sewer systems are closed systems, the collection system pipelines can be located close to the ground surface, follow the natural grade and have smaller diameters than conventional gravity collection systems.

Comparison of Collection System Alternatives

The results of comparing the collection system component alternatives against the project screening criteria are summarized in Table 7-5. The Low Pressure Collection System (LPCS) with grinder pumps and the Vacuum System were classified as Level C alternatives and dropped from further consideration. Both the LPCS and vacuum collection system have higher energy requirements and maintenance costs than the gravity and STEP/STEG collection systems as indicated in Table 7-5.

Gravity and STEP/STEG collection systems are both feasible collection systems and were designated Level A alternatives. As described in Table 7-5, each alternative has advantages and disadvantages compared to the other. For instance, gravity collection systems require more energy to operate, but they emit less greenhouse gasses because STEP/STEG systems emit a large amount of greenhouse gasses and odors from septic tanks, chemicals and septage hauling. (Carollo Engineers 2008i) Similarly, excavating streets to install gravity sewers is more disruptive to street traffic, but installing STEP/STEG tanks disrupts private properties and requires a permanent public easement on each property. The capital construction cost savings for STEP/STEG collection systems are offset by the higher operations and maintenance costs for maintaining the 4769 pump stations and periodically pumping and hauling the accumulated septage. More detailed comparisons of the potential collections systems are provided in Appendix P, Alternatives Information, and in the Fine Screening Report (Carollo Engineers 2007a).

Proposed Project #1 includes a STEP/STEG collection system. Proposed Projects 2, 3 and 4 include a gravity collection system.

7.3.3 - Conveyance Systems

Raw Wastewater Conveyance System

A raw wastewater conveyance system will transmit the wastewater collected in the Wastewater Service Area from a central collection point to the wastewater treatment plant. The central wastewater collection could be located either at the Mid-town site's southeast corner or along South Bay Boulevard, depending on which raw wastewater conveyance pipeline alignment is selected. With a gravity collection system, a central pump station at the central collection point will be required. A STEP/STEG system will not require a central pump station since the individual STEP pumps at each connection will provide the necessary pumping pressure.

Alternative Raw Wastewater Conveyance System Alignments

Several alignments for the raw wastewater conveyance system were considered in the Rough Screening Report (Carollo Engineers 2007b) and the Out of Town Conveyance Technical Memorandum (Carollo Engineers 2008g) that are included in this Draft EIR as Appendices. This section summarizes the alternative alignments considered and why the Project team selected the proposed alignment. Exhibit 7-2 depicts the alternative alignments.

Los Osos Valley Road Alignment

The Los Osos Valley Road alignment follows Los Osos Valley Road from the central wastewater collection point and/or pump station on the Mid-town site southwest corner to the wastewater treatment plant that will be located on or near the Giacomazzi parcel or on the Tonini parcel as shown on Exhibit 7-2. The force main is assumed to follow along the side of the road for most of its length; however it may need to be installed under the paved roadway if there are conflicts with existing utilities in some sections.

Los Osos Valley Road to Eto Lane Alignment

This alignment follows Los Osos Valley Road from the central wastewater collection point and/or pump station on the Mid-town site southeast corner to Eto Lane. From there it turns north on Eto Lane, then east across undeveloped land to the wastewater treatment plant located on or near the Giacomazzi parcel as shown on Exhibit 7-2. This alternative would not serve a wastewater treatment plant on the Tonini parcel.

Hollister Lane Alignment

The Hollister Lane alignment begins from a central pump station on South Bay Boulevard and follows Hollister Lane east to its terminus, then heads across undeveloped land, making several turns as shown on Exhibit 7-2, until it reaches the wastewater treatment plant located on or near the Giacomazzi parcel. This alternative would not serve a wastewater treatment plant on the Tonini parcel.

Table 7-5: Screening of Collection System Alternatives

Baseline Criteria	Gravity[1]	Combined Septic Tank Effluent Pumping (STEP)/ Septic Tank Effluent Gravity (STEG) System	Low Pressure Collection System (LPCS)[1]	Vacuum System
Level Designation	**Level A**	**Level A**	**Level C**	**Level C**
Groundwater Quality & RWQCB Waste Discharge Requirements	• Meets RWQCB requirements for elimination of pollution to groundwater • Least ex-filtration • Septic tank effluent that currently recharges aquifer is removed	• Meets RWQCB requirements for elimination of pollution to groundwater • Some exfiltration with pressurized pipelines. • Septic tank effluent that currently recharges aquifer is removed	• Meets RWQCB requirements for elimination of pollution to groundwater • Less exfiltration than STEP; more than gravity system. • Septic tank effluent that currently recharges aquifer is removed	• Meets RWQCB requirements for elimination of pollution to groundwater
Water Resources	• Inflow - As gravity system ages, Inflow can occur at lateral connections, manholes, and mainline joints. Regular maintenance can reduce • Infiltration - Potential where mainlines and manholes are below water table. • Septic tank effluent that currently recharges aquifer is removed.	• Inflow - As STEP/STEG system ages, Inflow can occur at house lateral connections and STEP/STEG tank joints. • Infiltration - Unlikely. • Septic tank effluent that currently recharges aquifer is removed	• Inflow - As LPCS system ages, Inflow can occur at house lateral connections and grinder pump station connections. • Infiltration - Unlikely. • Septic tank effluent that currently recharges aquifer is removed	Not evaluated.
Energy/Air Quality	• 500,000 kwhr/year • Odors - Minimal to Moderate Potential • Lower GHG emissions due to absence of septic tank venting and less chemical production.	• 425,000 kwhr/year • Odors - Moderate to severe potential • Higher GHG emissions due to septic tank venting, chemical production and septage hauling. • Sludge reduction in treatment plant is partially offset by septage addition. • Requires carbon addition for nitrogen removal. • Tanks replaced or moved to front yard	• 425,000 kwhr/year • Grinder pumps less efficient that STEP pumps. • Odors - Moderate potential	• Highest energy demand

Table 7-5 (Cont.): Screening of Collection System Alternatives

Baseline Criteria	Gravity[1]	Combined Septic Tank Effluent Pumping (STEP)/ Septic Tank Effluent Gravity (STEG) System	Low Pressure Collection System (LPCS)[1]	Vacuum System
Level Designation	**Level A**	**Level A**	**Level C**	**Level C**
Costs	• 7 pump stations and 12 pocket pumps to maintain. • Deeper Sewers require greater disruption during construction. • Higher construction cost but lower O & M cost due to lower staffing and maintenance requirements.	• 4,769 pumps and STEP tanks to maintain. • Septage haulers pump STEP tanks at least every 5 years. • Shallower Depth for pipeline so trenchless technology can be used for portions of collection system. • Greater private yard disruption during STEP/STEG tank installation. • Lower construction cost but higher maintenance and septage hauling costs. • Permanent public easement required for STEP/STEG tank maintenance.	• 4,769 grinder pumps to maintain. • Shallower Depth for pipeline so trenchless technology can be used for portions of collection system. • Greater private yard disruption during grinder pump installation. • Can be used with gravity system in areas with shallow groundwater • Permanent public easement required for grinder pump maintenance.	• Highest maintenance cost. • Vacuum system pumps and 4,769 vacuum interface valves to maintain. • Shallower Depth
Permitability	• Noise - Comparable to STEP/STEG during construction. Quieter during operations. • Cultural Resources - Lower potential impacts. • Aesthetics: Less impact since most community facilities are underground. Traffic - Construction of a gravity system would lead to temporary impacts, but would be located further away from homes, etc.	• Noise - Comparable to gravity during construction. Higher operations noise from false and real STEP/STEG tank alarms and septage pumping. • Cultural Resources - Higher potential impacts from STEP/STEG tank excavation in private yards. • Aesthetics: More impact during operations due to 2 24-inch grade lids, alarms and lights.	• Noise - Comparable to STEP/STEG during construction. Higher operations noise from false and real grinder pump alarms. Grinder pumps noisier than STEP pumps. • Cultural Resources: - Higher potential impacts from grinder pump excavation in private yards. • Aesthetics: More impact during operations due to access hatch, alarms and lights.	Not evaluated

Table 7-5 (Cont.): Screening of Collection System Alternatives

Baseline Criteria	Gravity[1]	Combined Septic Tank Effluent Pumping (STEP)/ Septic Tank Effluent Gravity (STEG) System	Low Pressure Collection System (LPCS)[1]	Vacuum System
Level Designation	**Level A**	**Level A**	**Level C**	**Level C**
		• Traffic - STEP/STEG traffic impacts would occur during installation and would occur in close proximity to sensitive land uses.	• Traffic – Comparable to STEP/STEG traffic impacts during installation in close proximity to sensitive land uses.	

NOTES:
[1] The proposed gravity collection system is a hybrid that may install a LPCS for small subareas with high groundwater and difficult excavation conditions.
Sources: Appendix P-2: Kennedy/Jenks Consultants, Systems Component Evaluation, October 2008, Carollo Engineers 2008i, Carollo Engineers 2007b.

Nipomo Avenue

The Nipomo Avenue alignment begins from a central pump station on South Bay Boulevard and follows Nipomo Avenue east to its terminus, then heads across undeveloped land along one of several possible alignments as shown on Exhibit 7-2, and finally reaches the wastewater treatment plant located on or near the Giacomazzi parcel. This alternative would not serve a wastewater treatment plant on the Tonini parcel.

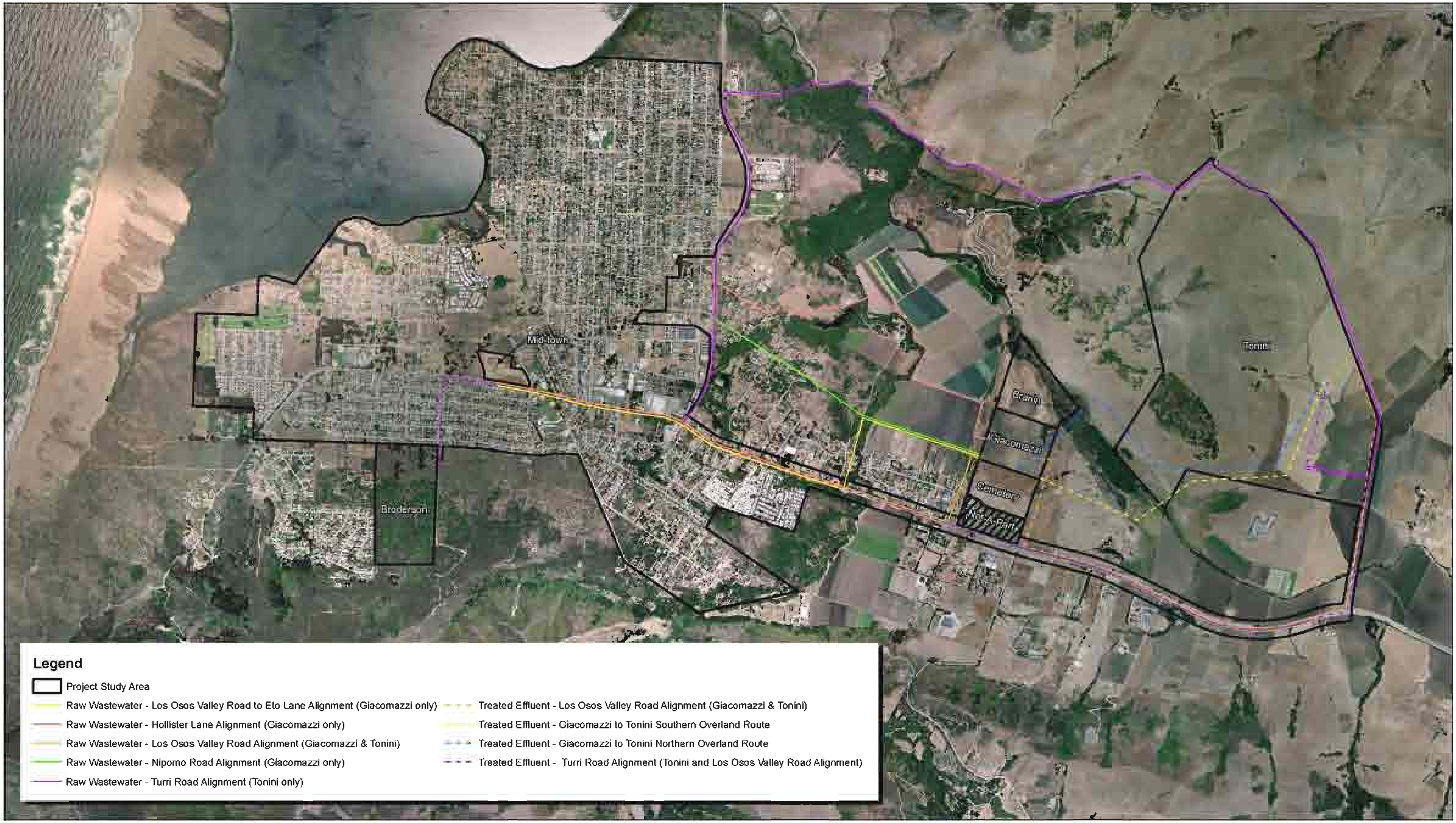
Turri Road Alignment

The Turri Road alignment begins at a central pump station on South Bay Boulevard and heads east over an undeveloped hillside to Turri Road where it turns southeast and continues until it reaches either the Turri Road wastewater treatment plant site or the Tonini site. This alternative would not serve a wastewater treatment plant on or near the Giacomazzi site.

Comparison of Raw Wastewater Conveyance System Alignments

There are many similarities between the potential raw wastewater conveyance system alternative alignments. Because the pipeline for both a gravity and STEP/STEG collection system will be under pressure, it can follow the natural contours to minimize excavation depth. Installation could be by traditional trenching methods or the more expensive directional drilling. Each of the pipeline alignments will have one or more creek crossings that could be accomplished by trenching, tunneling or a bridge-mounted crossing for the Los Osos Valley Road bridge. If a gravity collection system is selected, then the central pump station and standby power facilities will require visual screening and odor control. (Carollo Engineers 2008g)

Some temporary traffic disruption will occur during construction of pipeline segments that follow paved roadways. This impact will be greater for the Los Osos Valley Road alignment and the Turri Road alignment. Installing the pipeline in the land immediately adjacent to the roadway whenever possible will minimize traffic conflicts. In addition, the land under or immediately adjacent to existing roadways is typically already disturbed, so potential environmental conflicts can be minimized. The alignments that cross undeveloped land have additional creek crossings and the most potential conflicts with archaeological resources, sensitive or endangered species, ESHAs, and wetlands. These conflicts will increase the permitting and regulatory requirements to construct the pipeline and to mitigate the long-term risk that a force main failure could have on creeks, wetlands and/or the estuary. (Carollo Engineers 2008g) Consequently, the alternatives screening process reached the conclusion that the Los Osos Valley Road alignment would most closely meet the project objectives and screening criteria. The Los Osos Valley Road alignment with a central pump station at Mid-town has been designated the Level A alternative. The other raw wastewater conveyance system alignments have been designated Level C alternatives and dropped from further consideration.



Source: AirPhoto USA, San Luis Obispo County GIS Data, and MBA GIS Data.

Michael Brandman Associates

NORTH

2,000 1,000 0 2,000 Feet

02240002 • 10/2008 | 7-2_conveyance_routes_tonini.mxd

Exhibit 7-2

Out of Town Conveyance Routes to Tonini Ranch Site

Effluent Conveyance System

The treated effluent conveyance system will transmit the treated effluent from the wastewater treatment facility to the effluent disposal areas. The Level A effluent disposal Alternatives selected are the Broderson leachfield and the Tonini sprayfields plus water conservation.

Alternative Effluent Conveyance System Alignments

Several alignments for the treated effluent conveyance system were considered in the Rough Screening Report (Carollo Engineers 2007b) and the Effluent Reuse and Disposal Technical Memorandum (Carollo Engineers 2008b) that are included in this Draft EIR as Appendices. This section summarizes the alternative alignments considered and why the Project team selected the proposed alignment. Exhibit 7-2 depicts the alternative alignments.

Broderson Leachfield

Los Osos Valley Road Alignment

The Los Osos Valley Road alignment for the effluent conveyance pipeline will begin at the selected wastewater treatment plant at the Giacomazzi or Tonini sites. After reaching Los Osos Valley Road along the existing farm road from Giacomazzi or along Turri Road from the Tonini site, the pipeline will parallel Los Osos Valley Road until it turns south towards the Broderson Leachfield along one of several potential alignments shown on Exhibit 7-2. Bayview Heights Drive is a high volume street that runs from Los Osos Valley Road directly south towards the Broderson Leachfield. Alternative alignments are available along other residential streets to connect the Broderson Leachfield with Los Osos Valley Road.

Alternative Tonini Alignment

A shorter alternative alignment from the Tonini site shown in Exhibit 7-2 is to travel southwest across undeveloped land and then to Los Osos Valley Road. From there the pipeline would follow the same alignment as the Los Osos Valley Road alignment.

Tonini Sprayfields

Giacomazzi to Tonini via Los Osos Valley Road

As shown on Exhibit 7-2, the Los Osos Valley Road Effluent Conveyance alignment would begin at the Giacomazzi treatment site, head south to Los Osos Valley Road, then turn east and travel along Los Osos Valley Road before turning north along Turri Road to reach the Tonini Sprayfields site.

Giacomazzi to Tonini Northern Overland Route

The Northern Overland Route from Giacomazzi to Tonini would begin at the Giacomazzi treatment site, head northeast through undeveloped land, cross Warden Creek, then travel east along the base of a hillside to reach the Tonini Sprayfields as shown in Exhibit 7-2.

Giacomazzi to Tonini Southern Overland Route

The Southern Overland Route from Giacomazzi to Tonini would begin at the Giacomazzi treatment site, head northeast through undeveloped land, and turn southeast to parallel Warden Creek. After passing south of the Warden Creek wetland area, the pipeline would turn northeast along an undeveloped area to reach the Tonini Sprayfields as shown in Exhibit 7-2.

Tonini to Tonini Sprayfields

If the wastewater treatment plant is located on the Tonini site, the effluent conveyance line to the Tonini Sprayfields would have a main effluent transmission line to distribute the effluent to the various sprayfields onsite.

Comparison of Treated Effluent Conveyance System Alignments

The issues associated with the treated effluent conveyance system are similar to the issues associated with the raw wastewater conveyance pipeline. All of the alternatives would require an effluent pump station at the treatment plant to provide the pressure necessary to convey the effluent to the disposal sites. Installing the raw wastewater and treated effluent pipelines along the same alignments may minimize construction impacts and reduce construction costs; however, adequate separation between the two pipelines must be maintained, especially if the effluent will be reused for agricultural or urban uses. Because the effluent conveyance pipeline will be under pressure, it can follow the natural contours to minimize excavation depth. Installation could be by traditional trenching methods or the more expensive directional drilling. Each of the pipeline alignments will have one or more creek crossings that could be accomplished by trenching, tunneling or a bridge-mounted crossing for the Los Osos Valley Road bridge. (Carollo Engineers 2008g)

Some temporary traffic disruption will occur during construction of pipeline segments that follow paved roadways. This impact will be greater for the pipeline segments along Los Osos Valley Road and Bayview Heights Drive. Installing the pipeline in the right of way land immediately adjacent to the roadway whenever possible will minimize traffic conflicts. In addition, the land under or immediately adjacent to existing roadways is typically already disturbed, so potential environmental conflicts can be minimized.

The alignments that cross undeveloped land have additional creek crossings and the most potential conflicts with archaeological resources, sensitive or endangered species, ESHAs, and wetlands. These conflicts will increase the permitting and regulatory requirements to construct the pipeline and to mitigate the long-term risk that a force main failure could have on creeks, wetlands and/or the estuary. (Carollo Engineers 2008g)

Because of the increased risk of environmental and permitting conflicts for pipelines located along the undeveloped alignments, the Project team reached the conclusion through the alternatives screening process that the Los Osos Valley Road alignment with the Bayview Heights Drive connection to the Broderson Leachfield would most closely meet the project objectives and screening criteria. It has been designated the Level A alternative for all the Proposed Projects. The alternative alignments between Los Osos Valley Road and the leachfield along other residential streets have been designated at Level B alternatives. The Alternative Tonini effluent conveyance system alignment to Broderson has been designated a Level C alternative and dropped from further consideration.

Similarly, the Los Osos Valley Road effluent conveyance system alignment from the Giacomazzi treatment site to the Tonini sprayfields has been designated the Level A alternative for Proposed Projects No.1, No.2 and No.3. The other overland routes from Giacomazzi to the Tonini sprayfields have been designated Level C alternatives and dropped from further consideration. The onsite Tonini sprayfield distribution line is the Level A alternative for Proposed Project No. 4.

7.3.4 - Wastewater Treatment Plant Site Alternatives

CEQA requires the consideration of alternative project locations when they provide an opportunity to avoid or lessen one or more significant environmental impacts. Exhibit 7-1 summarizes the potential treatment plant sites considered for the LOWWP. After the brief site descriptions provided below, the various alternatives are compared and designated as Level A, B or C alternatives.

Wastewater Treatment Plant Site Alternatives

Giacomazzi

(APN 067-011-022); 38.2 acres: The Giacomazzi site is a rectangular parcel that slopes to the north and east toward an ephemeral drainage that extends along the easterly portion of the site to Warden Lake (offsite). The level areas on the site have been cultivated with row crops, and the buildable portion of the site is approximately 20 acres.

Branin

(APN 067-011-020); 42.2 acres: The Branin site is an irregularly shaped lot north of Los Osos Valley Road and adjacent to Warden Lake which consists of native wetland and riparian vegetation. The site slopes to the north toward Warden Lake and contains two ephemeral drainages. The useable portion of the site is periodically cultivated and consists of 15-25 acres.

Cemetery

(APN 074-222-014); 47.4 acres: The Cemetery site is a rectangular parcel, and approximately 22 acres are considered to be buildable. The southerly third of the site is used for a cemetery. Approximately 7 acres in the northwest corner is cultivated with row crops, with the remainder fallow. The site slopes to the north and to the west. A dirt road along the site's edge provides access to surrounding farming operations. There are no trees or other natural features.

Tonini

(APN 067-031-001); approximately 650 acres: The Tonini site is located the furthest from Los Osos and north of the intersection of Los Osos Valley Road and Turri Road. It encompasses mostly agricultural land, some of which is considered prime agricultural land. There are multiple drainages and other natural features located on-site. The Tonini site has been identified as a candidate site for both the wastewater treatment facility and effluent disposal sprayfields. The Project team identified approximately 248 acres of this site with slopes less than 10 percent and outside proposed buffers along designated onsite Coastal Streams as having potential use as sprayfields. The wastewater treatment plant for Proposed Project No. 4 would also be located within the same 248 acres. An onsite treated effluent storage facility could also be located within this area or on a steeper portion of the site. Detailed geotechnical studies have not yet been conducted to evaluate the site's construction feasibility.

Mid-town

(APN 074-229-017); 11.7 acres: Located in-town next to the Los Osos Community Services District (LOCSD) office north of Los Osos Valley Road, the Mid-town site was the location proposed by the LOCSD for the wastewater treatment plant in 2001. The LOCSD started construction and partially cleared and graded the Mid-town site, but halted construction in 2005. Since then the vegetation is returning to native scrub habitat suitable for the endangered Morro should bank snail. The current site screening process again considered the Mid-town site as a wastewater treatment facility site. A small portion of the site (0.1 acres) has been considered for a central wastewater pumping station.

Turri Road

(APN 067-011-047); approximate acreage 87.4 ac: The Turri Road site is located towards the north end of Los Osos on Turri Road. There are steep slopes, trees, wetlands and drainages located on the site. Approximately 20 acres in the southwest portion of the site, consisting mostly of agricultural land with slopes less than 10 percent, is considered buildable.

Andre 2/Robbins 1 and 2

(APN 067-031-037, APN 067-031-038, and APN-067-031-011); Approximately 94.5 acres: The Andre 2/Robbins 1 and 2 site consists of three adjacent parcels that together comprise a trapezoidal 94.5 acre area adjacent to the north side of Los Osos Valley Road and east of Clark Valley Road. The northern half of the site contains at least one dwelling and slopes to the north toward Warden Lake. Large mature trees surround the farm buildings. The southern half of the site slopes to the south and is visible from Los Osos Valley Road. Zoned for Agriculture, the site is periodically used for grazing. The buildable portion of the site is approximately 74 acres.

Andre 1

(APN 067-031-XX); Approximately 33 acres: The Andre 1 site is a long and narrow parcel with a southern boundary bordering Los Osos Valley Road. The site slopes to the north towards Warden Lake and its associated wetlands. A high voltage transmission line from the Diablo Canyon Nuclear Power Plant and a power line easement cross the site from south to north and render the parcel unsuitable for a wastewater treatment facility.

Gorby

(APN 074-225-009); Approximately 51.7 acres: The Gorby site is an irregularly shaped lot located south of Los Osos Valley Road adjacent to the east side of Los Osos Creek. The southern half of the site slopes upward into the Irish Hills foothills and contains native vegetation. The northwesterly portion is level and contains a dwelling and equestrian facilities that include horse paddocks and riding areas. Several ornamental trees occupy the northwesterly portion of the site. The level, buildable portion of the site is triangular and consists of approximately 20 to 25 acres.

Iacono

(APN 074-222-013); Approximately 65.3 acres: The Iacono site is a large polygon-shaped parcel north of Los Osos Valley Road. The site lies between an established residential neighborhood and agricultural land. Among the multiple biological resources on-site that may constrain development are native oaks and chaparral, drainages, wetlands, and habitat for endangered species. The usable portion of the site is limited and would be challenging to access.

Morosin/FEA

(APN 067-171-084); Approximately 81.2 acres: The Morosin/FEA site is an irregularly shaped parcel located south of Los Osos Valley Road on the east side of Clark Valley Road at the base of the Irish Hills. Native vegetation covers the southerly half of the site that slopes upwards into the foothills. The northerly half of the site is relatively flat and cultivated with row crops. The site contains a church with parking and an access road on a small knoll on the northerly border. At the base of the foothills is a cluster of agriculture-related buildings. A water tank is located approximately 100 meters upslope from the agriculture buildings. The useable acreage of the site is approximately 35 acres.

Comparison of the Wastewater Treatment Plant Site Alternatives

Level C Sites

Four of the sites were designated as Level C sites and dropped from further consideration as described below:

Andre 1

The Andre 1 site has a high voltage power line and associated power line easement that span the entire site from south to north and render the site infeasible as a wastewater treatment plant site.

Iacono

The Iacono site is within the Urban Reserve Line (URL). Habitat conflicts include riparian vegetation and ESHA along a designated Coastal Stream; habitat for endangered species; and native oak and chaparral stands. The site also includes sensitive archaeological sites.

Morosin/FEA

The Morosin/FEA site is on a slope that is highly visible from residences and community uses in the proximity. This site has a potential for landslides and liquefaction, is located along the Los Osos fault line, and has only 10 to 11 acres of buildable area outside of the power line easement.

Gorby

The Gorby site includes prime agricultural lands and has active developed agricultural uses. This irregularly shaped site is located along the Los Osos fault line, so special design features and mitigations would be required. Since the site is within the 100-year floodplain, it is subject to flooding and stream bank erosion. Site facilities would have to be elevated or otherwise protected from potential flooding because there are currently limited to no buffers to surface water flooding. Viewshed impacts will occur since the Gorby site is adjacent to and highly visible from nearby residences. Finally, the Gorby site is adjacent to endangered species aquatic habitat and includes potential archaeological sites.

Level A Sites

Four sites or combinations of sites have been designated Level A wastewater treatment plant sites as follows:

Giacomazzi, Cemetery and Branin

The first three Level A sites are Cemetery, Giacomazzi, and Branin. Combined into a single site (Proposed Project #1), these sites have sufficient buildable area to support the wastewater treatment plant. Giacomazzi has enough buildable land to be considered individually (Proposed Project #2), but Cemetery and Branin have enough land uses and habitat conflicts that sufficient buildable area is not available to develop them individually as wastewater treatment plant sites. For this reason, Proposed Project #3 is Giacomazzi and Branin combined.

If the County selects a treatment process like an Oxidation Ditch or Biolac™ that requires less land area, the Giacomazzi site is sufficiently large to accommodate the treatment plant, appurtenances and biosolids processing facilities. The effluent storage pond would have to be located on the proposed sprayfield site. By adding additional land from either the Cemetery and/or Branin parcels, the combined site would be large enough to accommodate the storage pond and a treatment process like facultative ponds that requires more land area.

The Giacomazzi, Branin and northern half of the Cemetery site are out of town to the east and somewhat north of Los Osos Valley Road, which provides a buffer zone from most sensitive land uses. The agricultural lands onsite are Class III rather than Prime agriculture, and none of the parcels has a Williamson Act Contract. The terrain on all three sites is generally level with slopes less than 10 percent. Some ESHA land is located along two Coastal Streams that cross Giacomazzi and Branin, and the northern edge of Branin is a wetland; however, sufficient land is available so that the wastewater treatment facilities can avoid these sensitive habitat areas. Mitigation monitoring will be required to protect the archaeological and historical resources located on the Giacomazzi and Cemetery site.

Tonini

Tonini has different advantages from the three other Level A sites described above. Tonini has limited visibility from Los Osos Valley Road and is the site farthest east from town. Having a significant buffer zone between the treatment plant and sensitive land uses such as residences will limit visual, noise, and odor conflicts. Since the County will need to acquire the Tonini parcel for the sprayfields, constructing the wastewater treatment plant on the same site will minimize impacts to other Los Osos Community activities. There is ample acreage on-this large site to consolidate multiple project uses (e.g., treatment, storage, and sprayfields). Some of the site is prime agricultural land, and the entire site is under a Williamson Act Contract. The known archaeological sites are outside the buildable area. According to the Local Coastal Plan, a buffer zone is required along the designated Coastal Streams that cross the site. However, the site is large enough so that the Proposed Project facility locations can avoid potential habitat conflicts or the impacts can be mitigated as necessary.

Level B Sites

The sites designated Level B are summarized below.

Mid-town

The Mid-town site is centrally located in Los Osos within the Urban Reserve Line and close to land uses sensitive to the potential noise, odors and visual impacts associated with a wastewater treatment plant. The entire Mid-town site is a designated ESHA. In 2001, the LOCSD selected Mid-town as its preferred wastewater treatment plant site and the California Coastal Commission approved the project. Construction grading began in 2005 and stopped less than a year later, but the grading disturbed the Morro Shoulderband Snail habitat. Habitat recovery is slowly occurring. Because the buildable acreage is limited to approximately 11 acres, the site will only accommodate a higher cost MBR plant that requires limited acreage. Advantages that move the site to the Level B designation include shorter pipelines and lower energy requirements to pump the raw wastewater to the treatment plant, and considerable prior disturbance. Only the treated effluent pipeline to the Tonini sprayfields would cross Los Osos Creek, and not the raw wastewater conveyance pipeline to the treatment plant.

Turri Road

Turri Road was identified by the County in 1987 as the preferred project treatment site. It is located away from residences and other sensitive community land uses, and is easily accessed from County roadways. Multiple issues prevent this site from being designated a Level A site: adjacent wetlands, flooding potential, challenging terrain for pipeline routes, somewhat limited buildable acreage (approximately 20 acres), prime agricultural soils, archaeological resources, and the existing Williamson Act contract lands. The higher southern portion of the site is a closed landfill that could create conflicts leading to groundwater contamination issues

Andre 2/Robbins 1 and 2

These sites are very similar to Cemetery, Branin, and Giacomazzi since they are classified as Class III agriculture and located slightly farther east from the Wastewater Service Area. The primary difference, and the reason that they have been designated a Level B alternative, is that these sites are on highly visible sloping land that is in proximity to residences and Los Osos Valley Road. There are also established structures on these sites that would need to be removed. Together the three sites have a large buildable area even though there are wetlands on the north end of the sites that should be avoided.

More detailed comparisons of the potential wastewater treatment plant sites are provided in Appendix P-2, Project Systems Components (Kennedy/Jenks Consultants, 2008) and in the Fine Screening Report (Carollo Engineers 2007a).

Proposed Project #1 includes the combined Giacomazzi/Cemetery/Branin site. Proposed Project #2 assembles the wastewater treatment facilities on the Giacomazzi site alone. Giacomazzi and Branin are combined for Project #3. Proposed Projects # 4 consolidates the wastewater treatment facility, effluent storage and the sprayfields for disposal on the single Tonini parcel.

Table 7-6: Screening of Wastewater Treatment Plant Site Alternatives

Baseline Criteria	Giacomazzi/ Cemetery/ Branin	Giacomazzi	Giacomazzi/ Branin	Tonini	Mid-town	Turri Road	Andre 2/ Robbins 1 and 2	Andre 1	Gorby	Iacono	Morosin/FEA
Level Designation	**Level A**	**Level A**	**Level A**	**Level A**	**Level B**	**Level B**	**Level B**	**Level C**	**Level C**	**Level C**	**Level C**
Groundwater Quality & RWQCB Waste Discharge Requirements						• Subject to flooding. • Higher portion of site is closed landfill with groundwater contamination potential.			• Subject to flooding and stream bank erosion (site is within 100-year floodplain).		
Water Resources	• Stream crossing to reach site.	• Stream crossing to reach site.	• Stream crossing to reach site.	• Two stream crossings to reach site.	• Stream crossing to reach sprayfield site.	• Stream crossing near site.	• Stream crossing onsite.	• Stream crossing to reach site	• Limited or no buffer to surface water.	• Stream crossing to reach effluent disposal sites.	• Stream crossing to reach site
Energy/Air Quality	• .Comparable to Giacomazzi.	• Requires energy to pump raw wastewater for treatment and effluent for disposal.	• Comparable to Giacomazzi.	• Location further from town requires more energy to pump raw wastewater for treatment. Effluent disposal is comparable to Giacomazzi.	• In-town location minimizes energy to pump raw wastewater for treatment and effluent for disposal.	• Location further from town requires more energy to pump raw wastewater for treatment and effluent for disposal.	• Location slightly further from town requires slightly more energy than Giacomazzi to pump raw wastewater for treatment and effluent for disposal.				
Costs	.		.	• All wastewater treatment facilities, storage and sprayfields consolidated on a single site.	• Limited 11 acre site requires more expensive MBR system that requires less space.	• Somewhat limited 20 acre buildable area somewhat limits choice of treatment technology.			• Located along Los Osos fault line. • Irregularly shaped.		• Site has a potential for landslides and liquefaction. • Located along Los Osos fault line. • Has only 10 to 11 acres of buildable area outside of power line easement.
Permitability	• Out of town location reduces land use conflicts. • ESHA area along Coastal Stream must be avoided or mitigated. • Mitigation and monitoring required for archaeological and historical resources. • Potential land use conflict with Cemetery on southern parcel. • Wetlands near northern property boundary. • Class III agricultural land	• Out of town location reduces land use conflicts. • ESHA area along Coastal Stream must be avoided or mitigated. • Mitigation and monitoring required for archaeological and historical resources. • Class III agricultural land	• Out of town location reduces land use conflicts. • ESHA area along Coastal Stream must be avoided or mitigated. • Mitigation and monitoring required for archaeological and historical resources. • Class III agricultural land • Wetlands near northern property boundary.	• Farther distance from town limits conflicts with visibility, land uses, noise, odors and aesthetics. • Includes prime agricultural land under Williamson Act. • Buffer zones required along Coastal Streams.	• Within the Urban Reserve Line (URL). • In-town location increases land use conflicts. • ESHA onsite although highly disturbed habitat from prior construction. • Site previously permitted by California Coastal Commission.	• Includes prime agricultural land under Williamson Act. • Potential archaeological site. • Poorly drained soil and wetlands present across most of middle portion of site. • Farther distance from town limits conflicts with visibility, land uses, noise, odors and aesthetics.	• Includes wetlands onsite. • Site is on highly visible sloping land and is in proximity to and highly visible from residences and Los Osos Valley Road. • Class III agricultural land	• Power line easement along length of site renders site unfeasible for wastewater treatment facility.	• Includes prime agricultural lands and active agricultural uses. • Includes potential archaeological sites. • Adjacent to and highly visible from residences • Adjacent to endangered species aquatic habitat.	• Within the Urban Reserve Line (URL). • Contains ESHA. • Includes endangered species habitat. • Contains native oak and chaparral stands. • Includes sensitive archaeological sites.	• Site is on highly visible sloping land and is in proximity to and highly visible from residences and community uses.
Sources: Appendix P-2: Kennedy/Jenks Consultants, Systems Component Evaluation, October 2008., Carollo Engineers 2008b, Carollo Engineers 2007a, Carollo Engineers 2007b.											

This page intentionally blank.

7.3.5 - Wastewater Treatment Process

General Approach to Wastewater Treatment

The County considered four basic approaches to the LOWWP:

- Onsite treatment
- Regional treatment
- Decentralized treatment
- Centralized treatment

The Technical Advisory Committee reviewed technical memoranda on these alternatives prepared by the Project consulting engineer. The Draft EIR team also considered these alternatives in the Project alternatives screening process and summarized their evaluation in separate Technical Memoranda, as listed for each alternative.

The results of the evaluations indicated that three of these alternative approaches did not meet the project objectives. Those alternatives were designated Level C alternatives and dropped from further consideration. The fourth alternative, centralized treatment, is the basis of the overall LOWWP treatment program. The sections below summarize the review process for each alternative:

Onsite Treatment

Onsite treatment would involve constructing treatment facilities at each property location with inhabitable improvements. Several options for onsite treatment systems have been identified, including proprietary systems that have not been recognized by the RWQCB. Implementing onsite treatment would lead to extensive disruption throughout the project area greater than the disruption from installing STEP/STEG tanks, especially because many residences are located in sensitive habitat areas. In addition, the life cycle costs for construction and maintenance of onsite systems are higher than the costs for a centralized treatment plant. Individual WDRs and monitoring would be required for each treatment system, whether they were owned and operated by private individuals or by the County. As a result, onsite treatment was designated a Level C alternative and dropped from consideration as a non-viable option. Additional detailed evaluation of this alternative is provided in Appendix P-3 (Kennedy/Jenks Consultants 2008) and in the Onsite Treatment Technical Memorandum (Carollo Engineers 2008f)

Regional Treatment

Regional treatment would involve collecting wastewater from the communities in Los Osos, Morro Bay and/or the California Men’s Colony (CMC) vicinity and treating the combined flow at one of three optional sites for a regional treatment plant. Possible alternatives for a regional wastewater treatment plant include constructing treatment capacity at the existing Morro Bay treatment plant or the existing CMC treatment plant, or constructing a new treatment facility in the Chorro Valley. Exhibit 3-1 provides a regional view of these potential regional treatment plant sites. In addition, large diameter pipes called sewer interceptors would be constructed to convey raw wastewater to the regional facility.

Morro Bay is currently in the middle of designing a planned upgrade to its wastewater treatment plant in accordance with a tight time schedule dictated by the RWQCB. Taking time to revise the Morro Bay plant design to include capacity for Los Osos at the small existing treatment plant site would require doubling the planned capacity and changing the selected treatment process to fit all the required facilities on the site. Furthermore, adding capacity to the Morro Bay plant could require enlarging the ocean outfall capacity; this would be extremely expensive and difficult to permit. These delays would put Morro Bay at risk for not meeting the RWQCB deadline. Constructing a long raw wastewater interceptor pipeline from Los Osos to Morro Bay would increase project costs, greenhouse gas emissions and the risk of a sewage spill. Because of numerous land use conflicts, the interceptor pipeline would require a lengthy permitting process. In a letter dated January 8, 2008, Morro Bay clearly indicated that they were not interested in pursuing a regional plant. Construction of the treatment facility and associated interceptor piping would lead to extensive disruption throughout the project area, especially in sensitive habitat areas. A final consideration is that by sending the wastewater to Morro Bay, groundwater recharge would only be possible by constructing a long and expensive pipeline to return the treated effluent to Los Osos. Without this return flow for groundwater recharge, seawater intrusion could increase significantly.

The California Men’s Colony (CMC) Treatment Facility would also have to double its capacity to accommodate the Los Osos wastewater flows. There is more room to construct additional facilities at the CMC site, but because of constraints in their existing treatment process, modifications to the process design would probably be required to reliably meet WDR requirements. As with the Morro Bay plant, a long and expensive raw wastewater interceptor pipeline would have to be permitted and constructed. The treated effluent would not be returned to Los Osos unless a similarly expensive conveyance pipeline were permitted, constructed and operated to bring the treated effluent back to Los Osos for groundwater recharge.

A new Chorro Valley Regional Wastewater Treatment Plant would be significantly more expensive for Los Osos residents than a new facility for Los Osos only. Morro Bay has not yet committed construction funding to their project, but switching to a Chorro Valley project could delay compliance with the RWQCB deadline. The CMC prison facility has recently upgraded their own treatment plant; therefore, unless Los Osos subsidizes the CMC, the prison facility would have to pay twice in order to pay for their share of a new plant. In addition, Los Osos would have to pay for permitting, constructing and operating the long and expensive raw wastewater interceptor from Los Osos to Chorro Valley. The treated effluent would have to be pumped back to Chorro Creek or to Los Osos Valley in a long treated effluent pipeline.

For all these reasons, regional treatment has been designated a Level C alternative and dropped from consideration as a non-viable option. Additional detailed evaluation of this alternative, including an assessment of how well regional treatment meets the project criteria, is provided in Appendix P-5 (Kennedy/Jenks Consultants 2008) and in the Regional Treatment Technical Memorandum (Carollo Engineers 2008j).

Decentralized Treatment

Decentralized treatment would involve collecting wastewater and treating the combined flow at between 2 and 30 neighborhood-level "cluster" treatment plants. Effluent disposal would occur through neighborhood leachfields and/or agricultural/urban reuse. Tertiary treatment would be required if the effluent is recycled for urban and/or agricultural purposes. It is unknown how difficult it would be to acquire vacant lots for the decentralized treatment facilities or to secure the necessary permits for each treatment facility and site. Individual WDRs and monitoring would be required for each treatment and disposal system. Since there are no existing decentralized treatment systems in California in a community similar in size to Los Osos, regulatory approval by the RWQCB for the proposed recirculating media filters (RMF) and Nitrex™ system is a critical concern that would need to be resolved.

Because the wastewater will not be pumped to a distant treatment plant, the raw wastewater conveyance system capital construction costs and energy requirements would be reduced. However, these savings would be offset by higher costs to construct the treatment facilities and effluent distribution systems, especially for the residential reuse scenarios. The additional staff time required for maintaining the decentralized system would also increase life cycle costs over a centralized system. For all these reasons, decentralized cluster-based treatment has been designated a Level C alternative and will dropped from further consideration. Additional detailed evaluation of this alternative is provided in Appendix P-6 (Kennedy/Jenks Consultants 2008) and in the Decentralized Treatment Technical Memorandum (Carollo Engineers 2008a).

Centralized Treatment

Centralized treatment consists of collecting and transporting all the raw wastewater to a single treatment facility. This approach will consolidate many of the construction and operations phase impacts to a single site that can be somewhat distant from the Los Osos developed area. Effective, proven, and reliable treatment technologies such as facultative ponds, oxidation ditches and membrane bioreactors can be cost effective at this scale and provide easier monitoring and control of the effluent quality. There is also an economy of scale to construct and operate centralized treatment facilities, including reduced staffing. In addition, staff can more easily maintain safeguards to reduce the risk of treatment system failures. Partially offsetting the savings for the single treatment facility are the added capital and operating costs and energy requirements to transport the raw wastewater to the treatment facility.

Project design and permitting can be streamlined because there will be a single WDR permit from the RWQCB rather than separate WDR permits for each treatment facility that is part of a decentralized treatment system. From an environmental standpoint, the project impacts are consolidated on a single site rather than dispersed throughout the community. Potential environmental concerns include odors, noise, and aesthetics. For these technical, institutional, environmental and financial reasons, the project team selected centralized treatment as the preferred approach. The next section summarizes the range of centralized wastewater treatment processes considered for the LOWWP.

Level of Treatment

The primary goal of a wastewater treatment facility is to remove components (pollutants) that have accumulated in domestic water as a result of human or commercial/industrial use and processes. Treated water must satisfy certain minimum standards established by the federal and State governments before it may be discharged back into the environment or used for some other purpose. The most commonly used treatment systems in the United States involve primary, secondary and tertiary treatment schemes.

Preliminary and Primary Treatment

Preliminary and primary treatment involve grit removal screening, grinding, sedimentation, flocculation and skimming. Chemicals are sometimes added to speed up the sedimentation process. Flocculation is the agitation of wastewater by mechanical stirring, air injection, or chemicals to cause small suspended solids to collide and form larger particles (flocs) that can settle out more rapidly. Primary treatment removes about 60 percent of the solid materials in wastewater and about one-third of the oxygen-demanding wastes. (Crawford, Multari & Clark Associates, 2001).

Secondary Treatment

Secondary treatment involves the use of biological methods, primarily attached growth (e.g., trickling filters) or suspended growth (e.g., activated sludge), which approximate natural degradation processes. Secondary treatment plants sometimes include chlorination to accomplish chemical oxidation and disinfection. In the slightly more common activated sludge process, sewage, aerated with oxygen to increase bacteria degradation, passes through a sedimentation tank where the sludge, rich in growing organisms, settles out. Part of the sludge is used to continuously seed the fresh raw wastewater; the remainder is removed and may be dewatered and disposed of in a landfill. An activated sludge process is classified as extended aeration if the treatment plant provides a lengthy solids contact time and lengthy hydraulic contact time for the organic degradation process to occur. Primary plus secondary treatment, depending on factors such as oxygen supplied, detention time, and the type of biological organisms developed, still leaves 3 to 15 percent of the oxygen demanding wastes, and 3 to 10 percent of the suspended solids. Without a focused operation for nitrification or denitrification, the effluent will contain at least 50 percent of the nitrogen (mostly nitrates), 70 percent of the phosphorus, 95 percent of the dissolved salts and heavy metals, and any persistent organic materials such a pesticides. These values are highly dependent on many factors such as temperature and air supply. (Crawford, Multari & Clark Associates, 2001 and Bob Owens, Kennedy/Jenks Consultants, 2008).

In order to comply with the Waste Discharge Requirements issued by the RWQCB, the County will need to provide secondary level treatment and also provide additional nitrification and denitrification to remove excess nitrates. Nitrates are one of the primary pollutants of concern in the Los Osos groundwater basins. By fully nitrifying and denitrifying to reduce the maximum concentration of total inorganic nitrogen to less than the RWQCB mandated maximums of 7 mg/l monthly average and 10 mg/l daily maximum, the air-based oxygen demand, the solids retention time, and the hydraulic detention time must be longer than typically required for a conventional activated sludge system. One advantage of meeting these operating levels is that sludge settling will improve compared to conventional activated sludge treatment plants meeting less stringent operating parameters. A treatment plant that produces a fully nitrified and largely denitrified sludge will also produce an effluent that is also has low concentrations of nitrogen, BOD, and TSS, as well as low turbidity and a low sludge volume index (SVI). Should the LOWWP operators and water purveyors decide in the future to upgrade the wastewater treatment plant to tertiary treatment, the existing plant would provide a good beginning point by producing a high quality effluent with a reliable treatment process. (Bob Owens, Kennedy/Jenks Consultants 2008)

Tertiary Treatment and Disinfection

Tertiary treatment refers to a series of specialized processes that reduce the concentration of one or more of the pollutants remaining after primary and secondary treatment. Disinfection refers to the inactivation or killing of pathogenic organisms. The pollutants to be removed depend on the wastewater characteristics, the area in which the treatment facility is located, and the intended use of the treated water. Some commonly used tertiary treatment methods include precipitation, adsorption, electrolysis or reverse osmosis, as well as the use of disinfectants such as ultraviolet light. (Crawford, Multari & Clark Associates, 2001).

The additional treatment required to meet tertiary treatment standards, and the associated capital and operations and maintenance cost increases, is not required for the County to satisfy RWQCB requirements. Additional treatment would be required in order to reuse the treated effluent for agricultural or urban purposes; however providing this higher level of treatment is not necessary and is not part of the Proposed Projects. Los Osos area water purveyors may want to pursue this option in the future to enhance the local water supply. Unless the selected wastewater treatment plant site is limited in size, sufficient space would be available for any facility upgrades necessary to upgrade the plant to tertiary level treatment in the future.

Wastewater Treatment Processes Considered

Partially Mixed Facultative Ponds

Partially mixed facultative ponds include proprietary designs such as Nelson Air Diffusion System (ADS) ® and Advanced Integrated Pond System (AIPS) ®. Partially mixed facultative ponds are a combined biological process that oxidizes organic oxygen-demanding material and a physical operation that allows settling of organic and inorganic solids. After flowing through the treatment plant headworks, the wastewater flows through a series of ponds where natural biochemical processes treat the wastewater. Mechanical aeration provides dissolved oxygen needed during the extended aeration process for aerobic organisms in the pond to convert and oxidize the organic material in the wastewater. It also provides the physical mixing necessary to distribute dissolved oxygen, suspend the organic material and bring the organisms into contact with the organic material. Mixing must not be so great as to prevent the settling of solids for both sedimentation and for facultative and anaerobic degradation

The long detention times allow the biosolids to settle and degrade sufficiently so that operators only need to remove the accumulated biosolids every 15 to 20 years. Partially mixed facultative ponds are land intensive because they need a larger site (about 20 acres for the LOWWP) in order to provide the long detention times. These land requirements are offset by the low energy requirements and small staffs required to operate facultative ponds. Additional processes for the LOWWP include nitrogen removal and algae management so that regular algae removal will not be required and odors will be reduced. More detailed descriptions and flow schematics of partially mixed facultative ponds are provided in Section 3.3.3 Project System Components, in Appendix B Description of Alternatives Selected for EIR Evaluation (Kennedy/Jenks Consultants 2008) and in the Fine Screening Report (Carollo Engineers 2007a).

Because partially mixed facultative ponds produce high-quality effluent with relatively low energy requirements and low maintenance requirements, this alternative has been designated a Level A alternative.

Oxidation Ditch

An oxidation ditch is an extended aeration activated sludge system that consists of a ring or oval shaped channel equipped with mechanical, brush or diffused aeration and mixing devices. Screened wastewater enters the channel and is combined with the return activated sludge (RAS). The tank configuration, aeration system, and mixing devices promote unidirectional channel flow, so that the energy used for aeration is sufficient to provide mixing in a system with a relatively long hydraulic retention time. The aeration/mixing method used creates a velocity from 0.25-0.30 meters per second in the channel, which is sufficient to keep the activated sludge in suspension. At these channel velocities, the mixture of wastewater and RAS completes a tank circulation in 5-15 minutes, and the magnitude of the channel flow is such that the circulating mixture can dilute the influent wastewater flow by a factor of 20-30. As a result, the process kinetics approach that of a complete-mix reactor, but with plug flow along the channels. The long solids retention times (SRTs) and large tank volumes provide for nitrification. As the wastewater leaves the aeration zone, the dissolved oxygen (DO) concentration decreases and denitrification may occur. Brush-type or surface-type mechanical aerators are used for mixing and aeration. Secondary sedimentation tanks are used for most applications, and in some cases intra-channel clarifiers have been used. More detailed descriptions and flow schematics of Oxidation Ditches are provided in Section 3.3.3 Project System Components, in Appendix B Description of Alternatives Selected for EIR Evaluation (Kennedy/Jenks Consultants 2008) and in the Fine Screening Report (Carollo Engineers 2007a).

Because oxidation ditches produce high-quality effluent with relatively moderate energy, maintenance and land area requirements, this alternative has been designated a Level A alternative.

Biolac™ Extended Aeration

Biolac™ is a proprietary process, similar to an oxidation ditch, which combines long solids retention times with submerged aeration in lined earthen basins. Fine bubble membrane air diffusers are attached to floating aeration chains that are moved across the basin by the air released from the diffusers. Aeration basins are typically 2.4 to 4.6 meters deep. The process can be designed for nitrification since the SRT ranges from 40 to 70 days. A variation of the standard process, known as "wave oxidation modification", allows biological nitrification and denitrification to occur simultaneously by using timers to cycle the air flowrate to each aeration chain. Either an internal or external clarifier can be used. The Biolac™ system has similar design factors, environmental impacts and operational requirements to an oxidation ditch; consequently, this Draft EIR considers these two treatment alternatives together as a single alternative in this Draft EIR. More detailed descriptions and flow schematics of Biolac™ Extended Aeration systems are provided in Section 3.3.3 Project System Components, in Appendix B, Description of Alternatives Selected for EIR Evaluation (Kennedy/Jenks Consultants 2008) and in the Fine Screening Report (Carollo Engineers 2007a).

Because Biolac™ produces high-quality effluent with relatively moderate energy, maintenance, and land area requirements, this alternative has been designated a Level A alternative.

Membrane Bio-Reactor (MBR)

MBR systems are activated sludge systems that consist of a biological reactor (bioreactor) with suspended biomass and solids separation by microfiltration membranes (with nominal pore sizes ranging from 0.1 to 0.4 um). MBR systems may be used with aerobic or anaerobic suspended growth bioreactors to separate treated wastewater from the active biomass. The concept of MBR systems consists of utilizing a bioreactor and microfiltration as one unit process for wastewater treatment and thereby replacing, and in some cases supplementing, the solids separation function of secondary clarification and effluent tertiary filtration. More detailed descriptions and flow schematics of MBR systems are provided in Appendix P-1, Alternatives Development and Descriptions Index(Kennedy/Jenks Consultants 2008), in the Fine Screening Report (Carollo Engineers 2007a), and in the 2001 LOCSD Wastewater Facilities Project FEIR (Crawford, Multari & Clark, 2001).

MBR is one of the most commonly implemented treatment process components for communities the size of Los Osos seeking high-quality effluent. MBR has a high energy demand and high capital cost for implementation. However, MBR has been included as a Level B alternative in consideration of the significant benefits offered by the small physical footprint and very high-quality of the effluent produced by MBR systems.

Extended Aeration Modified Ludzack-Ettinger (mLE)

The mLE process is one of many process forms of suspended growth (activated sludge) systems that is specifically used to remove nitrogen biologically. The process includes two stages of biological process basins: one anoxic (lacking oxygen) and one oxic (oxygen supplied by aeration). These basins are followed by secondary clarifiers which separate the secondary effluent from the solids. The solids are then subdivided into a return stream (RAS), and a biosolids waste stream (waste activated sludge, or WAS). The oxic basin supplies air to oxidize the BOD and to oxidize ammonia to nitrate. The anoxic basin reduces nitrate to elemental nitrogen gas, which is released to the atmosphere. The biology required for these conversions, ammonia to nitrate and nitrate to nitrogen gas, is different from the biology required to simply oxidize the BOD. The BOD oxidizing bacteria are relatively short-lived compared to the types of bacteria which process the ammonia nitrogen and the nitrate nitrogen. Thus, for the mLE process, the average age of the sludge micro-organisms is relatively long, so the mLE process is classified as an extended aeration process. Effluent from the mLE process is considered high quality in concentrations of BOD (less than 10 mg/l), TSS (less than 10 mg/l), turbidity (less than 5 NTU's) and total nitrogen (7 mg/l). As a process for nitrogen removal, it is cost-effective in comparison to many alternatives. (Owens, Kennedy/Jenks Consultants, 2008)

This alternative has been designated a Level B alternative because it produces an effluent quality similar to oxidation ditch and Biolac™ treatment plants, but with slightly more operational complexity and a 10 percent higher construction cost. Energy demand is lower, and O&M costs are similar to oxidation ditches and Biolac™ treatment plants.

Sequencing Batch Reactor (SBR)

The SBR is a fill-and-draw type of reactor in which all steps of the activated-sludge process occur in the same treatment basin. For municipal wastewater treatment with continuous flow, at least two basins are used so that one basin is in the fill mode while the other goes through aeration, solids settling, and effluent withdrawal. An SBR goes through a number of cycles per day (usually about 5 per day); a typical cycle may consist of 3-hours fill, 2-hours aeration, 0.5-hours settle, and 0.5-hours for withdrawal of supernatant. An idle step may also be included to provide flexibility at high flows. A mixed liquor of wastewater and bacteria suspended in activated sludge remains in the reactor during all cycles, thereby eliminating the need for separate secondary sedimentation tanks. Decanting of supernatant is accomplished by either fixed or floating decanter mechanisms. Aeration may be accomplished by jet aerators or coarse bubble diffusers with submerged mixers; separate mixing provides operating flexibility and is useful during the fill period for anoxic operation. Sludge wasting to separate biosolids from the wastewater occurs normally during the aeration period. This alternative has been designated a Level C alternative and dropped from further consideration because it produces an effluent quality similar to oxidation ditch and Biolac™ treatment plants with more operational complexity and higher operating costs. It is usually implemented to modify an existing wastewater treatment facility and only rarely implemented for new systems.

Table 7-7: Screening of Wastewater Treatment Process Alternatives

Baseline Criteria	Centralized Treatment Alternatives							Onsite Treatment[3]	Regional Treatment[6]	Decentralized Treatment[5]	Tertiary Treatment
	Partially Mixed Facultative Ponds	Biolac™	Oxidation Ditch	Membrane Bio-Reactor (MBR)	Extended Aeration mLE	Sequencing Batch Reactor (SBR)	Trickling Filter/ Solids Contact (TF/SC)				
Level Designation	**Level A**	**Level A**	**Level A**	**Level B**	**Level B**	**Level C**	**Level C**	**Level C**	**Level C**	**Level C**	**Level C**
Groundwater Quality & RWQCB Waste Discharge Requirements	• Meets RWQCB WDRs. • Provides secondary level treatment with extended aeration. • Similar effluent quality to Oxidation Ditch with more plant complexity and higher cost. • Additional treatment included for nitrification seasonally. • Aeration for algae management required. • Limited Phosphorus reduction • Carbon addition required with STEP/STEG collection system.	• Meets RWQCB WDRs. • Provides secondary treatment with extended aeration. • Similar effluent quality to Oxidation Ditch at slightly lower cost. • No additional treatment required for nitrogen removal. • Limited Phosphorus reduction	• Meets RWQCB WDRs. • Provides secondary treatment with extended aeration. • No additional treatment required for nitrogen removal. • Limited Phosphorus reduction. Could be modified for future phosphorus removal.	• Meets RWQCB WDRs. • Provides secondary treatment with extended aeration as proposed for LOWWP. • Higher quality effluent than Oxidation Ditch at much higher cost • No additional treatment required for nitrogen removal. • No Phosphorus reduction. Could be modified for future phosphorus removal.	• Meets RWQCB WDRs. • Provides secondary treatment with extended aeration. • Similar effluent quality to Oxidation Ditch at comparable overall cost. • No additional treatment required for nitrogen removal. • Limited Phosphorus reduction. Could be modified for future phosphorus removal.	• Meets RWQCB WDRs. • Provides secondary treatment with extended aeration. • Lower quality effluent than Oxidation Ditch with more plant complexity and slightly higher cost • No additional treatment required for nitrogen removal. • Limited Phosphorus reduction. Could be modified for future phosphorus removal. • Rarely implemented for new WWTPs.	• Meets RWQCB WDRs. • Provides secondary treatment without extended aeration. • Lower quality effluent than Oxidation Ditch at slightly higher capital cost • Additional treatment included for nitrogen removal is costly and required year round • No phosphorus reduction • Carbon addition required with STEP/STEG and gravity collection systems	• Some treatment processes may meet RWQCB WDRs; some not recognized by RWQCB. • Provides secondary treatment • Process control and monitoring is more difficult than single centralized plant • Extra treatment required for nitrogen reduction • Biosolids must be hauled regularly. • Vacation residences may have interrupted effectiveness. • Difficult to get full participation in source separation techniques	• Meets RWQCB WDRs. • Morro Bay/ Cayucos plant would be required to upgrade to tertiary treatment • Recently upgraded California Men's Colony Plant could be upsized, but interagency coordination would be difficult • New Chorro Valley plant is possible, but CMC and Morro Bay/Cayucos have already committed to their own WWTP upgrades.	• Meets RWQCB WDRs. • Provides secondary treatment • Process control and monitoring is more difficult than single centralized plant • Extra treatment required for nitrogen removal even if effluent is used for irrigation.	• Meets RWQCB WDRs. • Meets higher level treatment standards required for urban and agricultural reuse at significantly higher capital and operating costs.
Water Resources	• Secondary effluent restricts effluent disposal options. • Some effluent disposal alternatives can reduce seawater intrusion	• Secondary effluent restricts effluent disposal options. • Some effluent disposal alternatives can reduce seawater intrusion	• Secondary effluent restricts effluent disposal options. • Some effluent disposal alternatives can reduce seawater intrusion	• Secondary effluent restricts effluent disposal options. • Some effluent disposal alternatives can reduce seawater intrusion	• Secondary effluent restricts effluent disposal options. • Some effluent disposal alternatives can reduce seawater intrusion	• Secondary effluent restricts effluent disposal options. • Some effluent disposal alternatives can reduce seawater intrusion	• Secondary effluent restricts effluent disposal options. • Some effluent disposal alternatives can reduce seawater intrusion	• Individual treatment units discharge groundwater in current dispersed pattern. • Additional pumps, piping and effluent disposal systems required to reduce seawater intrusion impact	• Local seawater intrusion reduction difficult without long effluent return pipeline.	• Treatment plants in residential areas discharge groundwater similar to current dispersed pattern. • Some effluent disposal alternatives can reduce seawater intrusion	• Urban and agricultural reuse increases local water supply.
Energy[7]/Air Quality	• Low energy demand (600,000 kWhr/year) • High odor potential for exposed ponds can be controlled with adequate aeration. • Headworks and biosolids processing facilities enclosed and have air scrubbers to control odors.	• Medium energy demand (1.1 kWhr/year) • Medium odor potential for exposed secondary treatment • Headworks and biosolids processing facilities enclosed and have air scrubbers to control odors.	• Medium energy demand (900,000 kWhr/year) • Medium odor potential for exposed secondary treatment • Headworks and biosolids processing facilities enclosed and have air scrubbers to control odors.	• High energy demand (1.3 million kWhr/year) • Low odor potential for enclosed secondary treatment • Headworks and biosolids processing facilities enclosed and have air scrubbers to control odors.	• Low energy demand (700,000 kWhr/year • Low odor potential for enclosed secondary treatment • Headworks and biosolids processing facilities enclosed and have air scrubbers to control odors.	• Medium energy demand (1.1 million kWhr/year) • Low odor potential for enclosed secondary treatment • Headworks and biosolids processing facilities enclosed and have air scrubbers to control odors.	• Medium energy demand (700,000 kWhr/year plus energy for nitrogen removal.) • High odor potential for exposed secondary treatment • Headworks and biosolids processing facilities enclosed and have air scrubbers to control odors.	• Energy demand varies with treatment process selected. • High odor potential close to sensitive receptors.	• Energy demand higher for tertiary treatment and raw wastewater and treated effluent pumping. • Odor potential depends on treatment process selected.	• Energy demand depends on treatment process selected. Usually high energy processes. • Backup power required for each treatment plant. • High odor potential close to sensitive receptors.	• Higher energy demand

Table 7-7 (Cont.): Screening of Wastewater Treatment Process Alternatives

Baseline Criteria	Centralized Treatment Alternatives							Onsite Treatment[3]	Regional Treatment[6]	Decentralized Treatment[5]	Tertiary Treatment
	Partially Mixed Facultative Ponds	Biolac™	Oxidation Ditch	Membrane Bio-Reactor (MBR)	Extended Aeration mLE	Sequencing Batch Reactor (SBR)	Trickling Filter/ Solids Contact (TF/SC)				
Level Designation	**Level A**	**Level A**	**Level A**	**Level B**	**Level B**	**Level C**	**Level C**	**Level C**	**Level C**	**Level C**	**Level C**
Costs	• Construction low: $18 to $21 million • O&M medium: About $800,000/year.	• Construction low: $17 million (lined earthen basins) • O&M low: About $700,000/year	• Construction low: $20 million (concrete basins) • O&M low: About $700,000/year	• Construction high: $55 million • O&M medium: About $740,000/year	• Construction medium: $22 million • O&M low: About $700,000/year	• Construction medium: $23 million • O&M low: About $690,000/year	• Construction low: $18 to $22 million • O&M medium: $790,000 to $850,000/year	• Construction medium: $110 to $200 million for treatment facilities. This is offset by collection and conveyance system savings.[4] • O&M low: Overall slightly lower O&M costs	• LOWWP share of regional plant 50% to 200% higher than for local treatment plant • CMC has already committed funds to pay for their own recent WWTP upgrade. • Large sewage interceptors would increase cost.	• Construction costs savings for collection and effluent distribution offset by higher unit costs for treatment plant construction • O&M low: Cost and staffing requirements can be slightly lower if simpler treatment processes are selected.	• Significantly higher capital and operating costs than secondary treatment.
Permitability	• About 20 acre site • Enclose headworks for noise reduction	• 8 to 10 acre site • Enclose headworks for noise reduction	• About 8 acre site • Enclose headworks for noise reduction	• About 4 acre site. • Enclose headworks for noise reduction	• About 6 acre site • Enclose headworks for noise reduction	• About 6 acre site • Enclose headworks for noise reduction	• About 6 acre site • Enclose headworks for noise reduction	• 4,769 sites to permit and monitor • More ESHA conflicts • Construction traffic and noise impacts to all properties • Regular maintenance traffic and noise impacts to all properties	• Could delay Morro Bay compliance schedule with RWQCB. • Difficult to permit large raw wastewater interceptor and possible ocean discharge pipeline expansion.	• More sites (2 to 30) to permit and monitor • More ESHA conflicts • Construction traffic and noise impacts for each treatment plant • Regular maintenance traffic and noise impacts for each treatment plant • Aesthetic concerns for multiple in town treatment plants.	• Slight size increase required for treatment site.

Notes:
1. Costs assume additional Nitrification/Denitrification facilities if required. Capital and O&M costs in April 2007 dollars are for treatment only and do not include design, construction management and legal/administrative costs. Based on Carollo Engineers 2007a, Fine Screening Report except as noted.
2. Required site acres based on Carollo Engineers 2007a, Fine Screening Report.
3. Onsite treatment assessment based on Carollo Engineers 2008f, Technical Memorandum: Onsite Treatment and Appendix P-3, Kennedy/Jenks Consultants, Onsite Based Alternatives Appendix, June 2008.
4. Onsite treatment cost is for entire project, not just treatment process components. Unit cost for each onsite treatment plant is $24,000 to $43,000. Includes effluent disposal in onsite leachfields but not larger effluent disposal options like Broderson leachfield or golf course reuse. Total project cost would be comparable to a centralized treatment plant. (Carollo Engineers 2008f).
5. Decentralized treatment assessment based on Carollo Engineers 2008a, Technical Memorandum: Decentralized Treatment, Carollo Engineers 2007a, Fine Screening Report; and Appendix P-6: Decentralized Treatment Evaluation, Kennedy/Jenks Consultants, 2008.
6. Regional treatment assessment based on Appendix P-5, Regional Wastewater Treatment Appendix, Kennedy/Jenks Consultants, 2008.
7. Energy demand based on Fine Screening Report, Carollo Engineers 2007a. Estimate does not include tertiary treatment, solids treatment, collection system or reuse/disposal. Estimated energy demand will also increase to accommodate adding septage from the 4769 STEP/STEG tanks plus 749 remaining septic tanks for Proposed Project 1 or the 749 remaining septic tanks for proposed projects 2, 3 and 4.

Sources: Appendix K: Air Quality; Appendix P-1: Alternatives Development and Descriptions Index, Kennedy/Jenks Consultants, 2008; Appendix P, Alternatives Information; Carollo Engineers 2008a; Carollo Engineers 2008b; Carollo Engineers 2008f,; Carollo Engineers 2008h; Carollo Engineers 2008j; Carollo Engineers 2007a; Carollo Engineers 2007b.

Trickling Filter/Solids Contact (TF/SC)

The Trickling Filter/Solids Contact (TF/SC) system utilizes a trickling filter (with either rock or plastic media), an aerated sludge contact tank, and a final clarifier designed for a separate flocculation zone and a sedimentation zone. The trickling filter effluent is fed directly to the activated sludge process with a low hydraulic detention time, typically less than an hour, without clarification. The return activated sludge from the secondary clarifier is fed to the activated sludge aeration basin. There is a return-sludge aeration tank and flocculating center-feed well for the clarifier. A relatively low organic load for the trickling filter is used for the TF/SC process, and the purpose of the aeration tank is to remove remaining soluble biological oxygen demand (BOD) and to develop an activated-sludge flocculent mass that incorporates dispersed solids from trickling filter sloughing. This alternative has been designated a Level C alternative and dropped from further consideration because it has high odor potential and requires continuous rather than seasonal nitrogen removal. Compared to suspended growth (e.g., activated sludge) systems, trickling filters produce a secondary effluent with slightly higher turbidity. (Appendix P-1: Alternatives Development and Descriptions Index, Kennedy/Jenks Consultants, 2008)

Comparison of the Wastewater Treatment Process Alternatives

Table 7-6 below provides a summary comparison of the wastewater treatment process alternatives against the project selection criteria. Table entries address the project selection criteria, including key technical, financial and environmental issues. Based on these criteria, the project team selected partially mixed facultative ponds and the similar oxidation ditch and Biolac™ as the treatment processes that best meet the project objectives overall. These treatment alternatives combine meeting the RWQCB effluent quality requirements with providing secondary benefits to local water resources, lower costs, sustainability and reasonable permitability. More detail on the various wastewater treatment processes is provided earlier in this section; in Section 3, the Proposed Project Descriptions; the Fine Screening Report (Carollo Engineers 2007a); the Rough Screening Report (Carollo Engineers 2007b); Appendix B on the Proposed Project Descriptions; and Appendices P-1 through P-5 on specific project technical issues.

7.3.6 - Biosolids Processing and Disposal

All of the biosolids produced by the LOWWP wastewater treatment plant must be processed and disposed of in some manner. Several different disposal options are possible, depending on what class of biosolids is produced at the LOWWP. This section describes the criteria for classifying biosolids and the two basic disposal alternatives: recycling the biosolids and hauling them to a landfill.

Biosolids Classes Criteria

The LOWWP project will produce one of three classes of biosolids based on what type of processing the biosolids receive. Each biosolids class requires different minimum levels of processing in order to protect public safety and prevent possible human contact with any pathogens that might be present.

Higher classes of biosolids have more disposal options. The criteria for each biosolids class is described below.

Class A

US Code of Federal Regulations Title 40, Part 503, (40 CFR Part 503), Subpart D identifies different levels of pathogen concentrations in treated biosolids for “superior” quality Class A and “good" quality Class B biosolids. Biosolids with levels of pathogens (i.e., Salmonella sp. bacteria, enteric viruses, and viable helminth ova) below detectable levels and reduced levels of degradable compounds that attract vectors are referred to as “Class A”. Class A biosolids may be produced through digestion, composting, and/or drying. With treatment to reduce metals concentrations so requirements for land disposal are satisfied, Class A “biosolids are considered a product that is virtually unregulated for use, whether used in bulk, or sold or given away in bags or other containers.” (USEPA, 1994).

Class B

Biosolids are identified in 40 CFR Part 503, Subpart D, as “Class B” if pathogens are detectable but at levels that do not pose a threat to public health and the environment provided measures are taken to prevent exposure to the biosolids after disposal. (USEPA, 1994). Lower levels of treatment are required than for Class A biosolids.

Sub-Class B

Sub-Class B biosolids start as waste sludge taken directly from the final liquid treatment process (e.g., secondary clarifier). The waste sludge is dewatered, but not subjected to further stabilization. There is no digestion or composting of the biosolids. (Appendix P-2, Systems Component Appendix, Kennedy/Jenks Consultants, 2008).

Recycling Alternatives

Recycling or reuse of Class A biosolids provides an opportunity to reduce hauling costs and the associated carbon footprint associated with hauling biosolids for land application or disposal. Biosolids can be bulk distributed for land application or can be bagged for distribution to the local community if the biosolids meet Class A Exceptional Quality standards. (Carollo Engineers 2008l)

Recycling of Digested and Composted Class A Biosolids

Conventional mesophilic anaerobic digestion typically produces biosolids with Class B pathogen levels. Successful digestion requires construction of additional digestion facilities and hiring trained staff to operate and maintain a well-regulated process, which involves consistent and careful attention to operational parameters. Subsequent treatment, such as composting or drying, is required to reduce pathogen levels in the digested biosolids to Class A levels. Composting requires more staff time and tighter process control than other biosolids management processes. Combined biosolids digestion and composting or drying is economically attractive for facilities with dry weather flows greater than

5 MGD but not for a smaller 1.2 MGD treatment plant like the one planned for Los Osos. For these reasons, this alternative has been designated a Level C alternative (Appendix P, Alternatives Information).

Recycling of Composted Class A Biosolids

Composting is a recognized method for onsite production of Class A biosolids. In the absence of a digestion process, sludge to be composted must be dewatered through mechanical means or through drying; mechanical systems, such as belt filter presses or screw presses, are typically used because they require less land area than a pond-based or bed-based drying system. Composting involves four main steps:

1. **Pre-processing**: Conditioning dewatered solids with wood chips or similar materials.

2. **Composting:** Use of vessels or windrows to promote the degradation of organic residues and neutralization of pathogens. This process step involves high heat, up to 160^{o}F; much of the stabilization of the biosolids occurs during this stage (Metcalf & Eddy, 2003).

3. **Curing:** Use of piles and/or windrows to allow the temperature of biosolids to decline. This process provides additional stabilization.

4. **Post-processing:** Involves removal of residual inorganics (e.g., metal and plastic refuse) and preparation for disposal or reuse, such as transfer of biosolids into bags or other containers for use in the community by municipalities and/or residents.

Composting requires more facilities, costs and staff time than other biosolids management processes. A continuous supply of bulking materials such as wood chips or green waste would be required. Managing the composting process requires tight controls and monitoring to consistently produce Class A biosolids. Other less expensive biosolids disposal options are available that meet RWQCB and EPA standards. For these reasons, this alternative has been designated a Level C alternative. (Appendix P-2, Systems Component Appendix, Kennedy/Jenks Consultants, 2008; Appendix P, Alternatives Information; and Carollo Engineers 2008l).

Hauling to Landfill Alternatives

Landfills may accept dewatered Class B biosolids as an alternative daily cover material as long as the biosolids meet the cover material performance standards. However, the biosolids cannot exceed 25 percent of the total cover material, and public contact with the biosolids must be prohibited. Biosolids may be used alone or blended with processed green waste, such as wood chips, or stabilization agents, such as lime, lime kiln dust or cement kiln dust.

Landfills may also accept Class B biosolids, mix them with municipal solid waste and co-dispose them in a sanitary landfill. Biosolids less than 50 percent solids must be discharged to a lined Class

III landfill or a Class II waste management unit in accordance with California Integrated Waste Management Board regulations.

Another hauling alternative is to send the biosolids to a processing facility that accepts sub-Class B biosolids and processes them to Class A or B quality for land application. (Carollo Engineers 2008l)

Hauling and Landfilling of Dewatered and Digested Class B Biosolids

Dewatering followed by anaerobic digestion is one of the most common technologies for producing Class B biosolids onsite. Dewatering is typically accomplished using mechanical dewatering equipment (e.g., belt filter presses, screw presses, or centrifuges); mechanical systems achieve solids concentrations ranging from 15% to 25%. Mechanical dewatering is occasionally supplemented or replaced by drying systems (ponds, beds, or mechanical drying systems), with the goal of reaching concentrations of at least 50% solids prior to hauling. As noted above, digestion requires constructing additional facilities and training staff to sustain a consistent and effective high level of operations and maintenance. Proper conditioning and heating of the incoming sludge is necessary to ensure effective digestion so that Class B biosolids standards can be met.

Hauling of digested Class B biosolids is one of the most common methods of offsite disposal. This approach to disposal is subject to variable fuel costs and tipping fees at the disposal site. Tipping fees are typically based on wet weight, making the effectiveness of biosolids dewatering a major focus of the treatment operation.

Dewatering and digesting biosolids requires additional facilities and additional trained staff to properly operate and maintain the sludge digesters. Because there are other less expensive methods of biosolids processing and disposal available that meet RWQCB and EPA standards, dewatering and digesting biosolids to produce Class B biosolids has been designated a Level C alternative. (Appendix P, Alternatives Information.)

Hauling and Landfilling of Dewatered, Digested and Dried Class B Biosolids

The dewatered and digested Class B biosolids described above could be further dried by solar or mechanical heat drying to produce biosolids with up to 75 percent solids. This would reduce the volume of solids significantly as well as the associated hauling and landfill disposal fees. These savings would be offset by the $2,200,000 to $3,400,000 to construct a solar drying system and additional operations and maintenance costs. Because there are other less expensive methods of biosolids processing and disposal available that meet RWQCB and EPA standards, dewatering, digesting and drying biosolids to produce Class B biosolids that is hauled to a landfill for disposal has been designated a Level C alternative.

Hauling and Landfilling of Dewatered Sub-Class B Biosolids

If biosolids are only dewatered, the process produces sub-Class B biosolids that contain pathogen concentrations greater than Class B levels. As in the case of the Class B biosolids scenarios, the

LOWWP onsite facility would include dewatering equipment consisting of mechanical or drying systems to reduce the water content of the biosolids to be hauled off for stabilization. Dewatering and hauling sub-Class B biosolids requires fewer onsite biosolids management facilities (e.g., no digestion or composting facilities), but this approach could result in increased landfill disposal fees over a Class B hauling scenario. (Appendix P, Alternatives Information.)

Hauling sub-Class B biosolids dewatered with belt filter presses or screwpresses has been identified as the Level A alternative primarily because it meets the RWQCB and EPA standards and is the least cost alternative. Pursuing other biosolids disposal alternatives would require additional capital investment and operating costs. By implementing this alternative now, the LOWWP would not invest in facilities that might be discarded in the future if the LOWWP operators pursue different biosolids options.

Hauling Dewatered Sub-Class B Biosolids for Additional Processing

Dewatered sub-Class B Biosolids, as discussed immediately above, can also be hauled to receiving facilities. Sub-Class B biosolids cannot be directly land applied and must first be processed further at an offsite receiving facility. Receiving facilities charge a premium for receiving and processing sub-Class B biosolids. Some of these facilities are implementing drying systems to process the bulk sludge deliveries. Other facilities compost or digest the sub-Class B biosolids to produce Class A or B biosolids. (Appendix P, Alternatives Information.).

Less certainty exists about the availability, cost and permit status of the receiving facilities and land application sites. For these reasons, hauling dewatered sub-Class B biosolids for additional processing has been designated a Level B alternative.

Hauling of Composted Class B Biosolids

Under a scenario involving hauling of composted biosolids, the composting process would be managed to achieve Class B pathogen concentrations. As described above under Recycling of Composted Class A Biosolids, dewatering sludge prior to composting would be necessary, and the method for dewatering would involve either mechanical or drying systems. The dewatered sludge would then be transferred to an onsite composting location to undergo pathogen and vector reduction to achieve Class B status prior to hauling.

Hauling under this scenario is subject to the same issues of variable fuel costs and tipping fees as identified for hauling of digested Class B solids. In addition, staff time required for carefully managing and monitoring Class B biosolids production via composting exceeds the time required for producing Class B by aerobic digestion. Composted Class B biosolids would have to be landfilled. Further composting treatment to bring the biosolids to a Class A status would be required before the biosolids could be recycled. Because there are other less expensive methods of biosolids processing and disposal available that meet RWQCB and EPA standards, composting biosolids to produce Class

B biosolids and hauling them to a landfill has been designated a Level C alternative. (Appendix P, Alternatives Information.)

Energy Production

If a digester is included in the LOWWP design, the biosolids digestion would produce methane gas. This methane gas could be captured and burned in an internal combustion co-generation engine that would produce heat for the digester and cogenerate between 10 and 40 kW of electricity for the treatment plant. Capital construction costs for a digester and cogeneration plant could range between $4 and $6 million. Potential visual and intermittent odor impacts from the 20 to 25 foot digesters and backup gas flare are also concerns. (Carollo Engineers 2008l). For these reasons, constructing a combined digester and cogeneration facility has been designated a Level C alternative.

Comparison of Biosolids Processing and Disposal Options

The biosolids processing and disposal option chosen for the LOWWP is dewatering the biosolids and hauling the sub-Class B biosolids to a landfill for disposal. This option satisfies the project criteria by meeting the RWQCB and EPA standards and providing affordability as the least cost option. Consequently, it is the only biosolids processing and disposal option designated Level A. By implementing this alternative now, the LOWWP will not invest in facilities that might be discarded in the future if the LOWWP operators pursue different biosolids options.

Sending the dewatered sub-Class B biosolids to an offsite biosolids receiving and processing facility was designated a Level B alternative because less certainty exists regarding the availability, cost and permit status of the receiving facilities and land application sites. Other biosolids processing and disposal options could yield higher quality Class A or B biosolids that could be recycled or landfilled with lower landfill tipping fees; however these options also require investing in additional facilities and operating costs for digesting, composting and/or further drying the biosolids. Since these additional actions and the associated capital and operating costs are not necessary to meet the project objectives, these other alternatives were designated Level C alternatives.

For the oxidation ditch or Biolac™ treatment plant in Proposed Projects 2 and 3, biosolids will be removed, dewatered and taken offsite for disposal about 200 days a year. The suspended solids in the treated wastewater are settled out in the secondary clarifier on an ongoing basis and then pumped to the permanent biosolids handling facilities. The removed solids are processed, dewatered to about 15 percent solids, and then hauled to a landfill for disposal. To control odors, the biosolids processing equipment will be enclosed within a building, and an inorganic media air scrubber will trap and scrub the interior foul air before releasing it to the outside air.

Source: AirPhoto USA, San Luis Obispo County GIS Data, and MBA GIS Data.

Michael Brandman Associates

NORTH

2,000 1,000 0 2,000
Feet

Exhibit 7-3
Effluent Disposal Options

02240002 • 10/2008 | 7-3_effluent_disposal_options.mxd

Proposed projects 1 and 4 have partially mixed facultative ponds. Over 95 percent of the biosolids that initially enter facultative ponds stay in the ponds when the effluent is discharged. The accumulation of biosolids, which include the biological growth yielded by the metabolism of soluble and suspended biological oxygen demand (BOD) particles during the wastewater treatment process, reduces a pond's active volume over time. When the pond active volume is sufficiently reduced, the biosolids must be dredged out of the ponds, processed and disposed of offsite. Portable equipment will be brought in to dredge and dewater the biosolids, a process that takes about one week. The biosolids will then be sent to a landfill for disposal. If the facultative ponds are well-operated, the biosolids will only need to be dredged from the ponds every 15 to 20 years.

7.3.7 - Effluent Disposal and Reuse Facilities

The LOWWP project will need to dispose of about 960 AFY of treated effluent initially and 1,290 AFY at buildout. This buildout effluent estimate is based on an average dry weather flow of 1,383 AFY before conservation plus 83 AFY of wet weather infiltration less 160 AFY of water conservation (1,383 + 83 – 160 = about 1,290 AFY). How the LOWWP disposes and/or reuses the treated effluent is a key issue that will determine how well the LOWWP meets the project goals and objectives. No single effluent disposal or reuse option has sufficient capacity to dispose of all the project effluent and mitigate the potential project impact on seawater intrusion. The final combination of effluent disposal options selected for the LOWWP will collectively provide sufficient disposal capacity for the effluent flows expected at project buildout. (Carollo Engineers 2007a and Carollo Engineers 2008b).

This section provides descriptions of the possible effluent disposal and reuse alternatives and summarizes why each alternative was designated a Level A, B or C alternative. Exhibit 7-3 depicts the effluent disposal and reuse option locations.

The analysis for this section was developed as part of the extensive effluent disposal and reuse alternatives analysis completed for the Rough Screening Report (Carollo Engineers 2007b), Viable Project Alternatives Fine Screening Analysis (Carollo Engineers 2007a), the Technical Memorandum: Effluent Reuse and Disposal Alternatives (Carollo Engineers 2008b), Appendix D: Groundwater Quality and Water Resource, and the LOWWP project charrette process to screen potential project alternatives.

Water Conservation Measures

Water conservation is a project component alternative that will reduce wastewater generation, effluent disposal requirements, and treatment plant capital construction and operating costs. Water conservation was first introduced as an effluent disposal alternative in 2007 during preparation of the LOWWP Viable Project Alternatives Fine Screening Analysis report (Carollo Engineers 2007a). In March 2007 the County Board of Supervisors had certified a "Level of Severity" III for the Los Osos community groundwater basin. Setting water conservation goals for the LOWWP helps address this groundwater basin concern and also improves the project’s sustainability by serving the mutual goals of reducing local water demand and the associated wastewater generation.

All four proposed projects assume that water conservation measures will be implemented to reduce water demand and the associated wastewater generation by 160 AFY. This represents about a 12 percent reduction in per capita water demand over 2006 estimated wastewater generation rates of 66 gallons per capita per day. Since the LOWWP wastewater conveyance, treatment and effluent disposal facility capacities have been based on the reduced wastewater generation rates, there will be significant savings in capital construction costs and operations and maintenance. Without implementing the water conservation measures, wastewater generation could continue at the historical rates and the LOWWP facilities would have to be enlarged to treat higher wastewater flows.

In order to reduce wastewater generation, the water conservation measures must focus on plumbing fixtures and residential and commercial water uses other than landscape irrigation, which does not generate wastewater. A 12 percent reduction in non-irrigation water uses is significant, so the Los Osos community will need to make a concerted effort to reach the water conservation goal. Three primary water conservation measures to be implemented could include:

1. Mandate that property owners, including residents, commercial establishments and schools, retrofit their buildings with all low-flow plumbing fixtures, including low-flow toilets, showerheads and faucets, prior to hooking up their buildings to the sewer.
2. Conduct a Public Education campaign to increase awareness of water conservation practices.
3. Promote High-Efficiency appliance programs that are sponsored by the gas and electric utility companies. Many of these programs cover appliances such as energy-efficient dishwashers and washers that would reduce both energy and water consumption.

The LOWWP would institute additional water conservation measures as needed to achieve the target 12 percent per capita water consumption rate reduction and the resulting wastewater generation reduction. Because of water conservation’s importance to achieving the LOWWP project goals of sustainability, affordability, and mitigating the project’s impacts on water resources, implementing water conservation measures has been designated a Level A alternative.

Seawater Intrusion Mitigation

The primary goals of the LOWWP are to construct and operate a community wastewater system in compliance with the RWQCB’s WDR Resolution 83-13. Eliminating discharges from onsite wastewater, as directed by the RWQCB, will also help accomplish the LOWWP’s second primary goal: alleviating groundwater contamination, primarily nitrates, that has occurred at least partially because of the use of septic systems throughout the community.

As explained in Section 7.2.2, one of the secondary project objectives created by the LOWWP project is the opportunity to benefit the community's water resources. Under current groundwater basin management practices, seawater intrusion is occurring at a rate of 460 AFY due to overproduction in the lower aquifer and nitrate contamination of the upper aquifer. Diverting the current septic system discharges will eliminate the groundwater contamination that is occurring; however, it could also potentially increase the rate of seawater intrusion by 90 AFY. Making strategic decisions regarding where and how to discharge the LOWWP treated effluent has the potential to offset, or possibly, reduce the rate of seawater intrusion. The 2007 report entitled Viable Project Alternatives Fine Screening Analysis (Fine Screening Report) by Carollo Engineers has a detailed evaluation of the potential levels of seawater intrusion mitigation that the LOWWP could provide. Table 7-7 below identifies the levels of seawater intrusion mitigation that might be possible with the LOWWP.

Table 7-7: LOWWP Seawater Intrusion Mitigation Levels

Level of Mitigation	Level Description
Level 0	No mitigation of seawater intrusion, (i.e., an increase in seawater intrusion)
Level 1	Seawater intrusion similar to current conditions
Level 2	Maximum mitigation of seawater intrusion without purveyor participation in project development
Level 3	Achievement of a balanced basin at present water use rates.
Level 4	Achievement of a balanced basin at buildout
Source: Carollo Engineers 2007a, San Luis Obispo County Los Osos Wastewater Project Development: Viable Project Alternatives Fine Screening Analysis, Final Report, August 2007.	

Flows from the existing individual residential septic tanks currently mitigate seawater intrusion by about 90 AFY. Diverting these effluent discharges elsewhere could increase seawater intrusion by 90 AFY to 550 AFY. At buildout, seawater intrusion is estimated to increase to 681 AFY. This would be Level 0 from Table 7-7. The minimum viable project, according to the Fine Screening Report, must at least mitigate seawater intrusion to Level 1, the current level. Level 2 mitigations could be developed by the LOWWP alone without any water purveyor participation to reduce or modify groundwater pumping. Levels 3 and 4 would require water purveyor participation to modify their current pumping practices, especially reducing pumping from the lower aquifer. These strategies are beyond the scope of the LOWWP project authority granted to the County by AB 2701. Consequently, the LOWWP seawater mitigation opportunities are limited to Level 2 mitigations.

There are two basic ways to mitigate seawater intrusion:

- Reduce water production from the lower aquifer.
- Increase recharge to the lower aquifer.

The first method, reduced water production, involves using reclaimed water in lieu of continued groundwater pumping. Reducing pumping from areas close to the coastline, (e.g., a mitigation value of 0.55 AF for every AF of water not removed from the ground on the west side of the basin), has greater mitigation value than reducing pumping from areas in the Los Osos Creek Valley (0.1 AF for every AF of water not removed from the ground.) The second method is to enhance leakage from the upper aquifer to the lower aquifer. For example, discharging effluent to the upper aquifer on the west side at the Broderson site is the discharge option that most significantly increases the upper aquifer pressure and, therefore, the lower aquifer recharge. If 448 AFY is discharged to the Broderson leachfield, the resulting seawater intrusion benefit would be 100 AFY. (Carollo Engineers 2007a).

A wide variety of effluent disposal options that would collectively dispose of the full amount of treated effluent and provide benefits at Levels 1 through 3 were evaluated in the Fine Screening Report (Carollo Engineers 2007a) and the Technical Memorandum on Effluent Reuse and Disposal Alternatives (Carollo Engineers 2008b). In accordance with the project goals and objectives and the limited authority granted by AB 2701, the project team focused on Level 2 effluent disposal alternatives that would achieve the maximum benefits to reduce seawater intrusion without water purveyor participation. As shown in Table 7-8, Level 2a assumed full agricultural reuse, which would require tertiary treatment and a 160 AF storage pond; it would provide about 238 AFY of seawater intrusion mitigation. Level 2b assumed no agricultural reuse, so only secondary treatment and a 46 AF storage pond would be required. The Level 2b seawater intrusion mitigation provided would be 187 AFY. Level 2c emphasized maximizing agricultural reuse over sprayfields by building a larger 190 AF storage pond and purchasing agricultural land that could be intensely irrigated. Tertiary treatment would be required for effluent disposed on the agricultural and cemetery reuse sites or other urban reuse sites. Level 2c would provide 238 AFY of seawater intrusion mitigation.

Table 7-8: LOWWP Effluent Disposal Alternatives

Effluent Disposal Method	Mitigation Factor	SWI Mitigation (AFY)	Proposed Effluent Disposal Combinations (AFY)		
			Level 2a	Level 2b	Level 2c
Broderson Leachfield[2]	0.22	99	448	448	448
Tonini Sprayfields	0	0	312 (65 acres)	842 (175 acres)	82 (17 acres)
Agricultural Reuse[1]	0.1	46[5]	460[4]	0	690[4]
Cemetery Reuse[1]	0.1	5	50	0	50
Plant Site Irrigation[1,6]	0	0	20	0	20
Total Effluent Disposal Capacity[3]			**1,290**	**1,290**	**1290**
Conservation Measures	0.55	88	160	160	160

Table 7-8 (Cont.): LOWWP Effluent Disposal Alternatives

Effluent Disposal Method	Mitigation Factor	SWI Mitigation (AFY)	Proposed Effluent Disposal Combinations (AFY)		
			Level 2a	Level 2b	Level 2c
Storage Required (AF)			160	46	190
Total Seawater Intrusion Mitigation (AFY)			238	187	238[5]
Treatment Required			Secondary/ Tertiary	Secondary	Secondary/ Tertiary

Notes:
1. Requires tertiary treatment. Other effluent reuse alternatives require only secondary treatment.
2. This is a conservative estimate of the maximum possible estimated effluent discharge capacity that can be sustained reliably without constructing dewatering wells downstream that could pump out groundwater, if necessary, to maintain adequate depth to the groundwater table and avoid saturated soil conditions along the bay. See Section 5.2, Appendix D and Carollo Engineers 2008b for additional detail on groundwater issues.
3. The 1,290 AFY needed effluent disposal capacity assumes that water conservation measures will be implemented to reduce water consumption and the corresponding wastewater generation by 160 AFY.
4. Level 2a assumes that the food crops will be planted. Level 2c assumes planting forage crops which can accept 50 percent more effluent than the food crops.
5. The seawater mitigation for the Level 2c agricultural reuse is the existing irrigation use that is offset. This is the same as the agricultural irrigation for Level 2a.
6. If tertiary treatment is provided for Level 2a or 2c, urban sites along the effluent pipeline could be provided with recycled water. Examples could include the Sunnyside School and the South Bay Community Center.

Sources: Carollo Engineers 2008b; Carollo Engineers 2007a.

The project team selected the effluent disposal combination Level 2b as the Level A alternative for all four proposed projects. The LOWWP project objectives, including RWQCB compliance, will be met and the capital construction cost savings by providing secondary treatment instead of tertiary treatment are significant. It would also not be necessary to develop joint programs and secure agreements with local water purveyors and agricultural interests, which could conceivably delay project completion. Each of the potential effluent disposal and reuse options that have been considered as part of the LOWWP Level 2a, 2b and 2c alternatives are discussed in greater detail below.

Leachfield

Broderson Leachfield

Leachfield disposal is the practice of discharging water through buried perforated piping systems. Effluent disposal through leachfields does not depend on weather conditions, and does not require uniform discharge rates throughout the year. For these reasons, the LOWWP operators could dispose of more effluent through the leachfield during the winter if less effluent is sent to the leachfield during the summer when agricultural reuse and/or sprayfields can be used. This asymmetrical disposal approach is possible as long as the instantaneous application rate does not exceed the leachfield design capacity and the annual total does not exceed the annual hydraulic loading capacity for the site. The leachfield design capacity and annual site hydraulic loading capacity are separate site parameters.

A site previously chosen for a leachfield is the Broderson site, south of Los Osos Valley Road, near Broderson Avenue as shown on Exhibit 7-3. About eight acres of the approximately 81-acre site will be used for effluent disposal. The estimated annual hydraulic capacity of the Broderson leachfield site is 896 AFY; however at this rate, it would be necessary to construct dewatering wells downstream that could pump out groundwater, if necessary, to maintain adequate depth to the groundwater table and avoid saturated soil conditions along the bay. For the four proposed projects, a lower rate of 448 AFY has been assumed for the Broderson leachfield as a conservative estimate of the maximum possible estimated effluent discharge capacity that can be sustained reliably without needing downstream dewatering wells.

One reason that the Broderson leachfield has been included as Level A alternative is that it has a high seawater intrusion mitigation value. Disposing of the treated effluent in a leachfield at Broderson is the most effective way to increase groundwater movement from the upper aquifer to the lower aquifer. For this reason, and because the Broderson leachfield meets the project objectives, this alternative has been designated a Level A alternative.

The Broderson site characteristics and leachfield design and operating parameters have been studied extensively in a 2004 geotechnical study (Fugro West, 2004), a 2000 hydrogeologic study (Cleath & Associates, 2000) and a 2008 groundwater study completed by Hopkins Associates, in cooperation with Cleath & Associates, that is included as Appendix D. Additional detail on the proposed leachfield is provided in Section 3.0, Project Description, Section 5.2, Groundwater Quantity and Supply; Appendix B: Draft Project Descriptions (Kennedy/Jenks Consultants 2008X) and Appendix D for additional detail on groundwater issues.

Existing Septic System Leachfields

Another leachfield alternative would be to discharge some of the treated effluent through the existing septic leachfields on each property. While this alternative would discharge the effluent in a pattern similar to existing conditions (Level 1 seawater intrusion mitigation), it cannot provide the increased Level 2 mitigation possible with some other effluent disposal options. Because a minimum 500-foot separation would have to be maintained between the leachfields and any water wells, some existing leachfields could no longer be used, and the total leachfield capacity would be less than the existing septic tank leachfield capacity. Furthermore, because the leachfields would have to be accessible for periodic inspection and maintenance, the ground surface above the leachfields would have to remain free of structures, and backyard leachfields would be eliminated since maintenance access would be difficult. Installing the effluent distribution pipeline system to transmit effluent back to the septic tank leachfields would be expensive to install and maintain and cause disruption similar to the collection system installation. This is a particular concern in the ESHAs. (Crawford, Multari & Clark, 2001.) For all these reasons, reusing the existing septic system leachfields has been designated a Level C alternative and dropped from further consideration.

Sprayfields

Sprayfield disposal is the practice of spraying effluent on land to dispose of the water through evapotranspiration and percolation. Secondary treatment with disinfection is required. The grasses grown on the sprayfields are periodically cut back and disposed of at a landfill. If the crops were grown for harvest and used as a food crop or fodder, this use would be considered reuse and tertiary treatment would be required. Sprayfields are operated to maximize evaporation and avoid runoff, so any tailwater is collected and returned to the sprayfields for reapplication. Because the sprayfields will not be used during wet weather, 46 AF of storage pond capacity will be required to store treated effluent for the sprayfields during the wet winter months. In order to prevent clogging of the sprayfield irrigation lines, effluent filters should be provided on the effluent storage pond outlet (Level A requirement), and microstrainers could be provided on the irrigation distribution line connections to the sprinkler heads (a Level B requirement). If agricultural or urban reuse effluent disposal alternatives are selected, then the acreage dedicated to sprayfields could be reduced as shown in Table 7-8.

If enough acreage is acquired, sprayfields are the only effluent disposal option that could handle the entire 1290 AFY of effluent. The Tonini sprayfield site, shown on Exhibit 7-3, has a preliminary estimated capacity of more than 1150 AFY. (Carollo Engineers 2008b). Consolidating the sprayfields on one site will provide efficiencies and minimize the LOWWP impacts on other Los Osos area agricultural operations. In addition, the LOWWP operators could control the consolidated sprayfield operations carefully to ensure that any potential impacts to nearby coastal streams and habitat areas do not occur. The disadvantage to sprayfields is that they do not provide any seawater intrusion mitigation benefits.

For these reasons, sprayfields at Tonini have been designated a Level A alternative. While it is possible to dispose of all the LOWWP effluent at the Tonini sprayfields, it is preferable that sprayfields are part of a mix of effluent disposal methods that would provide some seawater intrusion mitigation and still have sufficient capacity to handle all the LOWWP effluent.

More detail on the sprayfield design assumptions and operation is provided in Section 3, the Project Description; in Appendix B: Draft Proposed Project Descriptions; in the Technical Memorandum on Effluent Reuse and Disposal by Carollo Engineers 2008b; and the Fine Screening Report, Carollo Engineers 2007a.

Percolation Ponds

Percolation ponds are open reservoirs, also known as rapid infiltration basins, in which effluent is stored and percolated into the ground. The pond bottoms are managed to maintain percolation rates by drying, ripping, and conditioning the soils. This strategy functions best for sites with permeable soils and sufficient depth to groundwater to maintain sufficient separation between the pond bottoms at the highest historical groundwater surface elevation. Prior surveys of the percolation capacity of local soils effectively ruled out percolation ponds for areas not underlain by dune sands. Within the dune sands areas, the Broderson site is the preferred location for percolating treated wastewater based on its higher disposal capacity and strategic location to mitigate seawater intrusion. In 1987 when percolation ponds were first considered for the Los Osos project, the community expressed concerns regarding potential effluent surface flows, odors, vector propagation and, depending on the percolation pond location, the loss of valuable biological habitat. Percolation ponds and leachfields would function equivalently for effluent disposal at the Broderson site. Because of the prior community concerns, however, percolation ponds have been designated a Level B alternative to the Broderson leachfields. In the future if the community chooses to construct percolation ponds at Broderson instead of leachfields, LOWWP capital costs would be reduced about $2.5 million compared to the cost for leachfields. (Carollo Engineers 2008b)

Agricultural Reuse

Agricultural reuse consists of using treated secondary or tertiary effluent to irrigate agricultural crops. According to the California Department of Public Health Title 22, California Code of Regulations Division 4, Chapter 3, Section 60304, certain crops such as fodder and fiber crops, sod, and ornamentals, can be irrigated with secondary effluent. Providing tertiary treatment would increase the range of potential crops to include the current cropping pattern of edible row crops. Agricultural land irrigated with recycled water can be managed to maximize recycled water disposal by increasing the crop density and/or planting crops with high evapotranspiration potential, such as grasses for forage that can be irrigated year-round. Several sites that were considered for agricultural reuse are identified in Exhibit 7-3.

Some advantages of agricultural reuse are that it increases available local water supplies and it allows farmers and water purveyors to reduce groundwater pumping from present levels and, thereby, mitigates seawater intrusion. One disadvantage is that agricultural reuse is seasonal. As indicated in Table 7-8, significantly larger effluent storage ponds would be required to store effluent produced during the wet winter months and so the stored effluent is available during the dry irrigation seasons.

Agricultural reuse can be implemented only if existing farmers agree to use the recycled water for irrigation. Alternatively, the county could purchase agricultural land and negotiate contracts with tenant farmers to require use of the recycled water. When new recycled water programs have been started in other communities, it has sometimes taken up to 20 years to develop the recycled water program, educate local farmers and residents on safe recycled water practices, negotiate recycled water contracts with agricultural users and/or water purveyors, construct the recycled water distribution system, and implement the agricultural reuse program. (Carollo Engineers 2008b.) While this might be possible in the future, the LOWWP needs to have a reliable effluent disposal system when the wastewater treatment plant first begins operation. This is the responsibility assigned to the county by AB 2701. For this reason, agricultural reuse has been designated a Level B alternative. Although it is not part of the current LOWWP project, agricultural reuse could be pursued in the future by local water purveyors, especially if they are willing to participate in a treatment plant upgrade to tertiary treatment.

Urban Reuse

Urban reuse consists of using tertiary treated, disinfected effluent to irrigate lawns and ornamental plants. The Technical Memorandum on Effluent Reuse and Disposal Alternatives, (Carollo Engineers 2008b,) identifies a list of potential urban reuse sites including: the wastewater treatment plant site, the cemetery, several schools, the South Bay Community Center and a portion of the Sea Pines Golf Course. These sites are identified in Exhibit 7-3. Since there are not many large potential urban recycled water reuse sites in the Los Osos community, it is not cost effective to construct effluent distribution pipelines to all the potential sites. Some urban reuse sites could connect to the effluent conveyance pipeline from the treatment plant to the Broderson leachfield, but this would require both the urban reuse sites and the Broderson leachfield to use higher cost tertiary treated effluent. Because urban reuse is seasonal, the LOWWP would need to provide effluent storage ponds or alternative effluent disposal methods during the wet winter months. For these reasons, urban reuse has been designated a Level B alternative. It could be pursued in the future by local water purveyors, especially if they are willing to participate in a treatment plant upgrade to tertiary treatment.

Effluent Storage Pond

Some of the effluent disposal options like leachfields can be used year round regardless of whether it is raining or not. Other options, like sprayfields and agricultural reuse, cannot operate during much of the wet winter season. If seasonal storage is provided, effluent stored during the winter months can be available during the summer peak water demand periods. The minimum storage pond size would contain the effluent that could not be discharged through the effluent disposal facilities available during wet weather. Larger storage ponds will increase the effluent available for irrigation during the summer months as suggested in Table 7-8.

All four proposed projects assume a 46-acre storage pond. As explained in the Fine Screening Report (Carollo Engineers 2007a), Appendix B: Draft Proposed Project Descriptions (Kennedy/Jenks Consultants 2008), and the Technical Memorandum on Effluent Reuse and Disposal Alternatives (Carollo Engineers 2008b), the optimum seasonal storage pond size for the LOWWP with Level 2b of seawater intrusion mitigation (assumes no agricultural reuse) is 46 AF. This assumes that the sprayfields will not be used during the period from December through February each year. See the discussion under seawater intrusion earlier in this section for further explanation of the differences between Levels 1 through 4.

Designed and built in accordance with safe dam design criteria, the storage pond dams would include a maximum depth below grade of 15 feet, freeboard of 2 to 4 feet to comply with seismic codes, and limited heights above grade so that the storage ponds will probably be exempt from California Division of Safety of Dams oversight. For a 46 AF pond, the site area would be about 6 to 8 acres.

Effluent filters or screens will be provided to reduce the risk that algae clogs the effluent pipelines. (Carollo Engineers 2008b).

The pond volume will be divided between at least two ponds. This will allow one pond to operate while the other is drained for maintenance. Another consideration is whether to locate the storage ponds close to the wastewater treatment plant (Proposed Projects 1 and 3) or to the sprayfields (Proposed Projects 2 and 4). A storage pond close to the wastewater treatment plant could be available to contain diverted raw wastewater, if necessary, to avoid a sewage spill during an emergency. A storage pond near the sprayfields would provide operational efficiency to the irrigation process, but could not as easily serve as an emergency raw wastewater containment pond. The storage pond location will be determined during final project design since it will also depend on the size of selected treatment plant site.

Because a storage pond is integral to the LOWWP operation, a 46 AF pond has been designated a Level A alternative. Larger ponds would be necessary to implement agricultural and urban reuse programs; however, since those effluent reuse alternatives have been designated Level B alternatives and are not being pursued further at this time, larger storage ponds would be similarly designated a Level B alternative.

Other Effluent Disposal Alternatives

Constructed Wetlands

Effluent disposal using constructed wetlands would create habitat as well as recreational and aesthetic benefits for the community. Wetlands are considered primarily as a storage device; however, disposal through evapotranspiration could also occur. Constructed wetlands typically operate at depths of 1 to 5 feet, and areas of both vegetation and open water allow for different types of habitat. Because newly constructed wetlands habitat would have to be maintained and protected, possibly indefinitely, this alternative might preclude future options to recycle the treated effluent. For these reasons, constructed wetlands have been designated a Level C alternative for the purpose of effluent disposal. (Carollo Engineers 2008b, and Appendix P, Alternatives Information) If the LOWWP is required to construct new wetlands or enhance existing wetlands as a mitigation for the LOWWP potential habitat impacts, the treated effluent could be available for this purpose. Once committed to supporting a wetland environment, however, it would be difficult to divert the treated effluent to other recycled water uses.

Revegetation

Revegetation involves planting and irrigating vegetation with high water requirements, including willows or other types of trees. Unlike sprayfields, this alternative can be adapted to sloped areas too steep for spray irrigation or to subsurface irrigation methods. There could be substantial visual and environmental impacts that would have to be considered. (Carollo Engineers 2008b) Since sufficient effluent disposal capacity is available with the Level 2b effluent disposal mix of alternatives identified in Table 7-8, this alternative has been designated a Level C alternative and has been dropped from further consideration.

Surface Disposal

Surface disposal to Los Osos Creek or Morro Bay would be problematic for several reasons. First, Morro Bay is a National Estuary that is being managed for the long-term protection of its fragile natural resources; discharging treated effluent to this estuary would conflict with this long-term environmental protection program. Similarly, Los Osos Creek discharges directly to Morro Bay and provides habitat for several special status species including Southern Steelhead. Los Osos Creek is managed as a SRA and as wetlands under the jurisdiction of the USACE, RWQCB and CDFG. The RWQCB discharge requirements for both water bodies are extremely difficult to meet. This alternative would also eliminate any possible seawater intrusion mitigation potential since the effluent would be discharged directly to the ocean or via Los Osos Creek. For these reasons, surface disposal has been designated a Level C alternative and dropped from further consideration..

Injection Wells and Aquifer Storage and Harvesting Wells (ASR)

Injection wells involve pumping the treated effluent back into the groundwater through a series of wells. Aquifer storage and harvesting wells (ASR) is a system that combines injection wells with nearby wells that can be used to harvest the injected water at a later time. Without an extremely high level of tertiary treatment, treated effluent injection wells have a high potential for plugging with suspended solids. This necessitates frequent and costly well renovation. For these reasons and regulatory constraints, both these alternatives were considered, designated as Level C alternatives, and dropped from further consideration. (Crawford, Multari & Clark, 2001)

Combining Effluent Disposal/Reuse Alternatives

The Level 2b combination of conservation, leachfields, and sprayfields is the effluent disposal option designated at Level A for all four proposed projects (see Exhibit 7-3). Ultimately, the most significant advantage of this combination is that it provides the highest level of seawater intrusion (SWI) mitigation (approximately 187 AFY) that can be accomplished without the involvement of the water purveyors. Further refinement of the design, construction and operating parameters of the effluent disposal alternatives included in the Level 2b combination will occur during final design of the LOWWP project.

7.4 - Environmentally Superior Alternative

CEQA requires that an EIR identifies the environmentally superior alternative from among the range of alternatives considered. All four of the Proposed Projects meet the project goals and objectives. Many of the environmental impacts for the four Proposed Projects will be similar for several issues including:

- Land Use and Planning
- Drainage and Surface Water Quality
- Groundwater Resources
- Geology
- Traffic and Circulation
- Environmental Justice
- Growth Inducement

Based on the environmental analysis of Proposed Projects 1 through 4, the environmentally superior alternative is Proposed Project 4 for the following reasons:

1. **Treatment Plant Site.** The Tonini wastewater treatment plant site for Proposed Project 4 is isolated from the Los Osos community center. The site's distance from existing residences will minimize potential public health and safety issues, air emission concentration issues and noise concerns.
2. **Greenhouse Gases.** Of the four Proposed Projects, Proposed Project 4 has the lowest greenhouse gas emissions and energy demand for both the construction and operations phases.
3. **Consolidates LOWWP Facilities.** Since the sprayfields will be located at Tonini, locating the wastewater treatment plant and storage pond on the same site for Proposed Project 4 reduces the potential impacts to biological and cultural resources and prime agricultural land.
4. **Agricultural Operations.** Because Proposed Project 4 will convert only one agricultural parcel to public purposes, this alternative has the lowest loss of potential agricultural revenue to the local economy.
5. **Visual Impacts.** Because the Proposed Project 4 treatment plant facilities are located farther from Los Osos Valley Road than the plant sites for Proposed Projects 1 through 3, Proposed Project 4 will have less potential visual impacts.
6. **Storage Pond Proximity.** Since Proposed Project 4 locates the storage pond on the same site as the wastewater treatment plant and the sprayfields, the storage pond will be available to provide emergency containment for the raw wastewater.

SECTION 8: OTHER CEQA CONSIDERATIONS

8.1 - SIGNIFICANT UNAVOIDABLE ADVERSE ENVIRONMENTAL IMPACTS

Potential environmental effects of the proposed project and proposed mitigation measures are discussed in detail in Section 5 of this Draft EIR. Except for impacts to agricultural resources, the project-specific and cumulative effects evaluated in Section 5 would be reduced to less than significant after the implementation of the recommended mitigation measures.

8.2 - SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

As mandated by the CEQA Guidelines, the EIR must address any significant irreversible environmental change that would result from implementation of the proposed project. Per the CEQA Guidelines (§ 15126.2(c)), such a change would occur if one of the following scenarios is involved:

- The project would involve a large commitment of nonrenewable resources;
- Irreversible damage can result from environmental accidents associated with the project; and
- The proposed consumption of resources is not justified (e.g., the project results in the wasteful use of energy.)

The environmental effects of the proposed project are discussed in Section 5 of this Draft EIR and summarized in Section 2, Executive Summary. Implementation of the project would require the long-term commitment of natural resources and land, as discussed in the following paragraphs.

Approval and implementation of actions related to the proposed project would result in an irretrievable commitment of non-renewable resources such as energy supplies and other construction related materials. The energy resource demands would be generated by construction, energy needs by project facilities, transportation of people, lighting, and other associated energy needs.

Environmental changes with implementation of the proposed project would occur as the physical environment is altered through continued commitments of land and construction materials. There would be an irretrievable commitment of labor, capital, and materials used in construction. Nonrenewable resources would be committed primarily in the form of fossil fuels and would include fuel, oil, natural gas, and gasoline used by vehicles and equipment associated with implementation of the proposed project.

The consumption of other non-renewable or slowly renewable resources would result from the development of the proposed project. These resources would include, but not be limited to, lumber and other forest products, sand and gravel, asphalt, steel, copper, lead, and water. Because alternative energy sources such as solar, geothermal, or wind energy are not currently in widespread local use, it is unlikely that real savings in non-renewable energy supplies (e.g., oil and gas) could be realized in the immediate future.

Development of the proposed project would result in the construction of structures and facilities on land that is currently undeveloped vacant land or land currently in agriculture. Land devoted to treatment facilities would be permanently committed to supporting urban uses. Treated effluent, spray field, and leachfield areas would be permanently committed to disposal of treated effluent.

8.3 - EFFECTS FOUND NOT TO BE SIGNIFICANT

The environmental issues that were determined not to be significantly affected by the proposed project and therefore, do not require evaluation in the document, per section 15063(c) of the State CEQA Guidelines, are as follows:

- Mineral Resources
- Population and Housing (Displacement of Substantial Numbers of Existing Housing and People)
- Public Services and Utilities (Fire and Police Protection, Schools, Parks, Solid Waste, and Other Public Facilities
- Recreation

The above environmental issues were determined not to be significantly affected by the proposed project in the Notice of Preparation (NOP) for this Draft EIR (Appendix A), and in the Draft EIR for the Los Osos CSD Wastewater Facilities Project (November 2000). The NOP, 2000 EIR, and the following discussion are intended to provide adequate environmental documentation for the issues that will not be further addressed in the EIR.

Mineral Resources

The impact of the proposed project on known mineral resources is considered less than significant, based on review of maps available from California Division of Mines and Geology and the US Geological Survey, and available San Luis Obispo County information. San Luis Obispo County mapping for the Estero Planning Area shows no Extractive Areas or Energy Extractive Areas within or proximate to the project study area. Availability of sand and gravel from pits in the portion of San Luis Obispo County in which the project study area is located would not be impacted by the proposed project. Project impacts on mineral resources are less than significant.

Population and Housing

The Population and Housing CEQA threshold addressing the inducement of substantial population growth is addressed in Draft EIR Section 6, Growth Inducing Impacts. A single occupied dwelling is located on the Tonini property, designated for a spray field under all project alternatives. Because only one dwelling is affected, the project will not displace substantial numbers of existing housing or persons. Therefore, impacts associated with the displacement of persons and housing are considered less than significant.

Public Services and Utilities

The topics of wastewater, water supply/water facilities, and drainage are discussed in Draft EIR Section 5, Project and Cumulative Impacts. Demand for fire and police protection, schools, parks, and other public facilities (e.g., libraries), as well as traditional solid waste for disposal in a landfill, is tied to the number of employees associated with the LOWWP, which will be limited. Project impacts on these listed public services and utilities are considered less than significant.

Recreation

The number of employees associated with the LOWWP will be limited, and, therefore, would not result in any substantial increase in demand for recreational facilities. The proposed project does not include recreational facilities or require the construction or expansion of recreational facilities. Project impact on recreation is considered less than significant.

SECTION 9: ORGANIZATIONS AND PERSONS CONSULTED

The following is a list of persons and organizations consulted during the preparation of this Draft EIR.

9.1 - PUBLIC AGENCIES

County of San Luis Obispo

Agricultural Commissioner .... Robert Hopkins,
Air Pollution Control District .... Andrew Mutziger, Air Quality Specialist
Department of Agriculture/Weights and Measures .... Lynda Auchinachie
Mike Isensee
Department of Planning and Building .... Nancy Orton
Mike Wulken
Kami Griffen
Department of Public Works .... Paavo Ogren
John Waddell
Mark Hutchinson
Genaro Diaz
Engineering Department .... David Flynn,
Louis Gibson
Los Osos Community Services District .... Bruce S. Buel, General Manager
George Milanes, Utilities Manager
Office of Environmental Coordinator .... Ellen Rognas
Parks Department .... Jeanette Di Leo, Parks Planner

State

Central Coast Regional Water Quality Control Board .... David LaCaro
California Coastal Commission .... Dan Carl
Jonathan Bishop
California Department of Fish and Game .... Deborah Hilliard
Regional Water Quality Control Board .... Sorrel Marks, Sanitary Engineering Associate
State Water Resources Control Board .... Cookie Hirn

Federal

U.S. Fish and Wildlife Service .... Julie M. Vanderwier
Ron Popowski
Diane K. Noda, Field Supervisor

9.2 - PRIVATE AGENCIES

Carollo Engineers .... Louis Carella, P.E.
Karl W. Hadler, P.E., PMP
Sarah Deslauriers
Cleath and Associates .... Spencer Harris
Crawford Multari & Clark Associates .... Chris Clark
David Moran

Morro Group/ Steven W. Carothers Associates .... Mary Reents
Jaimie Jones
Wallace Group .... Rob Miller

9.3 - OTHER

CFS Geotechnical Consultants, Inc. .... Jonathan D. Blanchard
Environmental Legal Counsel .... Gary J. Grimm
Los Osos Wastewater Project Technical Advisory Committee .... William Garfinkel
Rob Miller
Bob Semonsen
John Brady
Russel A. Westmann
John Fouche
David Dubbink
Daniel Derman
Maria M. Kelly
Marshall E. Ochylski
George A. Call
James E. Furman
Rob R. Shipe
Karen J. Venditti

SECTION 10: REPORT PREPARATION PERSONNEL

10.1 - ENVIRONMENTAL IMPACT REPORT

Michael Brandman Associates

Principal-in-Charge. .... Michael Brandman, Ph.D.
Project Director .... C. Eugene Talmadge, MUP
Project Manager .... Michael E. Houlihan, AICP
Senior Environmental Planners .... John Baas
Pamela Cosby, P.E., AICP
William Hoose
Emilie Johnson, AICP
Environmental Planners.......... Justin Conley
Bob Prasse
Megan Keith
Margaret Lin
Shawn Nevill
Tom Mullen
Biologists.......... Kenneth J. Lord, Ph.D.
Karl Osmundson
Cultural Resources Specialist .... Kenneth J. Lord, Ph.D.
Air Quality Specialist .... Joe O'Bannon
Hazardous Material Specialist .... Al Martinez
Senior Editor.......... Sandra L. Tomlin
Editors .... Ed Livingston
Margaret Lin
Pattie Opincar
Word Processors.......... Starla Grier
Angel Penatch
Graphics and GIS Specialists .... Karlee McCracken
Michael Scotti
Mike Serrano
Reprographics.......... José Moreles
Cole Forbes
Administrative Services.......... Laura LaFlamme
Jayne Ingram

10.2 - CONSULTANTS

Ashland - Rogers Associates

Document Research.......... Linda Rogers

Hopkins Groundwater

Groundwater Quality and Water Supply .... Curtis Hopkins
Brian Cosner

Kennedy Jenks Consultants

Project Engineering.......... Bob Owens, P.E.
Mark Minkowski, P.E.
Tom Yeager, P.E.
Kapil Verma
Regan Schutte

Fugro West

Geotechnical Evaluations.......... Jon Blanchard
Gresham Eckrich

Vista Environmental

Noise Assessment .... Greg Tonkovich

Far Western

Cultural Research Specialist. .... Pat J. Mikkelsen, M.A., RPA
Debbie Jones, M.A.

Associated Transportation Engineers

Traffic Study .... Scott A. Schell, AICP
Dan Dawson
Matthew Farrington
Joshua Kohlhass

SECTION 11: REFERENCES

California Coastal Commission. 2008. Section 30412 of the State Coastal Act (California Public Resources Code Section 30000, et seq.).

California Department of Transportation, Scenic Highways Guidelines. 2008. http://www.dot.ca.gov/LandArch/scneic/faq.htm. Accessed June 30, 2008.

California Environmental Protection Agency, Air Resources Board. 2001. Polices and Actions for Environmental Justice, December.

California Environmental Protection Agency. 1998. Final Guidance for Incorporating Environmental Justice Concerns in the EPA's NEPA Compliance Analyses.

California Environmental Protection Agency. 2004. Environmental Justice Action Plan, October.

California Regional Water Quality Control Board, Central Coast Region. 2003. Waste Discharge/Recycled Water Requirements, Order No. R3-2003-0007.

California Stormwater Quality Association. 2004. California Stormwater Quality Association Construction Handbook.

Carollo Engineers, in association with Crawford, Multari & Clark Associates and Cleath and Associates. 2007a. San Luis Obispo County, Los Osos Wastewater Project Development, Potential Viable Project Alternatives: Rough Screening Analysis Report. March.

Carollo Engineers, in association with Crawford, Multari & Clark Associates and Cleath and Associates. 2007b. San Luis Obispo County, Los Osos Wastewater Project Development, Viable Project Alternatives: Fine Screening Analysis, Final. August.

Carollo Engineers. 2008a. San Luis Obispo County, Los Osos Wastewater Project Development, Technical Memorandum, Effluent Reuse and Disposal Alternatives, Final Draft. April.

Carollo Engineers. 2008a. San Luis Obispo County, Los Osos Wastewater Project Development,

Technical Memorandum, Decentralized Treatment, Final Draft. October.

Carollo Engineers. 2008b. San Luis Obispo County, Los Osos Wastewater Project Development, Technical Memorandum, Flows and Loads, Final Draft. February.

Carollo Engineers. 2008b. San Luis Obispo County, Los Osos Wastewater Project Development,

Technical Memorandum, Effluent Reuse and Disposal Alternatives, Final Draft. April.

Carollo Engineers. 2008c. San Luis Obispo County, Los Osos Wastewater Project Development, Technical Memorandum, Septage Receiving Station Option, Final Draft. April.

Carollo Engineers. 2008c. San Luis Obispo County, Los Osos Wastewater Project Development, Technical Memorandum, Flows and Loads, Final Draft. February.

Carollo Engineers. 2008c. San Luis Obispo County, Los Osos Wastewater Project Development, Technical Memorandum, Imported Water, Administrative Draft. March.

Carollo Engineers. 2008e. San Luis Obispo County, Los Osos Wastewater Project Development, Technical Memorandum, Low Pressure Collection System, Final Draft. 2008.

Carollo Engineers. 2008f. San Luis Obispo County, Los Osos Wastewater Project Development, Technical Memorandum, Onsite Treatment, Final Draft. January.

Carollo Engineers. 2008g. San Luis Obispo County, Los Osos Wastewater Project Development, Technical Memorandum, Out of Town Conveyance, Final Draft. March.

Carollo Engineers. 2008h. San Luis Obispo County, Los Osos Wastewater Project Development, Technical Memorandum, Partially Mixed Facultative Pond Options, Administrative Draft. March.

Carollo Engineers. 2008i. San Luis Obispo County, Los Osos Wastewater Project Development, Technical Memorandum, Partially Mixed Facultative Pond Options, Administrative Draft. March.

Carollo Engineers. 2008i. San Luis Obispo County, Los Osos Wastewater Project Development, Technical Memorandum, Projects Alternatives: AB 32 - Greenhouse Gas Emissions Inventory, Administrative Draft. May.

Carollo Engineers. 2008j. San Luis Obispo County, Los Osos Wastewater Project Development, Technical Memorandum, Septage Receiving Station Option, Final Draft. April.

Carollo Engineers. 2008k. San Luis Obispo County, Los Osos Wastewater Project Development, Technical Memorandum, Solids Handling Options, Final Draft. April.

Central Coast Regional Water Quality Control Board. 2006. Central Coast Water Quality Control Plan (Basin Plan).

City of San Luis Obispo Department of Public Works. 2003. Waterway Management Plan - Volume III: Drainage Design Manual, February.

Crawford, Multari and Clark Associates. 2000. Draft Environmental Impact Report for the Los Osos Community Services District Wastewater Facilities Project. November.

Crawford, Multari, and Clark Associates. 2001. Final Environmental Impact Report for the Los Osos Community Services District Wastewater Facilities Project, March 1.

Crawford, Multari, and Clark Associates. 2001. Final Environmental Impact Report, Los Osos Community Services District Wastewater Facilities Project, March 1.

Curtis L. Scheffler and Daniel G. Galeone. U.S. Geological Survey Fact Sheet 2005-3082.

Engineering Development Associates. 1997. Preliminary Engineering Evaluation, Los Osos/Baywood Park Community Drainage Project for San Luis County Services Area No. 9J, December.

FirstSearch Technology Company. 2008. Environmental FirstSearch Report, June 27.

Fugro West, Inc. 2008. Preliminary Geotechnical Report, Los Osos Wastewater Project EIR, San Luis Obispo County, California, May 21.

Gregory King. 2001. Environmental Monitor: Addressing Environmental Justice in California

John L. Wallace and Associates; Maddaus Water Management. 2000. Los Osos Community Services District Urban Water Management Plan, December.

Kennedy Jenks Consultants. 2008. Los Osos Wastewater Project Environmental Impact Report, Draft Proposed Projects Descriptions. May 23.

Kennedy/Jenks Consultants. 2008. Los Osos Wastewater Project Environmental Impact Report Draft Proposed Projects Descriptions. October.

Los Osos Community Services District. 2005. Draft Los Osos Habitat Conservation Plan, February.

Mary R. English, Institute for a Secure and Sustainable Environment with Frederick J. Wegmann, Jerry D. Everett, Shih-Lung Shaw, and Yibin Zhao. 2007. Environmental Justice in Transportation Planning and Projects: A Desk Guide for Tennessee. May.

Michael Brandman Associates. 2008. Biological Resources Assessment for the Los Osos Wastewater Project. July.

Michael Brandman Associates. 2008. California Red-Legged Frog Protocol Survey Report for the Los Osos Wastewater Project. July.

Michael Brandman Associates. 2008. Delineation of Jurisdictional Waters and Wetlands, June.

MWH. 2003. Los Osos Wastewater Project - Energy Evaluation Standby Power. February.

MWH. 2005. Construction of Los Osos Wastewater Project, Bid forms (all areas). January.

National Water Research Institute. 2006. Final Report of the Independent Advisory Panel on Reviewing the Los Osos Wastewater Management Plan Update, December 4.

National Water Resource Institute. 2008. Final Report of the September 11, 12, 2008 Meeting, of the Independent Advisory Panel on Reviewing the San Luis Obispo County Los Osos Wastewater Project. October 23.

Office of Governor Gray David, Planning and Research. 2003. Environmental Justice in California State Government. October.

Participants of the Calflora Observation Library and Mapviewer. 2008. Calflora Observation Library and Mapviewer.

Participants of the California Department of Fish and Game’s RareFind 3 Application. 2008. California Natural Diversity Database.

Participants of the California Native Plant Society Inventory of Rare and Endangered Plants. 2008. California Native Plant Society.

Participants of the Consortium of California Herbaria. 2008. Consortium of California Herbaria

San Luis Obispo County Department of Agriculture/Weights and Measures. 2007. San Luis Obispo County Crop Reports.

San Luis Obispo County Department of Planning and Building. 1993. Coastal Zone Framework for Planning, November.

San Luis Obispo County Department of Planning and Building. 2001. Final Environmental Impact Report for the Los Osos Community Services District Wastewater Facilities Project (FEIR), State Clearinghouse No. 9911103, March 1.

San Luis Obispo County Department of Planning and Building. 2002. Estero Area Plan, November.

San Luis Obispo County Department of Planning and Building. 2004. County of San Luis Obispo Coastal Plan Policies Summary, July.

San Luis Obispo County Department of Planning and Building. 2004. Estero Area Plan Update, November.

San Luis Obispo County Department of Planning and Building. 2005. The Care and Feeding of your Septic System: The Homeowner Guide to On-Site Sewage Disposal Systems, December.

San Luis Obispo County Department of Planning and Building. 2006. County of San Luis Obispo Coastal Zone Land Use Ordinance – Title 23 of the San Luis Obispo County Code, January.

San Luis Obispo County Department of Planning and Building. 2006. Private Sewage System Disposal, July.

San Luis Obispo County Department of Planning and Building. 2006. Coastal Zone Land Use Ordinance, January.

San Luis Obispo County Department of Planning and Building. 2006. San Luis Obispo County General Plan and Local Coastal Program – Estero Area Plan, November.

San Luis Obispo County Department of Planning and Building. 2006. Estero Area Plan, July 18.

San Luis Obispo County Department of Planning and Building. 2006. Estero Area Plan Update Draft, July.

San Luis Obispo County Department of Planning and Building. 2007. San Luis Obispo County General Plan, January.

San Luis Obispo County Department of Planning and Building. 2007. County of San Luis Obispo Coastal Plan Policies, April.

San Luis Obispo County Department of Planning and Building. 2007. San Luis Obispo County General Plan, January.

San Luis Obispo County Department of Planning and Building. 2007. County of San Luis Obispo Coastal Plan Policies, April.

San Luis Obispo County Department of Planning and Building. 2007. County of San Luis Obispo General Plan, January.

San Luis Obispo County Department of Public Works. 2006. National Pollutant Discharge Elimination System Phase II Stormwater Management Program County of San Luis Obispo, June.

San Luis Obispo County Department of Public Works. 2006. NPDES Phase II Stormwater Management Program, June.

San Luis Obispo County Department of Public Works. 2007. Public Improvement Standards, 2007 Update; Section 5: Storm Drainage, November.

San Luis Obispo County Los Osos Wastewater Project Development. 2008. Technical Memorandum: Partially Mixed Facultative Pond Options, March.

San Luis Obispo County Los Osos Wastewater Project Development. 2008. Technical Memorandum: Out of Town Conveyance - Final Draft, March.

San Luis Obispo County Los Osos Wastewater Project Development. 2008. Technical Memorandum: Imported Water - Final Draft, March.

San Luis Obispo County. 2003. Framework for Planning, Coastal Zone, September.

San Luis Obispo County. 2006. Coastal Zone Land Use Ordinance, January.

San Luis Obispo County. 2007. Coastal Plan Policies, April.

San Luis Obispo County. 2007. County of San Luis Obispo General Plan, Agriculture and Open Space Element, January.

San Luis Obispo County. 2007. Interactive GIS Mapping.

San Luis Obispo County. 2008. Los Osos Wastewater Project Development Technical Memorandum: Effluent Reuse and Disposal Alternatives Final Draft, April.

San Luis Obispo County. 2008. Los Osos Wastewater Project Development Technical Memorandum: Septage Receiving Station Option Final Draft, April.

State of California Department of Conservation (DOC). 2004. A Guide to the Farmland Mapping and Monitoring Program.

State of California Department of Conservation (DOC). 2004. Farmland Mapping and Monitoring Program Map.

State of California Department of Conservation (DOC). 2006. The California Land Conservation (Williamson) Act, Status Report.

United States Department of Agriculture, Soil Conservation Service. 1984. Soil Survey of San Luis Obispo County, California, Coastal Part.

United States Department of Commerce. 2008. Census of Agriculture 1982-2002.

Whitaker Contractors, Inc. 2008. Storm Water Pollution Prevention Plan (SWPPP) Los Osos Wastewater Project.